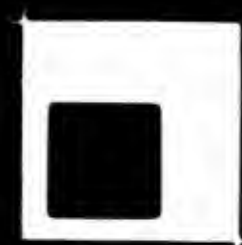


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UNITED STATES
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MICRO PHOTO DIVISION



BELL & HOWELL

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

April 4, 1972

Volume 897

Number 1

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PATENT OFFICE NOTICES

Trademark Manual of Examining Procedure

Work is in progress on a Manual of Trademark Examining Procedure which is being designated in brief as "TMEIP." The preliminary material for the Manual consists of directives which are being prepared and issued at intervals. Each directive is devoted to a particular procedure in the trademark examining process, and the directives constitute official guidelines for the examination of trademark applications.

Ten directives have been issued to date.

Trademark Examining Directives can be ordered from the Superintendent of Documents, United States Government Printing Office, Washington, D.C., 20402, at an annual subscription of \$1.50, plus 50¢ for foreign mailing.

(See original announcement dated July 27, 1971 in the OFFICIAL GAZETTE of August 31, 1971, vol. 889, No. 5.)

ROBERT GOTTSCHALK,
Commissioner of Patents.

Feb. 29, 1972.

PETITION TO MAKE TRADEMARK APPLICATIONS SPECIAL

The practice of expediting the prosecution of new trademark applications on request of the applicant (accelerated prosecution) was rescinded, effective Aug. 1, 1971 (36 F.R. 13231, July 16, 1971; 825 O.G. 2). This action was taken after a careful study of the practice, including a recommendation of the Public Advisory Committee for Trademark Affairs that the Patent Office terminate accelerated prosecution of trademark applications. The study considered both the effect of the procedure on the workload of the Trademark Operations and the broader interest of examining trademark applications in an order which is equitable to all applicants.

Since the termination of this practice, the Office has experienced some increase in the number of petitions requesting the Commissioner to invoke his supervisory authority pursuant to Rule 2.146 in order to advance the examination of applications out of their regular order. This was to be expected since applicants who might have been able to show special circumstances entitling them to advanced examination could previously achieve this special treatment without resorting to a petition. However, some of the petitions now being received are not considered sufficient to justify the extraordinary relief of invoking the supervisory authority of the Commissioner for the purpose of advancing the applications out of their regular order.

In particular, a number of such petitions have been based on the ground that the applicant is about to embark on an advertising campaign or to commit advertising or promotional expenditures in which the mark applied for is material. Such a ground is not considered to constitute appropriate circumstances justifying the advancement of the application out of its regular turn and the petitions based on such ground have been and will continue to be denied. The principal reason for the denial is that these circumstances are applicable to a substantial portion of the trademark applications filed in the Patent Office. The supervisory authority of the Commissioner should be exercised only where an extraordinary reason for such action has been disclosed. See *Anderson & Dyer v. Loicry*, 89 O.G. 1861, 1899 C.D. 230, and *Wilputte v. Van Ackeren*, 103 USPQ 235. Thus, the extraordinary remedy of invoking the supervisory authority of the Commissioner is not considered appropriate under these circumstances.

In the interest of equitable treatment of all applicants, the policy of the Office in granting such petitions will be restricted to those cases in which particular and very special circumstances exist, such as a demonstrable possibility of loss of substantial rights, rather than circumstances which would be equally applicable to a large number of other applicants for trademark registration.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Date: Mar. 13, 1972.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952.

2,723,785, E. M. Moore, MACHINE FOR TOPPING TROUSERS, filed Feb. 6, 1970, D.C., W.D. Okla. (Oklahoma City), Doc. 70-65-C, *Elton M. Moore v. Walt Shultz, doing business as Walt Shultz Equipment Company*. Court without venue, and case dismissed (Judge Luther Bohanon), Nov. 2, 1971.

2,757,610, Gegenhelmer and Siebke, SHEET HANDLING MECHANISM AND METHOD FOR MULTI-COLOR PERFECTOR PRESS, filed Apr. 27, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 670C543, *Miller Printing Machinery Co. v. Royal Zenith Corp.* Order of discontinuance, Dec. 8, 1971.

2,919,061, B. D. Power, VAPOUR VACUUM PUMPS, filed Nov. 4, 1968, D.C., W.D.N.Y. (Buffalo), Doc. C-1968-361, *Norton Company and Edwards High Vacuum International Limited v. The Bendix Corporation*. Stipulation of Dismissal, Nov. 26, 1971.

2,923,144, T. R. Smith, FLUID CONTROL SYSTEM FOR WASHING MACHINE, filed Nov. 30, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c2990, *The Maytag Co. v. General Motors Corp.* On stipulation, ordered complaint be dismissed, Nov. 24, 1971.

2,995,271, Frater and Frater, STACKABLE AND NESTABLE CONTAINER, filed Mar. 3, 1969, D.C., N.D. Ohio (Cleveland), Doc. C69-158, *G. B. Lewis v. Molded Fiber Glass Companies, Inc.* Stipulation and order dismissing case with prejudice, Dec. 8, 1971.

3,056,224, Almy and Zentmyer, TESSELLATED SURFACE COVERING, filed Nov. 14, 1967, D.C.N.J. (Newark), Doc. 1168-67, *Armstrong Cork Company v. Kentile Floors, Inc.* Stipulation and order of dismissal, Dec. 13, 1971.

3,161,460, E. Huber, SPRAYING UNIT, filed Mar. 5, 1968, D.C., Del. (Wilmington), Doc. 3496, *Ernst Huber v. Block Drug Company, Inc., Park Pharmacy and Lawrence G. Abrahams*. Stipulation and order dismissed without prejudice; Park's counterclaim dismissed without prejudice; consent judgment, Dec. 6, 1971, patent owned by plaintiff valid, infringed by Block; Block's first and second counterclaims are dismissed with prejudice, Dec. 6, 1971.

3,179,026, A. F. Crone, SEALING ELEMENT FOR PAVEMENT GROOVES, filed Apr. 29, 1966, D.C., N.D. Ohio (Toledo), Doc. C66-89, *Acme Highway Products Corporation v. The D. S. Brown Co. and Delmont Brown*. Judgment entered July 3, 1969 is vacated, further defendants enjoined.

3,290,203, Antonson and Berger, TRANSPARENT AND REFLECTING ARTICLES, filed Aug. 25, 1970, D.C., S.D. Tex. (Houston), Doc. CA 70-H-914, *Minnesota Mining and Manufacturing Company v. Sun-X International, Inc., Monte E. Pendleton and Albert Clements*. Consent judgment, patent valid and infringed; injunction issued, Nov. 23, 1971.

3,316,294, Felghner and Kapur, DETERGENT ALKYLATE AND THE SULFONATE DERIVATIVE, filed Jan. 6, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c12, *Continental Oil Co. v. Witco Chemical Co., Inc.* Plaintiff is entitled to an injunction restraining further infringement by defendant, Nov. 16, 1971.

3,317,926, R. L. Hall, SWIMMING POOLS, filed July 21, 1967, D.C.N.J. (Newark), Doc. 663-67, *Raymond L. Hall and Quaker City Industries, Inc. v. U.S. Fiber and Plastics Corp.* Judgment, claims 11, 12 and 15 invalid and dismissing complaint; Nov. 17, 1971.

3,485,234, R. C. Stevens, TUBULAR PRODUCTS AND METHOD OF MAKING SAME, filed Dec. 9, 1971, D.C., S.D. Ind. (Indianapolis), Doc. 1P71-C-692, *Cordis Corporation v. Cook Incorporated*. Defendant infringed, permanently enjoined, Dec. 9, 1971.

3,494,253, Hood and Trulitt, METALLIC STRIP MILLING MACHINE, filed Dec. 15, 1970, D.C., E.D.N.Y. (Brooklyn), Doc. 70C1517, *Metals Engineering Co. v. North American Specialties Corp.* Order of dismissal with prejudice, Nov. 23, 1971.

3,518,099, E. Holbus, PROTECTIVE COATING FOR METAL SURFACES, filed Feb. 5, 1971, D.C., E.D. Wis. (Milwaukee), Doc. 71-C-54, *Edward Holbus v. Edick Industries, Inc. and R. J. Shelstad*. Consent judgment, Nov. 26, 1971.

3,526,326, J. A. Castaldi, STORAGE RETRIEVAL APPARATUS WITH POSITIONAL CONTROL MEANS, filed June 4, 1971, D.C., E.D.N.Y. (Brooklyn), Doc. 71C680, *Supreme Equipment & Systems Corp. v. Atomic Development Corp. and William Arent*. Consent judgment, Dec. 3, 1971.

3,540,612, W. T. Brady, BOTTLE CAP AND BOTTLE COMBINATION, filed May 18, 1971, D.C., N.D. Ill. (Chicago), Doc. 71c1209, *Bio Dynamics, Inc. v. Serosonic Laboratories*. Final order and judgment, plaintiff owner of patent and said patent is valid; Serosonic Laboratories, Inc. have infringed and are enjoined, Nov. 19, 1971.

Certificates of Correction for the Week of Apr. 4, 1972

D. 221,553	3,588,852	3,603,244	3,609,862
2,935,129	3,588,936	3,603,267	3,609,932
3,373,286	3,589,139	3,603,808	3,609,985
3,412,137	3,590,287	3,603,844	3,610,493
3,459,763	3,590,932	3,603,924	3,610,817
3,483,187	3,591,003	3,604,063	3,610,827
3,493,676	3,591,076	3,604,366	3,610,871
3,505,837	3,591,436	3,604,435	3,611,011
3,507,966	3,591,790	3,604,456	3,611,084
3,508,127	3,592,028	3,604,459	3,611,307
3,509,258	3,592,045	3,604,499	3,611,529
3,510,825	3,593,073	3,604,546	3,611,824
3,531,830	3,593,098	3,604,623	3,611,856
3,534,105	3,594,440	3,604,988	3,612,410
3,536,719	3,594,783	3,605,033	3,612,423
3,537,253	3,594,897	3,605,224	3,612,446
3,549,965	3,594,977	3,606,492	3,612,495
3,551,340	3,594,995	3,606,615	3,612,540
3,563,032	3,595,061	3,606,869	3,612,727
3,563,893	3,595,312	3,606,902	3,613,161
3,566,472	3,595,341	3,606,921	3,613,333
3,567,045	3,595,669	3,607,047	3,613,557
3,567,774	3,595,957	3,607,120	3,613,640
3,568,764	3,595,998	3,607,206	3,613,642
3,569,771	3,596,618	3,607,243	3,613,786
3,573,488	3,596,679	3,607,305	3,613,787
3,574,253	3,597,029	3,607,622	3,613,789
3,574,724	3,597,351	3,607,623	3,613,886
3,575,659	3,597,539	3,607,816	3,614,074
3,576,528	3,597,865	3,607,829	3,614,233
3,577,166	3,598,323	3,607,891	3,614,292
3,577,250	3,598,377	3,607,984	3,615,399
3,577,423	3,598,842	3,608,050	3,615,583
3,577,476	3,599,085	3,608,061	3,615,697
3,577,665	3,599,111	3,608,066	3,615,710
3,580,188	3,599,523	3,608,469	3,615,739
3,580,753	3,599,800	3,608,535	3,615,790
3,581,094	3,599,807	3,608,572	3,617,142
3,582,461	3,600,097	3,608,607	3,617,249
3,583,246	3,600,398	3,608,701	3,617,430
3,584,974	3,600,567	3,608,766	3,617,623
3,585,033	3,600,747	3,608,830	3,617,736
3,585,184	3,601,002	3,608,869	3,617,846
3,585,243	3,601,319	3,609,036	3,618,712
3,585,331	3,601,347	3,609,082	3,619,157
3,586,243	3,601,767	3,609,151	3,619,445
3,586,450	3,601,838	3,609,166	
3,588,275	3,602,749	3,609,505	
3,588,835	3,602,824	3,609,759	

Disclaimers and Dedications

3,112,160.—*Robert L. Rush*, Wellington, Kans. METHOD FOR PRODUCING TEXTILE YARN FROM A MONOFILAMENT OF A BLEND OF OLEFIN POLYMERS. Patent dated Nov. 26, 1963. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,283,788.—*Anthony Bottomley*, Maplewood, N.J., and *David C. Bottomley*, Bartlesville, Okla. PRODUCTION OF WOVEN THERMOPLASTIC FABRICS. Patent dated Nov. 8, 1966. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,302,501.—*Max E. Greene*, Bartlesville, Okla. METHOD OF FIBRILLATING PLASTIC FILM BY PASSING THE FILM THROUGH ROTATING PIERCING MEANS. Patent dated Feb. 7, 1967. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,369,435.—*Harold D. Boultinghouse*, Bartlesville, Okla. METHOD AND APPARATUS FOR FIBRILLATING. Patent dated Feb. 20, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,395,525.—*William R. Eddy*, Kansas City, Kans. METHOD AND APPARATUS FOR FRICTIONALLY FIBRILLATING FILMS. Patent dated Aug. 6, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,397,825.—*Paul E. Wilkins*, Bartlesville, Okla. METHOD OF FIBRILLATING ORIENTED FILM. Patent dated Aug. 20, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,401,517.—*Paul L. Spiry*, Bartlesville, Okla. METHOD OF FIBRILLATION. Patent dated Sept. 17, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,416,299.—*Anthony Bottomley*, Maplewood, N.J. PILE FABRICS FROM NONWOVEN FABRICS. Patent dated Dec. 17, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,416,714.—*Bradley Skinner*, Bartlesville, Okla. METHOD OF FIBRILLATION. Patent dated Dec. 17, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

Dedications

3,245,891.—*Simon P. Gary*, Villa Park, Ill. METHOD FOR ELECTROLYTICALLY SHAPING GROUP 5B METALS. Patent dated Apr. 12, 1966. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,287,246.—*Lynn A. Williams*, Winnetka, and *Leonard Malkowski*, La Grange, Ill. ELECTROLYTIC SHAPING AND CAVITY SINKING APPARATUS. Patent dated Nov. 22, 1966. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,288,698.—*Norbert A. Bruns*, Palatine, Ill. ELECTRODE FOR ELECTROLYTIC CAVITY SINKING. Patent dated Nov. 29, 1966. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,305,470.—*Lynn A. Williams*, Winnetka, and *Norbert A. Bruns*, Palatine, Ill. ELECTROLYTIC SHAPING APPARATUS FOR SEQUENTIALLY REDUCING THE THICKNESS OF AN ELONGATED WORKPIECE. Patent dated Feb. 21, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,309,303.—*Joseph L. Bender*, Wheeling, and *Lynn A. Williams*, Winnetka, Ill. ELECTROLYTIC CAVITY SINKING APPARATUS. Patent dated Mar. 14, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,311,549.—*Norbert A. Bruns*, Palatine, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated Mar. 28, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,328,279.—*Lynn A. Williams*, Winnetka, and *James E. Davis*, Elmwood Park, Ill. CONTROL AND OPERATING SYSTEM FOR ELECTROLYTIC HOLE SINKING. Patent dated June 27, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,352,774.—*Lynn A. Williams*, Winnetka, Ill. APPARATUS FOR ELECTROLYTICALLY TAPERED OR CONTOURED CAVITIES. Patent dated Nov. 14, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,390,748.—*Charles E. Hein*, Newfield, N.Y., and *Michael A. Schober*, Rosemont, Ill. FLUID SHEAR COUPLING. Patent dated July 2, 1968. Dedication filed Jan. 21, 1972, by the assignee, *Borg-Warner Corporation*.

Hereby dedicates to the People of the United States the entire remaining term of said patent.

3,421,997.—*Lynn A. Williams*, Winnetka, Ill. ELECTRODE FOR ELECTROLYTIC SHAPING. Patent dated Jan. 14, 1969. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,433,728.—*Merlin O. Petroff*, Grayslake, Ill. CONTROL SYSTEM FOR ELECTROLYTIC MACHINING APPARATUS. Patent dated Mar. 18, 1969. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 7, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-08-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-04-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	1-14-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director..... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	2-01-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-01-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-07-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	10-08-70
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	2-24-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-01-71
PHYSICS, GROUP 260—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-05-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	1-06-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	2-03-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes; Assembling; Combined Machines; Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	1-04-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	12-16-70
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-08-71
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	2-01-71

Expiration of patents: The patents within the range of numbers indicated below expire during April 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,705,322 to 2,707,276, inclusive
Plant Patents..... Numbers 1,374 to 1,388, inclusive

PLANT PATENTS

GRANTED APRIL 4, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

<p>3,092 SHADBLOW TREE William Flemer III, Princeton, N.J., assignor to Treesearch, Kingston, N.J. Filed Jan. 14, 1970, Ser. No. 2,979 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—51 1 Claim 1. A new and distinct variety of shadblow tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, more rapid and upright habit of growth, unusually hard and thick trunk and branches which are stronger and stiffer than those of other varieties of shadblow trees, with consequent greater resistance to extreme bending and damage by wind, snow and ice storms, freedom from the production of base "suckers," larger and broader flowers than those of either parent variety, and a distinctive and exceptionally attractive Fall foliage color varying from dark Red to strong Red and Dark Reddish Orange.</p>	<p>3,096 HONEY-LOCUST TREE Chester J. Halka, Englishtown, N.J., assignor to Frank J. Schmidt & Son Co., Troutdale, Ore. Filed Mar. 3, 1970, Ser. No. 16,272 Int. Cl. A01h 5/12</p> <p>U.S. Cl. Plt.—52 1 Claim 1. A new and distinct variety of honey-locust tree of the species botanically known as <i>Gleditsia triacanthos inermis</i>, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of an unusually rapid rate of growth substantially double that in trunk caliper size in comparison with the normal rate for the species <i>Gleditsia triacanthos inermis</i>, particularly during its early years, a dense branching habit, with the lateral branches extending inwardly of the tree to give it a greater fullness and less pendulous form than is usually typical of the species, a round-headed tree form, and attractive green foliage which becomes yellow in the fall season.</p>
<p>3,093 WHITE AZALEA PLANT Alfred N. Roberts, Corvallis, Ore., assignor to Geo. J. Ball, Inc., West Chicago, Ill. Filed Feb. 9, 1970, Ser. No. 10,058 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—55 1 Claim A new variety of hybrid azalea plant characterized by its profuse production of white blossoms of medium size, which have excellent keeping quality, and by its vigorous, well branched growth and strength under pot forcing in greenhouse culture.</p>	<p>3,097 ROSE PLANT Carl Meyer, Cleves, Ohio, assignor to The Conrad-Pyle Company, West Grove, Pa. Filed Mar. 30, 1970, Ser. No. 24,041 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—11 1 Claim A rose plant of the hybrid tea class obtained by crossing a variety known as Pink Parfait (Plant Patent No. 1,904) with a variety known as Pink Peace (Plant Patent No. 1,759).</p>
<p>3,094 ROSE PLANT Jack S. Sweet, St. Petersburg, Fla., assignor to Geo. J. Ball, Inc., West Chicago, Ill. Filed Feb. 9, 1970, Ser. No. 10,059 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—26 1 Claim A new variety of rose plant originating as a sport of Mother's Day (unpatented) and characterized by its very delicate French Rose coloration and its adaptability to greenhouse pot-forcing culture.</p>	<p>3,098 ROSE PLANT Herbert C. Swim and O. L. Weeks, Ontario, Calif., assignors to O. L. Weeks, doing business as Weeks Wholesale Rose Grower, Ontario, Calif. Filed Apr. 6, 1970, Ser. No. 26,176 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—20 1 Claim 1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of an unusually tall and vigorous plant habit, but with a fullness which adds to the overall effect of being complete with ample foliage of good quality, a habit of producing flowers in a true hybrid tea manner and borne almost without exception on long, single stems which are of heavy caliper and strong, consistently large flowers having above average petal substance which permits each flower to retain a classic high-centered fullness both on the plant and as cut flowers for long periods of time, a distinctive and attractive deep reddish purple overall flower color, but having a more vivid, velvety red shading on the inside of the petals, and a complete absence of thorns on all new growth, with a consequent easier handling ability as cut flowers.</p>
<p>3,095 ROSE PLANT Marie-Louise Meilland, Cap d'Antibes, France, assignor to The Conrad-Pyle Company, West Grove, Pa. Filed Feb. 25, 1970, Ser. No. 14,249 Claims priority, application France, Dec. 3, 1969, 6906632 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—18 1 Claim A rose plant of the grandiflora class obtained from crossing Zambra (Plant Pat. No. 2140) with a seedling of Baccara (Plant Pat. No. 1367) crossed with Message (known in the United States as White Knight) (Plant Pat. No. 1359).</p>	<p>3,099 POINSETTIA PLANT Thormod Hegg, Lierbyen, Norway, assignor to Paul Ecke, Inc., Encinitas, Calif. Filed Apr. 9, 1970, Ser. No. 27,192 Int. Cl. A01h 5/00</p> <p>U.S. Cl. Plt.—86 1 Claim 1. A new and distinct variety of poinsettia plant, substantially as herein shown and described, characterized</p>

particularly as to novelty by the unique combination of a general similarity in most respects to the variety "Annette Hegg," including a short growing and compact plant habit, a uniform and fast rooting habit, a self-branching habit which produces multiple blooms without pinching off the terminal buds, attractive green foliage, distinctive, attractive and stable pink bracts instead of red bracts like "Annette Hegg," and long-lasting plant qualities.

larger than the blossom of the unpatented Santa Rosa variety of plum which variety the instant variety most nearly resembles.

3,100
PLUM TREE
William T. Plipkin, 3193 W. Caruthers Ave.,
Caruthers, Calif. 93609
Filed Nov. 21, 1968, Ser. No. 777,925
Int. Cl. A01h 5/03

U.S. Cl. Plt.—38

1 Claim

The present invention relates to a new and distinct variety of plum tree broadly characterized by fruit having a distinctively striped skin and by blossoms significantly

U.S. Cl. Plt.—41

1 Claim

1. A new and distinct variety of nectarine tree, as illustrated and described, which bears large to medium clingstone fruit having yellow flesh approximately five days earlier than Grand River (Plant Patent #1248), but being an improvement by bearing larger, firmer fruits than other nectarines at this maturity period and further characterized by having a very high degree of red color over nearly the entire exterior area of the fruit.

3,101
NECTARINE TREE
Chris Floyd Zaiger, 537 Rosemore Ave.,
Modesto, Calif. 95351
Filed July 24, 1969, Ser. No. 844,673
Int. Cl. A01h 5/03

PATENTS

APRIL 4, 1972

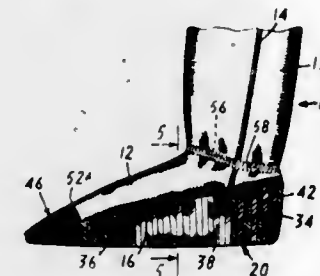
GENERAL AND MECHANICAL

3,653,074
FOOT FOR CHILD'S SLEEPING GARMENT
Charles B. Noble, and Maurice A. Jacobs, both of Flushing,
N.Y., assignors to J. C. Penney Company, Inc., New York,
N.Y.

Filed Jan. 19, 1968, Ser. No. 699,222
Int. Cl. A41d 11/00

U.S. Cl. 2—80

4 Claims



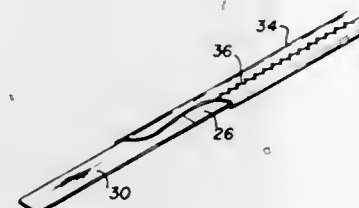
The foot part of a child's sleeping garment is rendered more comfortable and less subject to wearing out by virtue of a construction embodying an upper foot element joined to, and preferably a part of, the garment leg and encompassing the top portion of the foot, a sole element joined to the lower margin of the upper element and including marginal portions along the sides and around the heel that extend somewhat above the floor when in place on the wearer, and a toe element overlying the toes of the wearer. The sole is formed from a blank or pattern in which square cut-outs are made at each corner of the heel end, and the two edges of each cut-out are then joined together thereby to form a shaped heel. The pattern of the sole piece is further characterized by substantially straight, longitudinally extending edges that taper toward each other moving from the heel toward the toe. Consequently, the height of the side parts of the sole piece that extend up from the floor gradually diminishes moving in the direction of the toe. The toe and sole pieces are formed of durable materials having external surfaces adapted to resist wear and to provide non-slip characteristics.

3,653,075
STRETCHABLE STRAP OR THE LIKE
Gerald W. Gluckin, 180 Madison Avenue, New York, N.Y.,
and Ronald J. Boser, 21 Bolan Drive, Huntington Station,
N.Y.

Filed Sept. 24, 1970, Ser. No. 74,954
Int. Cl. A41f 15/00, 3/02, 1/00

U.S. Cl. 2—338

2 Claims



An elongated composite construction serving as a strap or belt having an inner core consisting of an interconnected long strip of flannel or other non-stretchable material and a short elastic strip such that the construction has stretch confined to the elastic. Completing the construction is a tubular cover for the core which, although of moderate stretchability, nevertheless provides stretch which is compatible with

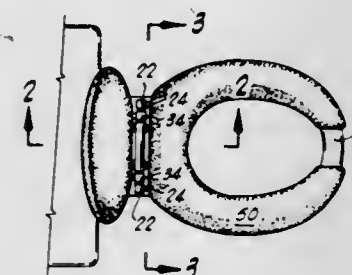
that of the elastic strip because of its considerably greater length.

3,653,076
WATER CLOSET CONSTRUCTION
Archie E. Warnberg, 3600 N.W. 43rd Street, Oklahoma City,
Okla.

Filed June 24, 1970, Ser. No. 49,435
Int. Cl. A47k 13/12

U.S. Cl. 4—236

9 Claims



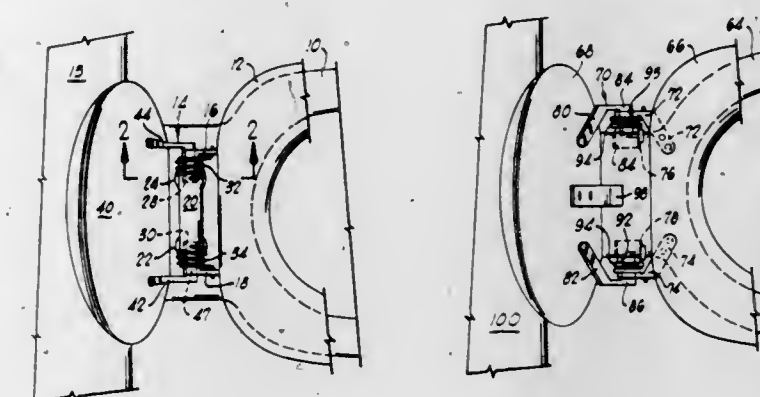
A toilet or water closet construction which includes a bowl, a seat, a seat lid and a hinge structure which pivotally connects the seat or seat lid or both to the bowl. The hinge structure includes a portion secured to the bowl and at least one leg which is pivotally connected to the portion secured to the bowl, and which is also connected to the seat and lid. The seat is exposed along its rear edge portion to receive without interference by the hinge structure, the rear of a flexible cover which covers at least the upper surface of the seat. In like manner, the lid may be exposed along its rear edge portion to receive without interference from the hinge structure, the rear edge portion of a flexible cover which covers the upper surface of the seat lid.

3,653,077
QUICK DETACHABLE TOILET SEAT HINGE STRUCTURE
Archie E. Warnberg, 3600 N.W. 43rd Street, Oklahoma City,
Okla.

Filed July 16, 1970, Ser. No. 55,415
Int. Cl. A47k 13/12

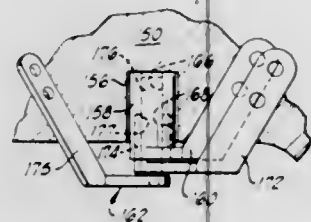
U.S. Cl. 4—236

24 Claims



A water closet construction including a bowl having a seat pivotally mounted thereon by means of a hinge structure which includes one or more socket engaging protuberances, or post receiving apertures or openings. The socket engaging protuberances are adapted to be projected into sockets formed either in a cylindrical sleeve forming another portion

of the hinge structure, or one or more sockets formed in the rear portion of the bowl. The water closet structure further includes a tank which is mounted on the rear side of the bowl, and supported on the bowl by a spacing device which spaces the tank upwardly from the horizontal upper surface



of the bowl. The water closet structure may further include a lid having at least two arms connected thereto and having either socket engaging protuberances on the arms which fit into hollow sockets which may be formed in another portion of the hinge structure or in the bowl, or having apertures therein which detachably engage posts carried on the bowl.

3,653,078

PORTABLE DENTAL BOWL CONSTRUCTION

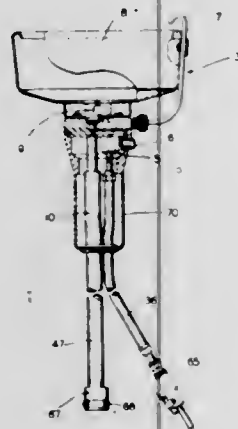
Dean H. Buchtel; Kenneth R. Lappin, and John A. Maurer, all of Canton, Ohio, assignors to The Weber Dental Manufacturing Company, Canton, Ohio

Filed Oct. 28, 1970, Ser. No. 84,785

Int. Cl. A61c 17/04

U.S. Cl. 4-263

6 Claims



A portable bowl construction which may be mounted removably on a dental chair, or a dental tray, or which the patient may hold. The portable bowl has flush water and drain connections. There are dual controls for a solenoid valve that controls the supply of water not only to flush the bowl but also to a venturi vacuum pump connected to the bowl drain. The dual controls include control switches at two locations, such as at a dental tray and at a dental unit, accessible at one location to the dentist, and at a second location at the same time to a dental assistant, for control from either location of the water supply to the bowl. The bowl may be flushed by operation of a push button valve at the bowl by the patient, dentist, or dental assistant whenever one of the two control switches has been operated for supplying water to the bowl.

3,653,079

ADJUSTABLE BREAK-AWAY SPLINT-STRETCHER

Elroy E. Bourgraf, Cincinnati, and Kenneth R. Self, Washington C. H., both of Ohio, assignors to Ferno-Washington Inc., Greenfield, Ohio

Filed July 6, 1970, Ser. No. 52,535

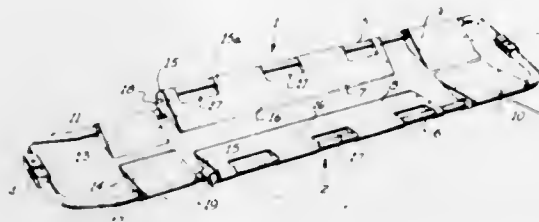
Int. Cl. A61g 1/00, 1/04

U.S. Cl. 5-82

13 Claims

An adjustable break-away splint-stretcher having a tubular frame mounting body supporting panels, the stretcher frame

being provided at its opposite ends with pivot locks which are selectively disengageable to permit the opposite halves of the stretcher frame to be pivoted outwardly about the other pivot lock, the stretcher frame also being provided with an extensi-



ble leg supporting section and/or a folding head supporting section mounted on the frame by locking hinges, the pivot locks and the locking hinges each being provided with finger actuated release means arranged to prevent accidental disengagement of the parts.

3,653,080

ROCKING INFANT SEAT

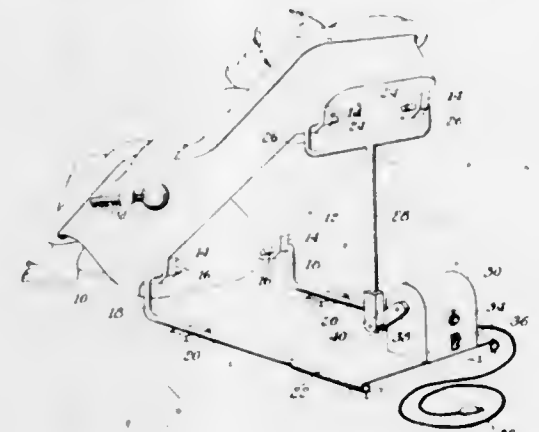
Robert X. Hafele, Overland Park, Kans., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed Nov. 23, 1970, Ser. No. 92,090

Int. Cl. A47d 9/02, 13/10; A63g 9/16

U.S. Cl. 5-108

3 Claims



A seat adapted for use by an infant is automatically rocked back and forth by a suitable linkage mechanism connected by a reducing gear means to a motor.

3,653,081

MATTRESS CORNER CONSTRUCTION

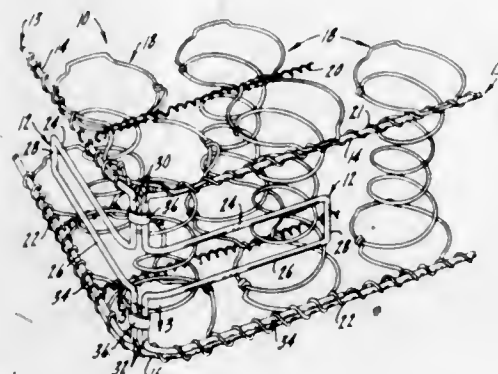
Wilton J. Davis, Rensselaer, Ind., assignor to Sealy, Inc., Chicago, Ill.

Filed May 28, 1970, Ser. No. 41,208

Int. Cl. A47c 23/04, 25/00

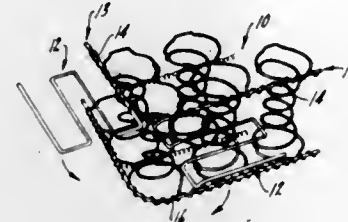
U.S. Cl. 5-262

18 Claims



An improved corner construction for a mattress inner spring unit wherein the corner construction comprises a pair

of adjacent spring corner supporting wires that initially lie on the top face of the inner spring unit in a non-supporting posi-



tion to permit the inner spring unit to be compressed to facilitate shipment. The corner support wires can be rotated to a vertical supporting position at each corner of the inner spring unit so that the corners of the inner spring unit are reinforced and stiffened. In the supporting position one of the corner support wires of the pair is aligned substantially parallel to one side of the inner spring unit and the other corner support wire of the pair is aligned substantially parallel to the adjacent side of the inner spring unit.

3,653,082

MATTRESS SPRING UNIT CONSTRUCTION

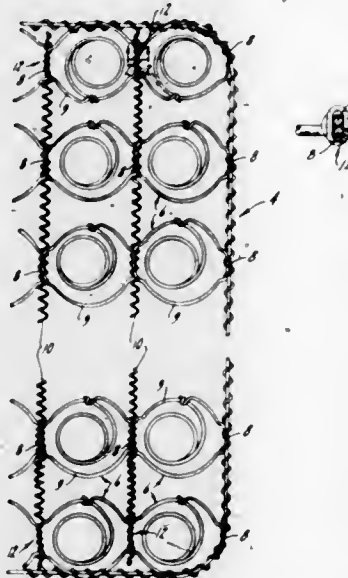
Wilton J. Davis, Rensselaer, Ind., assignor to Sealy, Inc., Chicago, Ill.

Filed Aug. 13, 1970, Ser. No. 63,588

Int. Cl. A47c 23/04, 25/00

U.S. Cl. 5-269

3 Claims



An improved mattress inner spring unit having a plurality of coil springs arranged in rows with each coil spring being comprised of a series of convolutions. Each coil spring terminates in end convolutions which have offset portions formed thereon. The coil springs are arranged in the inner spring unit so that the offset portions extend into overlapping relation with adjacent offset portions. Such an arrangement allows the coil springs to be secured together by spirally rotating a helical coil across each of the rows so as to interlace the offset portions. The helical coils are thus positioned in both the upper and lower surfaces of the inner spring unit. When all adjacent offset portions have been interlaced with the helical coils, the end portions of each helical coil are compressed around the overlapped offset portions of the outermost row of coil springs.

3,653,083

BED PAD

Roy Lapidus, 18 Donn Road, Newton, Mass.

Continuation-in-part of application Ser. No. 687,055, Nov. 30, 1967, now abandoned. This application May 11, 1970, Ser. No. 36,200

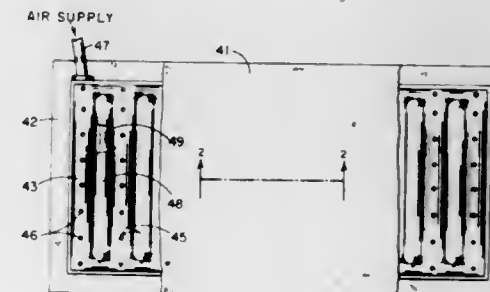
Int. Cl. A47c 27/08

U.S. Cl. 5-348

5 Claims

An aerated bed pad is described which permits varied positions of comfort for the user. The bed pad comprises a sheet

of open foam supported by a perforated, branched plastic tube having a single open end into which a current of air is passed. The air passes out through the perforations then through the foam sheet to the body of the user. The air supply is variable and the tube inflatable and deflatable. In one model there are two interlaced, alternating tubes. In



another model one tube is interlaced with spaced, non-porous resilient strips.

3,653,084

INFLATABLE STRUCTURE

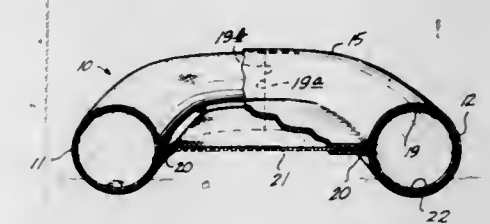
Michael G. Hartman, 11 1/2 Mile Steese Highway, Fairbanks, Ala.

Filed Apr. 2, 1970, Ser. No. 25,181

Int. Cl. B63b 7/08

U.S. Cl. 9-2 A

4 Claims



An inflatable structure and method of making it. The structure comprises a knitted fabric body shell, which has been impregnated with a curable elastomeric material, which material forms an outer surface coating in the structure. The fabric body shell is made up of a knitted fabric, and before impregnation is manufactured to have a shape, were the shell in an inflated condition, roughly corresponding to the shape of the finished article or structure. An inflatable, flexible-walled bladder, having substantially the same shape when inflated, is provided within the body shell to enable shaping of the body shell through inflation of the bladder. With the body shell shaped by inflation of this bladder, the elastomeric material is applied, as by spraying or brushing, to impregnate the body shell and to form a protective covering about the outside of the body shell covering any seams, etc. The bladder may remain in the structure on its completion, and for this purpose may have an elastomeric coating applied about its outer surface which cures to form a rubber-like coating on the inside of the fabric body shell.

3,653,085

SELF-SETTING MARKER FOR FISHERMEN AND BOATMEN

Harry Rovner, 2832 Xenwood Avenue South, Minneapolis, Minn.

Filed May 7, 1970, Ser. No. 35,453

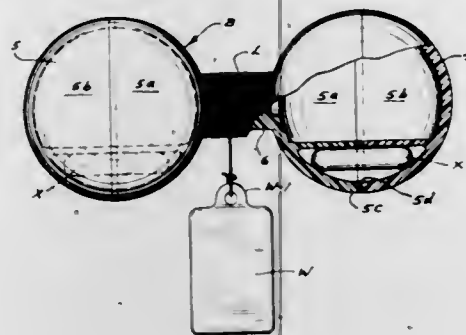
Int. Cl. B63b 21/52

U.S. Cl. 9-8

1 Claim

A self-setting marker device for fishermen and boatmen has a buoyant somewhat elongate, symmetrical body provided with an axial substantially reduced medial portion constituting with adjacent larger portions a spool element upon which an anchoring line is attached and may be helically wound. A small heavy anchoring weight is attached to the

outer end of the line and serves to by gravity pay out the line (with revolution of the body) when the device with wound line is cast upon the water. Closely cooperating with said components is a bias-weight medium secured to said body in



a position of balance relative to the body length, but disposed widely eccentric of the axis of said body to restrain revolution of said body during the torque effect of said line and anchor weight; and effective to positively stop further pay off of line when the anchor weight rests upon the bottom of a water way. Then the requisite length of anchor line is measured and set for various depths each time the wound device is cast, and further pay off of line and driftage of the body is prevented in spite of usual winds and water currents.

3,653,086

STREAMLINE SWIM MASK

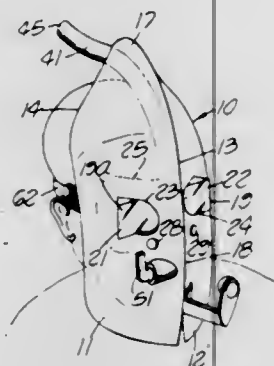
Calvin A. Gongwer, Glendora, Calif., assignor to Innerspace Corporation, Glendora, Calif.

Filed July 18, 1969, Ser. No. 843,101

Int. Cl. A63b 33/00

U.S. Cl. 9—329

15 Claims



A streamline face mask for swimmers which can be used with either a snorkel or underwater air equipment is secured to the head of the swimmer to provide a smooth surface over the face and across the head of the swimmer and thereby reduce drag. The shape of the mask is determined by a pair of connected side members which cooperate to form a forwardly projecting prow portion and a centrally positioned relatively sharp edge which extends longitudinally from the prow.

3,653,087

MACHINE FOR FEEDING THE CURVED PERIPHERY OF A WORKPIECE PAST A WORK STATION

Wladyslaw Typrowicz, Belmont, Mass., assignor to Jacob S. Kamborian, West Newton, Mass.

Filed Nov. 16, 1970, Ser. No. 89,789

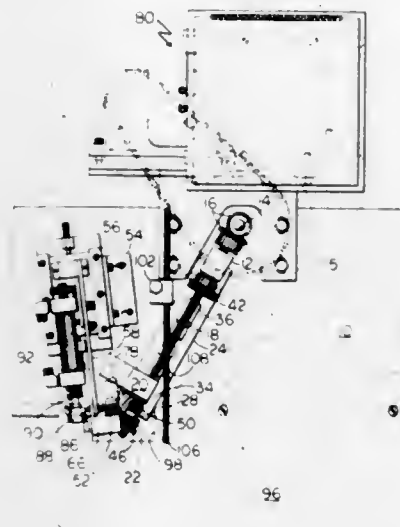
Int. Cl. A43d 43/06

U.S. Cl. 12—20

2 Claims

A machine for feeding the curved periphery of a sole past a cement applying station. A sensing device is so located that

it is intersected by the sole when the side portions of the sole periphery are fed past the station and is not intersected by the sole when the toe portion of the sole periphery is fed past the station. A control causes the sole periphery to be fed past the station at a relatively high speed when the sensing device is intersected by the sole and to be fed past the station at a



relatively low speed when the sensing device is not intersected by the sole.

3,653,088

HEEL STRIPPING MEANS

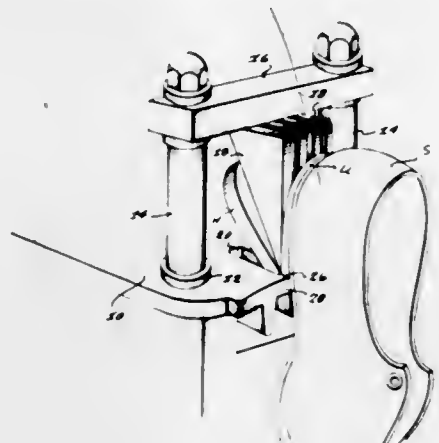
Henry R. Padovani, Austell, and John G. Wright, Atlanta, both of Ga., assignors to Textron Inc., Providence, R.I.

Filed Dec. 11, 1970, Ser. No. 97,143

Int. Cl. A43d 115/00

U.S. Cl. 12—50.5

3 Claims



An improved anvil for use in a device used to strip or remove heels from shoes in preparation for placing a new heel thereon, the anvil having slots which receive reciprocating stripping blades and having one end of such slots closed by portions of a relatively narrow web forming a continuous surface for supporting the breast of a heel being stripped, such web having a thickness which corresponds to the minimum heel base thickness that is to be left unstripped. Preferably, the side face of this web is concavely formed to correspond generally with the configuration of a sole shank, and the top face of the web is formed convexly to correspond generally with the configuration at the breast of the heel being stripped.

3,653,089

METHOD FOR APPLYING CEMENT BETWEEN A SHOE UPPER AND A SHOE INSOLE

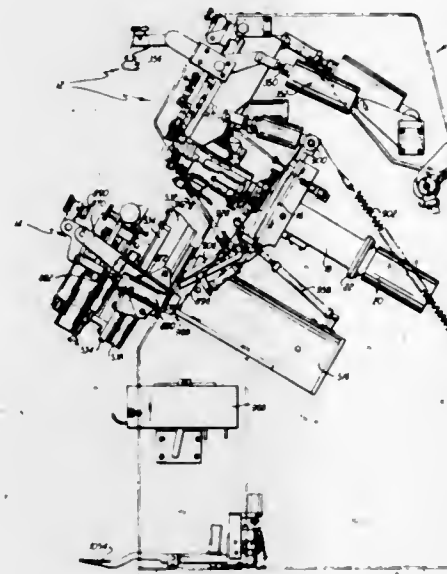
Jacob S. Kamborian, West Newton; Allen C. Harriman, Brockton, and Karl F. Vornberger, Tewksbury, all of Mass., assignors to Jacob S. Kamborian, Boston, Mass.

Original application Aug. 30, 1967, Ser. No. 664,475, which is a division of application Ser. No. 528,430, Feb. 18, 1966, now Patent No. 3,422,474. Divided and this application Mar. 6, 1970, Ser. No. 24,950

Int. Cl. A43d 9/00

U.S. Cl. 12—142 R

6 Claims



There is disclosed herein a cement lasting machine having mechanism for applying cement to the periphery of an insole that is mounted to the bottom of a last and for wiping the margin of an upper located on the last against the insole to thereby cementatiously attach the upper margin to the insole.

3,653,090

COMBINATION SHAVING BRUSH AND STAND

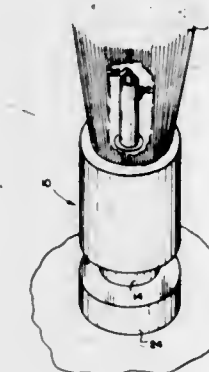
Ronald L. Weaver, Route 2, Box 529, Lebanon, Oreg.

Filed July 27, 1970, Ser. No. 58,561

Int. Cl. A46b 11/02, 17/06

U.S. Cl. 15—105

1 Claim



A shaving brush and stand with the brush having a central shaving cream passageway occupied by a stem portion of the stand when the brush is stored in place thereon. Removal of the brush from the stand leaves the passageway open for the subsequent flow of aerated shaving cream. The lower end of the shaving brush is shaped for momentary sliding connection with a standard pressurized aerosol shave cream container to impart a charge of shaving cream to the brush bristles.

3,653,091

CURTAIN ROD, PULLEY CASE, AND SUPPORT COMBINATION

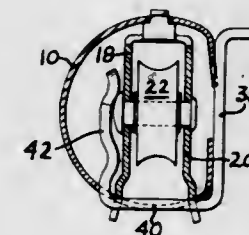
Robert P. McKenna, 111 Liverpool Street, Warwick, R.I., and John E. Williamson, 22 Third Street, W. Barrington, R.I.

Filed May 25, 1970, Ser. No. 40,215

Int. Cl. A47h 1/10

U.S. Cl. 16—94

10 Claims



A hollow, tubular, curtain rod of the draw curtain type is provided with an internally mounted pulley case and a support bracket arrangement whereby the pulley case rests on the bracket and the rod rests on the pulley case. This provides for direct application of stress on the draw cords to the bracket rather than to the rod. In addition means are provided for securing the case against motion relative to the bracket at the same time without introducing an unsightly bracket arm in an exposed position at the front of the rod. Other features include adaptability of the pulley case for fitting either of two sizes of telescoping rods without modification.

3,653,092

HINGE CLIP ASSEMBLY

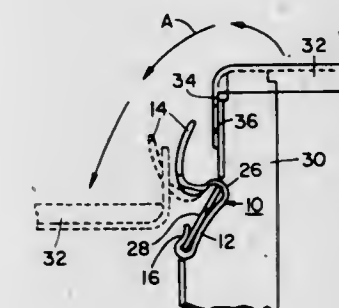
Donald R. Shriner, Big Flats, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed July 27, 1970, Ser. No. 58,265

Int. Cl. E05d 9/00

U.S. Cl. 16—128

3 Claims



A hinge clip assembly having an attachment body portion and a retaining finger portion is frictionally mounted on a rear support bracket of a major domestic appliance, with the retaining finger portion extending in a curvilinear upward position to operatively project within an opening in a rear flange on a cover member for such appliance, when such cover member is pivoted to an open position, and to retain such cover member in such open position to facilitate the servicing of such appliance.

3,653,093

POULTRY EVISCERATING MACHINE

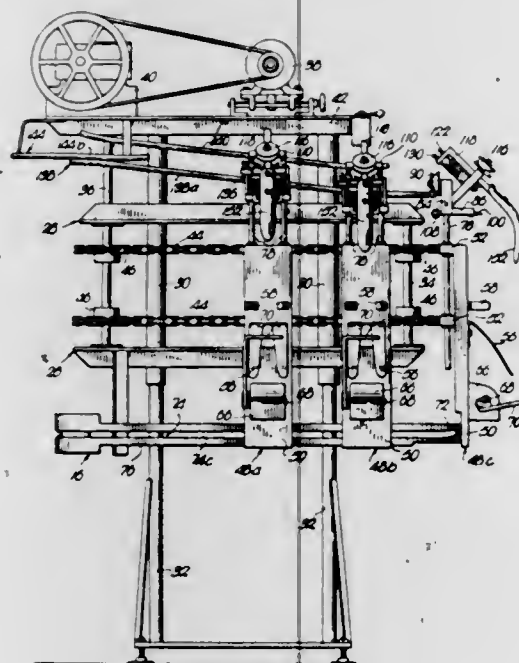
Donald J. Scheler, Kansas, Mo., assignor to Gordon Johnson Company, Kansas City, Mo.

Original application Jan. 26, 1968, Ser. No. 700,907, now Patent No. 3,555,593, dated Jan. 19, 1971, and a continuation-in-part of 700,907, Jan. 26, 1968, now Patent No. 3,555,593, dated Jan. 19, 1971. Divided and this application Nov. 12, 1970, Ser. No. 88,948

Int. Cl. A22c 21/06

U.S. Cl. 17-11

15 Claims



In the automatic evisceration of poultry the viscera is displaced from the body cavity of the bird through an access opening cut at the vent. In one form of the invention, a spoon-like removal tool applies pressure on the viscera away from the breast and drags the viscera along the backbone. In a second form, a removal tool in the nature of a loop captures the viscera and pulls it from the cavity. The entire operation takes place while the birds are advanced continuously by an overhead conveyor from which they are suspended by their legs. A series of bird-receiving carriages travel around a loop in timed relation to the conveyor, and each carriage is provided with an individual removal tool which enters the cavity on an arc that conforms to the configuration of the breast. At the completion of the operation, a latch is released to remove spring pressure from the tool, causing the latter to swing clear and permitting the eviscerated bird to continue along the conveyor line for successive processing operations.

3,653,094

CONVERSION APPARATUS FOR TEXTILE FIBERS

Hugh J. Fairfield, Galt, Ontario, Canada, assignor to Du Pont of Canada Limited, Montreal, Quebec, Canada

Continuation-in-part of application Ser. No. 751,272, Aug. 8, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 597,263, Nov. 28, 1966, now abandoned.

This application Nov. 21, 1969, Ser. No. 878,826

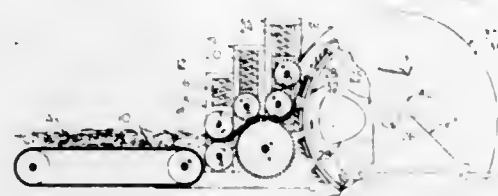
Int. Cl. D01b 9/00

U.S. Cl. 19-83

6 Claims

An apparatus for converting a mass of textile filaments in the form of textile material waste, tangled thread waste or cold-drawable continuous filaments of a synthetic polymer to a useful product comprising a forwarding means for slow feeding the filaments under a restrained condition to a rotatable substantially cylindrical open structure having a

multiplicity of outwardly projecting filament-engaging needles mounted around the periphery of the structure and a



number of combs having outwardly projecting teeth mounted around the periphery and spanning the structure.

3,653,095

SYNERGISTIC COMBINATION FOR INHIBITING THE ATTACK OF ALKALINE SOLUTIONS ON ALKALI SENSITIVE SUBSTRATES

Jean Dupre, Levittown, and Keith A. Booman, Dresher, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed June 18, 1969, Ser. No. 835,906

Int. Cl. C23f 11/06; C23g 1/18

U.S. Cl. 21-2.7

14 Claims

Materials which are sensitive to the attack of alkaline solutions are protected by a synergistic combination of: (1) at least one metal ion selected from the group consisting of barium, calcium and strontium with (2) at least one surface-active agent selected from the group consisting of (A) alkyl glycosides having a formula corresponding to ROG_mH , wherein G is a glycosyl radical, R is an alkyl radical of six to 16 carbons connected to the number 1 carbon atom of glycosyl radical through the oxygen and m is an integer in the range of 1 to about 4, (B) ethylene oxide adducts of said alkyl glycosides containing up to two ethylene oxide units per glycosyl radical and (C) amino carboxylic acids having an alkyl radical of at least 10 carbons and metal salts of amino carboxylic acids in alkaline solutions used for cleaning. Optionally in certain applications, and essentially in other applications, a third element may be made a part of the synergistic combination, namely (3) a water soluble naphthalene derivative.

3,653,096

FASTENERS

Paul Carl Roger Fernberg, Farnham Common, England, assignor to ITW Limited, Cippenham, Slough, England

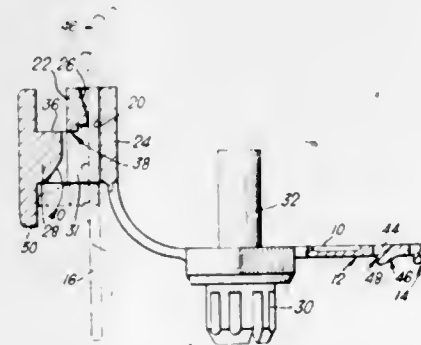
Filed Sept. 8, 1970, Ser. No. 70,275

Claims priority, application Great Britain, Sept. 16, 1969, 45,666/69

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

12 Claims



An improvement to the fastener of the type which has a strip with flexible ratchet teeth projecting from its face over a

3,653,099

BUNDLE TIE DEVICE

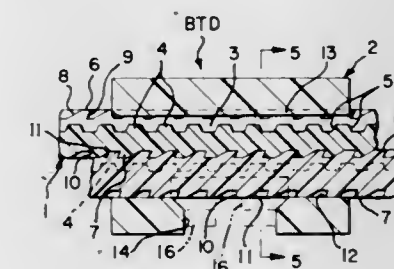
Norman Edwin Hoffman, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Aug. 3, 1970, Ser. No. 60,677

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

3 Claims

**MEANS FOR CONNECTING TOGETHER THE ENDS OF BANDS OF FABRIC**

Heinz Kerber, Weidenthal, Upper Platinat, Germany, assignor to Firma J.J. Marz GmbH, Lambrecht, Pfalz, Germany

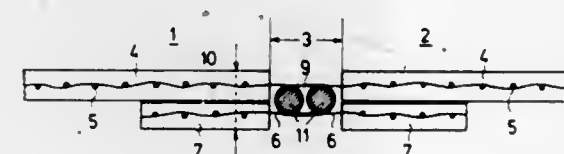
Filed Feb. 4, 1970, Ser. No. 8,665

Claims priority, application Germany, Feb. 5, 1969, P 19 05 544.8

Int. Cl. F16g 3/02

U.S. Cl. 24-33 C

6 Claims



Means for connecting together the ends of fabric bands, which comprise connecting members. Each of the connecting members has a thickness smaller than that of the fabric end of each fabric band to be connected together.

3,653,098

CONNECTOR FOR FLAT WOVEN TAPE

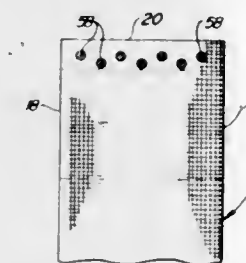
Roe H. Lagarde, Oxford, and Clarke Murphy, Jr., Baltimore, both of Md., assignors to E. W. Bliss Company, Canton, Ohio

Filed Aug. 19, 1969, Ser. No. 851,412

Int. Cl. F16g 11/00

U.S. Cl. 24-114.5

4 Claims



A flat woven tape has an end portion including opposite flat faces, opposite side edges and a terminal end. An enlarged lug of substantially rigid material is molded onto the end portion of the tape. The lug has first and second portions disposed on the opposite flat faces of the end portion of the tape. The lug includes a plurality of spaced-apart spanner elements extending through the end portion of the tape from one flat face to the other and interconnecting the first and second lug portions. The spanner elements provide an initial grip of the lug on the tape until the first and second portions of the lug wedge together and mechanically grip the end portion of the tape.

3,653,100

BELT

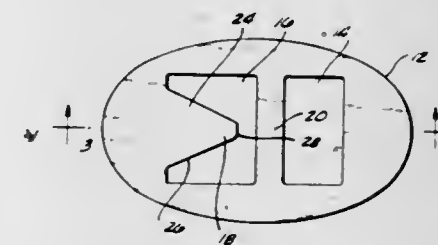
Charles E. Dolan, 13234 Chase Street, Panorama City, Calif.

Filed July 23, 1970, Ser. No. 57,542

Int. Cl. A44b 11/00

U.S. Cl. 24-198

3 Claims



Herein described is a belt including a unitary buckle which is used to connect the ends of the belt together around the user's waist. The buckle includes a relatively flat member having a pair of openings therein which forms a center cross member between the openings. One end of the belt is coupled to the cross member. An inwardly extending tab protrudes from one side of the flat member towards the cross member. The other end of the belt has a plurality of locking apertures which are formed to match the shape of the tab. The belt is encircled around the wearer's waist and is inserted into the opening in the buckle having the locking tab. The tab is then inserted into a suitable opening in the belt and the remainder thereof is inserted through the opening.

3,653,101

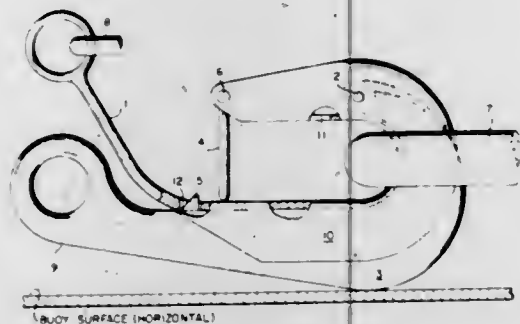
QUICK-RELEASE, SELF-LOCKING HOOK

Henry C. Mayo, Fairfax County, Va., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 21, 1970, Ser. No. 4,659
Int. Cl. A44b 13/00

U.S. Cl. 24-241

1 Claim



This quick-release, self-locking type hook is attached to a buoy which is connected to an embedded anchor by a heavy chain or wire rope. This invention is directed to a self-locking capability to eliminate the necessity of human intervention in the locking process. This is accomplished by providing a locking keeper being pivotable for full 360°.

3,653,102

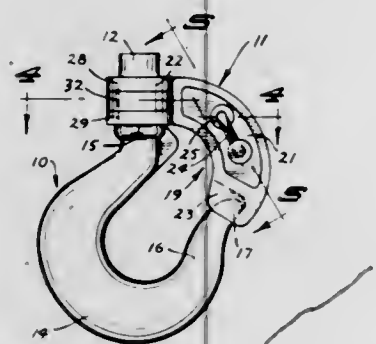
HOOK WITH GATE

Edward J. Crook, Jr., Fort Wayne, Ind., assignor to American Hoist & Derrick Company, St. Paul, Minn.

Filed July 21, 1970, Ser. No. 56,764
Int. Cl. A44b 13/00

U.S. Cl. 24-241 SL

5 Claims



A load handling hook has a safety gate across the throat of the hook. The gate includes a pair of gate members rotatably secured to the shank of the hook to be movable from throat closing to throat clearing relation to selectively prevent and permit disengagement of the load from the hook. A latch includes a locking pin slidably mounted in one gate member and extendible through a slot in the other gate member. This pin has an end cap selectively positionable to be engageable with or in clearing relation to the other gate member to selectively prevent and permit opening of the gate.

3,653,103

FILTER BAG CLAMP

Elmer Crosby Bush, Corry, Pa., assignor to Associated Spring Corporation, Bristol, Conn.

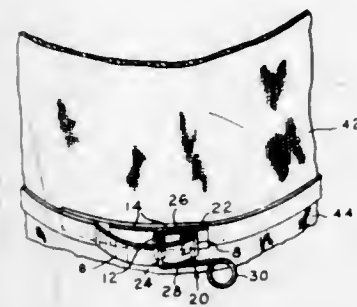
Filed June 1, 1970, Ser. No. 42,275
Int. Cl. B65d 63/00

U.S. Cl. 24-270

1 Claim

The clamp holds the intake passage of a dust bag to the outer periphery of the exhaust passage of an air filter or the like, and consists of an elongated strip of spring metal having a central part which surrounds the aperture of the dust bag and intake, an integrally formed arcuate piece at one end of

the strip which terminates in an open loop, and an eye adjacent the other end of the strip in which one arm of a wire lock form is pivotally mounted. When the strip is brought



about the filter bag and intake the second arm of the wire lock form is put into the open loop and the wire form is moved to over center position to lock the strip in place.

3,653,104

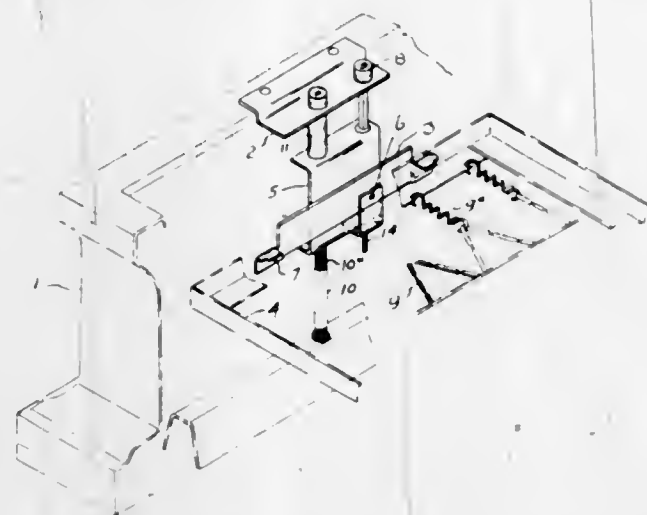
ADJUSTABLE BEDS FOR BURIAL CASKETS

Walter K. Nelson, Pittsburgh, Pa., assignor to Walco National Corporation, New York, N.Y.

Filed July 18, 1969, Ser. No. 843,166
Int. Cl. A61g 17/00, 7/00

U.S. Cl. 27-12

3 Claims



This disclosure shows a bed mounted in a casket that is adjustable and also tiltable from end to end and from side to side with the adjusting mechanism accessible from the top, at the end walls of the casket so that tilting adjustment can be effected at any vertical position of the bed.

3,653,105

APPARATUS FOR SUPPLYING PARALLEL-STRAND LENGTHS

Hans J. Klauel, Rock Hill, S.C., assignor to Crompton & Knowles Corporation, Worcester, Mass.

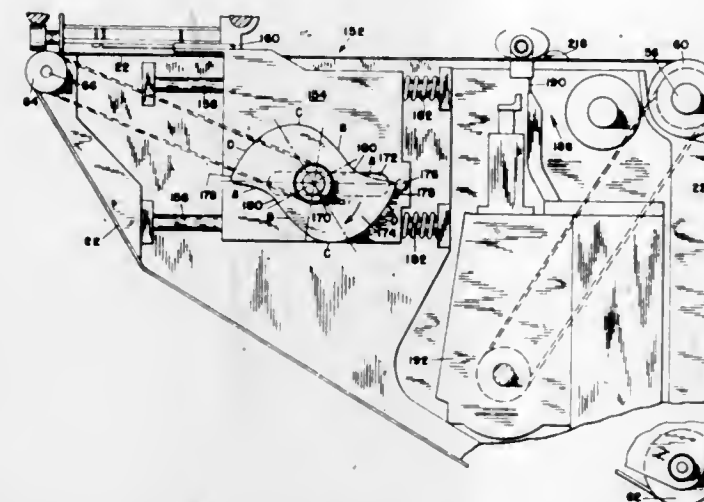
Original application Mar. 13, 1969, Ser. No. 806,948, now Patent No. 3,564,872. Divided and this application Dec. 10, 1970, Ser. No. 96,800
Int. Cl. D02g 3/00

U.S. Cl. 28-1

6 Claims

A machine for supplying parallel lengths of fibrous strands for incorporation in a non-woven fabric. A guide carriage reciprocates between a pair of continuously moving conveyors having strand engaging hooks. The carriage lays a band of strands, first around a set of hooks of one conveyor and then a set of hooks on the other conveyor. Before each crossing of the carriage, a rake adjacent each conveyor extends each strand, relative to the conveyor, a distance of one band width from a first holding element to a second holding

element upstream of the same conveyor. The carriage, rake, and conveyors are operated in timed relation so that the



lengths of strands extending between conveyors will all be parallel for presentation to fabric forming means.

3,653,106

APPARATUS FOR DRAWING-IN THREADS OF A WARP THROUGH HEDDLES IN A WEAVING DEVICE

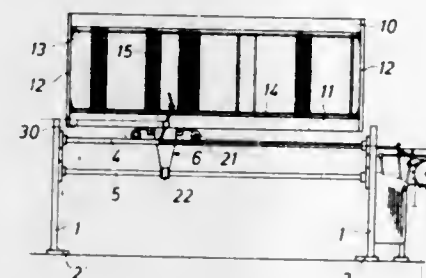
Svend Sigurd Christie Flescher, Klampenborg, Denmark, assignor to Titan Textile Machines A/S, Soborg, Denmark

Filed Jan. 28, 1970, Ser. No. 6,390

Claims priority, application Denmark, Feb. 6, 1969, 644/69
Int. Cl. D03j 1/14

U.S. Cl. 28-46

10 Claims



An apparatus for drawing-in warp threads through heddles arranged in several rows behind one another. In accordance with a program containing information about the drawing-in sequence, a selected magnet from a plurality of magnets each associated with one row of heddles is caused to grip and move a heddle from the associated row forward to the working field in which an operator may draw a thread through the heddle eye and then push the heddle aside. In response to a pulse initiated by the operator, the magnet is returned and the next heddle is moved to the working field by a different or the same magnet, as the case may be, in accordance with the program.

ERRATUM

For Class 29-110 see:
Patent No. 3,653,338

3,653,107

LATHE TOOL

Karl Hertel, Obdenberger Str. 29, 86 Nuernberg, Germany
Filed Jan. 13, 1970, Ser. No. 2,478

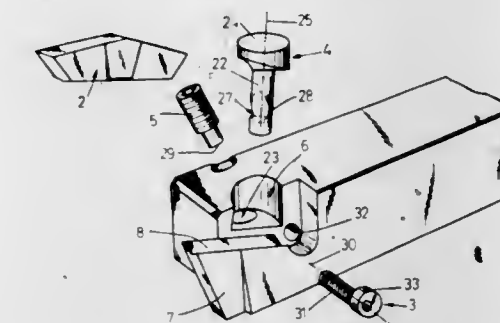
Claims priority, application Switzerland, Jan. 13, 1969, 386/69; July 2, 1969, 10179/69; July 16, 1969, 10860/69
Int. Cl. B26d 1/00

U.S. Cl. 29-96

19 Claims

A lathe tool in which the bit is of a shape providing easy manufacture and regrinding, and a long life. The outline of

the lateral faces of the bit is an elongate isosceles trapezium and an elongate isosceles triangle having as its base the longer of the two parallel sides of the trapezium, the end



faces of the bit forming the equal sides of the trapezium, two inclined upper faces of the bit forming the two equal sides of the triangle and a cutting edge being formed at the junction of each upper face and the adjacent end face.

3,653,108

ROLLER ASSEMBLY

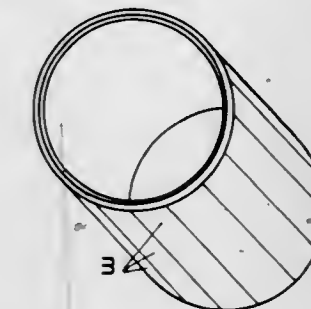
Paul Donald Maca, Western Springs, and Warren C. Schumacher, Clarendon Hills, both of Ill., assignors to Sommer & Maca Glass Machinery Company, Chicago, Ill.

Filed June 12, 1970, Ser. No. 45,860

Int. Cl. B21b 27/00

U.S. Cl. 29-110

1 Claim



A roller assembly that can easily be installed between and removed from fixed bearings including a shaft which is supported in the bearings and may be removed through the bearings. A sleeve is removably attached to the shaft and a roller is mounted on the sleeve by removable locking means which in this embodiment are nuts which fit on externally threaded portions of the sleeve. Set screws are used to fasten the sleeve to the shaft and the shaft to the bearings.

3,653,109

METHOD OF PRODUCING COMPOSITE BUSHINGS

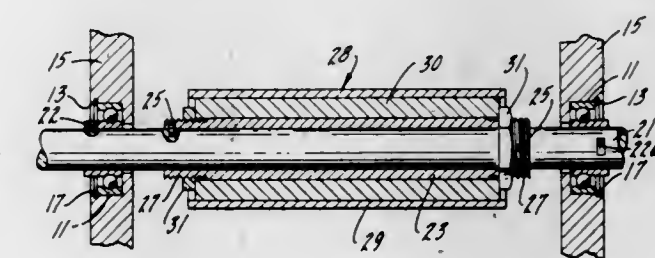
Frans Donatus Timmermans, 23 Kiel Brunswiker Str. 11a, Kiel, Germany

Filed Oct. 11, 1968, Ser. No. 767,589

Int. Cl. B21d 53/00; B23p 11/00

U.S. Cl. 29-149.5

9 Claims



In a process of making bearings of lead bronze a large steel cylinder is lined on the inside thereof with a layer of lead bronze, said layer being produced by centrifugal casting. The

steel cylinder and its lining layer are then cut to separate pieces along generatrices of the former and of the latter, and composite bearings are formed of these separate pieces.

3,653,110

METHOD OF FABRICATING HOLLOW BLADES

Julian P. King, Jr., Los Angeles, and Norman Kilmek, Palos Verdes Estates, both of Calif., assignors to North American Rockwell Corporation

Filed Jan. 5, 1970, Ser. No. 666

Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29—156.8 H

7 Claims



A method of making jet engine turbine, fan or compressor blades containing longitudinal internal lightening openings by locating a plurality of rib elements between exterior cover plates, locating a removable spacer element between each of the adjacent rib elements, placing the resulting assembly in a die cavity, placing the assembly and die in a thin-walled re-ort, applying heat energy to the assembly sufficient to promote solid state diffusion of the material of construction of the assembly, drawing a vacuum about the assembly, applying sufficient compressive pressure to the assembly by a press operatively engaging the die to cause the material to flow plastically in combination with the applied heat energy, maintaining the application of heat energy and pressure sufficient to effect homogenization of the interfacial joints of the assembly, removing the bonded assembly from the die and leaching the spacer elements from the assembly.

ERRATUM

For Class 29—200 see:
Patent No. 3,653,800

3,653,111

APPARATUS AND METHOD FOR OBTAINING A PREDETERMINED AND REPEATABLE FILL MEASURE IN A BAG-IN-CAN DISPENSER

Roger K. Bruce, Costa Mesa, Calif., assignor to Sterigard Company, Santa Ana, Calif.

Filed July 30, 1969, Ser. No. 846,136

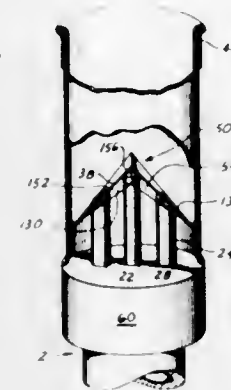
Int. Cl. B23p 19/00

U.S. Cl. 29—200 R

15 Claims

A pedestal carries a bag indexer to index an arch-shaped bottom of a bag that has been attached to the body by a bag applicator. The bag indexer has a pair of vacuum tubes for drawing an attached bag into a dispenser body against the mouths of the tubes and a shaft which engages and supports the apex of the bag's arch during indexing. The position of the bag indexer is adjustable to adjust the bag's fill measure. The bag indexer is extended from a retracted position after a dispenser body is received on the pedestal for transport to the bag applicator to facilitate dispenser body removal and

placement on the pedestal from an input conveyor. The bag indexer is also retracted to facilitate removal of a dispenser



body from the pedestal after a bag has been attached and indexed.

3,653,112

APPARATUS FOR ALIGNING THE SHADOW MASK WITH RESPECT TO THE FACE PANEL OF A CATHODE RAY TUBE

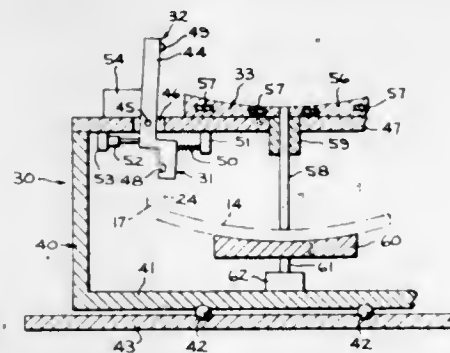
Carl L. Smith, Auburn, and William H. Nicklas, N. Syracuse, both of N.Y., assignors to General Electric Company

Filed Mar. 19, 1970, Ser. No. 20,898

Int. Cl. B23p 19/00; H05k 13/00; B23g 3/00

U.S. Cl. 29—203 J

7 Claims



Improved apparatus is provided for aligning the shadow mask with respect to the face panel of a cathode ray tube of the shadow mask type. Basically, it comprises first means for supporting the face panel in a first position, second means for supporting frame means for the shadow mask in a second position spaced apart from the face panel, and third means for supporting the shadow mask for movement relative to the frame means and the face panel.

3,653,113

MACHINE FOR MAKING TABLETOPS

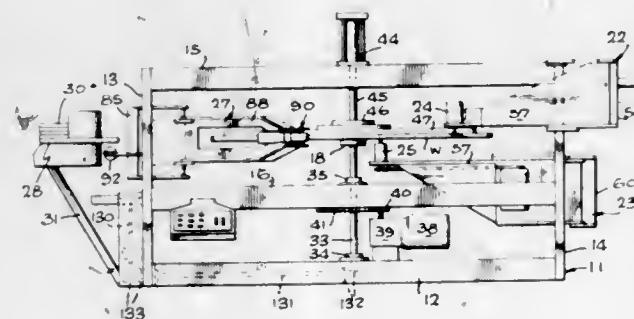
Daniel Marvosh, 3085 East Clarmey Lane, Pasadena, Calif.

Filed Jan. 26, 1970, Ser. No. 5,672

Int. Cl. B23p 19/04; B27c 5/00

U.S. Cl. 29—208 D

3 Claims



The application discloses a machine with a motor-driven rotatable work support, separate shaping, grooving and band-

ing tools mounted on doubly pivoted arms for performing operations on a workpiece mounted on the support, and automatic means for controlling the speed of rotation of the work support in accordance with a predetermined pattern coordinated with the shape of work to be formed, and automatic means for controlling the movement of the pivoted arms.

3,653,114

HOSE COUPLING REMOVER

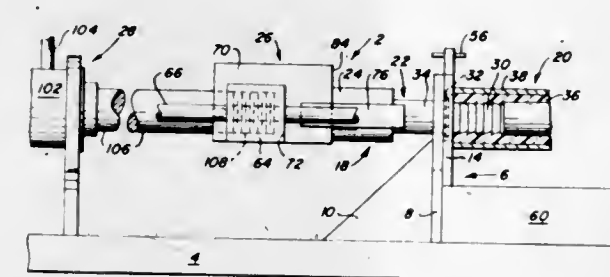
Orval C. Bawden, and Frank A. Dimick, both of Orem, Utah, assignors to United States Steel Corporation

Filed Dec. 4, 1969, Ser. No. 882,250

Int. Cl. B73p 19/00

U.S. Cl. 29—237

4 Claims



Apparatus for extracting a hose coupling from a hose, said coupling having a shank inserted in said hose and a coupling member extending axially outwardly from the end of said hose, said apparatus comprising a frame, means mounted on said frame for gripping said coupling member, a stationary support in said frame having an opening therein in which said coupling is inserted to a position with the end of said hose abutting against the surface of said support about said opening and means for actuating said gripping means to pull said coupling member away from said support to remove said shank from said hose.

3,653,115

PIPE JOINING JACK

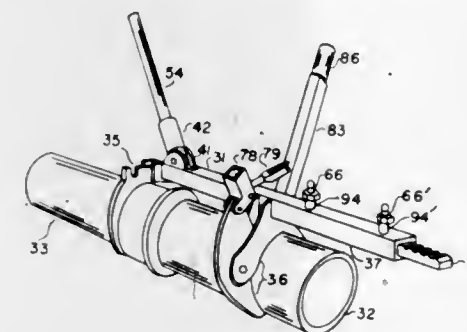
Ralph Perkins, 727 West Pyron Street, San Antonio, Tex.

Filed Aug. 6, 1970, Ser. No. 61,555

Int. Cl. B23p 19/02

U.S. Cl. 29—237

1 Claim



A compound joint jack for use in joining sewer pipes and other large underground pipes and adapted to operate in close quarters, having adjustable fittings and gripping jaws capable of gripping the smooth surface of various sizes of pipe without the use of chains or straps; such instrument enabling a single man to exert several hundred pounds of compression pressure with the use of a single lever and compound ratchet assembly in order to lock or unlock sections of pipes fitted with neoprene washers.

**3,653,116
METHOD AND APPARATUS FOR FORMING CENTRIFUGAL FAN HOUSINGS**

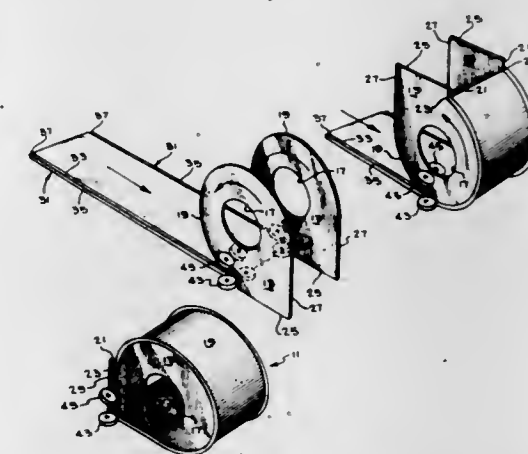
William L. Lov, McHenry, and Ned Blood, Hoffman Estates, both of Ill., assignors to ILG Industries Inc., Chicago, Ill.

Filed Sept. 25, 1970, Ser. No. 75,494

Int. Cl. B21k 21/00; B21d 51/16; B23p 19/04

U.S. Cl. 29—243.52

8 Claims



An apparatus is provided for fabricating centrifugal fan housings. The apparatus described includes novel means for supporting pressure rolls engageable with opposite sides of a housing side plate, and novel means for supporting and guiding the components of the housing during its formation.

3,653,117

CLIP TOOL AND METHOD OF CLINCHING

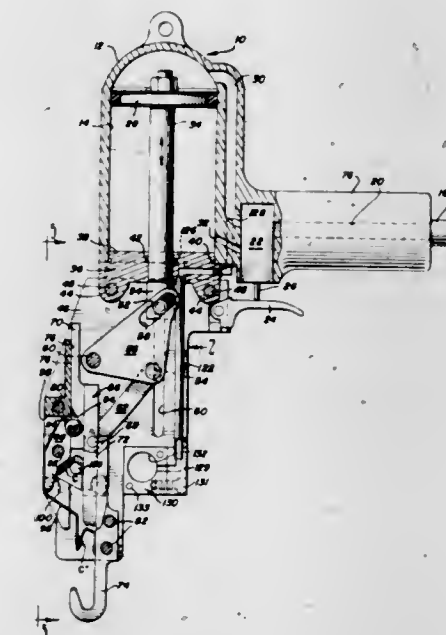
Robert L. Wolfberg, Skokie, and Paul W. Bojan, Norridge, both of Ill., assignors to Signode Corporation

Filed Sept. 1, 1970, Ser. No. 68,725

Int. Cl. B23p 19/00; B23q 7/10; B23p 11/00

U.S. Cl. 29—429

13 Claims



A magazine fed clip tool of the stationary anvil type, and which utilizes closely nested clips or seal blanks for clinching ligatures or wires in the anvil. A clip is automatically fed to the clip tool and the clip tool preforms the clip into a non-nestable condition, after which the preformed clip is driven into the anvil jaw to be clinched about ligatures or wires. The method provides for stripping a clip from a closely nested stack, preforming the clip to a non-nestable condition and then clinching it about at least a pair of wires to form a clinched assembly.

3,653,118

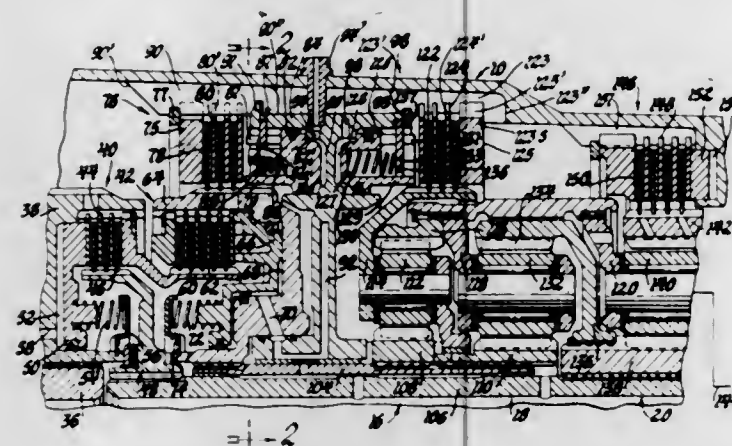
METHOD OF ASSEMBLING A TRANSMISSION

Erkki Kolvunen, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich.

Original application June 11, 1969, Ser. No. 832,168, now Patent No. 3,596,537. Divided and this application Sept. 21, 1970, Ser. No. 74,023

Int. Cl. B23p 19/04; B23q 3/18; B23g 41/08
U.S. Cl. 29-434

5 Claims



This transmission has multiratio drive planetary gearing and a plurality of fluid actuators for selectively engaging a plurality of friction devices to engage the ratio drives. A central web splined to the transmission housing has oppositely facing fluid actuators each having an annular piston in a cylinder. Each piston has an inner annular engagement seat and an outer interrupted annular engagement seat for engaging the brake plates with retraction springs and fastener posts located between the seats. A retainer plate has an annular portion between the seats engaging the springs and an aperture fitting on the retainer posts and has ear portions extending into engagement with the web. Snap rings hold the retainer plates and web against axial movement. A fastener on the fastener post holds the retainer plate and springs in assembled position for assembly into the transmission.

3,653,119

METHOD OF PRODUCING ELECTRICAL CAPACITORS

Elmo James Fresia, Williamstown, and Jeremiah E. Desmond, Boston, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of application Ser. No. 358,099, Mar. 7, 1964, now abandoned. This application Dec. 28, 1967, Ser. No. 694,035

Int. Cl. H01g 13/00; C23b 9/02; B23p 17/04
U.S. Cl. 29-585

16 Claims

Simultaneously subjecting an electrical capacitor comprising a valve metal electrode, an anodic oxide layer thereon, and a semiconducting oxide counterelectrode, to a temperature of 250°-400° C. while applying a bias across the anodic oxide.

3,653,120

METHOD OF MAKING LOW RESISTANCE POLYCRYSTALLINE SILICON CONTACTS TO BURIED COLLECTOR REGIONS USING REFRACTORY METAL SILICIDES

Richard C. Serrine, Orange, Calif., and Leonard Stein, Dewitt, N.Y., assignors to General Electric Company, Syracuse, N.Y.

Filed July 27, 1970, Ser. No. 58,521

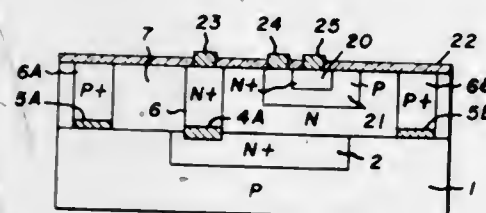
Int. Cl. B01j 17/00; H01l 7/02

U.S. Cl. 29-589

4 Claims

This disclosure relates to a method of forming a polycrystalline silicon contact to a buried collector region of a transistor or the like. This is accomplished by providing a

monocrystalline silicon substrate body having a collector region exposed at its top surface. A layer of refractory metal is subsequently formed over the entire top surface of the body. Using conventional photomasking and etching techniques a refractory metal pad is formed over a portion of the exposed surface of the collector region, and an insulating layer is formed over the top surface of the body and pad. The insulated covered body is then heated to a temperature sufficient to completely convert the refractory metal to a refractory metal silicide while simultaneously causing the metal silicide to diffuse into the collector region. The insulating layer is next completely removed using a suitable etchant. A silicon layer is subsequently epitaxially deposited onto the top sur-



face of the entire silicon substrate body. This layer forms as a column of polycrystalline silicon material above the refractory metal silicide region, and as an epitaxial layer of monocrystalline silicon material above the rest of the top surface of the substrate body. The column of polycrystalline silicon, is subsequently treated, so that, it has the same conductivity as the collector region and together with the refractory silicide region, constitutes a vertically extending low resistance conductive path from the top surface of the completed composite body down to the collector region buried beneath the epitaxial layer, and the epitaxial layer provides a site in which are formed other functional portions of the transistor or the like, such as base and emitter portions.

3,653,121

METHOD FOR MANUFACTURING A MEMORY PLANE

Hiromi Moriyama, Fujisawa-shi, and Susumu Hibi, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

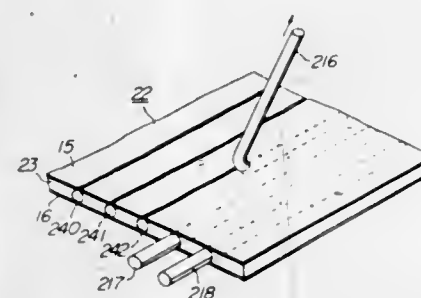
Filed Jan. 26, 1970, Ser. No. 5,856

Claims priority, application Japan, Jan. 27, 1969, 44/5260

Int. Cl. H01f 7/06

U.S. Cl. 29-604

2 Claims



A method for manufacturing a memory plane including thin film magnetic wires, wherein moulding core wires embedded in an insulating sheet structure in a preceding stage are removed from the sheet structure in such a manner as to rip open the wall between one side of the structure and the moulding core wires such that said insulating sheet structure is formed with slots for accommodating the thin film magnetic wires therein.

3,653,122

ROD INSERTION METHOD

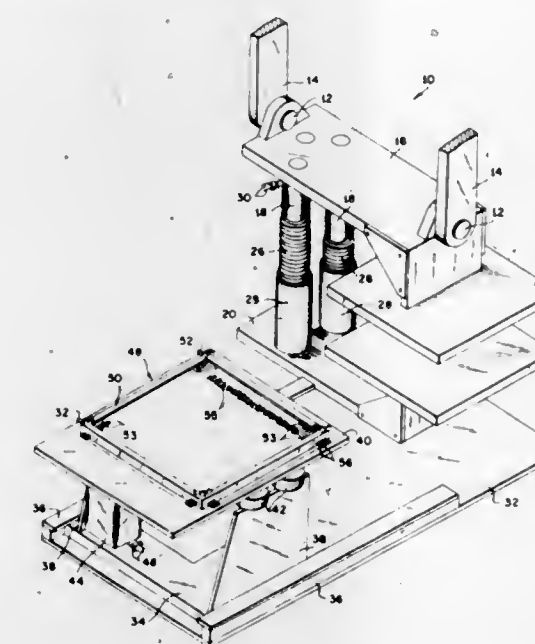
Floyd G. Powell, Jr., Torrance, Calif., assignor to The National Cash Register Company, Dayton, Ohio

Original application Mar. 16, 1969, Ser. No. 623,757, now Patent No. 3,508,314. Divided and this application Aug. 6, 1969, Ser. No. 848,005

Int. Cl. H01f 7/06

U.S. Cl. 29-604

7 Claims



A process for inserting small magnetic rods in the open ends of a large number of solenoid coils positioned such that the open ends of the coils are located in a plane. An excessive number of the magnetic rods are placed onto the solenoid plane and the solenoid plane is positioned in a magnetic field with the coils substantially aligned with the magnetic lines of force. The magnetic field polarizes the rods to align them with the magnetic lines of force and accordingly, in parallel alignment with the coils. The rods are moved across the plane and are inserted into the solenoid coils as they become positioned over the open ends of the coils.

3,653,123

RAZOR HEAD

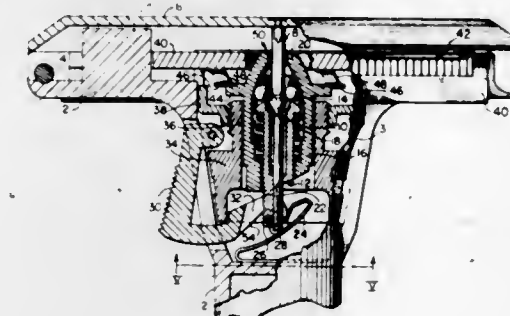
Phillip W. King, Cheshire; Kenneth A. Van Dyck, Weston, and James B. Wyatt, Stamford, all of Conn., assignors to The Gillette Company, Boston, Mass.

Filed Apr. 8, 1970, Ser. No. 26,589

Int. Cl. B26b 21/30, 21/32

U.S. Cl. 30-58

7 Claims



A razor head having a cap portion mounted thereon and adapted to pivot upon one end of the razor head, the cap being held and released by a ball chuck means disposed in the razor head. The ball chuck means includes means for adjusting the position of a razor blade retained by the razor head, relative to the razor head.

3,653,124

WALL EDGE TRIMMER FOR HARD SURFACE FLOORING

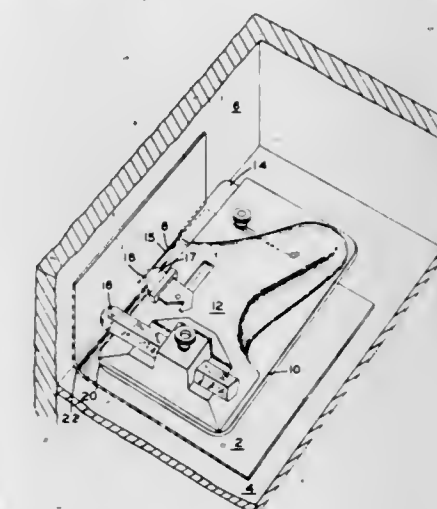
Richard J. Evans, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Oct. 12, 1970, Ser. No. 79,725

Int. Cl. B26b 29/02

U.S. Cl. 30-293

1 Claim



The tool has two guiding edges and a cutter for trimming hard surface material to fit against a wall surface. The tool is designed to force and hold the hard surface material with a radius bend at the corner of the floor and wall surface. The radius bend is necessary because a sharp right angle bend will cause breaking of the hard surface flooring.

3,653,125

DENTAL TREATMENT ASSEMBLIES

Erich Heubeck, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Erlangen, Germany

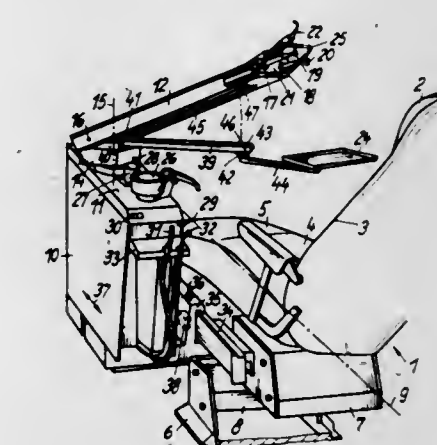
Filed Oct. 20, 1969, Ser. No. 867,513

Claims priority, application Germany, Oct. 26, 1968, P 18 05 514.6

Int. Cl. A61c 19/02

U.S. Cl. 32-22

2 Claims



A dental treatment assembly comprises a patient's chair and a dental treatment unit supported by the chair which is mounted on a base for adjustment in a generally vertical direction relatively to the base. The dental treatment unit includes a housing connected to the chair for movement lengthwise of the chair, a rigid dental hand appliance support arm pivotably connected to the housing and releasable locking means for locking the treatment unit to the chair.

3,653,126

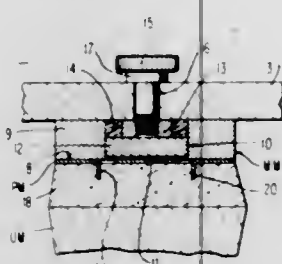
DENTAL ARTICULATOR MODEL MOUNTING MEANS
Gorm P. Hansen, 4701 North Federal Highway, Fort Lauderdale, Fla.

Filed Apr. 29, 1971, Ser. No. 138,697

Int. Cl. A61c 11/00

U.S. Cl. 32-32

17 Claims



A dental model is attachable to and easily removable from a dental articulator arm by cooperating magnetic components, one fast with the arm and the other connected to the dental model. The cooperating attaching components are of wear-resistant material and are formed with interfitting aligning means. The arrangement is such that a dental model mounted on the articulator arm in a predetermined position may be detached by simply pulling the model away from the arm with sufficient force to overcome the magnetic attraction. Thereafter, the model may be replaced on the arm and positioned in the same predetermined position by the cooperation of the interfitting aligning means, and held magnetically in that position.

3,653,127

DENTAL CROWN ELEVATION

Louis M. Ballard, 1911 Wilson Avenue, Arcadia, Calif.

Filed June 9, 1970, Ser. No. 44,810

Int. Cl. A61c 3/16

U.S. Cl. 32-43

3 Claims



Apparatus for removing tooth crowns (or caps or inlays) comprises a source of fluid pressure, including ducting; and, means to couple the ducting in pressure transmitting relation with the tooth side of the crown for effecting separation of the crown from the tooth in response to fluid pressure transmission to that side of the crown.

3,653,128

MEANS FOR MEASURING TWIST IN A TURBINE VANE
Edward C. Palmenberg, Nanuet, N.Y., assignor to Chromalloy American Corporation, Orangeburg, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,506

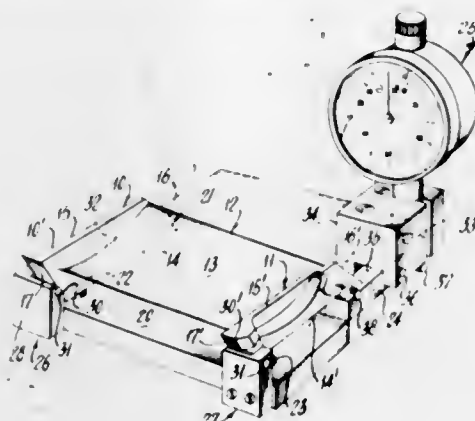
Int. Cl. G01b 5/20

U.S. Cl. 33-174 PA

16 Claims

The invention contemplates a vane-twist measuring or gaging instrument in which the overall twist of the vane is assumed to be indicated by the angular relation between a reference alignment, taken on one buttress surface, and a measured-offset alignment, taken on the corresponding surface of the other buttress for the same vane. Basically, a reference plane is established for the reference surface of the first abutment, as by using two fixed and precisely positioned

spaced point-contact elements, and a gage carried by the instrument near the other buttress senses the inclination of the other buttress (with respect to the reference plane) when the other buttress is applied against a single, or third, fixed point of support on the instrument. In one form, the third support point is established by an elongated bar, with provision for



central pivotal support, so that its angular orientation about the pivot may reflect contact with, and therefore slope of, the other vane buttress; in another form, the third support point is a fixed abutment near one end of the other buttress, and a probe responds to a given location near the other end of the buttress when the vane is applied to the three fixed support contacts.

3,653,129

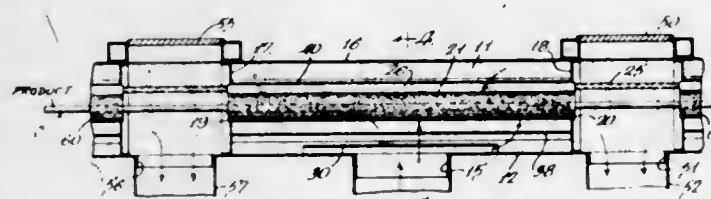
HEAT TRANSFER DEVICE FOR TUBULAR MATERIAL
Robert R. Seedorf, Barrington, Ill., assignor to The Roy M. Moffitt Company, Schiller Park, Ill.

Filed Mar. 10, 1970, Ser. No. 18,214

Int. Cl. F26b 13/00

U.S. Cl. 34-155

8 Claims



A heat transfer device for tubular material and particularly a dryer for relatively fragile material in which a drying section of the dryer has a tubular perforate member through which the material travels and with baffles located in the chamber to cause relatively high velocity air to impinge along the entire length and about the entire periphery of the tubular material passing through the tubular member and with the air being exhausted from both ends of the tubular member to minimize the effects of air flow on the tubular member to minimize the effects of air flow on the tubular material.

3,653,130

TAPE DECODER

Randall R. Gelb, Altoona, Pa., assignor to Data-Link Corporation, San Mateo, Calif.

Filed Apr. 8, 1970, Ser. No. 26,618

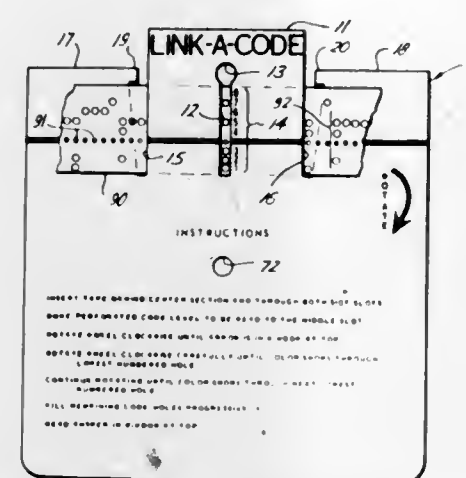
Int. Cl. G09b 1/02

U.S. Cl. 35-2

3 Claims

A device for decoding or interpreting perforated tape including a pair of members rotatably joined to each other. The first member includes slotted portions for fixing a length of perforated tape relative thereto, and a slotted section permitting a viewer to examine a discrete code level of the tape therethrough. The other member includes a set of symbols and an aligned arrangement of indicia in an array, so ar-

ranged that on rotation relative to the first member, various of such indicia will be positioned relative to the first member's slotted section. The indicia is so arranged that when



perforations in the tape are initially superimposed over the appropriate indicia the perforations are decoded by virtue of the aligned symbols on the other member.

3,653,131

EXCAVATING APPARATUS

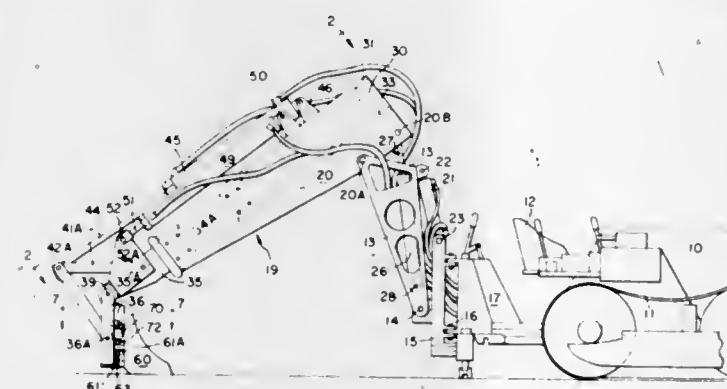
John S. Pilch, Ware, Mass., assignor to Ware Machine Works, Inc., Ware, Mass.

Filed Mar. 24, 1970, Ser. No. 22,156

Int. Cl. E02f 3/64

U.S. Cl. 37-1

9 Claims



An excavating apparatus adapted for use with a grader, backhoe, loader or the like which includes an excavating implement supported from the end of a longitudinal member by an implement supporting means which is movable about a first pivot means having an axis extending in a direction transverse to the length of the longitudinal member. The excavating implement is mounted for movement about a second pivot means having an axis which extends in the plane of the longitudinal direction of the longitudinal member. The second pivot means extends between the implement supporting means and the lower part of the rear portion of the implement and this second pivot means is adjacent to the ground when the leading edge of the implement rests on the ground. The apparatus also includes means for moving the implement supporting means about the first pivot means and means for moving the implement about the second pivot means. In a preferred embodiment the means for moving the implement about the second pivot means includes a hydraulically operated reciprocating means, such as a cylinder and ram, which has one end pivotally attached to one of the excavating implement and the implement supporting means and the other end pivotally attached to the other of the implement and the implement supporting means. Also, preferably, at least the major portion of said means for moving the implement is located in the space between the rear portion of the

3,653,132

AUTOMATIC POSITIONING SYSTEMS FOR SCRAPER ELEVATORS

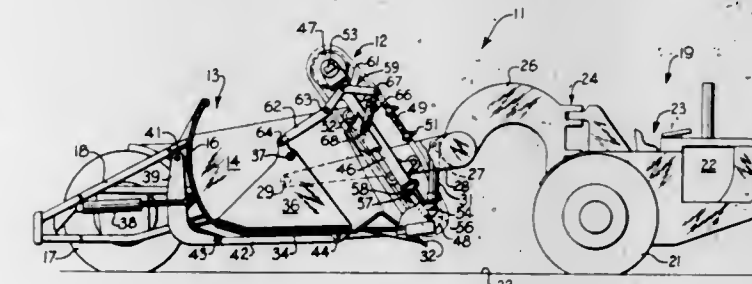
Trevor G. Campbell; Robert V. Larson, Peoria; Sebald K. Stahl; Peoria; Richard K. Liess, and Roger A. Rice, both of Joliet, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Original application Aug. 28, 1969, Ser. No. 852,999, now Patent No. 3,581,415, which is a continuation of application Ser. No. 656,559, July 27, 1967, now abandoned. Divided and this application July 30, 1970, Ser. No. 64,903

Int. Cl. E02f 3/08

U.S. Cl. 37-8

3 Claims



The elevator of a self-loading earth-moving scraper is moveable as a unit relative to the bowl thereof and automatic controls are provided which shift the elevator at predetermined stages in the operating cycle of the scraper. The automatic controls operate by sensing forces which react on other components of the scraper and which are indicative of the need for shifting the elevator. The elevator may, for example, pivot gradually upward as loading progresses or may be raised substantially prior to load ejection without requiring control of these movements by the operator.

3,653,133

REPLACEABLE CUTTING EDGE AND TOOTH FOR EARTHMOVING MACHINES

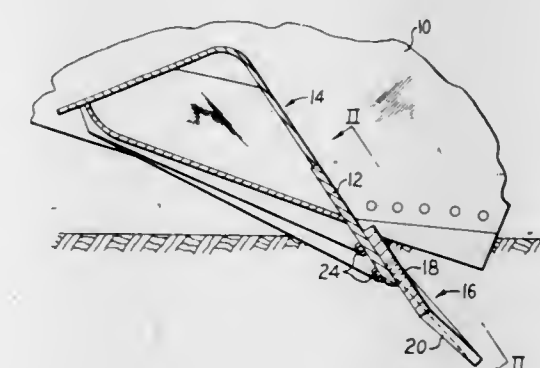
William J. Black, Wilmington; William L. Holmstrom, Joliet; Richard K. Liess, Joliet, and Max J. Teasdale, Joliet, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed May 26, 1969, Ser. No. 827,655

Int. Cl. E02f 9/28; A01b 23/02

U.S. Cl. 37-142

8 Claims



A cutting edge for an earthmoving machine made in small replaceable modules each of which has a tooth-like portion extending forwardly therefrom so that replacement of worn parts can be done very economically.

3,653,134

CREASING APPARATUS FOR GARMENTS

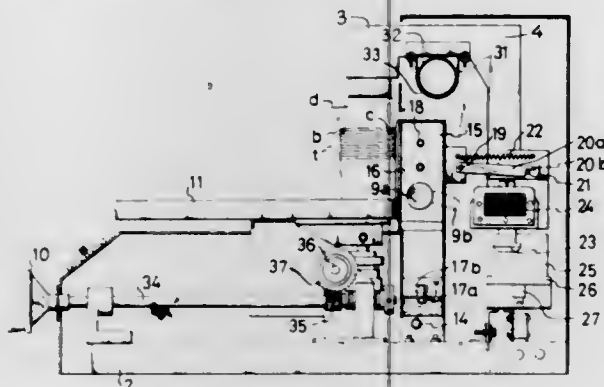
Seiiti Oji, Tokyo, Japan, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 26, 1970, Ser. No. 67,182

Int. Cl. D06f 71/34

U.S. Cl. 38—14

8 Claims



A creasing apparatus including a boiler which is pivotally mounted so as to be able to turn toward and away from the workpieces to be creased. The boiler contains two heaters, one for vaporizing the water contained therein, and the other for reheating the steam produced by the first heater. A cooling tube, connected to a blower, has air blast bores opening toward the workpieces for automatically cooling them at the end of the heating operation. Both the heating and the cooling operations continue for lengths of time which are predetermined by separate timers. The workpieces are mounted on a liftable table, and a stop is provided above the liftable table whereby the intensity of the pressure being exerted upon the workpieces is observable. One of the timers for the heating operation is equipped with an electromagnetic clutch which, when the boiler is exhausted of its water content with the consequent automatic stopping of the timer and the two heaters in the boiler, is still supplied with current to retain the timer pointer at its position indicating the lapse of time to that precise moment.

3,653,135

SET-IN SLEEVE FORMER

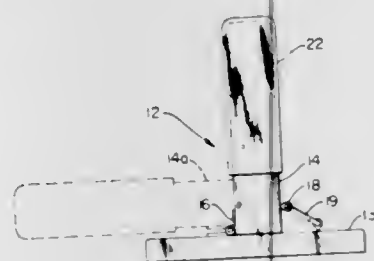
Helen S. Jones, 2512 South University, Denver, Colo.

Filed May 18, 1970, Ser. No. 38,099

Int. Cl. D06f 81/00

U.S. Cl. 38—135

1 Claim



A fabric former and method for shaping sleeves and the like from a flat fabric comprises a base and an upright support on the base including a rigid backing member having a rounded top edge with a pad thereon to simulate curvature of the shoulder cap. The pad is marked with indicia for a particular armhole size. The cut fabric also has indicia for a particular armhole size which is first aligned with the indicia on the pad and then pinned in place thereon. Repeated steam-pressing and drying shape the cut fabric of the desired curvature while being held in place on the former.

3,653,136

ROCKER ARM PRISM DISPLAY

Albert L. Ruppert, Middleton, Wis., assignor to Oak Electro/Netics Corp., Crystal Lake, Ill.

Continuation-in-part of application Ser. No. 747,717, July 25, 1968, now abandoned. This application May 19, 1969, Ser. No. 825,897

Int. Cl. G09f 11/00

U.S. Cl. 40—28 R

11 Claims



A display device in which one or more prisms are moved between at least two fixed positions. Each prism has an image surface, an object surface and a reflecting surface and there is indicia placed adjacent the path defined by movement of each object surface. The indicia is visible at an image surface in only one position of the prism.

3,653,137

COMPUTER

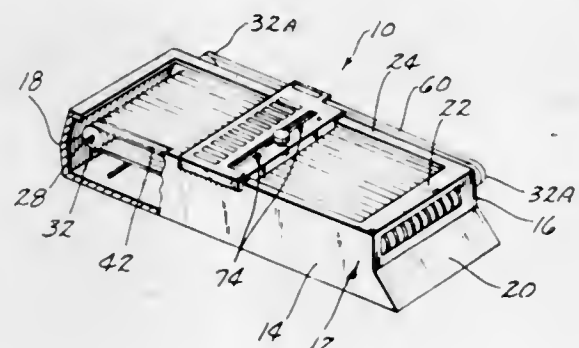
Richard S. Hansen, 675 44th Street, Des Moines, Iowa

Filed Mar. 9, 1970, Ser. No. 17,543

Int. Cl. G09f 11/28

U.S. Cl. 40—96.5

7 Claims



A device including a housing having pulleys at opposite ends over which a plurality of belts extend being exposed along their substantial length on the top side. A slider having an opening extending transversely of said belts is movable over the belts. Chronological information is provided on the belts and may be viewed over a substantial period of time through the top of the housing or for one unit of time in the viewing opening in the slider. One of the belts is provided with projection measuring indicia and is movable with the slider to measure into the future and into the past relative to the point of time registering in the viewing opening in the slider. Provision is made for positioning a belt outside of the housing so that belt substitution may be readily achieved. A clamping means is provided on the slider for engaging all the belts to move them with the slider to expose information on the bottom side of the belts.

3,653,138

CONTRASTING BACKGROUND DISPLAY

Irvin J. Cooper, White Bear Lake Township, Ramsey County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 13, 1970, Ser. No. 27,843

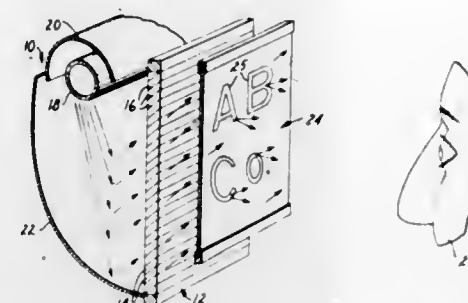
Int. Cl. G09f 13/06

U.S. Cl. 40—130 R

3 Claims

Contrasting background for display of letters, numbers, or other indicia is provided by using a sheet of louvered materi-

al in which thin parallel opaque louvers are set in a transparent matrix at an angle to the faces of the sheet. Light is made to pass through the louvered sheet generally parallel to the louvers at an angle to the faces of the sheet to display in-



dicia defined by a differential pattern of light diffusive and transparent areas. The light diffusive areas direct a portion of the incident light to an observer while the louvers are seen in contrast through the transparent areas.

3,653,139

FIRING MECHANISM FOR EXPLOSIVELY ACTUATED TOOL

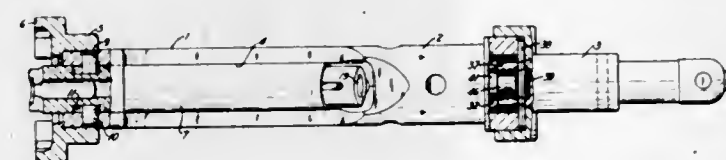
Ernest E. Temple, Murrysville, and George E. Heckathorne, Pittsburgh, both of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Nov. 3, 1970, Ser. No. 86,565

Int. Cl. B25c 1/10

U.S. Cl. 42—1 R

10 Claims



A spring normally holds a sleeve in a forward position in a housing. Supported by the housing in the rear end of the sleeve is a stop, in front of which a firing pin driver is slidably mounted and provided with a rearwardly opening axial bore and a plurality of circumferentially spaced radial holes. A shuttle rod is slidably mounted in the bore, in the front end of which there is a spring normally holding the rod in a rear position in the driver. A spring in the sleeve normally holds the driver in a forward position spaced from the stop. The inside of the sleeve has a recess opposite the driver holes, and a detent in each hole engages the shuttle rod and projects into the adjacent recess. The rod has a depression behind the holes deep enough to receive the detents when they are not projecting into the recess. A trigger retracts the sleeve in the housing to pull the detents and driver backward until the detents enter the rod depression to permit the driver spring to move the driver and rod forward together to fire a cartridge. When the trigger is released, the sleeve spring moves the sleeve forward so that the sleeve recess can receive the detents again to thereby permit the shuttle spring to return the shuttle rod to its rear position.

3,653,140

FIREARM RECEIVER MECHANISM WITH A ROLLER DETENT PIN FOR A TELESCOPIC BREECH-BOLT

James M. Alday, Williamson, N.Y., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

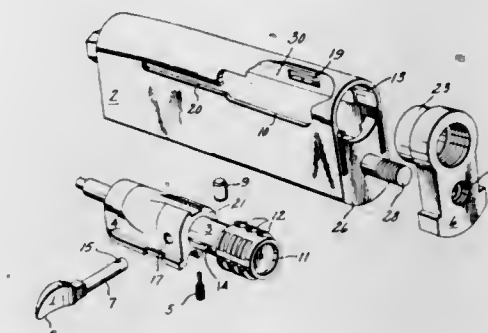
Filed May 4, 1970, Ser. No. 34,145

Int. Cl. F41c 11/06, 11/00

U.S. Cl. 42—16

1 Claim

A receiver mechanism for a firearm which provides for the proper engagement of the locking lugs of the bolt with the



locking abutments of the receiver. A roller-type pin acts as a detent to keep the bolt fully extended from the carrier when the bolt is open, so that the bolt lugs remain aligned with the locking abutments positioned in the fore-end of the receiver.

3,653,141

FISHING REEL MOUNT

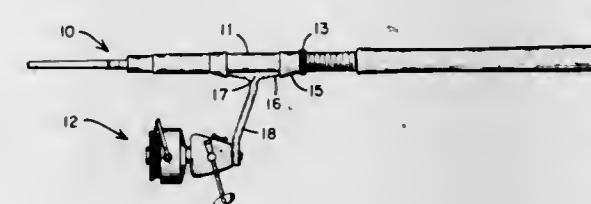
James T. Rumbaugh, Spirit Lake, Iowa, assignor to Berkley & Company, Inc., Spirit Lake, Iowa

Filed Jan. 30, 1970, Ser. No. 7,111

Int. Cl. A01k 87/06

U.S. Cl. 43—22

15 Claims



In combination with fishing reel means for dispensing and re-winding fishing line and having winding handle means for actuation thereof; a mounting foot means comprising a mounting shank portion with shoe means extending generally transversely of said mounting shank portion disposed at one end thereof, the shoe means preferably having generally symmetrical end portions for attaching to the reel mounting portion of a fishing rod-handle, the mounting shank portion and said shoe means presenting an asymmetrical disposition for said reel attaching means along the axial extent of said reel-mounting portion to control the axial disposition of said reel along said fishing rod handle, and reel-attaching means adjacent the opposed end of said mounting shank portion having means for mounting the reel on the foot while the foot is in either axial disposition, such as by providing mounting means on opposed faces with each face being adapted to receive a reel. Means are also provided for controlling the "tilt" of the reel relative to the shoe portion of the mounting foot.

3,653,142

FISHING LURE

William M. Finch, 3221 East Oregon, Phoenix, Ariz.

Filed July 22, 1970, Ser. No. 57,231

Int. Cl. A01k 85/00

U.S. Cl. 43—42.06

8 Claims

A fishing lure having a substantially rigid body provided with a substantially rigid loop structure rigidly coupled to

said forward end of said body, said loop structure defining a finger-receiving opening for handling said lure during the

ing insertion and removal of the reel from the holder easily and quickly. The holder is positioned at an angle to a supporting bracket and the fishing rod extends through the space formed by the angle.

3,653,145

ART OF CONTROLLING HOUSEFLIES

Daniel M. Stout, Kirkwood, Mo., assignor to Whitmire Research Laboratories, Inc., St. Louis, Mo.

Filed Dec. 10, 1969, Ser. No. 883,788

Int. Cl. A01m 1/20

U.S. Cl. 43-131

14 Claims



Killing flies by suspending, in a fly-infested area, a strip of paper or the like which has holes in it, and which has an obverse surface colored with luminescent material overprinted with pictorial illustrations of clusters of flies in postures which arouse the curiosity of other flies, the pictorial illustrations and the luminescent coating on the strip being intervened by white fields of substantially similar perimetrical contour as the flies in the pictorial illustrations; and the obverse surface of said strip carries fly food-toxin which may also be colored with luminescent material.

3,653,146

MODULAR TOY

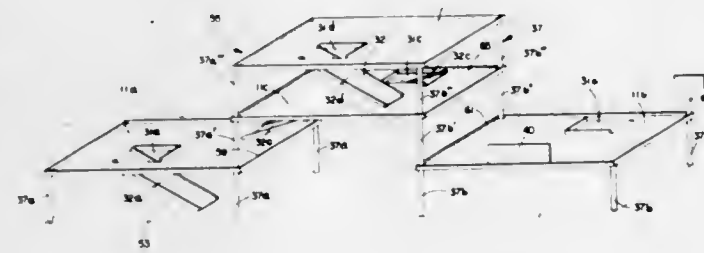
Adolph E. Goldfarb, 4614 Monarca Drive, Tarzana, Calif.

Filed Feb. 25, 1971, Ser. No. 118,781

Int. Cl. A63h 33/06

U.S. Cl. 46-17

16 Claims



A modular toy which can be used to form toy parking garages, service stations and the like for playing with toy vehicles. The toy comprises a plurality of flat solid panels, each having a top support surface and a plurality of apertures formed therethrough about its periphery, and separate columns which can be seated in the apertures to support the panels above a base surface and above each other in a stacked relationship. Each panel further has an enlarged opening therethrough and means for retaining a ramp at one

The invention relates to a tactile indicator on a fly casting line to indicate to a fisherman before the initial cast or when the line is being retrieved that the desired casting length of line is extended beyond the tip of the fly rod and that the rod and line are ready for casting.

3,653,144

FISHING ROD AND REEL STORAGE DEVICE

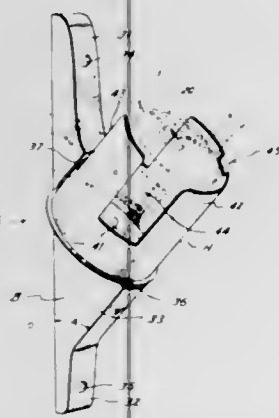
Arthur J. Rocka, Box 276, Route 1, Tomball, Tex.

Filed Apr. 23, 1970, Ser. No. 31,280

Int. Cl. A01k 97/00, 97/10

U.S. Cl. 43-54.5

7 Claims



Fishing rod and reel storage apparatus wherein the reel of the fishing rod is situated in a confining holder with an open-

edge of the opening, the ramp extending downwardly from the opening toward a lower surface. Thus, a child can erect a multi-leveled structure with a ramp extending from one level to the next in the manner of a parking garage.

3,653,147

TOY TOW TRUCK

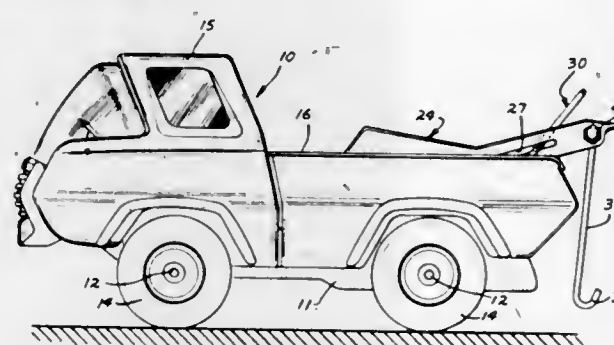
Theodore H. Zbikowski, Plymouth; Douglas S. Jensen, and Lee J. Pfeilsticker, both of Mound, all of Minn., assignors to Tonka Corporation, Mound, Minn.

Filed Mar. 15, 1971, Ser. No. 124,220

Int. Cl. A63h 33/30

U.S. Cl. 46-40

5 Claims



A toy tow truck having a hoist boom pivoted at its forward end to the truck body for raising and lowering movement with a tow bar suspended from the rear end of the boom and an upright lever having its lower end pivoted to the body and having an intermediate portion engaging a slot in the boom to raise and lower the boom as the lever is swung in fore and aft directions. The boom is locked into position by the lever which seats in its pivot sockets under internal spring tension eliminating the need for rivets or pivot pins to mount either component.

3,653,148

TOY

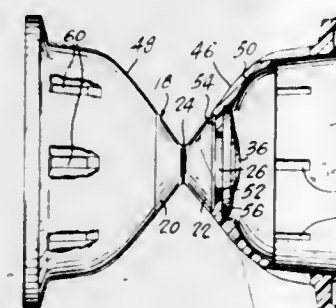
Henry Finkel, Montreal, Quebec, Canada, assignor to Twinpak Ltd., Dorval, Quebec, Canada

Filed Apr. 10, 1970, Ser. No. 27,311

Int. Cl. A63h 27/12

U.S. Cl. 46-60

7 Claims



A diabolo toy having a center rigid cord and soft cone portions extending therefrom, and a snap-lock cap locking the soft cone portions and the cord.

3,653,149

SIMULATED HIGH PERFORMANCE MINIATURE TOY VEHICLE

Brian S. Prodder, Torrance, and Orbert S. Smith, Hawthorne, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Sept. 18, 1970, Ser. No. 73,424

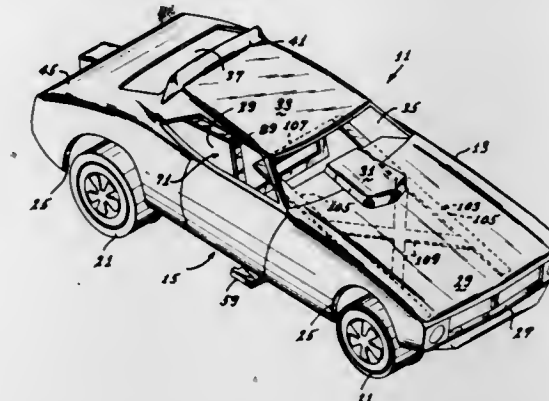
Int. Cl. A63h 17/26

U.S. Cl. 46-201

13 Claims

A toy vehicle body simulating a high performance vehicle is hingedly attached to a toy vehicle chassis and a body sup-

port member is hingedly attached to the toy vehicle chassis to support the toy vehicle body above the toy vehicle chassis



to allow the exposure of the toy vehicle's engine and interior assembly, when desired.

3,653,150

SOLAR DISTILLATION IRRIGATION APPARATUS

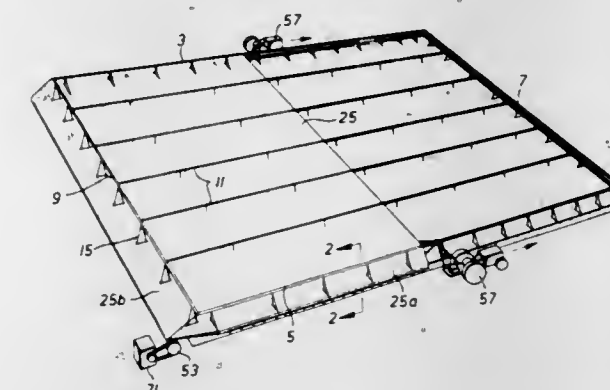
Lloyd V. Howard, P.O. Box 78, Keno, Oreg.

Filed Dec. 5, 1968, Ser. No. 781,404

Int. Cl. A01g 13/04

U.S. Cl. 47-29

1 Claim



A transparent plastic cover constructed and adapted to be deployed over and removed from a multi-acreage field. The plastic cover is supported on an appropriate beam structure and is drawn thereover by powered means. The side panels of the plastic cover contain water tubes which are drawn through a water filled trough in the ground contemporaneously with the covering operation in order to facilitate movement of the cover over its supporting structure. Upon deployment of the cover, the trough water level is lowered so as to tighten the cover down upon the structure.

3,653,151

AIRFOIL STRUCTURE

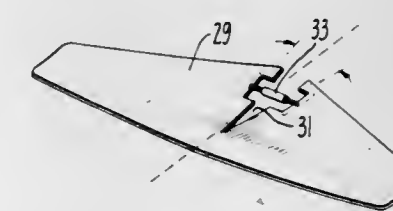
Andre J. M. Laurent, Box 586, Los Alamos, Calif.

Continuation of application Ser. No. 764,181, Oct. 1, 1968, now abandoned. This application Oct. 13, 1970, Ser. No. 80,463

Int. Cl. A63h 27/00

U.S. Cl. 46-76 A

3 Claims



An airfoil is provided by distorting a relatively stiff piece of a solid material. One starts with an elongated thin, stiff

material and forms a gore in the trailing surface and then at least partially closes the gore. This distorts the thin material into a stable, airfoil configuration.

3,653,152

DOLL PULLSTRING-CONTROLLED SECONDARY ANIMATION

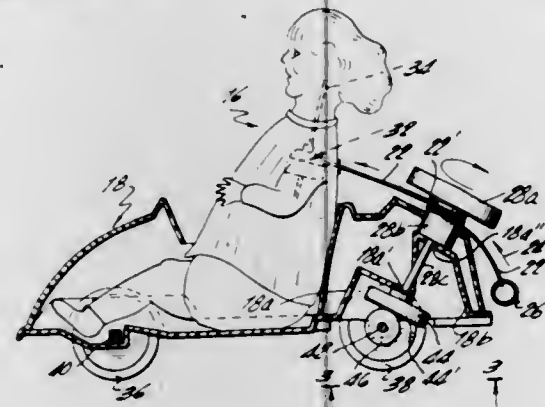
Richard Levine, Howard Beach, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.

Filed Feb. 18, 1970, Ser. No. 12,284

Int. Cl. A63h 13/00

U.S. Cl. 46—116

5 Claims



An attachment for a spring-driven doll in which a pull-string is provided to wind up the spring, and the subsequent unwinding of the spring controls a primary animation function. The attachment includes a mechanism for being driven exclusively by the string as it is drawn back into the doll during unwinding of the spring, this mechanism in turn controlling a visible secondary animation function, e.g., movement of a car in which the doll is placed or the sitting up of the doll in a carriage.

ERRATUM

For Class 47—29 sec:
Patent No. 3,653,150

3,653,153

LATERALLY MOVABLE DOOR AND OPERATING MECHANISM THEREFOR

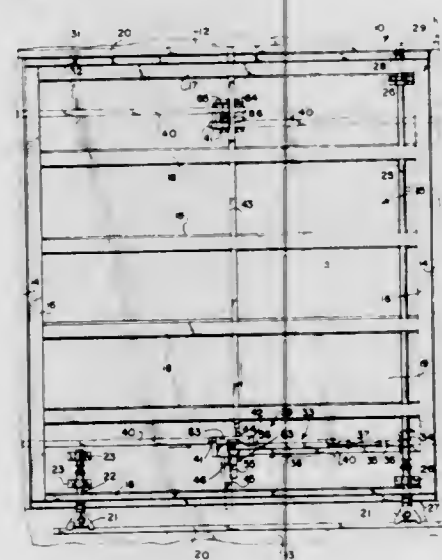
Ernest J. Nagy, Munster, Ind., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 10, 1970, Ser. No. 96,810

Int. Cl. E05d 15/10

U.S. Cl. 49—220

13 Claims



A railroad car door of a type which is laterally movable outwardly from a door opening and slidable to one side

thereof includes a pipe and crank mechanism for moving the door laterally and for sliding locking bolts into engagement with a door frame to lock the same in a closed position. An operating mechanism includes a rotatable pinion drive means which is adapted to drive racks on the locking bolts for reciprocating the same. The pinion is rotatable by means of a handle lever movable in a position parallel to the door for rotating the pinion to effectuate operation of the sliding bolts. The handle is also connected to a linkage assembly which during horizontal movement rotates the pipe and crank arms for moving the door outwardly with respect to the door opening. The linkage assembly is also connected to the handle which after it has been rotated to a position opening the locking bolt is movable in another direction to effectuate operation of the pipe and crank arms.

3,653,154

DOOR ACTUATOR

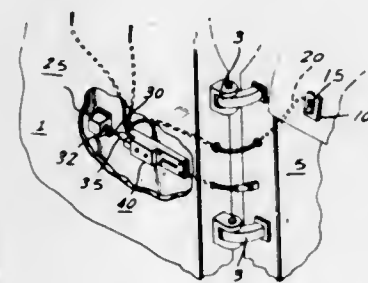
William Hayday, Flawborough, near Orston, England, assignor to Power Car Door Corporation, Cherry Hill, N.J.

Filed Feb. 11, 1970, Ser. No. 10,454

Int. Cl. E05f 15/12

U.S. Cl. 49—280

37 Claims



A door actuator device to automatically, by means of a remotely actuated electrical switch, complete the opening as well as closing and locking cycle of a door. The actuator device is driven by a D. C., externally powered motor. In the opening cycle of a closed and locked door, the motor drives a latch mechanism which releases the door wherein the door lock and latch are interconnected and release of the latch also releases the lock. In the closing cycle of an open door, an automatic locking mechanism latches and locks the door member. The operator has the option of overriding the actuator device to open and close the door manually.

3,653,155

DOUBLE DOOR ASTRAGAL

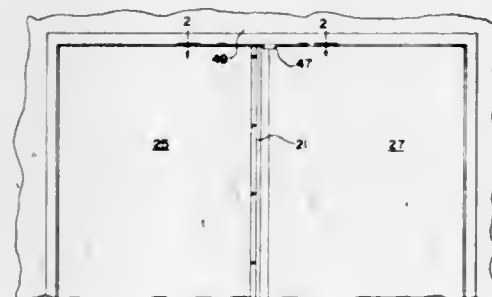
Kops Paul F. de Brunyn, Jr., Orinda, and Victor J. Rivers, San Leandro, both of Calif., assignors to Pemko Manufacturing Co.

Filed Apr. 3, 1970, Ser. No. 25,431

Int. Cl. E06b 7/20

U.S. Cl. 49—313

3 Claims



An astragal for covering the vertical seam between a pair of double doors, said astragal having a hinge portion secured

to one of said doors along the seam with a leaf portion rotatably secured to the hinge portion and spring loaded and cam actuated to automatically cover and uncover the seam when either of the doors is opened or closed.

3,653,156

GLASS DOORS

William J. Horgan, Jr., Pittsburgh, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Filed Feb. 21, 1968, Ser. No. 707,055

Int. Cl. E06b 3/00

U.S. Cl. 49—501

2 Claims



A door made of glass and metal channel members.

In one embodiment, the channel members comprise a top member and a bottom member, each being shaped to receive the glass in a shallow channel.

In an alternate embodiment there are four members, i.e., two side members, a top member and a bottom member. The base of each channel of the side members is held away from the glass by spacers. The channels are adhered to the glass by adhesive. The channel members have holes therein communicating the space formed by the channel with the atmosphere to cure the adhesive.

3,653,157

SLIDING GLASS DOOR ASSEMBLY

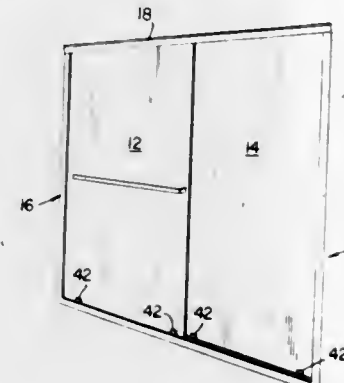
Ralph T. Casebolt, 380 Elysian Fields Drive, Oakland, Calif.

Filed June 22, 1967, Ser. No. 648,139

Int. Cl. E02d 13/02

U.S. Cl. 49—411

6 Claims



A sliding shower door assembly having a frameless glass panel provided at its lower margin with a pair of spaced bearing elements of resilient, long-wearing material. The panel is movable in a vertical plane and has its lower margin retained in a longitudinal groove of a generally horizontal guide member. The bearing elements are proximal to and bear against the sides of the groove to keep the panel out of contact with the guide member and to minimize the sound arising from the movement of the panel.

3,653,158

ARRANGEMENT FOR SUPPORTING A CLOSURE MEMBER FROM A TRACK

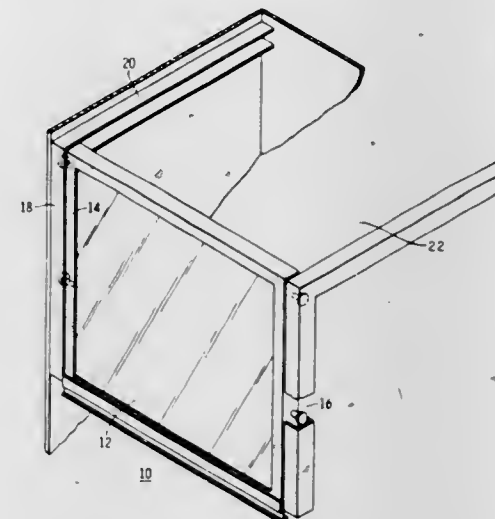
John R. Aue, and Glen D. Thompson, Columbus, both of Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 22, 1970, Ser. No. 48,055

Int. Cl. E05d 13/02

U.S. Cl. 49—417

8 Claims



In the titled arrangement, a guide pin which is received by the track is assembled with a retainer with the assembly being carried by a pair of spaced-apart walls connected to the closure member and being axially displaceable relative thereto, the retainer including an arm adapted for selective engagement and disengagement with one of the two spaced-apart walls in accordance with the rotative position of the retainer to hold the assembly in an extended position with the guide member in the track, and to permit the assembly to be axially moved to a retracted position in which the guide member is out of the track.

3,653,159

CROSS-SLIDE OF A COMBINATION TOOL MACHINE, IN PARTICULAR PLANING AND GRINDING MACHINE

Gerhard Ladewig, Coburg am Bayern, Germany, assignor to Werkzeugmaschinenfabrik Adolf Waldrich Coburg, Coburg am Bayern, Germany

Filed Feb. 24, 1970, Ser. No. 13,671

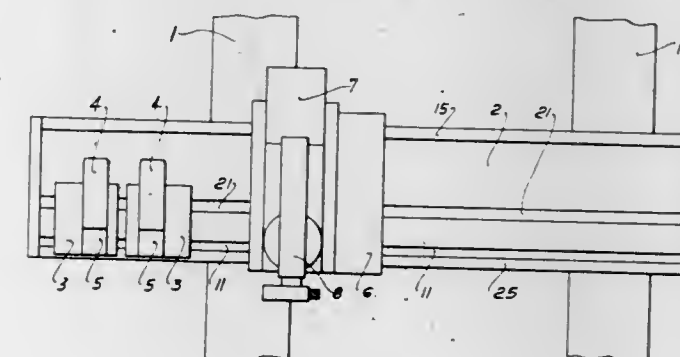
Claims priority, application Germany, Mar. 20, 1969, G 69

11 232

Int. Cl. B24b 7/00

U.S. Cl. 51—5

3 Claims



A cross-slide of a combination tool machine with separate parallel slideways for multiple supports of different working units.

3,653,160

LAPPING MACHINE AND METHOD

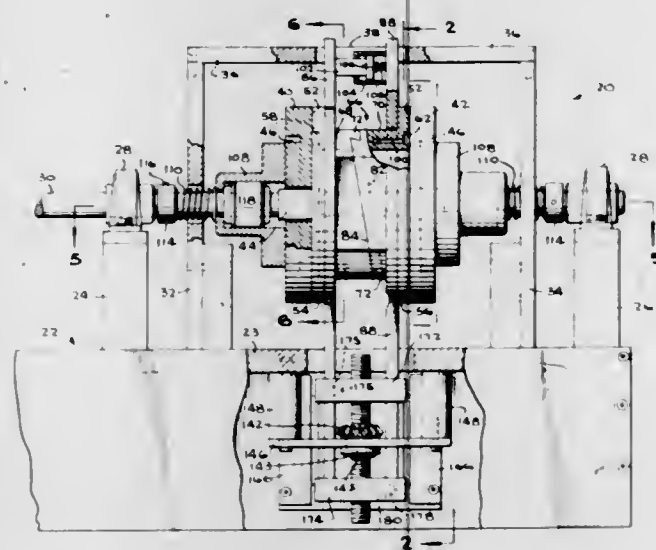
John A. Raickle, Hopewell Junction, N.Y., assignor to Industrial Micronics Incorporated, Leesburgh, Va.

Filed Apr. 23, 1969, Ser. No. 818,501

Int. Cl. B24b 7/02

U.S. Cl. 51-109

18 Claims



A lapping machine employing first and second lapping discs mounted coaxially for rotation and having first and second air cushion means for biasing the discs outwardly with respect to each other against the inwardly biasing force of spring means engaging the outer sides of the discs with the air cushion means being mounted for axial adjustment with respect to each other to consequently adjust the axial distance between the discs and with such adjustments being enabled by means of adjustable shift plates supporting the air cushion means and movable toward and from each other by means of first and second dovetail wedge block couples located on each end of said plates so that relative movement of the plates with respect to each other causes the plates to move toward or away from each other.

3,653,161

METHOD AND APPARATUS FOR TURNING WORKPIECES AND UTILIZING PROGRAMMED DATA

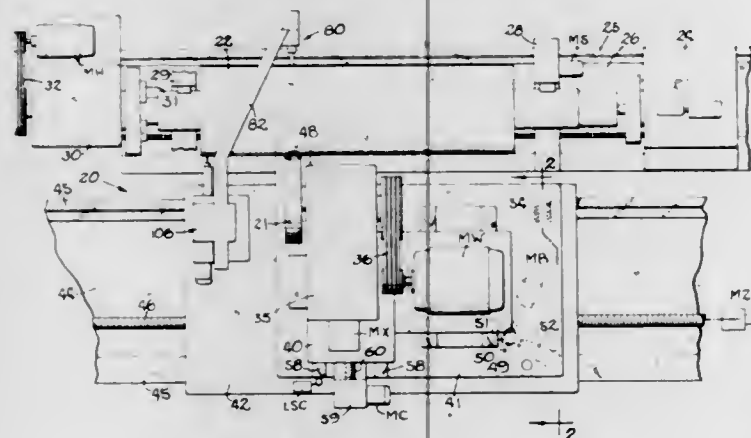
Stephen C. Clark, Jr., Phoenixville, Pa., assignor to The Ingersoll Milling Machine Company, Rockford, Ill.

Original application Jan. 10, 1969, Ser. No. 790,323. Divided and this application Jan. 25, 1971, Ser. No. 109,522

Int. Cl. B24b 5/04

U.S. Cl. 51-165 TP

11 Claims



Disclosed here are methods and automatic apparatus for grinding cylindrical workpieces, such as the contoured rolls used in metal rolling mills. The methods and apparatus involve (1) automatic finding of the lengthwise center of rolls

of different and undetermined lengths so as to establish a reference position for the execution of a numerically programmed path defined relative to the center of a roll as a point of symmetry, (2) the storage of the successive instructions of multi-axis movements making up a numerically defined profile or contoured path, and the use of those instructions repeatedly and in whole or in part as called for by different ones of a sequence of commands read from storage and executed in succession, (3) the automatic alignment of the roll axis parallel to the longitudinal axis of motion in a grinding machine by pivoting of one end of the roll about the other until the sensed difference in positions of the roll surface, along an axis transverse to the longitudinal axis and at locations near opposite ends of the roll, is changed to a predetermined fraction of the originally sensed difference, (4) the initiation of grinding passes from that end of a roll which is largest in diameter, so as to avoid "digging in" or increasing the depth of wheel bite as the wheel moves lengthwise of the roll, (5) the execution of continuous passes of the grinding wheel with pre-programmed values of feed rate, wheel speed, roll speed, continuous infeed and incremental infeed until a pre-programmed thickness of material has been removed from the roll surface, and (6) the grinding down of a roll until it is reduced to a diameter equal that of a previously ground roll of a matched pair. These functions are all obtained by the calling out and execution of pre-established routines in response to the reading from storage of pre-programmed sequence commands, so that in the disclosed method and apparatus there is an automatic progression from each type of operation to the next, and with the following of numerically defined profile whenever it is required.

3,653,162

APPARATUS FOR TURNING WORKPIECES

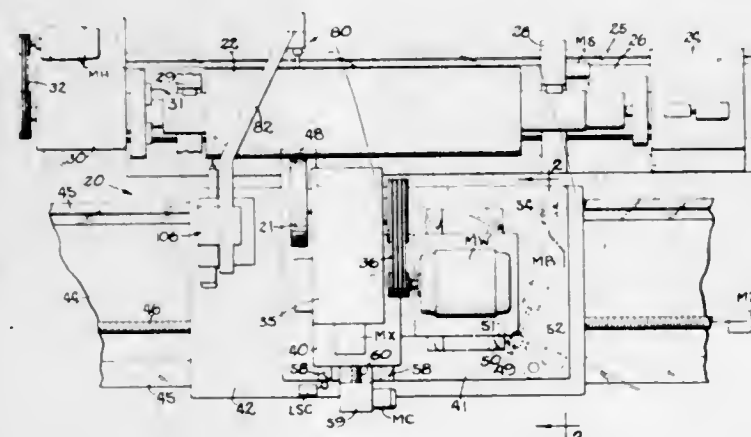
Stephen C. Clark, Jr., Phoenixville, Pa., assignor to The Ingersoll Milling Machine Company, Rockford, Ill.

Original application Jan. 10, 1969, Ser. No. 790,323. Divided and this application Jan. 25, 1971, Ser. No. 109,525

Int. Cl. B24b 5/04

U.S. Cl. 51-165 TP

8 Claims



Disclosed here are methods and automatic apparatus for grinding cylindrical workpieces, such as the contoured rolls used in metal rolling mills. The methods and apparatus involve (1) automatic finding of the lengthwise center of rolls of different and undetermined lengths so as to establish a reference position for the execution of a numerically programmed path defined relative to the center of a roll as a point of symmetry, (2) the storage of the successive instructions of multi-axis movements making up a numerically defined profile or contoured path, and the use of those instructions repeatedly and in whole or in part as called for by different ones of a sequence of commands read from storage and executed in succession, (3) the automatic alignment of the roll axis parallel to the longitudinal axis of motion in a

grinding machine by pivoting of one end of the roll about the other until the sensed difference in positions of the roll surface, along an axis transverse to the longitudinal axis and at locations near opposite ends of the roll, is changed to a predetermined fraction of the originally sensed difference, (4) the initiation of grinding passes from that end of a roll which is largest in diameter, so as to avoid "digging in" or increasing the depth of wheel bite as the wheel moves lengthwise of the roll, (5) the execution of continuous passes of the grinding wheel with pre-programmed values of feed rate, wheel speed, roll speed, continuous infeed and incremental infeed until a preprogrammed thickness of material has been removed from the roll surface, and (6) the grinding down of a roll until it is reduced to a diameter equal that of a previously ground roll of a matched pair. These functions are all obtained by the calling out and execution of pre-established routines in response to the reading from storage of pre-programmed sequence commands, so that in the disclosed method and apparatus there is an automatic progression from each type of operation to the next, and with the following of numerically defined profile whenever it is required.

3,653,163

MACHINE TOOL GRINDING FIXTURE

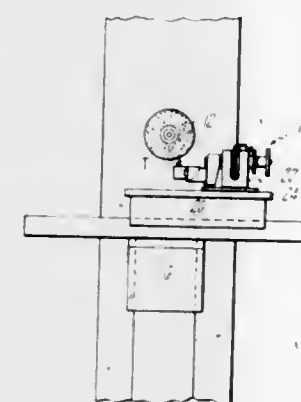
Louis J. Evon, P. O. Box 4, Watertown, Conn.

Filed Mar. 10, 1970, Ser. No. 18,105

Int. Cl. B24b 19/00

U.S. Cl. 51-218 R

8 Claims



A fixture for refacing rectangular, cylindrical, or circular cutting tools with angled and curved surfaces including a radius device having a holder mounted for radial adjustment upon a rotary shaft and also having rotary adjustment in the plane of the shaft.

3,653,164

SLIDE FENDER WITH FORMED FLEXIBLE PROTECTOR

Ralph E. Price, and Kurt M. Gebel, both of Waynesboro, Pa., assignors to Landis Tool Company

Filed June 12, 1970, Ser. No. 45,652

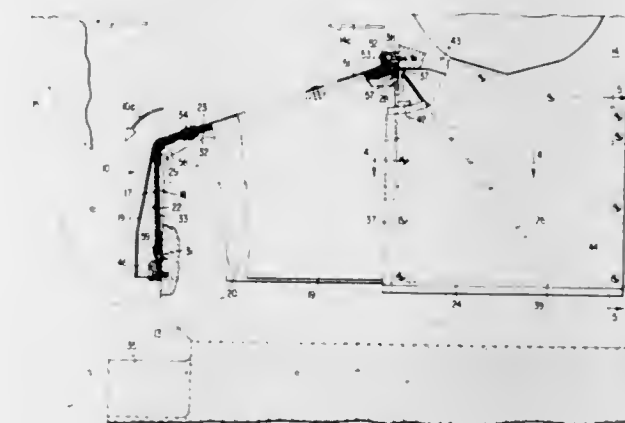
Int. Cl. B24b 55/04

U.S. Cl. 51-268

12 Claims

A fender assembly (10) secured to a slidable member (14) of a machine tool, such as the wheelhead of a grinding machine, to seal and protect the guide ways (11,12) of a stationary slide (13). The assembly includes a formed flexible protector (17) mounted between inner and outer fenders (18, 19). The slide fender assembly (10) is pivotally secured to the wheelhead (14) and the stationary slide (13) and rotates in a counterclockwise direction to cover the ways

when the grinding wheel is advanced for stock removal. The flexible protector (17) is molded of urethane or other



moisture-proof material, to enable its thin walls to flex by a rolling loop principle to take up and release slack material.

3,653,165

EXPANDABLE BUILDING WITH TELESCOPING ENCLOSURES AND HINGEDLY CONNECTED BARRIERS

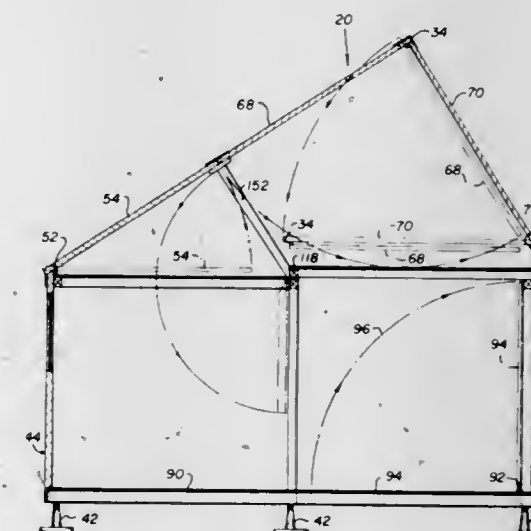
Charles A. West, 232 Jerome Avenue, Carle Place, N.Y.

Filed Apr. 22, 1970, Ser. No. 30,896

Int. Cl. E04b 1/344, 1/348, 1/36

U.S. Cl. 52-67

2 Claims



A building formed of at least two sections expandable from a compact, telescoped arrangement which is convenient for storage and transportation into an erected condition bounding a cabin-type enclosure, each section further having cooperating roof constructions which unfold to provide the necessary headroom for the enclosure and which also contribute a desirable gabled appearance to the completed building.

3,653,166

LAMINATED ROOF CONSTRUCTION

Solomon Kirschen, 1727 Danford Street, Philadelphia, Pa.

Filed Nov. 18, 1969, Ser. No. 877,605

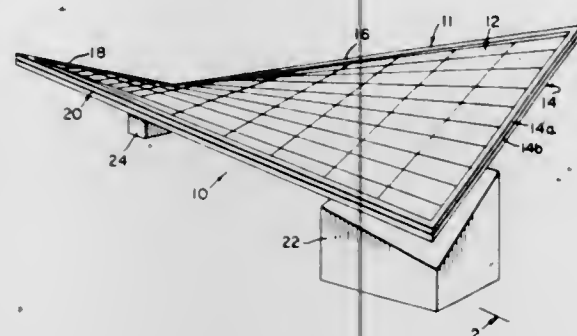
Int. Cl. E04b 7/10; E04d 3/02

U.S. Cl. 52-80

3 Claims

A roof construction comprised of a shell having a hyperbolic paraboloid configuration defined by a pair of superimposed plywood layers, each layer being comprised of a plu-

ality of substantially flat plywood segments joined together at contiguous surfaces to form two sets of joints. In each layer the joints of one set are perpendicularly disposed to the joints of the other set, and each set of joints in one layer is



substantially parallel to, and laterally offset from a corresponding set of joints in the other layer. Edge beams are joined to the shell about the outer periphery thereof, and are supported by diametrically opposed buttresses.

3,653,167

ANCHORAGE APPARATUS

Louis F. Menard, Paris, France, assignor to Techniques Louis Menard, Longjumeau and Compagnie Francaise des Petroles, Paris, France

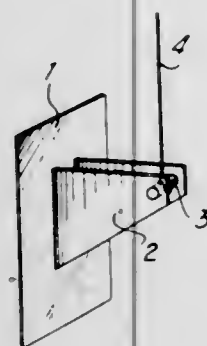
Filed Jan. 29, 1970, Ser. No. 11,249

Claims priority, application France, Feb. 7, 1969, 6902928

Int. Cl. E02d 5/80

U.S. Cl. 52-162

6 Claims



For an anchorage in the ground, an anchoring head is provided which can be driven into the ground in an orientation providing a small frontal area and small resistance to the driving-in force. Attached to the head at a point laterally offset therefrom is a rod or cable through which the anchoring force is to be transmitted. When the head has been driven in to the anchorage depth, tension is applied to the rod or cable which, by virtue of said offset, tilts the head into a different orientation in which it presents much greater resistance to pull-out forces.

3,653,168

TRAILER PIERS

Elbert W. Cook, 5461 Eastside Road, Redding, Calif.

Filed May 11, 1970, Ser. No. 36,859

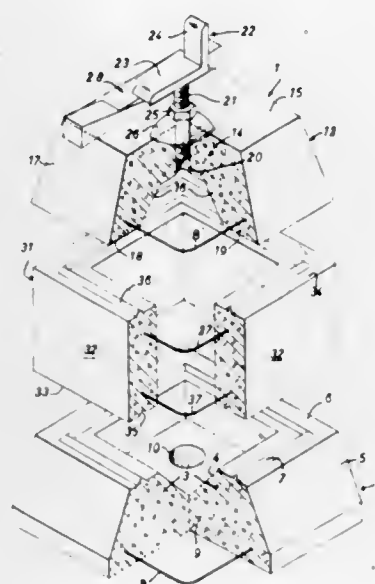
Int. Cl. E02d 5/52, 27/48

U.S. Cl. 52-294

1 Claim

Trailer piers of separate elements interengageable in superposed relation in vertical alignment in different numbers from one pair to a plurality of adjacent pairs to provide piers of different heights. In each instance the pier so formed pro-

vides convergently upwardly extending side walls, a broad, horizontal lower ground-engaging surface, a smaller, but relatively large upper wall centrally apertured for a conventional



vertical, trailer-engaging bolt and height-adjusting nut, which upper wall is adequate for supporting a set of wedges for rigidly supporting the trailer independently of said bolt after the trailer has been levelled.

3,653,169

MOUNTING ARRANGEMENT FOR ERECTED BUILDING MODULES

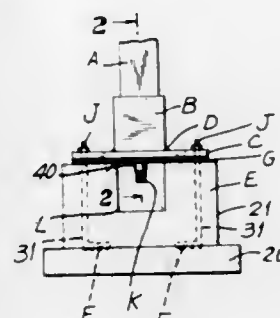
Myron Jenner, c/o Jen Products, Inc., Bethel, Vt.

Filed Feb. 11, 1970, Ser. No. 10,342

Int. Cl. E02d 27/00

U.S. Cl. 52-296

10 Claims



Legs of modular components of building structures, in the form of hollow columns of rectangular cross-section, are anchored to a base by having their lower ends received in sockets rising from that base. Within each socket, which may be designed to accommodate one or more columns, two pyramidal spreaders with oppositely sloping surfaces are coaxially disposed above and below a median plane within each column end and are positively engaged, via dovetail couplings, with respective sets of wedge-shaped shoes contacting their outer surfaces; a turnbuckle-type leadscrew, passing axially through these spreaders, engages them with two oppositely threaded stem portions to move them toward or away from each other while the shoes are held by tension springs against an interposed annular spacer. Rotation of the turnbuckle in a predetermined direction thus moves the shoes apart and against the column walls upon which they bear via narrow ribs, thereby clamping the column in position within the socket.

3,653,170

INSULATED MASONRY BLOCKS

Addison C. Sheckler, Bonta Bridge Road, Cato, N.Y.

Continuation of application Ser. No. 141,174, Sept. 27, 1961,

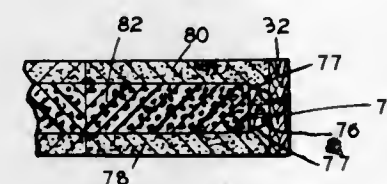
now abandoned. This application Nov. 2, 1966, Ser. No.

591,651

Int. Cl. E04b 2/02, 1/64

U.S. Cl. 52-375

4 Claims



A wall construction having a plurality of contiguous courses of contiguous blocks adhesively secured to each other, each block comprising external and internal solid load bearing masonry portions with an intervening cellular heat insulating organic foam material portion bonded therebetween, wherein the thicknesses of the inner, outer, and intervening portions are substantially the same, and wherein a filamentary reinforcing grid composed of a plurality of closely spaced lengthwise extending filaments in two groups overlying successive internal and external portions of the blocks and low heat conducting cross ties for the filaments and extending across the cellular block portion in selected courses of the blocks in the wall. A moisture and heat sealing head may be applied between the courses and at the block ends within a course in the area of the cellular foam.

3,653,171

SPIRAL WIRE FASTENER FOR SHEETS OF MATERIAL

James M. Galloway, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Continuation-in-part of application Ser. No. 760,308, Sept.

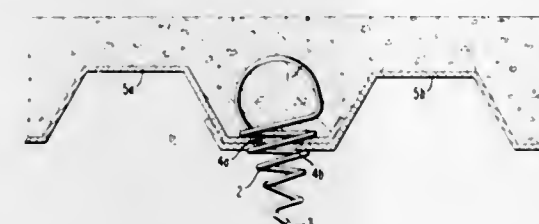
17, 1968, now abandoned. This application June 18, 1969,

Ser. No. 839,776

Int. Cl. E04d 3/365

U.S. Cl. 52-521

2 Claims



A wire fastener for tightly holding together, and anchoring to a concrete slab, overlapping portions of metal sheets used as sections of a permanent concrete form. A portion of the wire forms a spiral which is screwed into coinciding holes in the overlapping portions of the sheets whereby adjacent turns of said spiral frictionally engage the outer sides of the outermost of said sheets. The wire also has a loop extending from the large end of the spiral which provides means for turning said spiral. Wireway ducts interposed between the metal sheets may also be held in place by the wire fastener.

3,653,172

METAL STUDDING WALL STRUCTURES

Paul Schwartz, 249 Brainard Drive, Youngstown, Ohio

Filed Jan. 30, 1970, Ser. No. 7,091

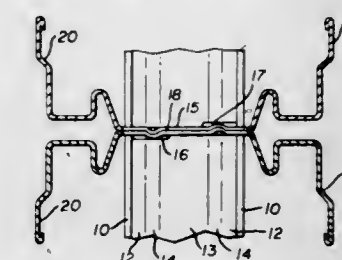
Int. Cl. E04c 3/40

U.S. Cl. 52-669

2 Claims

A wall structure comprising a spacing channel having a cross sectional configuration defining an elongated channel

with a secondary channel formed axially thereof and provided with evenly spaced transversely extending slots positioned horizontally through a plurality of metal studding so as



to engage each of the metal studdings in one of said transverse slots so as to hold the studding in predetermined spaced relation to one another in pair wall structure.

3,653,173

LOADING DOCK SHELTERS

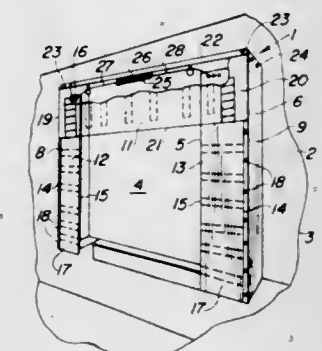
Cyril P. Frommelt; and Sylvan J. Frommelt, both of Dubuque, Iowa, assignors to Dubuque Awning & Tent Company, Dubuque, Iowa

Filed Dec. 3, 1969, Ser. No. 881,703

Int. Cl. E04b 1/343; E06b 1/04

U.S. Cl. 52-173

7 Claims



A loading dock shelter embodying side panels normally disposed in outwardly spaced, substantially parallel relation to a wall, with a resilient member extending between the upper portions of the panels for yieldingly holding them in such normal position.

3,653,174

METHOD AND APPARATUS FOR IMPREGNATING FABRICS, MORE PARTICULARLY GLASS CLOTHS, WITH PLASTICS

Andre Violleau, Vitrolles Le Roucas, and Rene Louis Coffy,

Marseille, both of France, assignors to Sud-Aviation Societe

Nationale de Constructions Aeronautiques, Paris, France

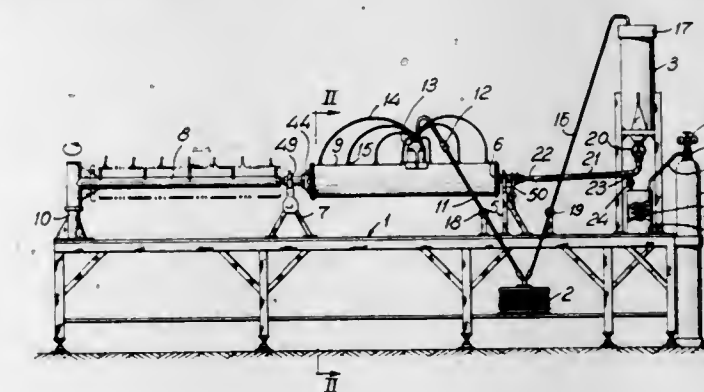
Filed Dec. 18, 1969, Ser. No. 886,198

Claims priority, application France, Dec. 12, 1968, 178866

Int. Cl. B65b 55/22

U.S. Cl. 53-21

7 Claims



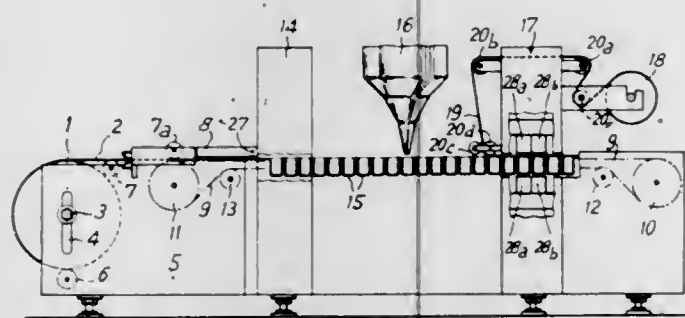
A method for impregnating fabrics, more particularly but not exclusively glass cloths, with plastics such as synthetic

resins still in the fluid state, wherein a roll of the fabric is first subjected to the action of a substance intended to enhance the intimacy of the bond between the fibers and the impregnating plastic, and is thereafter exposed to a vacuum together with said plastic, following which the plastic content of the fabric is calibrated and the impregnated fabric is finally packaged for storage.

3,653,175

MACHINE FOR CONDITIONING PACKINGS

Etienne Marie Rogiers, Daknam, Lokeren, Belgium, assignor to Intercon S.A., Fribourg, Switzerland
Filed Jan. 14, 1970, Ser. No. 2,908
Claims priority, application Belgium, Jan. 21, 1969, 69004
Int. Cl. B65b 47/02, 47/08
U.S. Cl. 53-184 10 Claims



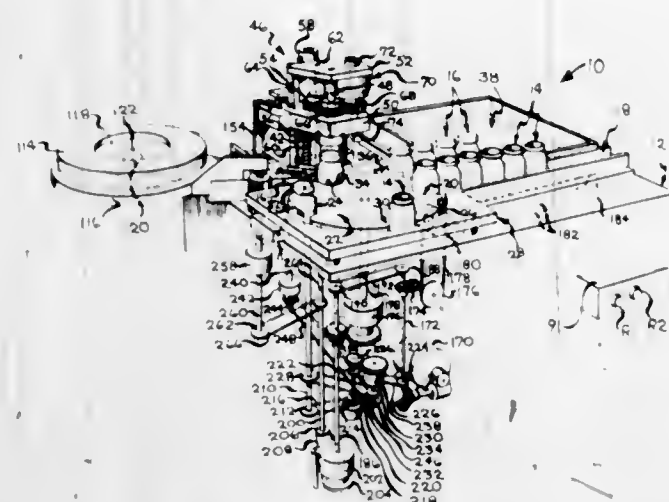
This invention relates to a machine for conditioning packings of foodstuffs and/or pharmaceutical products, comprising on the same fixed frame and mounted in series, a roller for supporting a thermoplastics film, a mechanism for guiding and conveying the edges of the thermoplastics film, said mechanism comprising a series of clips mounted on endless chains extending along the whole of the machine, a station for heating the thermoplastics film, a station for forming containers from the thermoplastics film, a filling station for loading the containers with the material to be packed, a welding station for closing a covering sheet over the filled containers and a station for cutting out the filled and closed containers, wherein each clip of the mechanism for guiding and conveying the thermoplastics film is constituted by a stop which is fixed with respect to its conveyor chain, the upper face of which stop is located substantially in the same plane as the lower face of the thermoplastics film and by a stop which is movable with respect to the fixed stop and urged by a spring against this latter and wherein at least one endless support chain is placed below the path of the thermoplastics film in a zone thereof located upstream of the station for forming the containers, the endless chains of the guide and conveyor mechanism and the support chain being connected to a step by step synchronism drive mechanism, the advance speed of which is sinusoidal; the heating plate of the heating station comprises resistors in the form of metal strips parallel to the thermoplastics film and perpendicular to the direction of displacement of this latter, and is articulated at its downstream end to a horizontal shaft and cooperates with a lifting member, said heating plate having rapid thermal response; the forming station comprises a vertically movable unit supporting a hollow mould and a vertically movable support arranged above the movable unit and provided with a pre-forming piston passing through a central bore open at its ends and made in a vertically movable locking plate of such dimensions that it defines with the wall of this bore, whatever the position of said piston between its end positions, a small space that may be obturated by the movable support and connected to a source of pressurized fluid at the end of the pre-forming stroke of the piston by means of a contact controlled by the movable support; a support roller for the covering sheet is arranged downstream of the filling station; and the welding tools and the cutting out tools are combined in one station only and may effect simultaneously the welding

of the covering sheet on the containers filled with the material to be packed and the cutting out, at least partial, of the closed containers, said tools being arranged so that the welding of the covering sheet is carried out inside the zone where the containers are cut out.

3,653,176

APPARATUS FOR FILLING, CLOSING, AND LABELING CONTAINERS

Larry C. Gess, Samaria, Mich., assignor to Xebec Corporation, Toledo, Ohio
Filed Apr. 6, 1970, Ser. No. 25,925
Int. Cl. B65b 57/02; B65c 3/16
U.S. Cl. 53-64 22 Claims

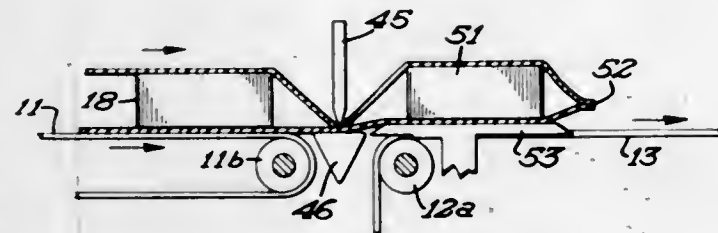


A compact, simplified machine is provided for sealing and labeling containers such as bottles. The machine is designed particularly for hospitals and the like requiring a relatively small number of one-dose bottles to provide liquid medicine for patients. Stations are provided for filling the bottles and placing caps thereon. The machine also has a station where the bottles are rotated to simultaneously crimp the caps thereon and apply labels thereto. A printing device is located on the machine which applies the proper indicia to the labels prior to being affixed to the bottles, and a unique system for feeding the labels to the bottles.

3,653,177

RETARDER MECHANISM

Richard C. Adams, West Barrington; John A. Merian, Barrington, and John McGlashan, Pawtucket, all of R.I., assignors to G. T. Schjeldahl, Northfield, Minn.
Filed Mar. 2, 1970, Ser. No. 15,660
Int. Cl. B65b 9/06, 9/12, 51/30
U.S. Cl. 53-182 7 Claims



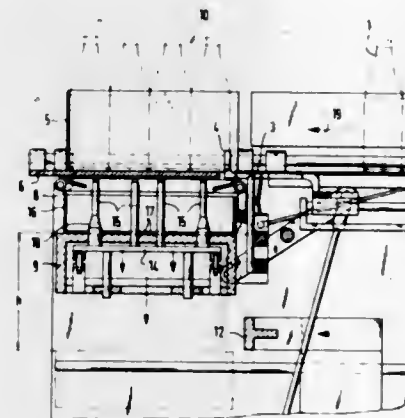
Apparatus for wrapping articles with shrinkable film and comprising, in combination, an endless article conveyor means having an article receiving end and an article delivery end, the conveyor means comprising a plurality of parallel disposed belts having gaps formed between adjacent belts and being adapted to run continuously. Means are provided for sequentially delivering articles to be wrapped in a first predetermined spaced relationship onto the article receiving

end of the conveyor, and means provided adjacent the receiving end for applying a wrap of film about the articles being wrapped and for enclosing the articles within a tubular container or enclosure with an axis parallel to the direction of motion of the conveyor. A transverse welding and severing bar is provided for severing the film between adjacent spaced wrapped articles, and for forming a transverse welded closure about the articles, and in order to reduce the tension on the film between adjacent articles, means are provided to stop or retard the motion of each article as its trailing edge passes beyond the zone of the welding bar, this motion interrupting or retarding mechanism effectively reducing the tension in the wrapping film which would otherwise be established between the successive articles as the welding bar moves downwardly into contact with the film surfaces being sealed.

3,653,178

APPARATUS FOR CHARGING TRAYS HAVING A SURROUNDING FLANGE WITH ARTICLES ORDERED IN GROUPS

Everhard Bauer, Hudeweg 2, Paderborn, Germany
Filed Apr. 16, 1970, Ser. No. 29,233
Claims priority, application Germany, Jan. 5, 1970, P 20 00 264.6
Int. Cl. B65b 5/06, 21/04, 35/40
U.S. Cl. 53-159 13 Claims



Articles are charged into the tray a group at a time. Each group of articles are pushed into a chute box having a removable bottom. The bottom of the chute box is subsequently quickly removed so that the articles of the group fall by gravity into a tray which is disposed under the chute box.

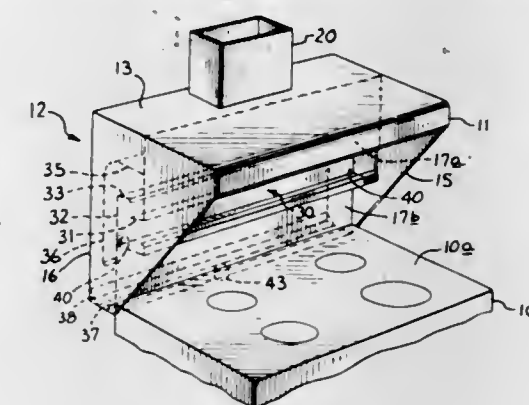
3,653,179

GREASE EXTRACTOR METHOD

De Witt H. Doane, Long Grove, Ill., assignor to Cockle Ventilator Company, Inc., Wheeling, Ill.
Original application Oct. 2, 1967, Ser. No. 672,314, now Patent No. 3,490,206. Divided and this application June 5, 1969, Ser. No. 830,805
Int. Cl. B01d 45/12 5 Claims

A flame proof grease extraction system for removing grease, oil and other condensable contaminants from a vaporous exhaust stream in a kitchen ventilating system. The grease extraction system comprises a housing with an entranceway for receiving the exhaust stream, an outlet for discharging the exhaust stream into a duct which contains a blower or fan for drawing the exhaust stream through the extraction system, and internal baffle means for guiding the exhaust stream along a predetermined path designed to provide the extracting action. The baffle arrangement includes an entrance baffle which extends rearwardly from the top of the entranceway for deflecting the entering exhaust stream rearwardly over the bottom wall of the extractor housing. A

second baffle means then defects the exhaust stream upwardly from the bottom wall around the rearward edge of the entrance baffle means and forwardly over the top of the entrance baffle means toward the front wall. Third baffle means then defects the exhaust stream rearwardly from the front wall and down along the rear side of the second baffle means



to the bottom wall, and then upwardly again between the rear side of the third baffle means and the rear wall of the housing. A drain means is provided in the bottom wall of the housing for receiving the extracted grease and oil which is deposited on the internal surfaces of the system, and which runs downwardly thereover due to the heating of the internal surfaces by the adjacent cooking surface.

3,653,180

BLOCK COPOLYMER MEMBRANE FOR SEPARATING POLAR CONTAMINANTS FROM GASEOUS MIXTURES

Peter C. Juliano, Scotia, and William J. Ward, III, Schenectady, both of N.Y., assignors to General Electric Company
Filed Nov. 2, 1970, Ser. No. 86,289
Int. Cl. B01d 53/22 14 Claims

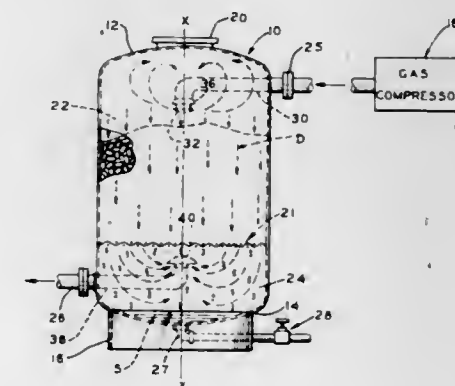
Block copolymers containing poly(oxyethylene) segments are used for the preparation of permselective membranes employed in separating polar gases from non-polar gases. Such copolymers containing poly(oxyethylene) glycol carbonate segments in polycarbonate chains are described.

3,653,181

DELIQUESCENT DESICCANT GAS DRYER AND METHOD

Phillip S. Becker, Erie, Pa., assignor to Van-Air Incorporated, Erie, Pa.
Continuation of application Ser. No. 808,867, Mar. 20, 1969, now abandoned. This application Mar. 9, 1971, Ser. No. 122,540
Int. Cl. B01d 53/02 14 Claims

U.S. Cl. 55-35



A deliquescent desiccant type air or gas drier adapted to contain a bed of deliquescent desiccant chemical material through which the air or gas is adapted to flow, to remove

moisture from the compressed air or gas stream. The gas inlet to the drier is disposed in the upper portion of the drier housing and the gas outlet to the drier is disposed in the lower portion of the drier housing, so that the inlet air or gas flows downwardly through the bed of deliquescent chemical material, thus resulting in the deliquescent solution from the bed of chemical material flowing downwardly in the same direction of flow as the inlet air or gas. This arrangement increases the life and moisture removing efficiency of the desiccant chemical bed, increases the life of the drier, and increases the efficiency of the drying operation. A novel method of drying an air or gas stream is also provided.

3,653,182

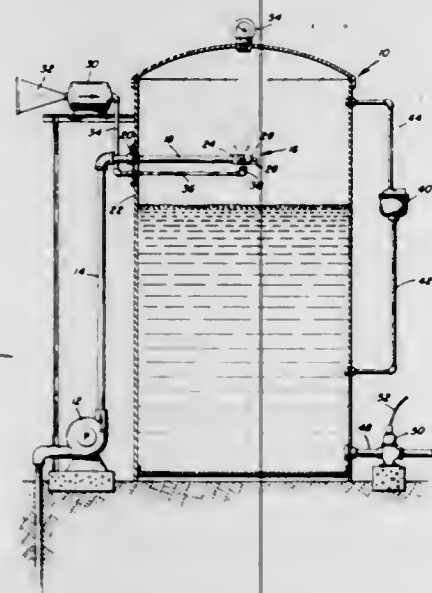
WATER CONDITIONING METHOD AND APPARATUS
Louis S. Welch, Sunnyvale, Calif., assignor to M. Lewis Hall, Sr., Punta Gorda, Fla.

Filed Jan. 21, 1970, Ser. No. 4,720

Int. Cl. B01d 19/00

U.S. Cl. 55-53

16 Claims



A method and apparatus are disclosed wherein air and water are simultaneously introduced under high pressure, concurrently upwardly, within a confined zone. Air is introduced from a point immediately below the water inlet point and travels upwardly at high velocity. Water is introduced thereabove in a manner to form extremely finely divided particles moving upwardly as a swirling mass. Because of the velocity of water and air introduction, the water droplets are driven with high impact against the upper surface of the confined zone and thereafter proceed downwardly. The impact of the water droplets against the upper surface causes them to be reshaped and broken apart, thereby providing still greater overall water-air exposure. By reason of the constant flow of high velocity air, the particles are maintained in suspension for a long period of time. Both air and water preferably are heated, especially in use under cold climatic conditions. As a result of the described mode of treatment, a high degree of water purification in various respects is accomplished. During the water and air intermingling, the water treating zone is vented for release of impurity-laden air. The particular apparatus disclosed is especially adapted for water storage, including automatic water shutoff and flow responsive to periodic water use, as may be especially desirable in home installations.

3,653,183 METHYL ETHERS OF POLYALKOXYLATED POLYOLS FOR REMOVING ACIDIC GASES FROM GASES

Herbert L. Sanders, Skokie, Ill.; Robert A. Swenson, and John B. Braunwarth, both of Janesville, Wis., assignors to Northern Petrochemical Company, Des Plaines, Ill.

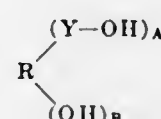
Filed Feb. 12, 1970, Ser. No. 11,003

Int. Cl. B01d 19/00, 53/00

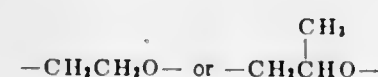
U.S. Cl. 55-56

8 Claims

Polymethyl ethers of a polyether polyol, the polyether polyol having the formula



where R is the residue of an organic compound having three to six hydroxyls, A is 1 to 6, B is 0 to 5 and A + B equals 3 to 6 and Y is 1 to 15



groups or mixtures thereof. Ethoxylated glycerol trimethyl ether is disclosed. The compounds are useful for extracting acid gases such as CO₂ and H₂S from natural gas.

3,653,184 SEPARATION OF C₈ AROMATICS MIXTURE WITH PRODUCTION CHROMATOGRAPHY

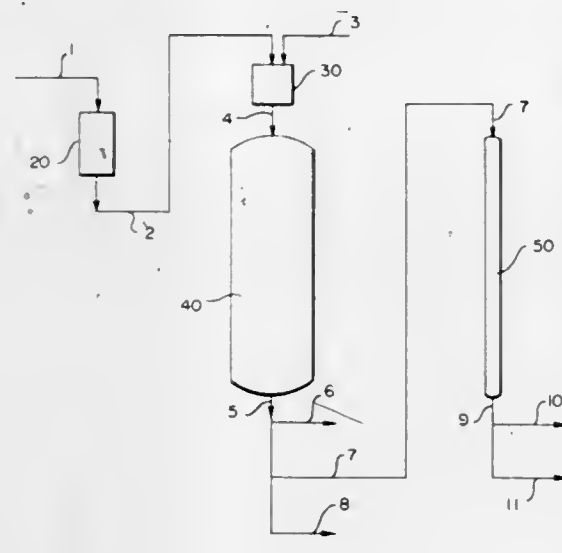
B. M. Drinkard; Paul T. Allen, and Edward H. Unger, all of Beaumont, Tex., assignors to Mobil Oil Corporation

Filed June 8, 1970, Ser. No. 44,459

Int. Cl. B01d 15/08

U.S. Cl. 55-67

12 Claims



A mixture of C₈ aromatics, ethylbenzene, ortho-xylene, meta-xylene and para-xylene is separated into its component parts by production gas chromatography. The mixture is passed with a carrier in contact with a strongly polar liquid partitioning liquid to separate the ortho-xylene and ethylbenzene by different sorption rates and the remaining mixture of meta- and para-xylene is passed in contact with a certain zeolite to separate the para-xylene and meta-xylene by different sorption rates.

3,653,185 AIRBORNE CONTAMINANT REMOVAL BY ELECTRO- PHOTOIONIZATION

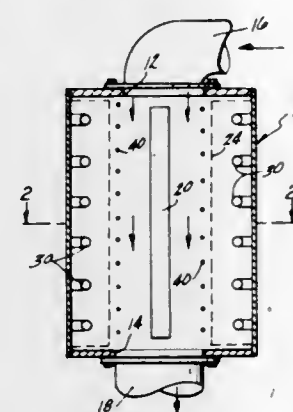
Harold W. Scott, Ridgefield, and Avery B. Smith, Wallingford, both of Conn., assignors to Resource Control, Inc., West Haven, Conn.

Filed Oct. 8, 1968, Ser. No. 765,763

Int. Cl. B03c 3/30

U.S. Cl. 55-103

2 Claims



Apparatus and method are disclosed for reducing or removing particulate solid matter as well as admixed gaseous contaminants from a main stream of gas, as for example removing solid and gaseous contaminants from air. The removal is effected by the combined action on the gas stream of high intensity electrical field and electromagnetic radiation, whereby to cause electrostatic precipitation of solid contaminants and electrochemical and photochemical transformation of gaseous contaminants to elemental or non-contaminant form. The field is induced by oppositely charged electrodes causing excitation of the particulate and gaseous contaminants to a state or condition causing dark current flow and/or glow discharge between the electrodes while avoiding field-disrupting arc discharge. Concurrently with such high voltage excitation, the fluid is subjected to electromagnetic radiation, more particularly in the ultraviolet range, to produce photoionization to sustain the electrochemical and photochemical transformation.

3,653,186 WET SCRUBBER TANK

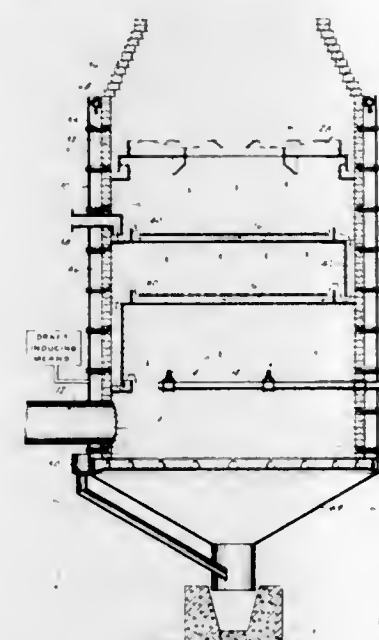
Hoyt B. McLendon, 2323 46th Street South, Petersburg, Fla.

Filed Feb. 24, 1970, Ser. No. 13,560

Int. Cl. B01d 47/06

U.S. Cl. 55-223

15 Claims



A wet scrubber system is disclosed wherein the outer metal tank of the scrubber is protected from pitting and corrosion by providing an air gap between the tank and the acid resistant inner liner. A washing solution is cascaded in the

space between the tank and liner along with a counter flow of oxygen containing gas to both wash and passify the metal surface.

3,653,187 APPARATUS FOR AGGLOMERATING AND PRECIPITATING SUSPENDED MATTER OUT OF GASES AND VAPORS AND/OR FOR ABSORBING GAS COMPONENTS

Gerd Hugo Petersen, Am Birnbaum 34, Wiesbaden-Sonnenberg, Germany

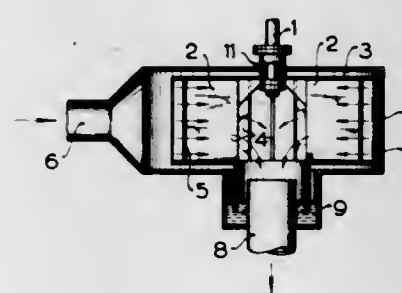
Filed May 20, 1970, Ser. No. 39,097

Claims priority, application Germany, May 24, 1969, P 19 26 651.4; Feb. 19, 1970, P 20 07 547.2

Int. Cl. B01d 47/00

U.S. Cl. 55-230

19 Claims



Rotatable treatment chambers arranged on a drive shaft are bounded by disk-like boundary walls and radial partition walls. The treatment chambers are arranged in a spiral housing with tangential gas inlet and axial gas outlet. The gas to be treated enters the spiral housing tangentially on its outer periphery at a high velocity, it is sucked radially through the treatment chambers, and leaves the housing purified passing through a central gas outlet. Due to the rotation of the treatment chambers by which the gas is set in rotation, a gravity field is produced whose direction is opposite to the direction of flow of the gas. Accordingly, gases and vapors to be purified receive such a high centrifugal acceleration that the suspended particles they contain, due to their centrifugal acceleration, are separated out in the direction against the flow of the gases and vapors. This effect is enhanced by additional injection of fluid. This arrangement can also be used for the absorption of gas components.

3,653,188 DUST COLLECTOR

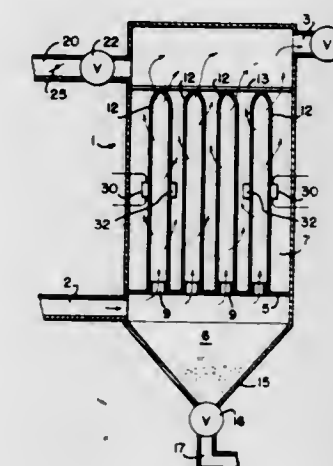
Ervin Fisher, and Jay Warshawsky, both of Allentown, Pa., assignors to Fuller Company

Filed June 18, 1970, Ser. No. 47,466

Int. Cl. B01d 19/00

U.S. Cl. 55-283

15 Claims



A dust collecting apparatus of the filter bag type including a housing having a plurality of filter bags mounted therein. Dirty gas flows into the inside of the bags and passes therethrough to an exhaust conduit. The dust in the gas is

deposited on the inside surface of the bags. A reverse flow of clean air is used to clean the bags. This reverse flow collapses the bags and the collected dust falls into a hopper. A baffle arrangement controls the flow of clean air. Magnetically actuated reed switches mounted on some of the bags are used to control the baffle arrangement and thus the flow of clean air. In one form of the invention, a motor gradually opens a baffle in the clean air line to gradually increase the rate of clean air flow. When the bags collapse a predetermined amount, the reed switches are opened and the motor stops to thereby prevent a further increase in the reverse air flow and a further collapse of the bags.

3,653,189

VACUUM CLEANER

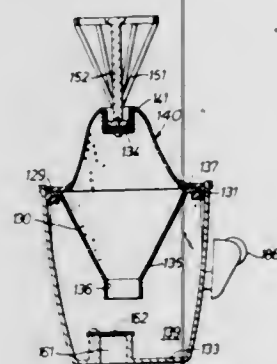
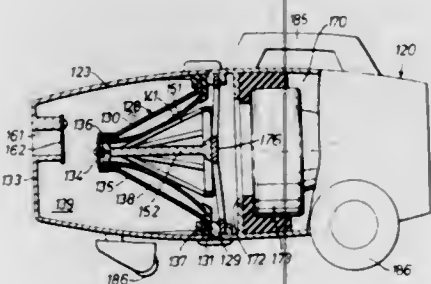
Yuji Miyake; Hideo Kashiwara; Kazuyoshi Takahashi; Takamitsu Yamamoto, and Ziyuu Mizukawa, all of Hyogo, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Jan. 20, 1970, Ser. No. 4,328

Claims priority, application Japan, Jan. 20, 1969, 44/3995

Int. Cl. B01d 41/02

U.S. Cl. 55-288

10 Claims



In a vacuum cleaner comprising a housing including a motor fan unit and a dust collecting case detachably connected to the housing, the dust collecting case is provided at its outlet opening with a two-stage filtering means comprising a conical filter screen of relatively large meshes and a cloth main filter which extend toward the inside of the dust collecting case in such a spaced relationship that the outlet opening is covered in double.

3,653,190

VACUUM CLEANERS

Wilfred J. Lee, East Syracuse, and Robert H. Arnold, Clay, both of N.Y., assignors to Clarkson Industries, Inc., New York, N.Y.

Filed Feb. 11, 1970, Ser. No. 10,411

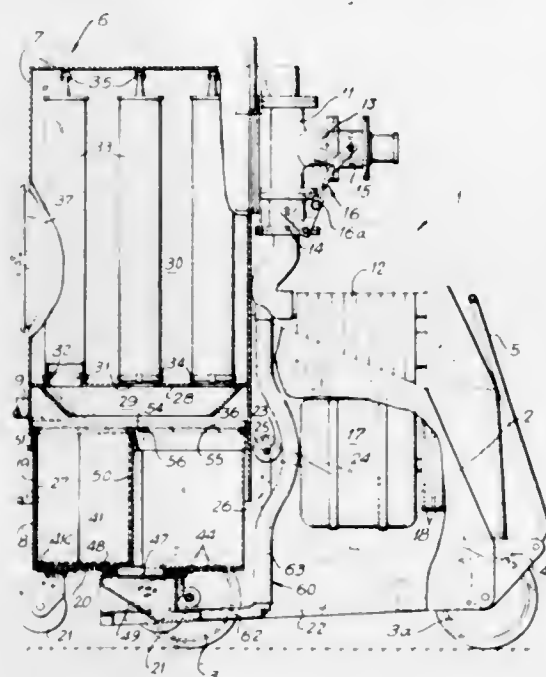
Int. Cl. B01d 46/04

U.S. Cl. 55-302

7 Claims

The disclosure is directed to a vacuum cleaner in which an exhaustor produces a flow of dust-laden air through fabric dust bags to separate dust from the air. Collected dust is shaken from the bags by valves for alternately reversing the

direction of air flow and the dust falls by gravity into at least one throwaway plastic bag in a detachable receptacle underlying the filter bags. In the preferred embodiment, the receptacle is divided into separate compartments by spaced partition walls which, together with slots in the peripheral wall of the receptacle, permit the upper edges of the bags to be folded over the top of the partition walls and tucked



downwardly therebetween. A pipe line connects the exhaustor to the space between the plastic bags and receptacle walls to snap the bags to a fully open position and hold them open at all times while the exhaustor is in operation. In another embodiment, the receptacle is adapted to receive a single plastic bag so as to snap it open as soon as the exhaustor is initiated.

3,653,191

RECEIVER-SEPARATOR UNIT FOR LIQUID INJECTED GAS COMPRESSOR

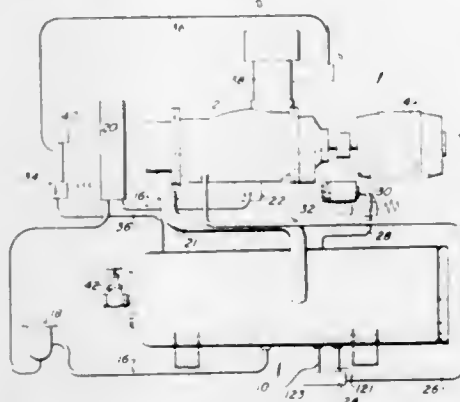
Arvid L. Nelson, and Gilbert Cirrincione, both of Quincy, Ill., assignors to Gardner-Denver Company, Quincy, Ill.

Filed Oct. 16, 1969, Ser. No. 866,891

Int. Cl. B01d 50/00

U.S. Cl. 55-310

8 Claims



A combination gas receiver-liquid separator unit for use in a liquid injected gas compressor system. The receiver-separator unit comprises an elongated cylindrical vessel having a transverse partition sealingly dividing the vessel into two separate compartments for separating liquid entrained in a flowing gas stream and for storing liquid-free gas under pressure. A check valve interposed between compartments prevents the backflow of liquid-free gas into the separator compartment. The separator compartment includes a primary inertial separation stage and secondary and tertiary

impingement type separation stages. The secondary and tertiary separation stages comprise a removable separator element. The separator compartment also serves as a liquid reservoir for the associated gas compressor system.

3,653,192

METHOD AND APPARATUS FOR HARVESTING AQUATIC VEGETATION

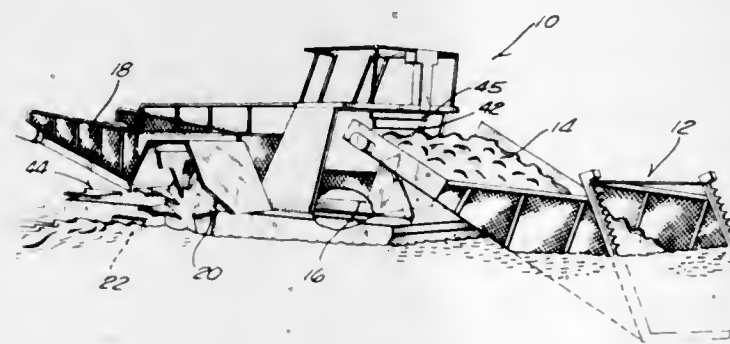
Charles Brate Bryant, Route 1, P.O. Box 150, Wildwood Point Road, Hartland, Wis.

Filed Dec. 14, 1970, Ser. No. 97,738

Int. Cl. A01d 45/08

U.S. Cl. 56-1

1 Claim



A method for harvesting and transporting large quantities of aquatic vegetation. The apparatus includes a harvesting barge provided with paddle wheels and rudders for increased control in currents and wind and a series of longitudinally extending conveyors for moving the cut weeds onto a transport barge which is coupled in tandem with the harvesting barge. To compact the weeds and eliminate the need for a transport barge operator, the transport barge has a live bed controlled by a load sensor which activates the live bed to inch the weeds aftward on the transport barge as the weeds accumulate to a predetermined height in the hold. The transport barges are moved between the harvesting site and shore unloading site by a tugboat. The apparatus also includes a high capacity portable shore conveyor assembly which is adapted for all types of shore sites and which utilizes a first conveyor which can be supported by posts on the bottom of the lake or supported by a float and which includes coupling pins for connection with the couplers of the transport barge. A wheeled second conveyor is positioned on shore under the discharge end of the first conveyor, for conveying the weeds into a truck or pile. The second conveyor may be barge mounted.

3,653,193

ROTARY CUTTER MECHANISM

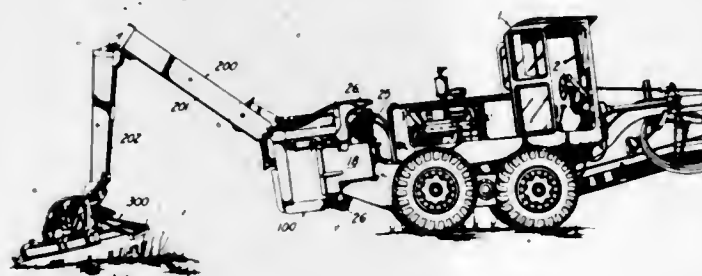
Samuel J. Coughran, Jr., Cedartown, Ga., assignor to Rome Industries, Incorporated, Cedartown, Ga.

Filed Dec. 12, 1969, Ser. No. 884,547

Int. Cl. A01d 35/26

U.S. Cl. 56-10.7

10 Claims



Apparatus for use in cutting vegetation located remotely from the path of travel of a support vehicle, such as vegeta-

tion located along the banks and shoulders adjacent a highway. The apparatus includes a base support housing having attachment means for permitting easy attachment of the apparatus to a support vehicle. A yoke is supported on the housing for pivotal movement about a substantially vertical axis and provides a support for a boom which is mounted for pivotal movement about a substantially horizontal axis. Hydraulic control means is operatively associated with the yoke and boom means for effecting movement of the yoke and boom means about their respective support axis. A cutter head having a rotary cutting blade is pivotally mounted for universal movement on the extended end of the boom and includes hydraulic control means for effecting pivotal movement of the cutter head about the universal mounting and for effecting operation of the cutting blade. The boom and cutter heads are supported for pivotal movement relative to the housing whereby the cutter head can be selectively positioned adjacent opposite lateral sides of the housing substantially 180° displaced relative to each other.

3,653,194

ASPARAGUS HARVESTING DEVICE

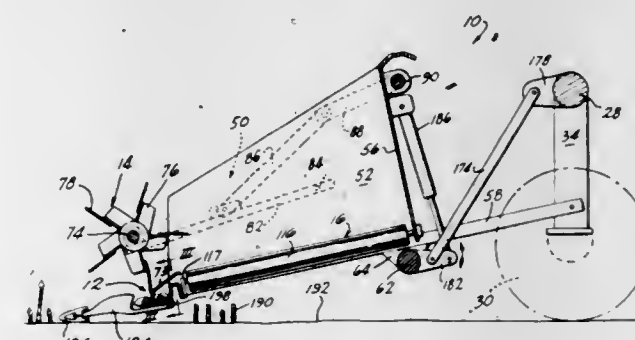
Myron C. Lachman, Rural Route 1, Paw Paw, Mich.

Filed Feb. 5, 1970, Ser. No. 8,913

Int. Cl. A01d 45/00

U.S. Cl. 56-327 A

19 Claims



A cutter bar mounted for forward movement generally parallel to and above the surface of the ground to cut asparagus stalks at a generally uniform height, with a catcher plate disposed adjacent and generally parallel to the cutter and a rotatable reel disposed above the catcher plate to sweep over the same and thereby move the cut stalks of asparagus from the catcher to a belt-type conveyor disposed behind the cutter and catcher plate, and with an impeller for drawing foreign constituents off and away from the cut stalks while they are being conveyed, wherein the opening height of the cutter is continuously controlled by hydraulic power cylinders in response to the actual level of the ground immediately ahead of the cutter, sensed by ground-engaging runner elements coupled to a control valve for the hydraulic cylinders.

3,653,195

METHOD AND APPARATUS FOR HARVESTING FRUIT

Tatum R. Cochran, Fort Meade, Fla., assignor to Robert W. Loadholtes and Loyd C. Shirley, part interest to each

Filed Feb. 13, 1970, Ser. No. 11,190

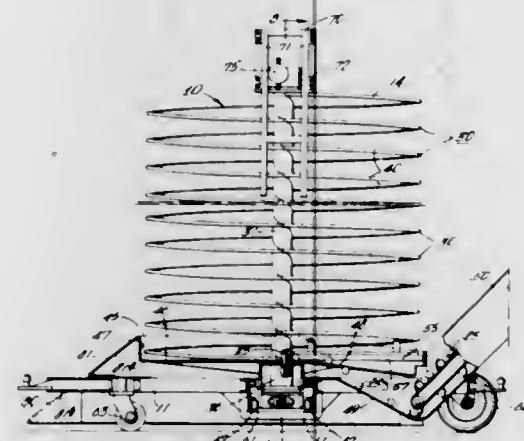
Int. Cl. A01g 19/00

U.S. Cl. 56-328 R

16 Claims

Fruit depending from the branches of a tree is harvested by means of a perforated picker plate disposed helically about an upright post which is mounted for rotation on a ground-travelling frame. In the described forms, the picker plate is positively rotated. The plate has a plurality of shaped aper-

tures having enlarged leading ends which are sized to permit fruit to pass downwardly and dangle below the plate and having smaller trailing ends which are sized to prevent the same fruit from passing upwardly from below the plate. The fruit is



removed from its branches by means of edges at the rear of the apertures which engage between the fruit and the branches and apply tension therebetween upon rotation of the post.

3,653,196

YARN TEXTURIZING APPARATUS AND PROCESS

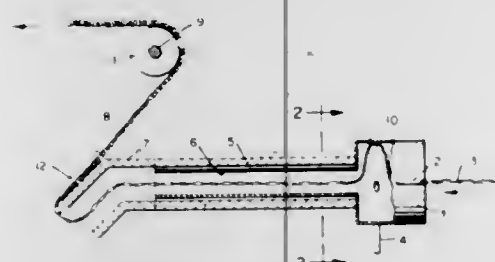
Herbert J. Pike, Martinsville, N.Y., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

Filed Sept. 30, 1970, Ser. No. 76,936

Int. Cl. D01h 13/26

U.S. Cl. 57—34 B

22 Claims



Multifilament yarn, such as yarn of continuous glass fibers, synthetic fibers, and the like, is texturized by feeding it rapidly into a chamber in which it encounters a swirling flow of a fluid, preferably a gas such as air, which causes the yarn to rotate in loop form in a manner similar to a skipping rope but at an enormously greater rate. The swirling air blast is introduced tangentially just ahead of the yarn introduction, and the yarn and air then pass out axially at about 90° to the air introduction through a tube or conduit with air escape slots to eliminate swirling substantially. This causes the yarn to assume a false twist, and on untwisting opens up the individual filaments. The yarn is then doubled back on itself, which causes formation of loops, imparting to the yarn a bulk and texture.

3,653,197

NONCIRCULAR CABLE AND METHOD OF MAKING THE SAME

Gilbert Morleras, and Michel Sere De Lanauze, both of Lyon, France, assignors to CTA-Compagnie Industrielle de Textiles Artificiels et Synthetiques

Filed Aug. 24, 1970, Ser. No. 66,491

Claims priority, application France, Sept. 1, 1969, 6929773

Int. Cl. D02b 1/10, 1/16; H01b 7/18

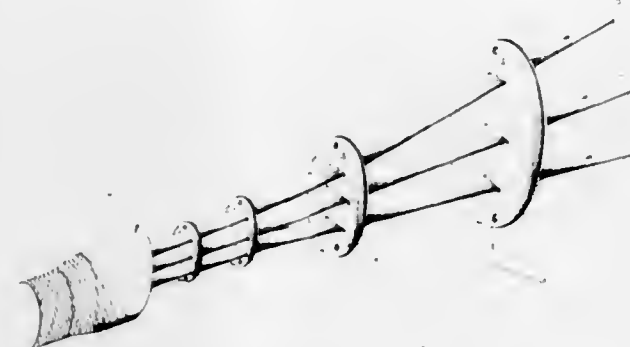
U.S. Cl. 57—139

9 Claims

A cable or cord of a noncircular cross-section composed of a multiplicity of substantially parallel core yarns covered with

a textile sheath, the core yarns being bound together and the sheath being bound to the core yarns by means of an adhesive or binder, such cord or cable being characterized in that the noncircular cross-section has at least one axis of symmetry and that, along the entire length of the cord or cable, at least one reinforcing element is present normal to the axis or one of the axes of symmetry, extending over the entire width of the core.

Such cables or cords are produced by cross-section, a sheet of parallel core yarns with a binder, disposing the core yarns in the position that they will occupy in the finished



noncircular cross-section cable or cord, and covering the core thus formed of parallel core yarns with a sheath, and thereafter vulcanizing the entire assembly, such process being characterized in that the core yarns provide a noncircular cross-section with at least one axis of symmetry and, at the time of formation of the core, reinforcing elements are introduced between the core yarns, such reinforcing elements also being impregnated with a binder, the elements being disposed along the entire length of the cable normal to the axis of symmetry or to one of the axes of symmetry of the core and extending over the entire width of the core at their point of introduction.

3,653,198

METHOD FOR MANUFACTURING A PLIED YARN

John G. Hopkins, Boonton, N.J., assignor to J. P. Stevens & Co., Inc., New York, N.Y.

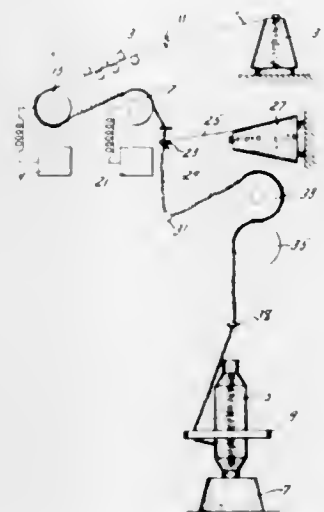
Original application May 10, 1967, Ser. No. 637,399, now Patent No. 3,483,690. Divided and this application Dec. 4,

1969, Ser. No. 879,965

Int. Cl. D02g 1/18, 3/04

U.S. Cl. 57—157 MS

8 Claims



A method for plying continuous multifilament yarns with natural or synthetic yarn into a tow comprising the steps of differentially shrinking the multifilament yarn so as to form a multiplicity of yarn convolutions therein; merging the differentially shrunk filament yarn with a second yarn, and ply-

ing the merged yarns to thereby produce a plied bulk yarn having a uniform consistency along the length thereof.

3,653,199

COIL CARRIER MEANS IN AN ELECTRONIC TIMEPIECE MOVEMENT

Kazuyoshi Inoki, and Yasuaki Nakayama, both of Tokyo, Japan, assignors to Citizen Watch Company, Limited, Tokyo, Japan

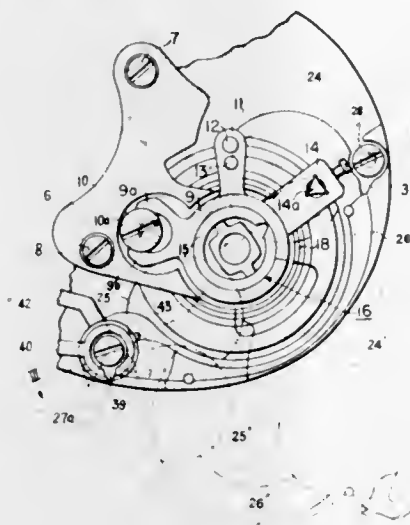
Filed Nov. 10, 1970, Ser. No. 88,431

Claims priority, application Japan, Nov. 10, 1969, 44/106620

Int. Cl. G04c 3/00, 3/00

U.S. Cl. 58—23

5 Claims



In an electronic timepiece the electromagnet coils which cooperate with the movable magnets mounted on the balance wheel are mounted on a frame pivoted to the base of the timepiece so as to arrange the coils for movement into and out of operative relation with the magnets. The electrical connections for the coils are made thru complimentary sliding contact members mounted about the pivot point for the frame.

3,653,200

CALENDAR WATCH WITH SEPARATE SECONDS, MINUTES, AND HOURS DIALS

Koichi Ogawa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

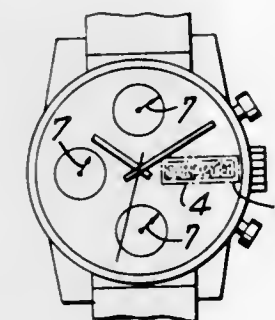
Filed Apr. 6, 1970, Ser. No. 25,715

Claims priority, application Japan, Apr. 10, 1969, 44/32042

Int. Cl. G04b 19/24

U.S. Cl. 58—58

1 Claim



The present invention relates to a novel construction of a calendar watch having a plurality of indicator dials in addition to a display of the day and the date. Maximum space for the letters and numbers of the date and dial indicators is achieved by making the day dial slightly smaller than the date ring and placing the spindles of the dial indicators in the annulus between the outer periphery of the day dial and the inner periphery of the date ring.

3,653,201

SELF-WINDING CHRONOGRAPH

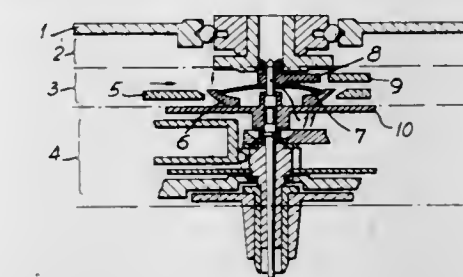
Koichi Ogawa, and Takao Tajima, both of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Apr. 6, 1970, Ser. No. 25,719

Int. Cl. G04f 7/04

U.S. Cl. 58—74

4 Claims



A self-winding chronograph timepiece having a clutch system positioned intermediate the self-winding system and the gear train, said clutch system having a clutch ring frictionally connected with a fourth wheel loosely fitted on the sweep second axle through the operation of a clutch spring secured to said axle. Said clutch ring is displaced out of engagement with said fourth wheel by means of a starting and stopping level responsive to the operation of a crown or button.

3,653,202

TIMEPIECE

Pierre Calame, Le Locle, Switzerland, assignor to Zodiac S.A., Le Locle, Switzerland

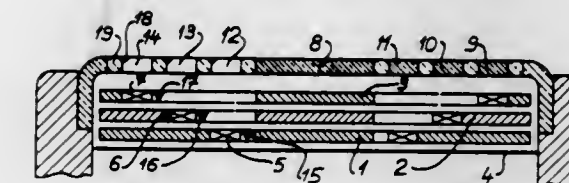
Filed Feb. 1, 1971, Ser. No. 111,502

Claims priority, application Switzerland, Feb. 11, 1970, 1948/70

Int. Cl. G04b 19/00

U.S. Cl. 58—126 A

3 Claims



A timepiece comprises three superimposed coaxial rotary discs, each disc comprising time graduations around an annular ring and an index mark spaced apart from the annular ring. The annular rings of the three discs are radially spaced from one another. A glass mounted over the discs is provided with three opaque sectors of rings, each concealing from view a part of the graduations of one disc whilst other parts of the graduations are visible through transparent sectors on the glass to give a time indication. The index marks are permanently visible through annular transparent parts of the glass to provide a double reading of the time.

3,653,203

TIMEPIECE

Zeno Hurt, Moehlin, Switzerland, assignor to Agon Fabrique D'Horlogerie Robert Triebold SA, Mumpf, Switzerland

Filed Nov. 19, 1970, Ser. No. 91,105

Claims priority, application Switzerland, Nov. 20, 1969, 17279/69

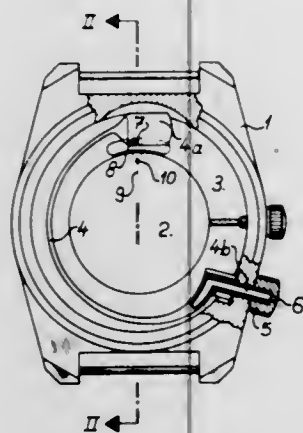
Int. Cl. G04b 47/06; G011 7/20

U.S. Cl. 58—152 A

3 Claims

A timepiece for underwater use, includes a conventional movement arranged within a case and a manometer in the form of a resilient tube arranged in the space between the

movement and the inner surface of the case. An open end of the tube communicates with ambient medium around the case and pressure variations in the tube are communicated to



an indicator by means of a pin mounted on the opposite closed end of the tube. The pin is arranged between two legs at one end of the indicator.

3,653,204

DIGITAL DISPLAY WORLD CLOCK

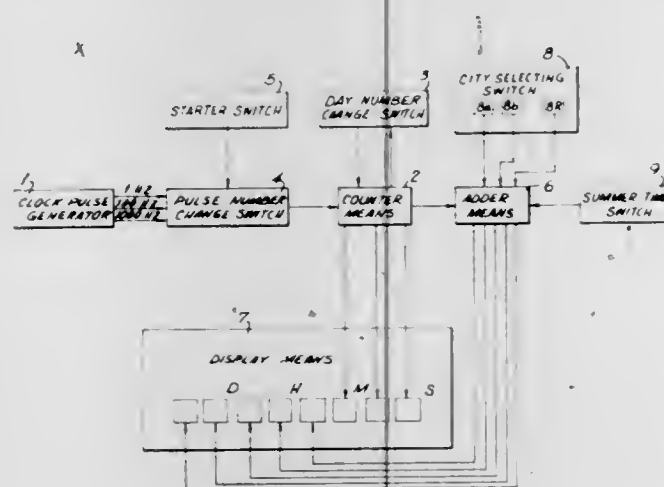
Akihiro Miwa, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed July 31, 1970, Ser. No. 60,015

Claims priority, application Japan, Aug. 20, 1969, 44/65555
Int. Cl. G04b 19/22, 19/24

U.S. Cl. 58-42.5

6 Claims



A portable world clock which displays day, hour, minute and second corresponding to each city of the world by selecting a pushbutton. Adder means of an electronic computer and a quartz crystal clock are combined in this world clock, and a counter means is driven in synchronization with the time of Greenwich standard time minus 12 hours.

3,653,205

REACTOR FOR INTERNAL COMBUSTION ENGINE

Tomoo Tadokoro, Kure-shi, Japan, assignor to Toyo Kogyo Company Limited, Hiroshima, Japan

Filed Apr. 24, 1970, Ser. No. 31,635

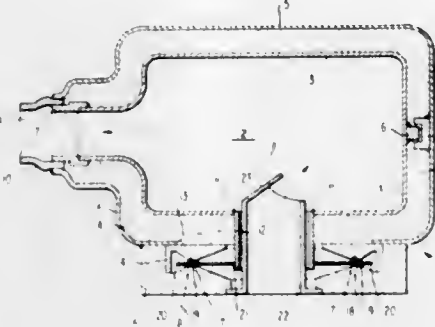
Claims priority, application Japan, Apr. 24, 1969, 44/32152
Int. Cl. F01n 3/10; F16l 5/100

U.S. Cl. 60-29 A

17 Claims

A reactor for purifying exhaust gas in an exhaust gas system of an internal combustion engine comprises an inner shell forming a reaction chamber and an outer shell sur-

rounding the inner shell and defining an adiabatic zone therebetween. A pipe member extends through the outer shell to the inner shell for absorbing the heat expansion of the inner shell. The pipe member disposed for movement in



the axial direction and in the direction normal to the axis of the pipe member relative to the outer shell for maintaining the seal between the adiabatic zone and the reaction chamber.

3,653,206

CONTROL SYSTEM FOR GAS TURBINE ENGINES

Christian Greune, Schongelting, Germany, assignor to Motoren-und Turbinen-Union GmbH, Munich, Germany

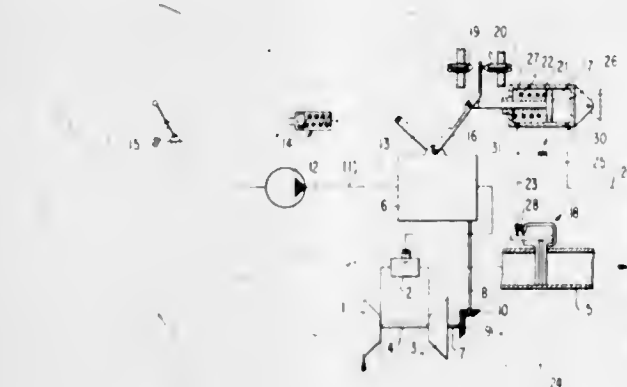
Filed Mar. 31, 1970, Ser. No. 24,278

Claims priority, application Germany, Apr. 5, 1969, P 19 17 625.1

Int. Cl. F02c 9/06

U.S. Cl. 60-39.28

10 Claims



A control installation for a gas turbine engine which limits the maximum temperature of the propellant gases by an adjusting device controlled by an exhaust gas temperature regulator, which influences the fuel speed regulating device.

3,653,207

HIGH FUEL INJECTION DENSITY COMBUSTION CHAMBER FOR A GAS TURBINE ENGINE

Richard E. Stenger, and Clifford C. Gleason, both of Cincinnati, Ohio, assignors to General Electric Company

Filed July 8, 1970, Ser. No. 53,146

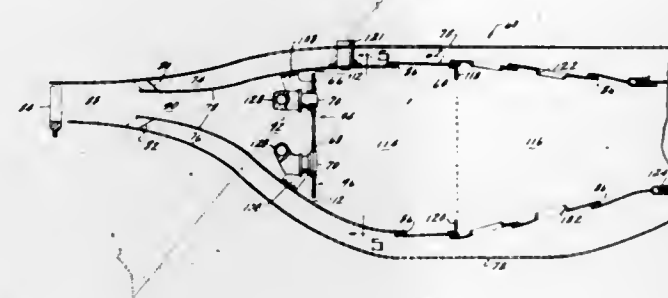
Int. Cl. F02c 3/24

U.S. Cl. 60-39.65

8 Claims

A combustion chamber for a gas turbine engine is disclosed as having a high density, i.e., greater number than normal, of fuel injection and flame stabilization points. Addi-

tionally, a dome passageway is sized to receive and deliver directly to the combustion zone, as primary air flow, a much higher percent of total compressor discharge air at a much higher velocity than in prior art combustors of the same approximate size. A baffle is positioned transversely of the pri-



mary air passage to define the upstream end of the combustion zone and to define the fuel injection and flame stabilization points. Combining the above features results in a highly efficient, smoke free combustor having a shortened primary combustion zone.

3,653,208

FLUID SYSTEM

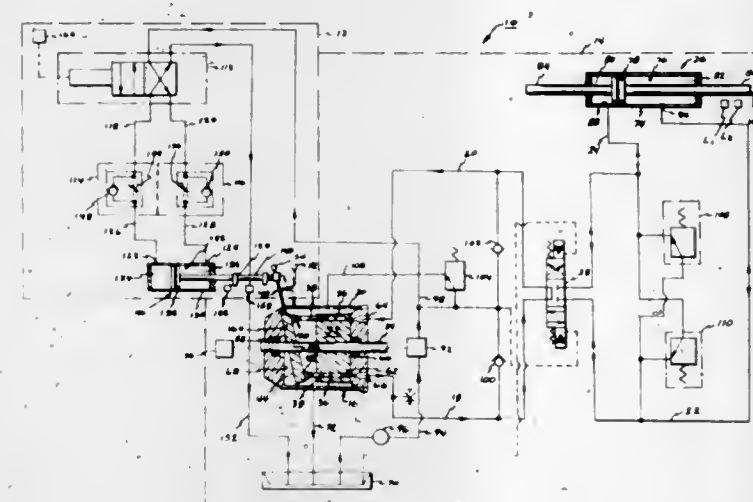
Philip A. Kubik, 6809 Spruce Drive, Birmingham, Mich.

Filed June 26, 1970, Ser. No. 50,093

Int. Cl. F15b 15/18

U.S. Cl. 60-52 VS

4 Claims



A fluid system having a variable displacement fluid pump connected in a closed loop circuit to a fluid cylinder having a piston and a pair of connecting rods extending from opposite sides of the piston externally of the fluid cylinder. A directional control valve disposed in the closed circuit between the inlet and outlet of the fluid pump is adapted to selectively direct fluid to one side of the piston within the fluid cylinder, while exhausting fluid from the other side of the piston, so as to selectively move the piston within the fluid cylinder. The rate of movement of the piston in either direction of movement is controlled by the amount of fluid displaced by the fluid pump.

A second directional control valve is adapted to direct fluid from a second source of fluid to a pressure responsive displacement control mechanism to selectively vary the displacement of the fluid pump. The rate of fluid flow to the pressure responsive displacement control mechanism is selectively varied to control the rate of displacement of the fluid pump and to thereby selectively control the rate of movement of the cylinder piston.

3,653,209

VEHICLE HYDRAULIC SYSTEM

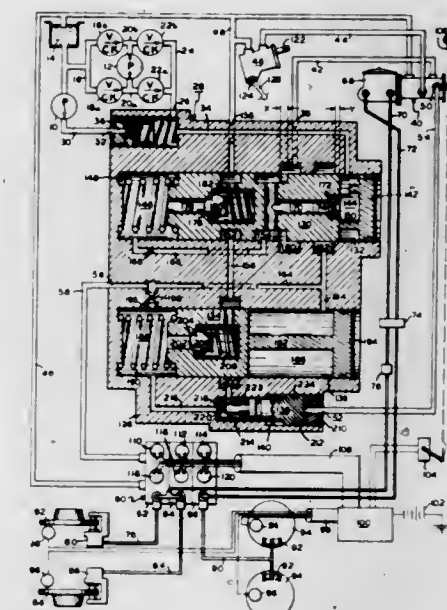
Stanley I. MacDuff, Laverriere, Quebec, Canada, assignor to The Bendix Corporation

Filed Aug. 31, 1970, Ser. No. 68,093

Int. Cl. F15b 15/18

U.S. Cl. 60-52 S

10 Claims



A hydraulic system for a motor vehicle having an open center type hydraulic power brake booster, an open center type hydraulic power steering gear, and an adaptive braking system using hydraulically powered brake line pressure modulators. The system includes a control valve receiving flow from an engine driven pump and a drive shaft driven pump delivering appropriate quantities of fluid to the brake booster and steering gear. They also deliver fluid at the correct pressure to the brake line pressure modulators upon receiving a pressure signal from the brake booster. Check valves are provided in the pump discharge lines to prevent backflow through a pump in the event of failure of the pump or its drive mechanism. The system control valve also includes pressure relief valves to limit pressures in the several systems to appropriate levels.

3,653,210

SERVOMOTOR DEVICE FOR BRAKING

Toyoku Mochizuku, 5-10, 7-chome Roppongi, and Mamoru Watanabe, 16-9, 6-chome Takinozawa, both of Tokyo, Japan

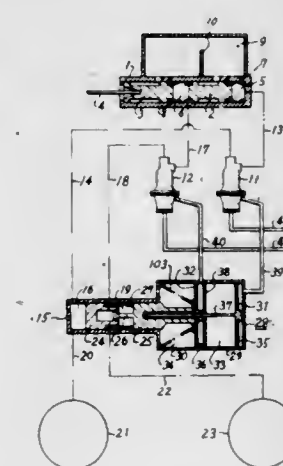
Filed Mar. 16, 1970, Ser. No. 19,838

Claims priority, application Japan, Mar. 15, 1969, 44/19335

Int. Cl. F15b 7/00

U.S. Cl. 60-54.5 P

3 Claims



A servomotor device for braking comprises two servo units connected so that their respective outputs may be added, one of the servo units being related to a first relay cylinder with a

relay piston having a large effective pressure area and the other servo unit being related to a second relay cylinder with a relay piston having a small effective pressure area, whereby only one servo unit is operated at the early stage of stepping down on a brake pedal, and thereafter both of the servo units are put into operation.

3,653,211

HYDRAULIC POWER TRANSMISSION

Albert Strehel, Binningen, and Konrad Scheuber, Basel, both of Switzerland, assignors to Maschinenfabrik Burckhardt AG, Basel, Switzerland

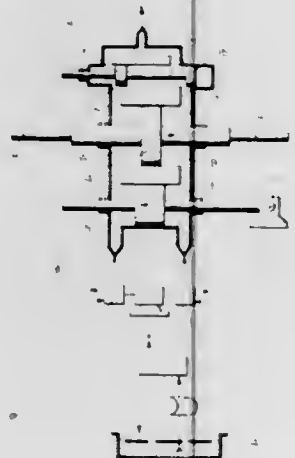
Filed June 9, 1970, Ser. No. 44,695

Claims priority, application Switzerland, June 12, 1969, 9003/69

Int. Cl. F15b 7/00

U.S. Cl. 60—54.5 R

17 Claims



The invention concerns hydraulic power transmission or conversion between a crank-driven, double-acting primary cylinder and a similar secondary cylinder and provide for avoidance of the danger of cavitation, as a result of hydraulic fluid pressure falling below vapour pressure, by regulation of the feed pressure and of the arithmetic mean of the respective upper and lower pressures in the loaded and non-loaded working chambers, so that the lower pressure will not fall below the vapour pressure, even taking account of possible pressure oscillations. The invention extends both to methods of transmission and conversion and to devices wherein the same may be effected.

3,653,212

EXHAUST EMISSION CONTROL SYSTEM

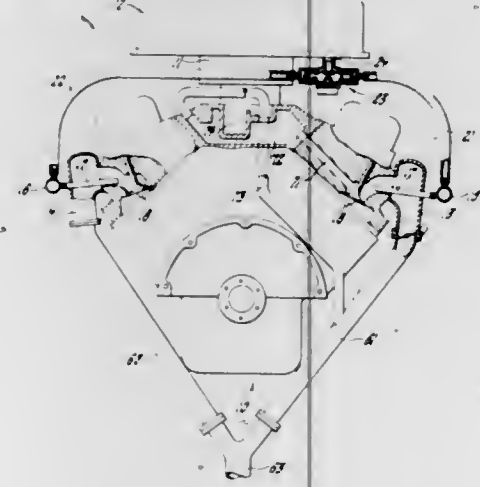
Richard A. Gast, Southfield, and Harry R. Mitchell, Bloomfield Hills, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 30, 1970, Ser. No. 85,379

Int. Cl. F01n 3/10

U.S. Cl. 60—30 R

10 Claims



An exhaust emission control system for an internal combustion engine having an air injection system in which ex-

haust system pressure pulsations are used to induce air flow through an air induction valve to the engine exhaust ports to deliver air to the stream of exhaust gases as they are emitted from the combustion chambers.

3,653,213

PLASTIC OIL BARRIER

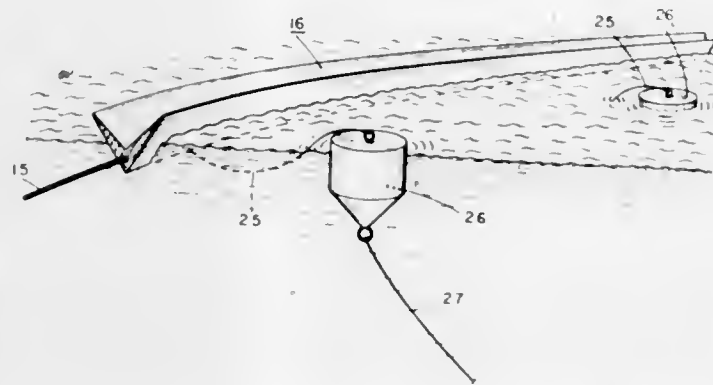
Thomas W. Childers, Woodland Hills, Calif., assignor to Esso Production Research Company

Filed Apr. 22, 1970, Ser. No. 30,697

Int. Cl. E02b 15/04

U.S. Cl. 61—1 F

6 Claims



A floatable plastic barrier, molded on-site in a desired shape and secured to an elongated flexible member, is used to contain oil spills in water locations. The flexible member is a cable to which the barrier is bonded directly or attached by clips as the barrier and cable are fed onto the water. The plastic barrier is preferably molded to a 90° "V" shape with the cable formed in or attached to the vertex of the Vee. Vertical drain holes may be punched or drilled at intervals along the length of the barrier to prevent splash from accumulating in the Vee. Mooring lines are attached to the barrier as needed.

3,653,214

OIL FILM CONTAINMENT APPARATUS

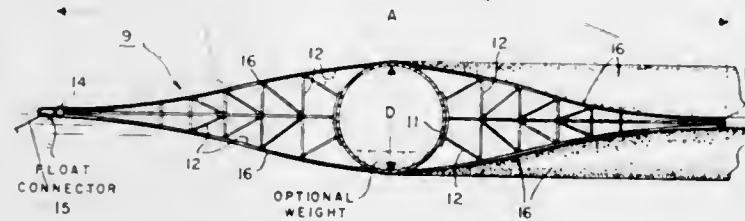
Lemuel D. Woody, Jr., Houston, Tex., assignor to Esso Production Research Company

Filed May 21, 1970, Ser. No. 41,232

Int. Cl. E02b 15/04, 3/00

U.S. Cl. 61—1

14 Claims



A barrier apparatus for containing oil accumulation on a water surface. An elongated buoyant member having a generally triangular cross-section with such triangle preferably having slightly rounded identical sides is arranged in the water such that a line from the vertex of the triangle perpendicular to the base thereof substantially coincides with the water level. The length of such line is several wave lengths in magnitude in order to act as a dampener to wave amplitude. The length of the base of such triangle is sufficient (in cooperation with the length of the line perpendicular to the base) to inhibit or prevent oil from flowing over the barrier member and inhibit or prevent oil from becoming trapped beneath the barrier member under normal heave thereof.

3,653,215

METHOD AND APPARATUS FOR CONFINING AND COLLECTING OIL LEAKAGE

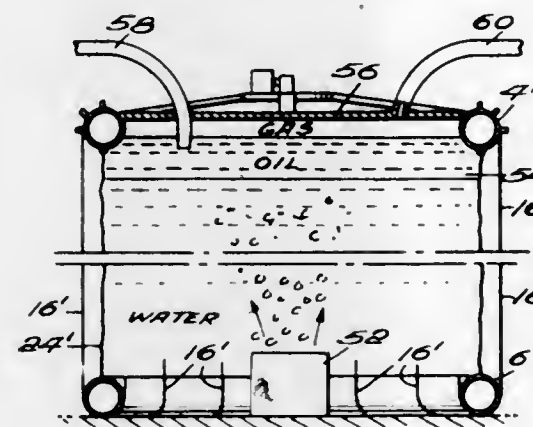
Arturo M. Cruet, Oklahoma City, Okla., assignor to Cerebro-Dynamics, Incorporated, Oklahoma City, Okla.

Filed June 4, 1969, Ser. No. 830,276

Int. Cl. E02b 15/04, 1/00; B03d 1/00

U.S. Cl. 61—1

12 Claims U.S. Cl. 61—45 B



An expansible oil collector and method for isolating oil escaping from an underwater source. The collector is in the form of a buoyant ring with an anchor ring suspended below the buoyant ring by cables. A thin, flexible wall or shield interconnects the anchor ring with the buoyant ring. When the collector is positioned over an underwater source of oil leakage, the anchor ring is lowered by means of the cables on the buoyant ring until the anchor ring rests on the underwater surface and encircles the source of leakage. The fluid collects at the surface of the water in the interior of the buoyant ring.

3,653,216

METHOD AND APPARATUS FOR PREVENTING EROSION

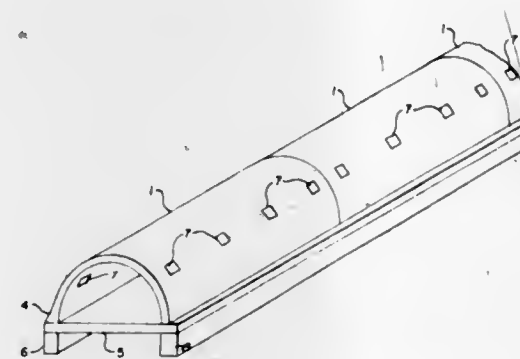
Charles W. Stickler, Jr., Mohnton, Pa., assignor to Gray Tech Industries, Inc., Mohnton, Pa.

Filed Apr. 9, 1970, Ser. No. 26,829

Int. Cl. E02b 3/04

U.S. Cl. 61—4

2 Claims



This invention relates to a method and apparatus for preventing erosion of beaches by tidal waves, comprising placing hollow enclosures, such as "quonset" type huts, end-to-end along the beach, with slots on the walls of the huts, and wherein the huts are so placed that incoming tidal waves will be diverted over the roofs of the huts. Incoming and outgoing waves will be retarded in velocity by flowing through said slots and sand will be deposited and accumulated inside the huts. Reduction of wave velocity will cause deposition of sand particles as waves ride over the hut. Additionally, slots in the hut will cause incoming and outgoing waves to become retarded in velocity by flowing through said slots and sand will be deposited and accumulated inside the huts.

3,653,217

ROCK BOLT ROD CONFIGURATION

Chester I. Williams, 347 Greenbrier, S.E., Grand Rapids, Mich.

Continuation-in-part of application Ser. No. 12,221, Feb. 18, 1970. This application Aug. 3, 1970, Ser. No. 60,529

Int. Cl. E21d 20/02

10 Claims



A surface configuration for a rock bolt rod defined by one or more indentations arranged generally transversely with respect to the axis of the rod, and having a maximum slope of 15° with respect to the axis of the bolt rod on the side of the indentation most remote from the surface plate of the rock bolt assembly.

3,653,218

HYDRAULIC CONSTRUCTION AND METHOD FOR BUILDING SAME

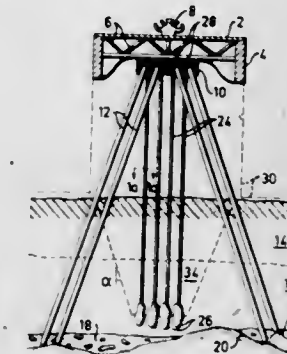
Carl T. Cappe, Enebyberg, Sweden, assignor to Nya Asfalt AB, Stockholm, Sweden

Filed Nov. 19, 1969, Ser. No. 878,065

Int. Cl. E02d 21/00

U.S. Cl. 61—46

10 Claims



The invention relates to an improved hydraulic construction such as a quay structure, work-platform or dolphin, which is built on the bottom of the sea and comprises an above-water structure supported by supporting elements and also a method for building such constructions. The main features of the invention reside in that the construction is anchored in the bottom of the sea by means of substantially vertical prestressed elements, which are secured to anchor elements grouted under the bottom of the sea and forming a counter-balance for the tensile forces acting in the prestressed elements. This provides a stable construction which could be subjected to considerable lateral forces without losing its stability since the support elements will be subjected to compressive forces proportional to the tensile forces. The invention also provides light and simple constructions since the lateral forces acting on the construction must be resisted by big masses contained in the hydraulic construction.

3,653,219

MARINE PLATFORM

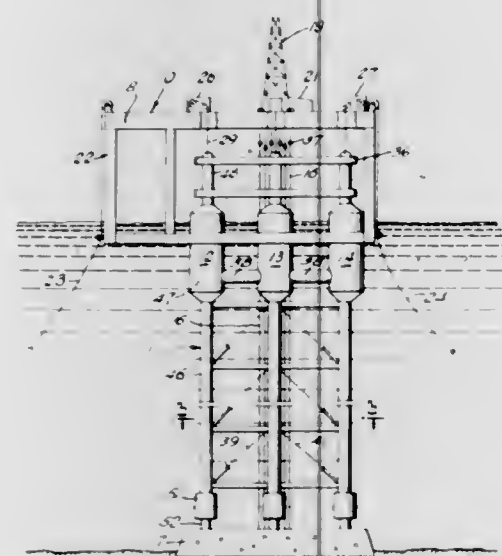
George E. Mott, Metairie, La., assignor to Texaco, Inc., New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,379

Int. Cl. E02b 17/00; B63b 35/44

U.S. Cl. 61-46.5

4 Claims



The invention relates to a drilling or production platform adapted to drill one or more submerged wells into an offshore substratum. The platform is self-buoyant to be floated to and from a drilling site, and comprises a work vessel adapted to be detachably connected to the ocean floor by an elongated, rigid mooring and drilling column. The latter is anchored to the ocean floor at a nonrigid connection whereby to permit limited pivotal movement of the column in response to displacing forces. The column houses a number of drill string or casing guides together with flow control means. The column upper end is adapted to detachably engage the vessel whereby to fix the latter above a subterranean drilling site.

3,653,220

PROCESS FOR HELIUM RECOVERY AND PURIFICATION

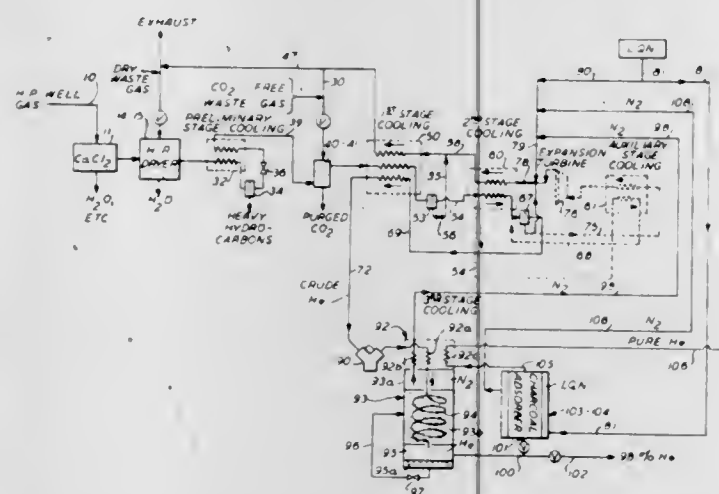
Kenneth M. Foster, Arlington, and Antony Lofredo, Springfield, both of N.J., assignors to Airco/Boc Cryogenic Plants Corporation, Murray Hill, N.J.

Filed May 9, 1969, Ser. No. 823,363

Int. Cl. F25j 3/00, 3/06; F25t 3/00

U.S. Cl. 62-22

12 Claims



Process for recovering helium from natural gas having a well-head pressure in excess of 1,000 psig, comprising steps

of: initially drying raw well gas by dry waste gas derived from the process, removing by adsorption in molecular sieves carbon dioxide (CO₂) from the gas, cooling the gas in sequential stages for liquefying the removing hydrocarbons and nitrogen, using cyclicly the resulting CO₂-free waste gas for the initial drying and for purging CO₂ from the molecular sieves respectively, compressing the remaining helium-rich gas to approximately 2,800 psig and cooling by liquid nitrogen for liquefying and removing the remaining nitrogen, and passing the concentrated helium through a cryogenic charcoal purifier for subsequent storage.

3,653,221

LATENT STORAGE AIR-CONDITIONING SYSTEM

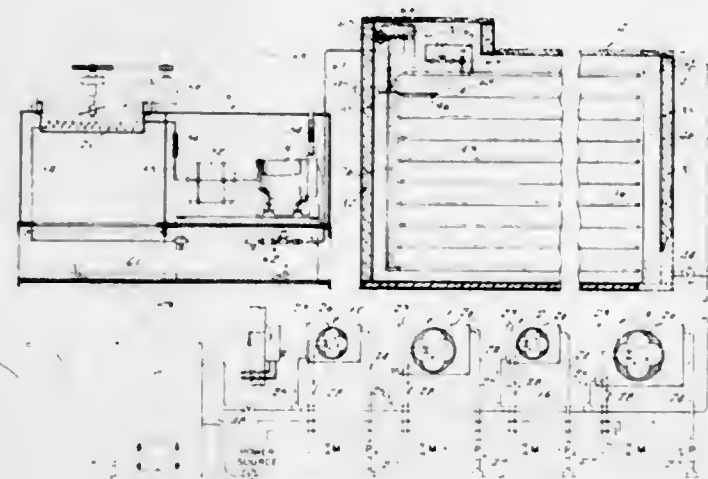
Frank M. Angus, 6809 South Ridge Drive, Dallas, Tex.

Filed July 17, 1970, Ser. No. 55,686

Int. Cl. F25d 17/02

U.S. Cl. 62-59

10 Claims



An air-conditioning system for structures with widely fluctuating loads includes a water storage and ice builder tank from which chilled water is circulated to the room cooling units located throughout the structure. Ice is produced in the storage tank through a direct expansion refrigeration system using freon R-12 as a refrigerant and including a compressor, a condenser, and evaporator coils located within the storage tank. Individually controlled evaporator coils are placed in serially connected chambers within the storage tank through which the water flows, and controls are provided for making the system completely automatic in operation.

3,653,222

METHOD OF FREEZING SOLUTION DROPLETS AND THE LIKE USING IMMISCIBLE REFRIGERANTS OF DIFFERING DENSITIES

Eugene Blair Dunn, South Plainfield; Gerald James Masavage, Manville, both of N.J., and Harold Alfred Sauer, Hatboro, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 27, 1970, Ser. No. 15,001

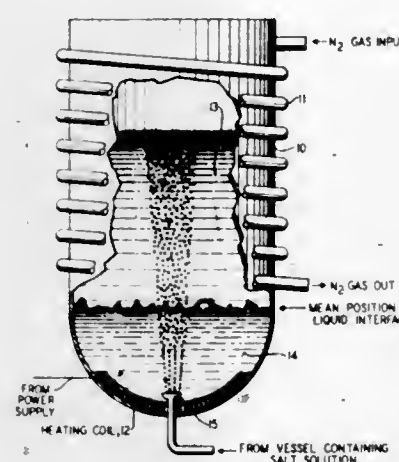
Int. Cl. F25c 1/00; B29b 3/02

U.S. Cl. 62-74

12 Claims

This disclosure describes a system for the continuous formation of frozen droplets of an aqueous salt solution. The refrigerant consists of two or more immiscible liquids of substantially different densities. Liquid droplets are injected into the lower, denser medium in a region maintained slightly above the liquid's freezing temperature. Heat is added to the lower medium and extracted from the upper medium at con-

trolled rates. The droplets rise through the negative temperature gradient thus created in the lower medium, and through



the turbulent interface between refrigerants. The frozen droplets are extracted from the surface of the upper medium.

3,653,223

AUTOMATIC OVERHEAT PROTECTION FOR REFRIGERATION SYSTEM

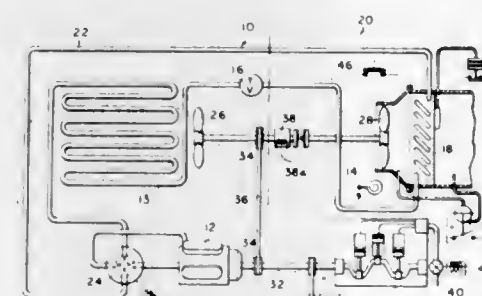
Daniel F. Jones; David J. Petranek, and Harlan J. Rosin, all of La Crosse, Wis., assignors to The Trane Company, La Crosse, Wis.

Filed Aug. 31, 1970, Ser. No. 68,256

Int. Cl. F25b 13/00

U.S. Cl. 62-160

7 Claims



A schematic of an engine driven truck refrigeration system with control circuits is shown. The circuitry provides for automatic shutdown of the refrigeration system should the temperature of the conditioned space exceed a predetermined maximum overheat temperature to thereby prevent a malfunctioning refrigeration system from "cooking" the contents of the conditioned space. A lockout circuit prevents the shutdown circuit from functioning until the control point temperature has been reached or until a defrost mode is initiated so as to permit temperature pull down of the contents of the conditioned space from a temperature exceeding the predetermined maximum overheat temperature.

3,653,224

ICE SERVICE FOR HOUSEHOLD REFRIGERATORS

John Bor-Sow Tsen, Louisville, Ky., assignor to General Electric Company

Filed July 24, 1970, Ser. No. 58,118

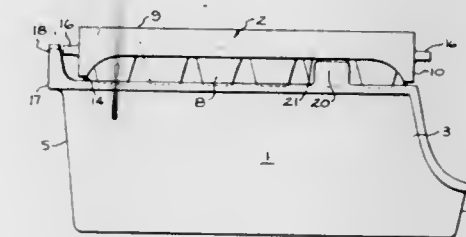
Int. Cl. F25c 5/18

U.S. Cl. 62-344

4 Claims

An ice service for an household refrigerator comprising an ice receptacle and a flexible freezing tray so designed that the tray can be stacked on the receptacle in its upright position and, in the inverted position, can be supported on the

receptacle so that pressure on an unsupported corner of the tray will twist the tray for ejection of ice pieces therefrom. To this end the receptacle is provided with a section extending upwardly from the rear wall thereof and having a slot for receiving a handle on one end of the tray when the tray is in an inverted position above the receptacle and a projection



extending upwardly from a front portion of a receptacle sidewall for supporting a forward side portion of the inverted tray. This projection plus the anchoring of the handle in the slot supports the tray so that a downward pressure on an unsupported forward corner portion of the tray will twist the tray to release ice pieces therefrom.

3,653,225

GAS-COOLING SYSTEM AND ITS USES

Philippe Albert Hippolyte Marchal, Boulogne; Jacques Louis Paul Simonnet, Gif-sur-Yvette, and Jean Prudent Fernand Rene Verrien, Paris, all of France, assignors to Bertin & Cie, Plaisir and Entreprise De Recherches Et D'Activites Petrolieres-Elf, Paris, France

Filed July 25, 1969, Ser. No. 845,018

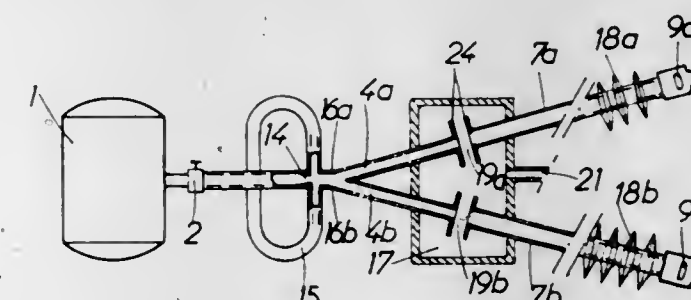
Claims priority, application France, Aug. 5, 1968, 161906;

June 6, 1969, 6918701

Int. Cl. F25b

U.S. Cl. 62-467

14 Claims



A gas-cooling system wherein a pressurized gas jet delivered by an injector across a break in continuity is collected in one or more tubes whose inlet aperture faces the injector and in which the collected gas is pulsated and heated by compressive wave phenomena to a temperature higher than that of the original jet, while impellent gas, removed at the level of the break in continuity via a suitable by-pass, is expanded in relation to the original jet and brought to a lower temperature than the latter.

ERRATUM

For Class 63-29 see: Patent No. 3,653,227

3,653,226

BI-DIRECTIONAL TORQUE LIMITERS

Roy Westbury, Bridgnorth, England, assignor to H. M. Hobson Limited, London, England

Claims priority, application France, Aug. 5, 1968, 161906;

June 6, 1969, 6918701

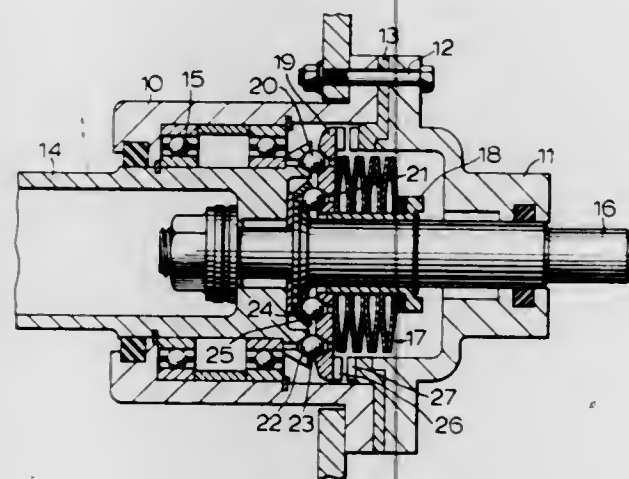
Int. Cl. F16d 7/00

U.S. Cl. 64-29

2 Claims

The combination, with a rotatable driving member and a cooperating rotatable driven member, of a bi-directional

torque limiter which operates to limit the torque which can be transmitted from the driving to the driven member irrespective of the direction of rotation of the driving member, said torque limiter comprising a spring loaded connection between the driving and driven members which includes an



element which normally partakes in the transmission of the drive but which, when the output torque reaches a predetermined limit, is arranged to move against spring action into engagement with a fixed element to relieve the driven member from the input torque.

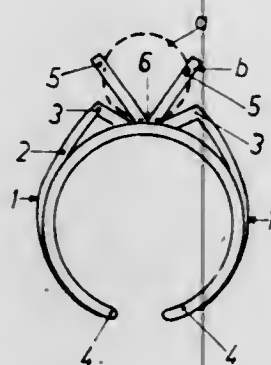
3,653,227

INTERCHANGEABLE SPHERICAL GEM SETTING AND A CORRESPONDING RING PROVIDED WITH SAID SETTING

Flavio Ricci, Via Trento 12, Sondrio, Italy
Filed July 7, 1969, Ser. No. 839,583
Claims priority, application Italy, Jan. 31, 1969, 18601 B/69
Int. Cl. A44c 17/02

U.S. Cl. 63-29

3 Claims



This invention relates to an interchangeable spherical gem setting and a corresponding ring provided with said setting, which setting comprises two equal filiform circles of diameter less than that of the gem mutually inclined so as to form an angle such as to lock the gem contained between said two circles, which touch each other at the vertex of said angle, said circles being secured to the piece of jewellery in the proximity of said vertex, both the removability and retention of the gem being rendered possible by said juncture of the circles and by the elasticity of the material of which said circles are formed.

3,653,228

PROGRESSIVE CLUTCH

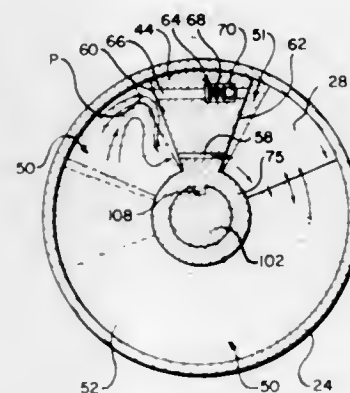
Giuseppe Tiberio, 2102 Kennedy Boulevard, Union City, N.J.
Filed Nov. 12, 1970, Ser. No. 88,866
Int. Cl. F16d 3/80

U.S. Cl. 64-26

11 Claims

A coupling device for progressively, gradually and shocklessly coupling a rotary drive shaft and driven shaft,

comprising a flat, cup-shaped impeller member with a disc shaped impelled member rotatably disposed therein. Jaws on the impeller member and impelled member are disposed in fluid filled first and second chambers inside the impeller member. A narrow bore in one jaw passes fluid from the first chamber to the second chamber when the impeller member starts rotating. A passage containing a check valve passes



fluid in one direction from the second chamber to the first chamber when the impeller member stops rotating. A coil spring connected between the impeller and impeller members returns the jaws to initial angular position. A laterally weighted ring balances the jaws when rotating together. Two jaws can be provided on each of the impeller and impelled members for cooperative action.

3,653,229

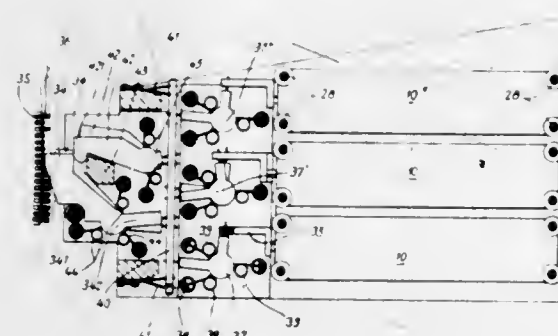
PATTERN INSTALLATION FOR CIRCULAR KNITTING MACHINES

Herbert Gottschling, Berlin, Germany, assignor to Mayer & Cie, Taillfingen, Germany
Filed Sept. 2, 1969, Ser. No. 854,416
Claims priority, application Germany, Sept. 7, 1968, P 17 85 300.8

U.S. Cl. 66-50 R

Int. Cl. D04b 15/78

11 Claims



A pattern installation of circular knitting machines. The pattern installation enables needles carried by a rotary needle carrier to be electromagnetically selected for operation according to a given pattern. Control jacks supported for movement in the needle bed are moved by setting members which in turn are operatively connected with armatures of a plurality of reversible electromagnetic means. A plurality of these electromagnetic means are arranged in staggered relation for each yarn feeder of the circular knitting machine and each electromagnetic means includes at least one control coil, preferably supplied with an impulse, in order to bring about actuation of armature which is displaced in this way between a pair of predetermined end positions.

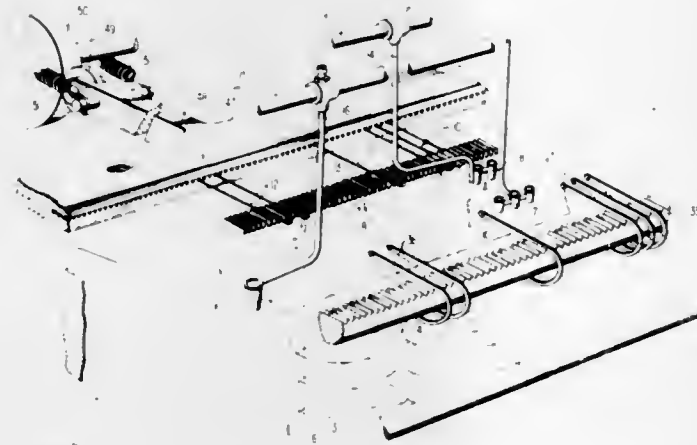
3,653,230

PROCESS FOR MANUFACTURING FRINGE HEADINGS PROVIDED WITH FRINGE TASSELS

Renato Tosco, Via Cibrario 3, Chieri (Turin), Italy
Filed Dec. 4, 1968, Ser. No. 780,957
Claims priority, application Italy, Dec. 6, 1967, 54012; Feb. 5, 1968, 50408; Feb. 19, 1968, 50575
Int. Cl. D04b 23/14

U.S. Cl. 66-85

6 Claims



A tasseled fringe is formed continuously in a warp-knitting or weaving machine, a continuous bundle of threads being linked with loops on a heading tape in a zigzag fashion, tied together close to the loops and subsequently trimmed remotely from the ties to form tassels on each loop.

3,653,231

MEANS AND METHOD OF CONTROLLING THE SPEED OF A CIRCULAR KNITTING MACHINE

Dennis Gell, and Arthur William Spurling, both of Leicester, England, assignors to The Bently Engineering Company Limited

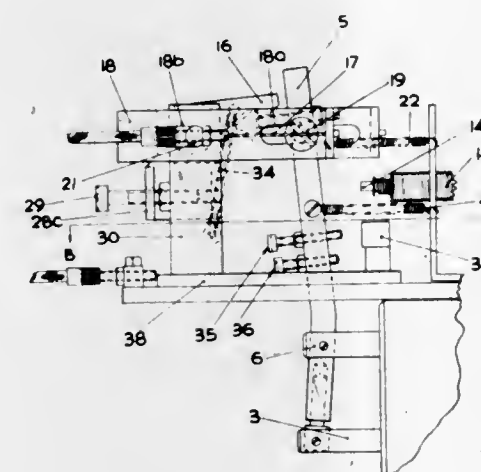
Filed Oct. 28, 1969, Ser. No. 871,866

Claims priority, application Great Britain, Nov. 9, 1968, 53,199/68

U.S. Cl. 66-56

Int. Cl. D04b 9/00

4 Claims



A circular knitting machine is driven at any selected one of a plurality of speeds from a source of power through a variable-speed hydraulic driver of the known pump and motor type (preferably a Carter Gear) which is automatically adjusted to give the selected running speed by control apparatus actuated from the main pattern drum of the machine. The pump is driven at contact speed from the source of power and the control apparatus acts through a relay to vary the pump output and thereby to vary the speed of the motor, the motor being connected to the needle cylinder. The control apparatus comprises a mechanism having a speed control

member spring biased to move from a stop position to vary the pump output, and a limit device adjustable from the pattern drum to provide alternative limits to movement of the control member away from the stop position. The control member is latched in the stop position by a latch which is released by a start button, and provision is made for stopping the motor at the will of an operator and upon functioning of a stop motion, and for a high speed, a low speed, and at least one intermediate speed.

3,653,232

DIGITALLY CONTROLLED TRANSLATIONAL MOVEMENT

Arthur Walter, Denzlingen, Germany, assignor to Firma Erwin Sick

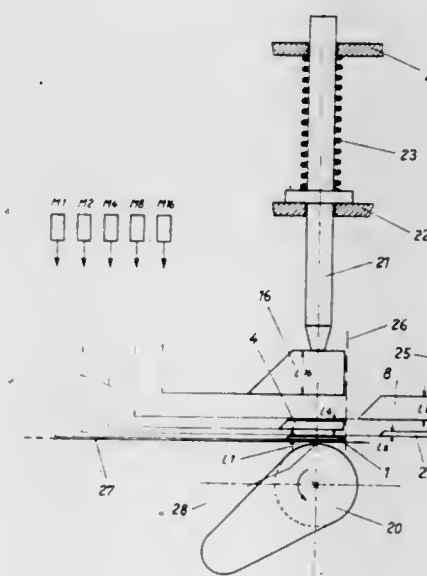
Filed Apr. 7, 1970, Ser. No. 31,045

Claims priority, application Germany, Apr. 8, 1969, P 19 17 835.9

Int. Cl. D04b 23/00

U.S. Cl. 66-86

2 Claims



The bolt of a warp knitting machine is movable longitudinally and is urged by a spring in one direction against a stop. A rotating cam moves the bolt in the opposite direction. A plurality of blocks have an operative position between the cam and bolt and an inoperative position spaced therefrom. Electromagnets are employed to move the blocks from the inoperative to the operative position. The blocks have thicknesses that are digitally related to each other and each is a different digit.

3,653,233

MACHINE KNITTING

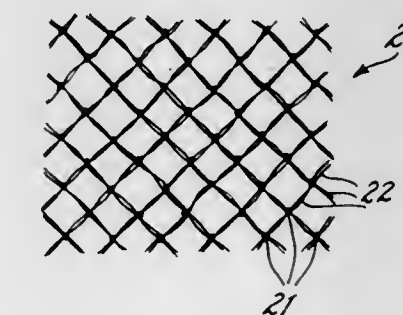
Seymour C. Titone, Birchrunville, Pa., assignor to Titone Research & Development Corporation, Burlington, N.J.

Filed Dec. 5, 1968, Ser. No. 781,349

Int. Cl. D04b 21/20

U.S. Cl. 66-177

10 Claims



Seamless hosiery, panty-hose, and the like are warp-knit, preferably of retractable or so-called "stretch" yarn, in a marquisette-like pattern and modifications thereof to provide

tubular garment fabrics characterized by sheerness of the leg portions thereof and by either sheer or opaque body portions.

3,653,234

CONTROL INJECTION SYSTEM FOR DRYCLEANING APPARATUS IN SYSTEMS

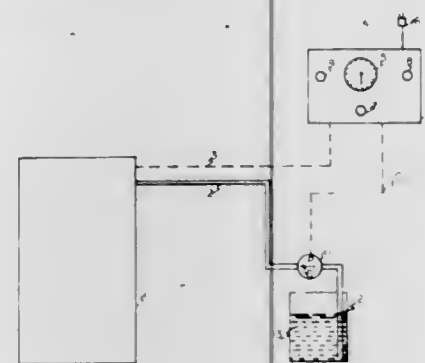
Robert A. Gillespie, Skaneateles, N.Y., assignor to Stauffer Chemical Company, New York, N.Y.

Filed Nov. 5, 1970, Ser. No. 87,138

Int. Cl. D06f 39/02, 43/00, 33/02

U.S. Cl. 8—12 R

4 Claims



This invention provides a control injection system for adding a chemical and/or water from a metering device to a programmed drycleaning machine for a predetermined time interval. The control injection system comprises an automatic reset electrical timer having a dial which is settable for the predetermined time interval, a load terminal in communication with one or more metering devices, and receiving and relaying means for receiving a signal from the programmer of the drycleaning machine and relaying the signal to start the timer and energize the load terminal to actuate the metering devices to admit the chemical and/or water into the drycleaning machine for the time interval set on the timer. The timer being arranged to de-energize the load terminal at the end of the time interval independent of the length of the signal from the programmer.

3,653,235

PICK PROOF LOCKING PLATE FOR PADLOCK

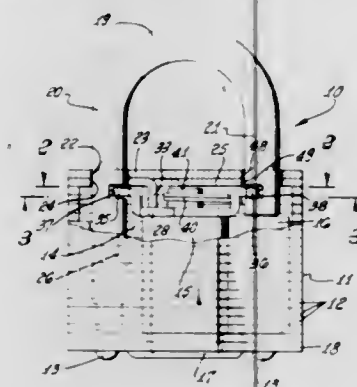
William J. Fane, Burnaby, British Columbia, Canada, and Vernard W. Sanders, Los Angeles, Calif., assignors to Norris Industries, Inc., Los Angeles, Calif.

Filed Aug. 17, 1970, Ser. No. 64,514

Int. Cl. E05b 65/52, 63/00

U.S. Cl. 70—38 A

7 Claims



A cylinder assembly located in the chamber of a padlock has a key actuated rotating cylinder plug to which is attached a locking plate. Locking lugs at opposite ends of the locking plate engage notches in the long and short legs of a shackle to hold the shackle in locked position. Engagement of the lugs with the notches is such that when the lug engaging the short leg is clear, the lug engaging the long leg is still partly engaged. For that reason the shackle cannot be unlocked by unauthorized manipulation of a shim inserted through the clearance around the short leg of the shackle to release the locking lug from engagement with the short leg.

KEEPER LOCK FOR A SEPARABLE FASTENER FOR A MONEY BAG OR THE LIKE

William J. Kerr, Glenview, Ill., assignor to Chicago Lock Co., Chicago, Ill.

Filed Dec. 8, 1970, Ser. No. 96,007

Int. Cl. E05b 65/32

U.S. Cl. 70—68

8 Claims



A key-operated keeper lock adapted for use in connection with a slide fastener and in which a lock housing carries a fixed anvil which underlies the slidable lacing element of the slide fastener, and a rotatable jaw member closely overlies said slidable lacing element in the locked condition of the lock. The jaw member is of the pop-up type, and when it is raised from a position of close proximity to the slidable lacing element, it may be swung to one side to expose the lacing element for manipulative purposes. An axial tumbler type lock assembly disposed alongside the jaw member operates through the medium of a detent ball to release the jaw member for pop-up purposes.

3,653,237

POWER LOCKING AND UNLOCKING APPARATUS FOR VEHICLE DOORS

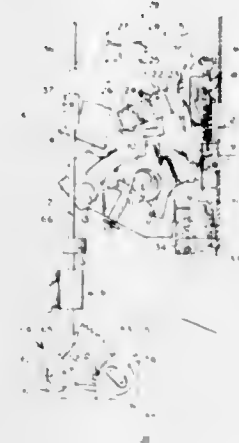
Gideon A. DuRocher, Mt. Clemens, Mich., assignor to Essex International Inc., Fort Wayne, Ind.

Continuation-in-part of application Ser. No. 773,159, Nov. 4, 1968, now Patent No. 3,541,874, dated Nov. 24, 1970. This application Aug. 19, 1969, Ser. No. 851,343

Int. Cl. E05b 65/36

U.S. Cl. 70—264

17 Claims



Power locking and unlocking apparatus for a vehicle's doors each having a latch and locking means movable from latch locking position to latch unlocking position and vice versa, the locking and unlocking apparatus comprising a reversible permanent magnet motor associated with each door and being operable in one direction or the other in response to the closing of a switch to lock or unlock the associated latch means. The power locking and unlocking apparatus associated with selected doors is operable to effect locking and unlocking of the latch means of all of the doors from inside the vehicle. The locking and unlocking apparatus associated with selected doors is operable by key controlled

means and such key controlled means preferably has associated with it switch means operable from outside the vehicle to energize one or all of the locking and unlocking motors so as to permit one or all of the latch locking means to be operated by a selected one of the key controlled means. Time delay means preferably is associated with each of the locking and unlocking motors to provide a time interval between successive operations of any of the motors.

3,653,238

LOCK WITH TUMBLER-SAFETY-SLIDES

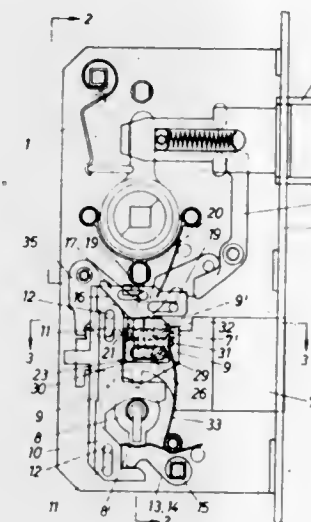
Hans Brugemann, Elchenstrasse 16, 562 Velbert, Germany

Filed May 15, 1970, Ser. No. 37,701

Int. Cl. E05b 21/00

U.S. Cl. 70—252

10 Claims



A lock with tumbler-safety-slides and a locking block equipped with entrance openings for the locking teeth of the slides, which comprises a locking block and a key having a plurality of bit steps. Safety-slides have locking teeth, and the locking block is displaceable in dependency upon a complementary bit step of the key crosswise to the locking teeth of the safety-slides.

3,653,239

CENTRIFUGAL BLAST WHEEL

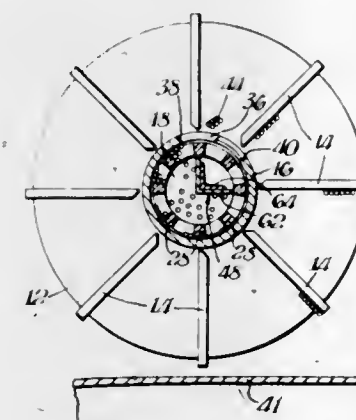
James H. Carpenter, Jr., Hagerstown, Md., assignor to The Carborundum Company, Niagara Falls, N.Y.

Filed June 27, 1969, Ser. No. 837,262

Int. Cl. C21d 7/06

U.S. Cl. 72—53

15 Claims



A centrifugal blast wheel for projecting peening balls comprises a runnerhead having a plurality of radial vanes mounted thereon and an impeller mounted in an impeller case in the central area of the runnerhead. Means are provided to prevent the peening balls from being trapped between the impeller blades and the slot in the impeller cage.

3,653,240

APPARATUS FOR MANUFACTURE OF TUBULAR PROJECTILES

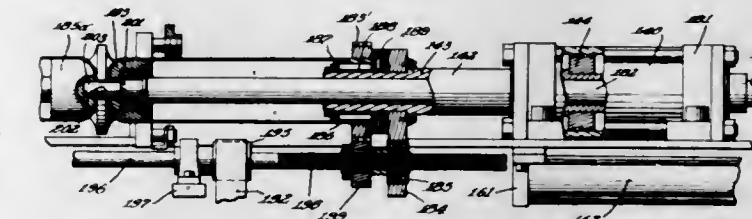
Charles K. Huthsing, Jr., deceased, late of Libertyville, Ill. (by Evelyn N. Huthsing, executrix)

Filed Feb. 28, 1969, Ser. No. 803,337

Int. Cl. B21d 22/14

U.S. Cl. 72—82

7 Claims



A plurality of tubular projectiles for use as fire extinguisher casings are simultaneously provided from a single piece of hollow cylindrical stock by techniques which involve rotating the cylindrical stock about its longitudinal axis and spinning the stock material inwardly at a point longitudinally central of each pair of projectiles to be provided while axially loading the stock to provide uniform thickness of material in the spinning area. The tubular stock is rotatably supported by formed mandrel apparatus in cooperation with a plurality of fluid operated actuators and material spinning is provided around the formed mandrel apparatus located within the hollow stock by a pair of rollers acting as another mandrel and having surfaces which conform to the formed surfaces of the interior mandrel apparatus, the rollers being movable over arcuate paths at the ends of a scissors apparatus which is also operated by a fluid controlled actuator. One end of a casing is closed by hot spinning or welding techniques and the formed end of a casing has a valve affixed thereto and the casing is charged to provide a fire extinguisher.

3,653,241

DIES FOR MAKING SELF-LOCKING SCREWS AND METHOD OF MAKING SAME

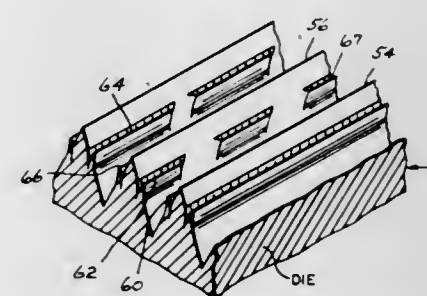
Roger W. Orlomoski, Paxton, Mass., assignor to Reed Rolled Thread Die Co., Holden, Mass.

Continuation-in-part of application Ser. No. 734,833, May 3, 1968, now Patent No. 3,517,717, dated June 30, 1970. This application Apr. 3, 1970, Ser. No. 26,520

Int. Cl. B21h 3/06

U.S. Cl. 72—88

24 Claims



This invention relates to self-locking screws, thread rolling dies for and the method of making such screws. The self-locking result is achieved by forming one or more outwardly turned ribs, continuous or discontinuous, in the flank or flanks of one or more turns of the threads over a selected length of the screw. The screw threads and ribs therein may be made by the use of conventional thread rolling dies in which certain selected threads in one or both of the dies, over a suitable length have been deformed in a particular manner. The deformed die threads must be so located that the self-locking ribs formed in the threads of the screw will

not be subsequently wiped out by encounter with the undeformed threads in the other die. Preferably, the ribs have the leading and trailing ends thereof faired back into the flank of the screw thread sufficiently to facilitate entry into and removal from the internal thread.

3,653,242

APPARATUS FOR TREATING A CONTINUOUS BODY UNDER PRESSURE

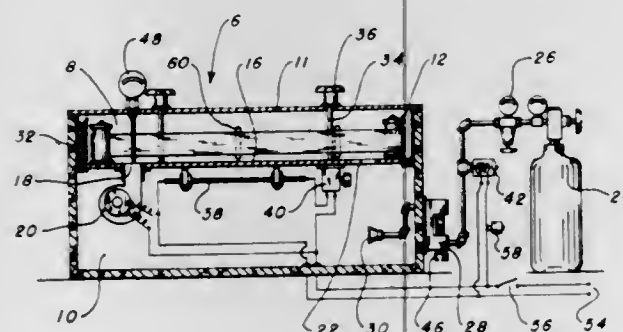
Nicholas P. Schleich, Golf, Ill., assignor to The Matix Corporation

Filed June 9, 1969, Ser. No. 831,329

Int. Cl. G03d 3/00; G01c 9/12; G03b 27/32

U.S. Cl. 95—89 G

5 Claims



A method and apparatus for developing the latent image on a continuous flexible diazo web by subjecting the web to a heated pressurized atmosphere of ammonia in a sealed chamber.

3,653,243

DEVICE FOR FORMING CLOSING HEADS AT RIVETS

Paul Ramseier, Pfaffikon, Switzerland, assignor to Bracker AG, Pfaffikon, Switzerland

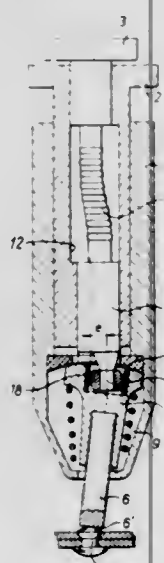
Filed Apr. 3, 1970, Ser. No. 25,514

Claims priority, application Switzerland, Apr. 11, 1969, 5502/69

Int. Cl. B21d 3/02; B21b 3/06

U.S. Cl. 72—122

10 Claims



A device or apparatus for forming closing heads at rivets with the aid of a rivet set or anvil performing substantially loop-like revolving movements. According to the invention at least two drive members serve to drive the rivet set, the movements of which are superimposed and wherein at least one such movement can be adjusted.

3,653,244

BENDING AND TWISTING FIXTURE

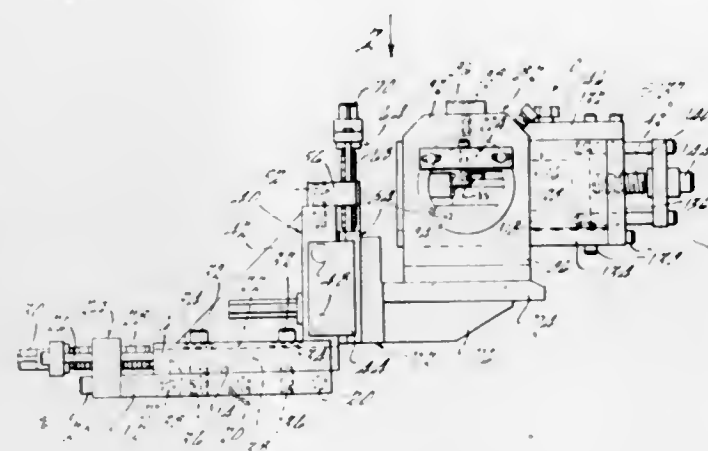
Paul Tishken, Birmingham, Mich., assignor to Tishken Products Co., Detroit, Mich.

Filed Feb. 12, 1970, Ser. No. 10,811

Int. Cl. B21d 5/14

U.S. Cl. 72—171

7 Claims



In combination in a strip workstock forming apparatus, first and second spaced rotatable workstock forming elements, a third rotatable workstock forming element disposed adjacent the first mentioned elements and defining therewith a first workstock path, the third workstock forming element being located relative to the first and second elements such that workstock traversing the path will be deformed in a first plane, fourth and fifth rotatable workstock forming elements defining a second workstock path substantially aligned with the first mentioned path but displaced therefrom a sufficient amount such that workstock traversing the second path from the first path will be deformed in a second plane different from the first plane.

3,653,245

APPARATUS FOR COLD ROLLING GRATING WORKSTOCK

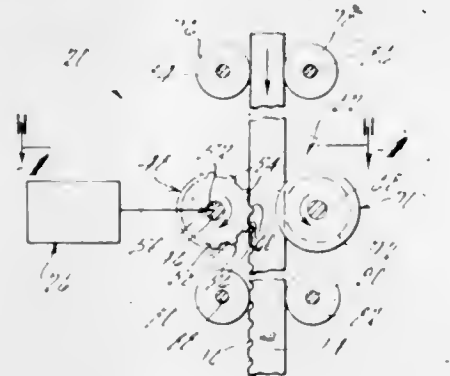
Paul Tishken, Birmingham, Mich., assignor to Tishken Products Co., Detroit, Mich.

Filed Apr. 8, 1969, Ser. No. 814,292

Int. Cl. B21h 8/00

U.S. Cl. 72—187

18 Claims



An apparatus for cold forming grating material from elongated, generally flat workstock, comprising a generally cylindrical shaped element having a series of outwardly directed projections thereon, means for rotatably supporting the element, guide means for guiding the workstock into peripheral engagement with the element whereby rotation thereof will cause the projections to be forced into the adjacent portion of the workstock to form a series of adjacently oriented, inwardly extending recesses or notched portions therein, and means including roller means for straightening and flattening the workstock after the series of notches are formed therein.

3,653,246

METHOD OF AND MEANS FOR ROLLING RODS

Ernst Bock, deceased, late of Peine, Germany (by Ingeborg Bock, administratrix); Martin Majewski, and Wilhelm Bartels, both of Peine, Germany, assignors to Ilse der Hutte, Peine am Hann., Germany, by said Majewski and said Bartels

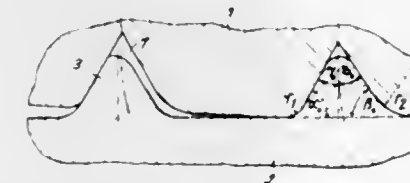
Filed July 23, 1970, Ser. No. 57,620

Claims priority, application Germany, July 26, 1969, P 19 38 120.5

Int. Cl. B21h 8/02

U.S. Cl. 72—198

6 Claims



A metal rod to be used as a concrete armature is passed between a pair of counterrotating shaping rollers with complementary peripheral channels of substantially semicircular cross-section transversely by rib-forming grooves. The grooves merge with the channel surface along rounded edges, with the radius of curvature at the leading edge (as seen in the direction of roller rotation) smaller than that at the trailing edge; conversely, the angle included between the roller periphery and the front flank of each groove is larger than the desired leading angle of the rib whereas the angle included between the roller periphery and the rear flank of each groove is smaller than the desired trailing angle of the rib.

3,653,247

EXTRUSION PRESS

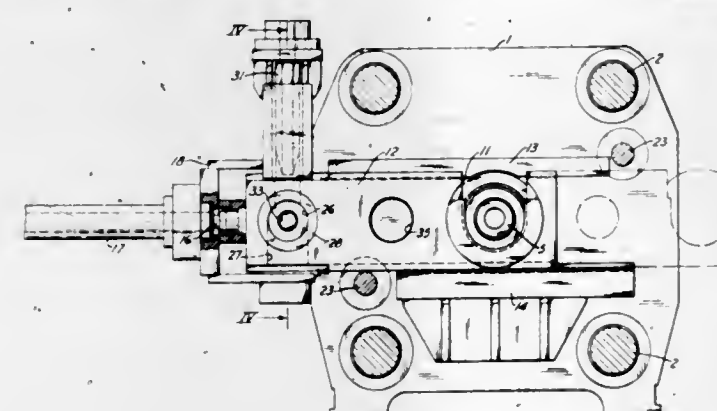
Helmut B. Huertigen, Pittsburgh, Pa., assignor to Sutton Engineering Company, Pittsburgh, Pa.

Filed Oct. 15, 1970, Ser. No. 80,893

Int. Cl. B21c 23/00; B21d 45/00

U.S. Cl. 72—263

5 Claims



An extrusion die, in front of a container for a billet and a dummy block, is carried by a horizontal slide. After an extrusion has been formed, the container can be retracted to permit the extrusion to be cut off between the container and die. The slide is provided with a rearwardly opening recess intersecting the recess. The slide is movable horizontally in one direction after the container is retracted, to locate the recess in front of the container for receiving the dummy block and remains of the billet from the container. After the slide has been returned to its original position a vertical ram is moved down through the vertical passage to eject the dummy block from the bottom of the slide, and then a horizontal ram is moved rearwardly through the recess to eject the remains of the billet from the back of the slide.

3,653,248

LIQUID PUMP, PARTICULARLY AN OIL PUMP FOR REFRIGERATING MACHINES

Hans Ulrik Leffers, Augustenborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

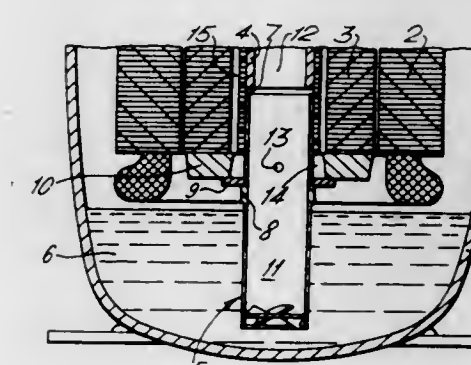
Filed Feb. 2, 1970, Ser. No. 7,814

Claims priority, application Germany, Mar. 1, 1969, P 19 10 555.6

Int. Cl. B21d 43/28; B21k 3/04

U.S. Cl. 72—324

1 Claim



The invention relates to a method for making an oil pump for refrigeration machines. The pump comprises a tube formed by drawing which is press fitted into the bore of a motor rotor. The tube is initially formed with an inwardly domed, closed end portion. Circumferentially and radially extending incisions are made in the domed end portion to form cantilever portions which in turn are bent inwardly relative to the end of the tube to form blades.

3,653,249

DRAWN AND IRONED CONTAINERS

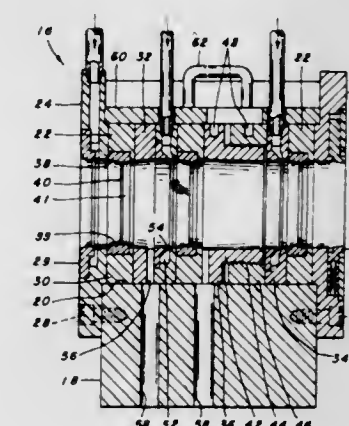
Lloyd G. Dunn, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 17, 1970, Ser. No. 20,268

Int. Cl. B21d 22/28

U.S. Cl. 72—349

8 Claims



A tool pack assembly for an ironing press for forming thin-walled container bodies including a die block having an open slot herein for receiving a plurality of ironing rings which are secured in the die block by means of an axially expandable hollow jack screw, with the die orifices in the rings in coaxial alignment with the press mandrel. Spacer rings are provided between the ironing rings and have means associated therewith for introducing lubricant around the entire periphery of the container body prior to movement of the body through successive ironing rings.

3,653,250

PROCESS FOR FORMING TITANIUM

James D. Collins, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 2, 1970, Ser. No. 25,247

Int. Cl. B21d 21/00, 1/06

U.S. Cl. 72-364

5 Claims

A process for forming titanium and titanium alloys comprising a two-step forming process of a partial form at sub-zero temperatures followed by a final form at room temperature or above.

3,653,251

PIPE BENDING

Paul Valentine Coonan, Preston, England, assignor to British Aircraft Corporation Limited, London, England

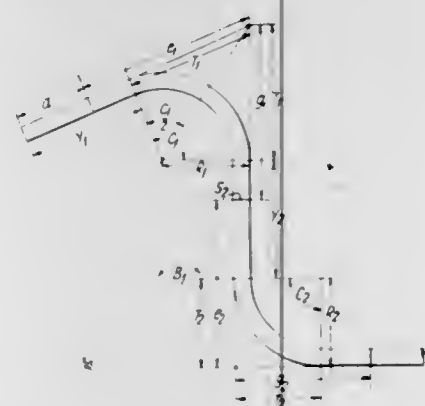
Filed Feb. 17, 1970, Ser. No. 11,993

Claims priority, application Great Britain, Feb. 28, 1969, 10,902/69

Int. Cl. B21d 7/12, 7/14

U.S. Cl. 72-369

5 Claims



Producing replicas of a sample pipe using a numerically controlled pipe bending machine, by deriving a Programme for the machine from the sample pipe, modifying the Programme in accordance with measurement of a test bend of pipe material, and bending pipe material on the machine in accordance with the modified Programme.

3,653,252

WEAR TESTING

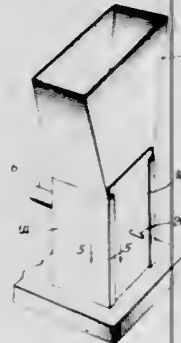
Paul J. Neff, and Jerald L. Bright, both of Chicago, Ill., assignors to AMSTED Industries Incorporated, Chicago, Ill.

Filed Aug. 21, 1968, Ser. No. 754,352. The portion of the term of the patent subsequent to Apr. 4, 1987, has been disclaimed.

Int. Cl. G01n 3/56

U.S. Cl. 73-7

1 Claim



An elongated specimen bar of known weight is submerged in a mass of separate, irregular, abrasive lumps confined against rotation as a mass in a chamber, and then said bar is rotated on an axis angularly related to its longitudinal axis for a predetermined period of time. The bar is then removed from the chamber and is weighed to determine the amount of

material which has been removed therefrom and/or the lumps are measured as by screening to determine the amount of crushing which has occurred in the lumps.

3,653,253

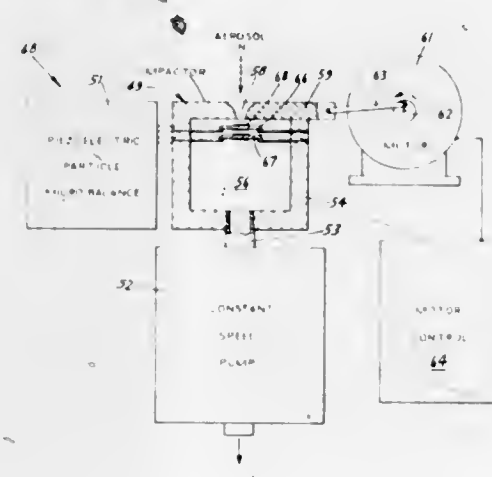
AEROSOL MASS CONCENTRATION SPECTROMETER
John G. Olin, Roseville, Minn., assignor to Thermo-Systems, Inc., St. Paul, Minn.

Filed Jan. 5, 1970, Ser. No. 1,068

Int. Cl. G01n 15/02

U.S. Cl. 73-28

31 Claims



An apparatus and method for determining particle or aerosol mass concentration distribution using a particle sensing element, as a piezoelectric crystal, for collecting particles to increase the mass of the element. The particles are force deposited on the sensing element. The amount of force is sequentially changed to alter the critical particle size deposited on the sensing element. The mass of the particles accumulated on the sensing element during each force period provides information of the particle mass concentration. The difference between particle mass concentration, at two successive values of critical particle sizes, provides data relative to particle mass concentration distribution.

3,653,254

LEAK-TESTING INTERNAL SEALS IN PIPE JOINTS

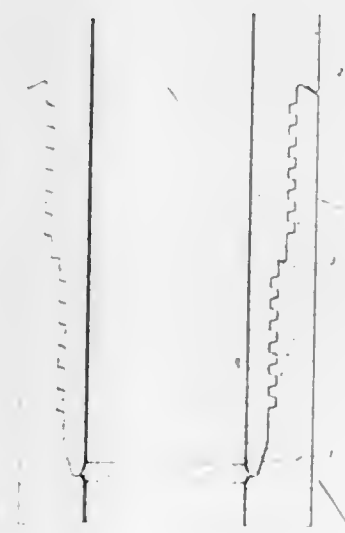
Theodore A. Simon, Calgary, Alberta, Canada, assignor to Shell Oil Company, New York, N.Y.

Filed Oct. 16, 1970, Ser. No. 81,304

Int. Cl. G01m 3/08

U.S. Cl. 73-46

4 Claims



The leak-testing of thread-connected, multiple-seal pipe joints is improved by connecting them to a limited extent that engages at least one internal seal without engaging the outer-

most seal, increasing the external fluid pressure to an amount significantly greater than the internal pressure, and detecting any resultant inflow of fluid.

3,653,255

RUMBLE TESTER FOR PHONOGRAPHS

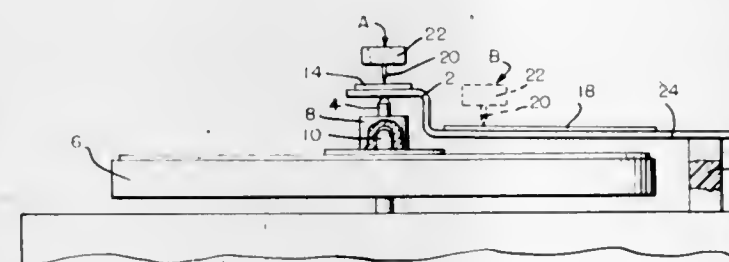
Jacob Rabinow, Bethesda, Md., assignor to Max L. Libman, Reston, Va., a part interest

Filed Aug. 6, 1970, Ser. No. 61,765

Int. Cl. G01h 1/00

U.S. Cl. 73-67

5 Claims



A rumble testing device for phonographs consists of a small adapter member to be placed over the center of a turntable. The adapter is provided with a vertical pin concentric with the spindle of the turntable. A sheet metal or plastic bracket rests on this pin so that it does not turn with the turntable. One end of the bracket rests on the pin while the other end rests on a block of soft, spongy material. Any vibration in the vertical or horizontal direction of the turntable is transmitted to this member. By placing the stylus of the cartridge of a photograph arm on the top surface of this strip member, either immediately above the pivot or close to it, the vibration of the turntable can be detected without the use of special "silent groove" test records and without the interference of the noise produced by such records being played.

3,653,256

HARDNESS MEASURING APPARATUS

Misao Mashimo, Yokohama, Japan, assignor to Kabushiki Kaisha Akashi Seisakusho, Tokyo, Japan

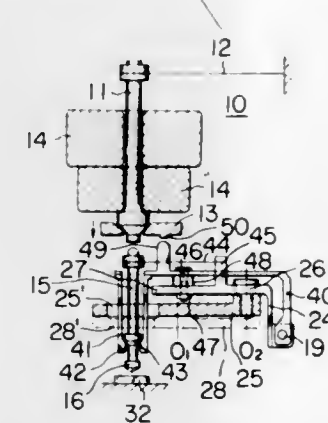
Filed Mar. 24, 1970, Ser. No. 22,276

Claims priority, application Japan, Mar. 29, 1969, 44/23600

Int. Cl. G01n 3/40

U.S. Cl. 73-81

12 Claims



An apparatus for measuring hardness of a specimen comprises indenting means for forming an indentation in the upper surface of the specimen, loading means for applying a predetermined load onto said indenting means and an optical system for measuring said formed indentation which is a measure of the hardness of the tested specimen. The loading means is mechanically disconnected from the indenting means and adapted to be engaged with the latter, only when the load is applied thereto upon the measurement. By such arrangement, the rigidity, mass as well as bulk of the supporting structure for the indenting means can be considerably reduced, and hence a dynamical load due to such factors

3,653,257

DUAL TORQUE INDICATOR

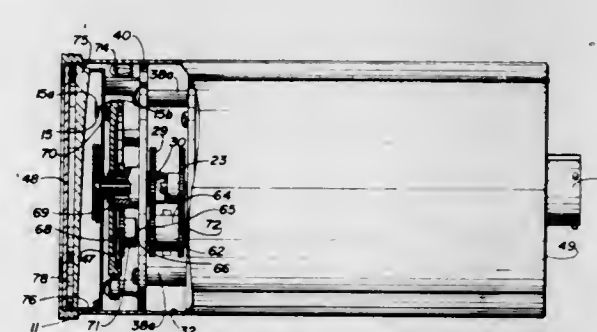
Hanby S. Brindley, Arlington; John A. Buyers, Jr., Fort Worth; Turpin Gerard, Euless, and John S. McClung, Jr., Hurst, all of Tex., assignors to Textron-Inc., Fort Worth, Tex.

Filed Dec. 4, 1969, Ser. No. 882,260

Int. Cl. G01l 5/00

U.S. Cl. 73-138

8 Claims



A meter for indicating two related functions together with the summation of the values of the two functions by means of a pair of coaxially, separately driven pointers cooperating with a scale on a fare plate behind the needles and a function summation unit driving a pointer behind the fare plate and extending at least in part in front of the fare plate in cooperation with a second scale thereon.

3,653,258

APPARATUS FOR MEASURING LOADS IN ROPES

Henry King, Langley, England, assignor to Fulmer Research Institute Limited, Stoke Poges, Buckinghamshire, England

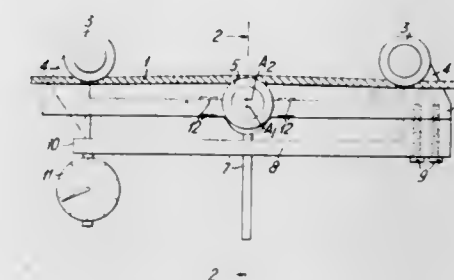
Continuation of application Ser. No. 741,472, July 1, 1968, now abandoned. This application Nov. 4, 1970, Ser. No. 86,992

Claims priority, application Great Britain, July 13, 1967, 32,398/67

Int. Cl. G01l 5/04

U.S. Cl. 73-144

16 Claims



Apparatus for measuring the loading of a rope comprising three rope engagement members spaced along a resilient support for engaging opposite sides of the rope, one of said members being carried on a carrier and being displaceable by eccentric pivotation or sliding on the carrier, upon movement of an adjustment member, to deflect the rope, means being provided for measuring distortion of the resilient support in response to the rope deflection.

3,653,259

ULTRASONIC FLOWMETER SYSTEMS

James L. McShane, Churchill, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 6, 1970, Ser. No. 17,196

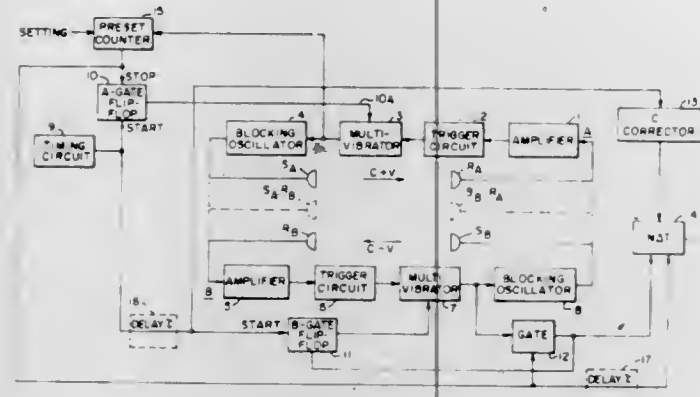
Int. Cl. G01f 1/00

U.S. Cl. 73-194 A

6 Claims

Described are systems for measuring the rate of fluid flow wherein the time delay between acoustic pulses transmitted

upstream and downstream in a fluid passing along a path of travel is multiplied by repeated transmissions in sing-around fashion. The systems of the invention have the advantage of fast response time, but do not require the measurement of



very small time differences, particularly at low velocities, because of the cumulative effect of combing the time delays between upstream and downstream pulses over a period of time.

3,653,260

FLOW INDICATOR

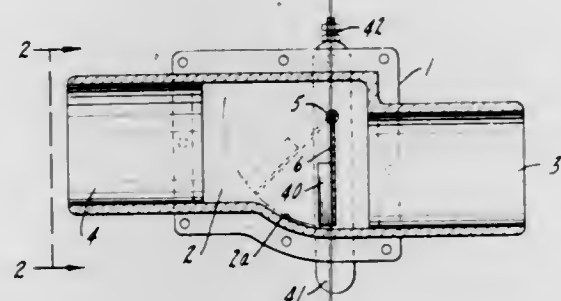
Grant V. W. Roth, 1440 Sheridan Road, Wilmette, Ill., and Charles E. Krupp, Hemmed-In Hollow North Old Rand Road, Wauconda, Ill.

Filed Dec. 23, 1968, Ser. No. 786,223

Int. Cl. G01f 1/00

U.S. Cl. 73-228

3 Claims



A flow indicator having an element responsive to liquid flow and a bypass channel for gas flow, the bypass channel being offset from the liquid-responsive member in a direction taken by gases through the device whereby the flow-responsive member is responsive to liquid flow and not to gas or gas-liquid flow. A cooperating external signal transmitting element is mounted for variable positioning on the device.

3,653,261

PRESSURE DEMAND METER FOR FLUID FLOW MEASUREMENT

Stephen L. Feldman, Baltimore, Md., assignor to Richard Ruben, Arlington, Va., a part interest

Filed Mar. 6, 1970, Ser. No. 17,073

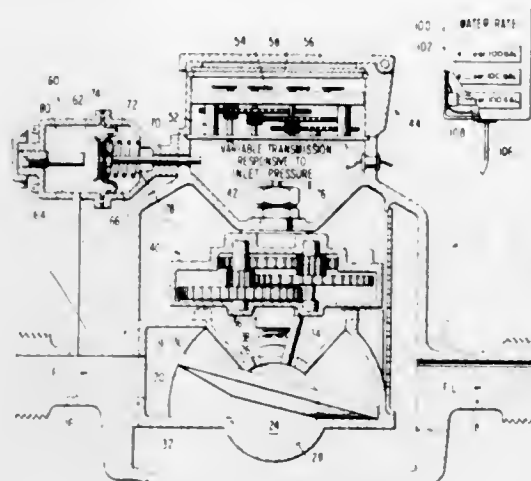
Int. Cl. G01f 1/02

U.S. Cl. 73-233

16 Claims

The meter includes a quantity meter, pressure measuring device and a register. The outputs of the pressure measuring device and quantity meter are correlated to provide a numer-

ical readout at the register inversely proportional to the pressure of the fluid in the fluid line and directly proportional to



the quantity of flow whereby demand on the fluid system is reflected in the quantity readout.

3,653,262

TEMPERATURE AND LEVEL SENSOR

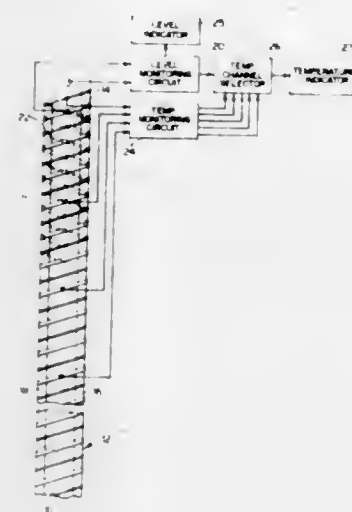
Albert D. Ehrenfried, Concord; John Nejradlik, Littleton, and Norton T. Pierce, Concord, all of Mass., assignors to Metritake, Inc., West Concord, Mass.

Filed Oct. 22, 1970, Ser. No. 82,875

Int. Cl. G01f 23/24; G01k 7/16, 13/02

U.S. Cl. 73-292

9 Claims



An elongated sensor adapted to be suspended within a fluent material and operative to measure the level of the material and the temperature at one or more positions within the material bulk.

3,653,263

INFRARED TEMPERATURE SENSOR AND CONTROL FOR USE WITH HEATED, MOVING BODIES

Richard R. Poole, and David D. Bulkley, both of Norwalk, Conn., assignors to Irtronics, Inc., Stamford, Conn.

Filed July 15, 1969, Ser. No. 841,861

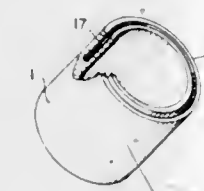
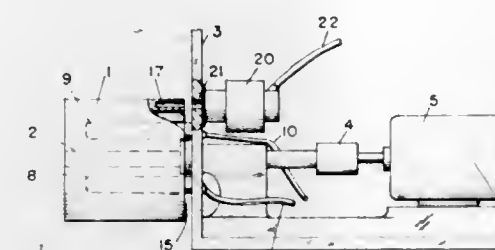
Int. Cl. G01j 5/62; G01k 13/08

U.S. Cl. 73-351

13 Claims

A temperature sensor is provided for measuring infrared radiation from a heated, moving processing device. The measurement is made from a "black body" cavity extending within the device being measured and so provides greater ac-

curacy of readings. If the device being measured is cylindrical and rotates, the cavity is along the edge of the rotational surface and may be subdivided so as to provide a chopper for



the readings. Control circuitry associated with the infrared detector allows the sensor to control heating elements within the device.

3,653,264

APPARATUS FOR DETECTING A LEAK IN A FLUID PRESSURE SYSTEM

Albert E. Mills, 10 Cloisters Road, Letchworth, England

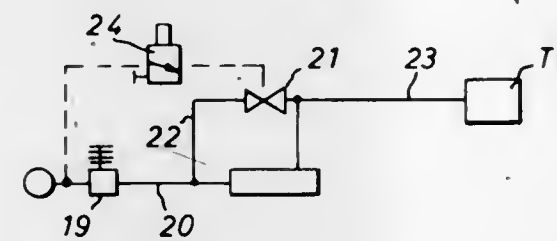
Filed Nov. 25, 1969, Ser. No. 879,789

Claims priority, application Great Britain, Nov. 25, 1968, 56,146/68

Int. Cl. G01f 9/04

U.S. Cl. 73-398 R

9 Claims



A fluid-pressure differential cell wherein pressure is transmitted between the two sides of the cell internally thereof by means of a liquid medium.

The liquid may be contained between spaced apart diaphragms so that pressure applied to one diaphragm is transmitted to the other. In a preferred cell of the present invention, providing an amplification of the signal produced by the pressure difference, the two diaphragms are bellows diaphragms, one of a greater cross-sectional area than the other, between which liquid passes on the development of a pressure difference between the two sides of the cell, so that the amplified signal is constituted by an expansion of the bellows diaphragm of narrower cross-section, over a greater axial distance than the other bellows diaphragm is contracted by that pressure difference.

The bellows diaphragms may be separated by a chamber connecting the internal spaces of the two diaphragms, and the chamber may be formed with an access port for filling the chamber and the internal spaces of the bellows diaphragms with the liquid which, preferably, is a light oil.

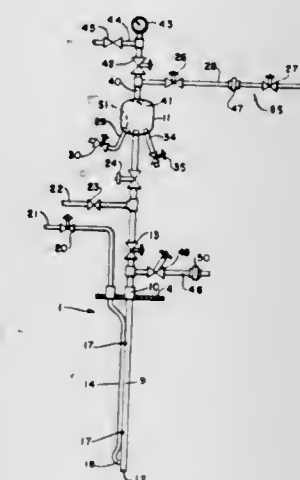
3,653,265
CATALYST SAMPLING APPARATUS
Barney Vallino, Homewood, and Thomas G. Merchant, Chicago, both of Ill., assignors to Atlantic Richfield Company

Filed Sept. 11, 1970, Ser. No. 71,438

Int. Cl. G01n 1/10

U.S. Cl. 73-421 B

8 Claims



An apparatus for a method of withdrawing samples of particulate solids, e.g., catalysts, from a bed of particulate solid material located in a vessel under super-atmospheric pressure. Differential pressure between the vessel and a solids receiver carries the sample from a bed of the solids in the vessel through a tubular sampler and into the receiver where the sample is purged and cooled, after which it is transferred to a container for storage until examination or analysis. An elongated tubular purging means communicating with the tubular sampler is used to inject a gas, e.g., nitrogen, into the tubular sampler. This action serves to regulate the amount of material withdrawn from the bed. It also serves to purge the tubular sampler of fluid and solid material and the receiver of vapors after sampling is completed. The apparatus is especially adapted for installation into existing commercial reaction vessels and allows catalyst sampling to be effected while a reaction vessel is in operation. Recycle gas, hydrogen gas or an inert gas can be introduced into the tubular sampler to minimize coking therein while the sampling apparatus is not in operation.

3,653,266

DISPENSER VALVE FOR THICK LIQUIDS OR SLURRIES

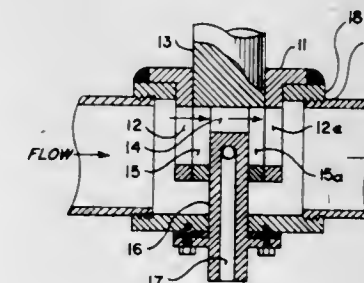
Robert E. Holmes, Marshall, Tex., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Mar. 5, 1970, Ser. No. 16,831

Int. Cl. G01n 1/10

U.S. Cl. 73-422 TC

5 Claims



A valve is presented which is capable of metering and dispensing a quantity of a thick liquid or slurry on a rapid production basis. The valve allows the slurry to move through it freely except for momentary interruption during the actual metering and dispensing cycle and thus the heavier or more solid components of the slurry do not tend to settle

out nor collect in the valve as readily as they would otherwise. Also, the valve is simple to construct and maintain having but one moving part in the slurry which first rotates to close the valve to enclose an exact metered portion of the slurry and then translates to dispense it.

3,653,267

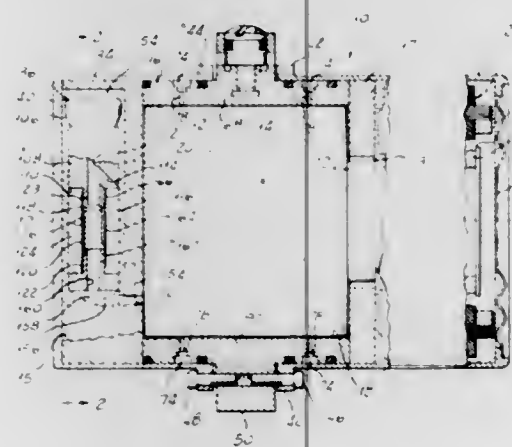
IN A HYDROSTATICALLY SUPPORTED GYROSCOPE A FLEXIBLE TUBE PUMP PROVIDING FLUID CIRCULATION TO HYDROSTATIC BEARINGS OF THE GYROSCOPE

Oscar D. Jacobson, New York, N.Y., assignor to The Bendix Corporation

Filed May 7, 1969, Ser. No. 822,524
Int. Cl. G01c 19/20

U.S. Cl. 74-5

12 Claims



A combination in a hydrostatically supported gyroscope of a flexible tube pump of a Bourdon tube type in an assembly including a motor means or electrically controlled solenoid to actuate the flexible tube in an arrangement in which the tube functions as a low power input pump which may be utilized to supply a liquid pressure medium to hydrostatically support bearings of the gyroscope.

3,653,268

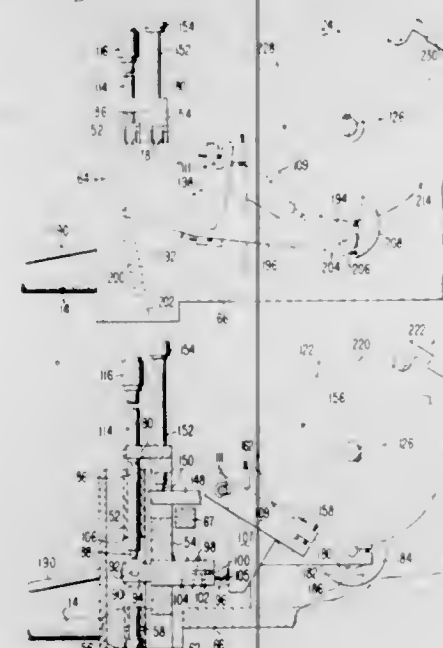
TOOL MOVING MECHANISM

John C. Diepeveen, 1737 Kimberly Drive, Sunnyvale, Calif.

Filed Mar. 10, 1970, Ser. No. 18,153
Int. Cl. F16h 25/08

U.S. Cl. 74-55

20 Claims



Apparatus for moving a tool along a predetermined path and in accordance with a preselected sequence wherein the apparatus includes a slide unit shiftably mounted for move-

ment along a generally vertical path, the slide unit having a pair of relatively shiftable members which are normally releasably interconnected. One of the members of the slide unit is adapted to be coupled to a tool and is released from coupled relationship to the other member when the slide unit is at several positions along the path. The invention is suitable for use with a thermal compression bonding tool for bonding wires to a die and to the terminals of a supporting frame for the die.

3,653,269

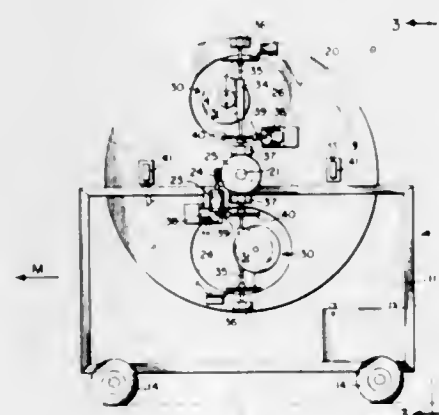
CONVERTING ROTARY MOTION INTO UNIDIRECTIONAL MOTION

Richard E. Foster, 5342 Sycamore Street, Baton Rouge, La.

Filed May 15, 1970, Ser. No. 37,661
Int. Cl. F16h 27/00

U.S. Cl. 74-84

10 Claims



Unidirectional thrust and consequent unidirectional motion are achieved by rotating thrust producing units in a circular orbit. The thrust producing units involve weights or masses which are caused to accelerate in the direction of the orbital travel during all or a portion of the one-half of the orbital travel which is away from the direction of the desired thrust. The reaction to this acceleration occurs and manifests itself at an orbital location—i.e., away from the axis of rotation—and provides the unidirectional thrust. During the one-half of the orbital travel which is toward the direction of the desired thrust there either is no such acceleration or the reaction to such acceleration is directly transferred to the axis of rotation, and consequently in either case no reaction is manifested at an orbital location. Hence, there is no thrust in the direction opposite that desired.

3,653,270

TILTING AND TRIMMING ARRANGEMENT FOR A TILTABLE OUTBOARD PROPELLER HOUSING FOR A BOAT

Karl Abdon Bergstedt, Goteborg, Sweden, assignor to AB Volvo Penta, Gothenburg, Sweden

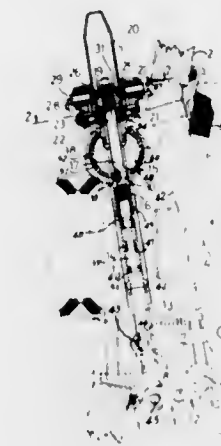
Filed July 7, 1970, Ser. No. 52,951
Int. Cl. B63h 1/14, 5/06

U.S. Cl. 74-89.15

23 Claims

An electro-mechanical trimming and tilting arrangement for an outboard propeller housing for a boat in which a linkage system couples a jack screw mechanism operated by a reversible electric motor to the tiltable propeller housing. The jack screw mechanism is self-aligning by being mounted by a ball and socket and includes a worm drive between the motor and a rotatable nut which screws a threaded rod up and down through the nut. The nut is caged in operative position by spring loaded detents which yield to release the nut and thereby permit the propeller housing to kick up upon

meeting an obstruction. Yieldable flaps are swingable into position to restrain the detents during reverse operation of the propeller to prevent kick-up when backing down. The rod is provided with threads of differing pitch according to the first embodiment, or the nut and rod are provided with a recirculating ball screw connection according to a modification, whereby trim adjustments to the outboard housing are



accomplished slowly and tilting movement is accomplished rapidly. The worm connection acts to prevent rotation of the nut by the forces imposed by the propeller reaction whereby the mechanism retains the housing in the position into which it is adjusted by operating the motor. A dog clutch or cone clutch connects the nut to a worm wheel to disconnect the nut from the motor when the nut escapes from the detents.

3,653,271

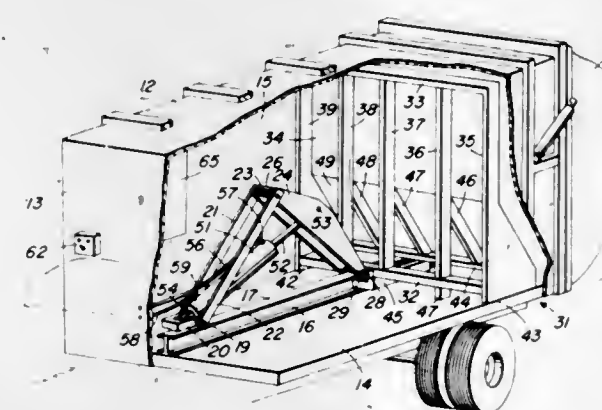
ACTUATING MECHANISM FOR REFUSE CONTAINER

Stanley W. Worthington, First and Iowa Streets, Cedar Falls, Iowa

Filed June 29, 1970, Ser. No. 50,411
Int. Cl. F16h 21/44

U.S. Cl. 74-101

1 Claim



This invention relates to an actuator for a compacting blade for a refuse body. Novel scissors types of linkage mechanism are driven by a double acting cylinder to amplify the stroke so that there is a working stroke greater than the piston travel of the actuating cylinder.

3,653,272

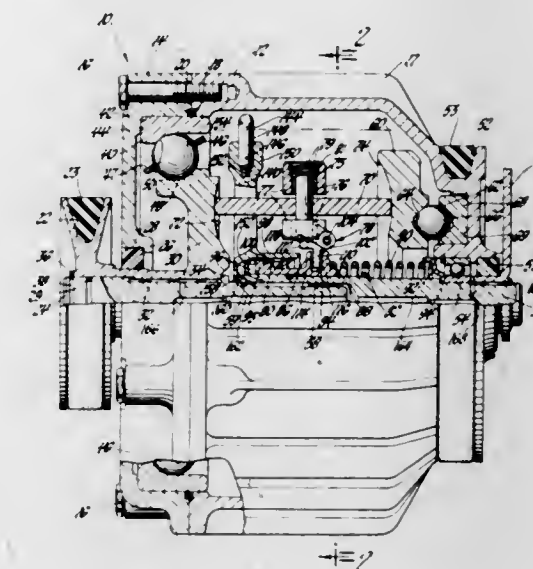
ACCESSORY DRIVE MECHANISM

Milton H. Scheiter, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 17, 1970, Ser. No. 64,292
Int. Cl. F16h 15/04, 15/38

U.S. Cl. 74-190.5

9 Claims



An accessory drive mechanism having a continuously variable output/input speed ratio including a housing containing a predetermined volume of fluid, input means, output means, a drive pulley operatively connected to the input means, an input race member having a toroidal surface formed thereon and mounted for rotation with the input means, an output race member having a toroidal surface formed thereon oppositely disposed from the first-mentioned toroidal surface, a plurality of rollers frictionally engaging the oppositely disposed toroidal surfaces, drive means formed on the output means for driving engine accessories, and an "internal sensing" ratio control means including a nonrotating pitot tube means for sensing changes in fluid force reflecting changes in input speed and including a piston-actuating mechanism for inclining the rollers, effectuating roller tilt along the toroidal surfaces to change the output/input speed ratio in response to the changes in fluid force communicated thereto by the pitot tube means.

3,653,273

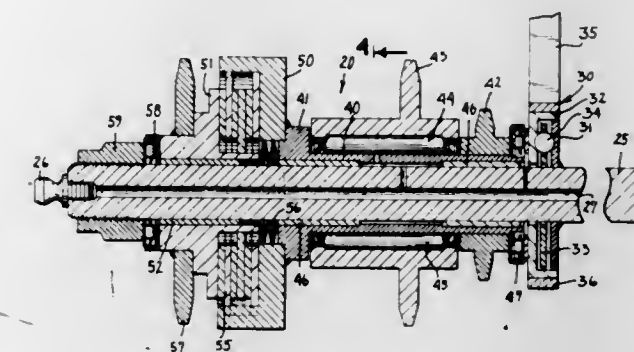
TWO-SPEED TRANSMISSION

Robert V. Albertson, Wayzata, and Victor N. Albertson, Minneapolis, both of Minn., assignors to Minnesota Automotive, Inc., Mankato, Minn.

Filed Nov. 4, 1970, Ser. No. 86,651
Int. Cl. F16h 11/04; F16d 67/00

U.S. Cl. 74-217 B

9 Claims



Disclosed is a first sprocket adapted to operate as a driving sprocket for the rear wheel of a motor bicycle or the like and

a second sprocket adapted to be driven through a chain by a motor, which second sprocket is connected through an over running clutch to a shaft mounting the first sprocket. A third sprocket is mounted on the shaft for rotation relative to the shaft and engageable with the shaft through a manually operable disc clutch. The speed of driving the second and third sprockets is such that whenever the third sprocket is driven, by engaging the manually engageable clutch, the shaft turns at a speed to cause the over running clutch to operate as a bearing so that the second sprocket has no effect on the shaft.

3,653,274

BELT TRACKING ARRANGEMENT

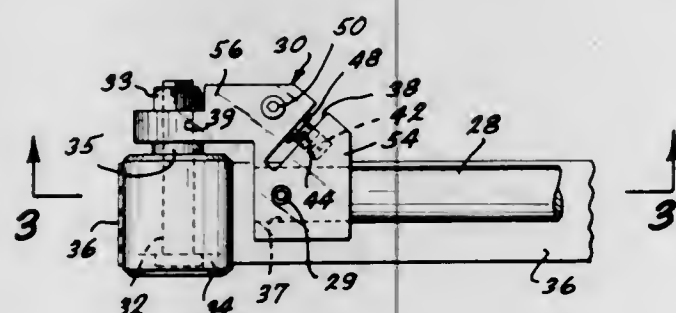
Sidney Greenwood, Santa Monica, Calif., assignor to Nitto Kohki U.S.A., Inc., Santa Monica, Calif.

Filed July 1, 1970, Ser. No. 51,546

Int. Cl. F16h 7/18

U.S. Cl. 74-241

7 Claims



A belt operated tool having a bracket for mounting the front idle pulley around which the belt travels. The bracket is L-shaped, having two legs, and the position of the legs can be adjusted with respect to each other by a bolt, to reposition the idle pulley and change the belt tracking.

3,653,275

GENEVA GEAR MECHANISM

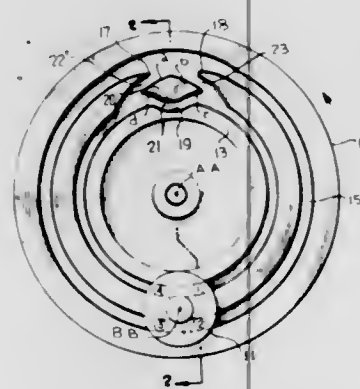
Ronald Leacock, 4719 Freider St., Tampa, Fla.

Filed Dec. 22, 1970, Ser. No. 100,715

Int. Cl. F16h 55/04

U.S. Cl. 74-436

10 Claims



A geneva gear mechanism includes an intermittently rotated indexing member having four tapered pins which are spaced at respective corners of a square and which are axially urged into and captivated by a pair of similarly tapered concentric circular channels in a locking ring which projects from a continuously rotated driving member. The channels are interrupted by a generally diamond-configured cam which effects a smooth 90° rotation of the indexing member during each revolution of the driving member, the cam and locking ring defining transition paths for the pins during rotation of the indexing member. The cam and transition paths are configured to effect uniform rotation of the driven member and to captivate at least two pins during indexing

member rotation. Transition path configuration is determined with the aid of large and small gear wheels, the latter having four holes spaced identically to the tapered pin spacing. Rotation of the small gear by 90° about the periphery of the large gear causes the four holes to describe the requisite transition paths.

3,653,276

REMOTE-CONTROL MIRROR SYSTEM

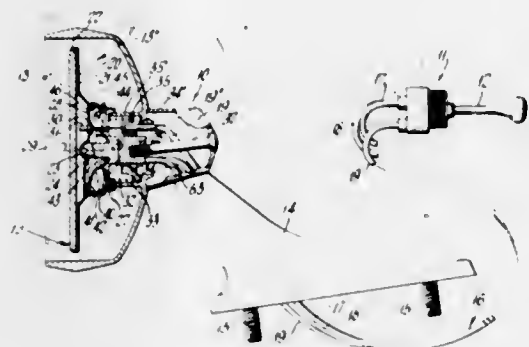
Matthew McIntyre, and Harry Edwin Goodfellow, both of Jackson, Tenn., assignors to Jervis Corporation, Bolivar, Tenn.

Filed Dec. 9, 1969, Ser. No. 883,488

Int. Cl. F16c 1/12

U.S. Cl. 74-501 M

17 Claims



The invention contemplates a remote-control mirror system in which a completely assembled mirror unit and control unit, with interconnecting flexible control-cable means, is preloaded at the factory so that later installation of the system in a vehicle requires no adjustment to assure perfect control action. In the form described, the universal pivot action at both the control and mirror ends of the system utilizes truncated spherical bearing surfaces which establish fixed-center pivotal support at both ends. The pivots are of the non-captive variety, and factory preloading assures seating contact at both end pivots of the system, before and after assembly to the vehicle.

3,653,277

CABLE CONTROL RETRACTION-LOCKUP DEVICE
William J. Gilmore, Manltou Beach, Mich., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed May 13, 1970, Ser. No. 36,796

Int. Cl. F16c 1/10

U.S. Cl. 74-502

4 Claims



A retraction-lockup device for a push-pull cable including a housing for supporting one end of the cable, and a spring connected between the cable and the housing for urging the cable into a normally retracted position locked against longitudinal movement.

3,653,278

TORSIONAL VIBRATION DAMPER HAVING INDEPENDENT WEIGHTS

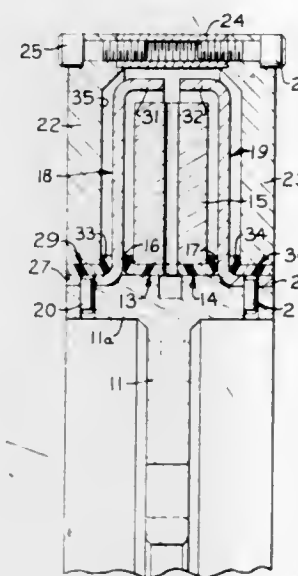
Dale C. Brinkman, Washington, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 23, 1970, Ser. No. 101,020

Int. Cl. F16f 15/12

U.S. Cl. 74-574

14 Claims



A torsional vibration damper comprises a hub adapted to be attached to the crankshaft of an internal combustion engine. Inner and outer weights are rotatably mounted on the hub with the inner weight being mounted within a closed annular chamber formed by the outer weight. A shear inducing disc, attached to the hub, is positioned on each side of the inner weight in the chamber. The chamber is filled with a highly viscous fluid, such as silicone, for tuning and damping purposes.

3,653,279

DIFFERENTIAL FLUID COUPLING DRIVE

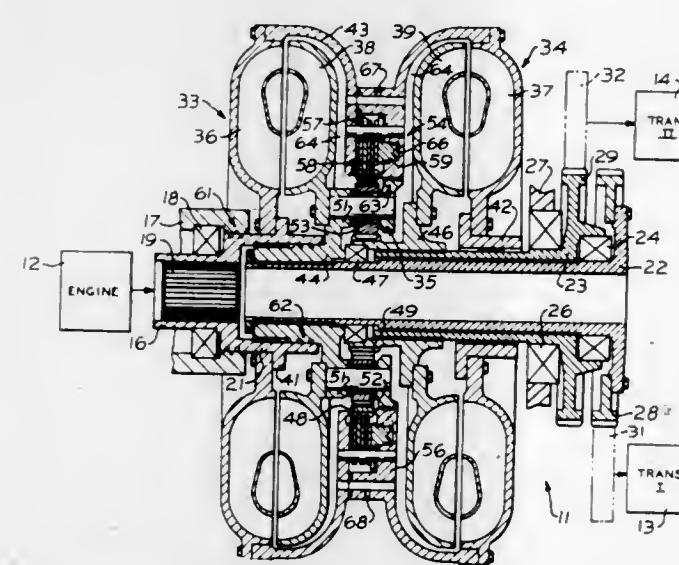
James R. Sebern, Decatur, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Nov. 23, 1970, Ser. No. 91,976

Int. Cl. F16h 1/44, 47/06

U.S. Cl. 74-710.5

7 Claims



A differential fluid coupling drive wherein a pair of fluid couplings in conjunction with an intermediate planetary type differential and lock-up clutch are employed to deliver power from a single engine to two separate dual power shift transmissions respectively driving opposite side wheels of a vehicle. The drive allows a normal differential action at small differences in wheel speeds, as in turning, but has high resistance to large wheel speed differentials, such as when one wheel loses traction.

3,653,280

FOUR-PINION DIFFERENTIAL

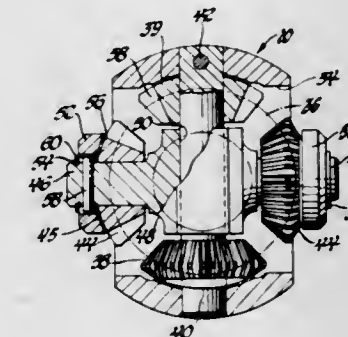
Robert B. Koskela, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 5, 1970, Ser. No. 61,147

Int. Cl. F16h 1/40

U.S. Cl. 74-713

3 Claims



A four-pin differential mechanism in which a cross-shaft having a cross-bore therein encircles and is carried by the pinion shaft of a conventional two-pin differential. The cross-shaft carries an additional two pinions. This structure permits conversion of a conventional open-faced two-pin differential into a higher capacity four-pin differential.

3,653,281

AUTOMATIC TRANSMISSION WITH KICKDOWN MECHANISM

Takeaki Shirai, Nagoya-shi; Shigeru Sakakibara, Chita-gun; Masaaki Noguchi, Nagoya-shi, and Masaharu Sumiyoshi, Toyota-shi, all of Japan, assignors to Nippon Denso Kabushiki Kaisha and Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi-ken, Japan

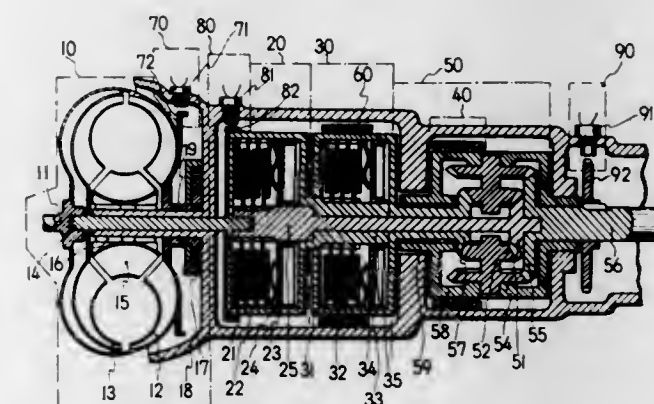
Filed Jan. 26, 1970, Ser. No. 5,460

Claims priority, application Japan, Jan. 29, 1969, 44/6416

Int. Cl. F16h 47/00, 5/42; B60k 21/00

U.S. Cl. 74-731

9 Claims



An automatic transmission wherein means for effectuating a kickdown effect in an automatic transmission for the vehicle are provided, having associated therewith a kickdown mechanism, wherein the transmission is provided with hydraulic torque converter means having a hydraulic torque converter pump connected to the engine output shaft, and a hydraulic torque converter turbine connected to the input shaft of transmission, friction engaging means for determining the desired operative gearing for said transmission; an oil pressure operation circuit for controlling said friction engaging means and having a manual speed change valve determining valve and a distribution valve for distributing the operation oil into said friction engaging means; a signal generator means for generating electric signals based on the slip ratio and vehicle speed; a gear position determining signal generator for generating a gear position electric signal by detecting the gearing state of said transmission; a synchronous time retaining means for maintaining generating

output electric signals in time relationship upon the operation of said distribution valve; a bistable memorial circuit for establishing the conductivity or non-conductivity of the means for the operation or non-operation of said distribution valve by erasing the output electric signal when an input electric signal is added to one input terminal and by maintaining the generating output electric signal when an input electric signal is added to another input terminal; an AND-circuit for generating an output electric signal when the electric signal for speed change into the high gear state from said signal generator, the electric signal from said synchronous time retaining means, and the electric signal for speed change into the one stage lower gear position signal from said signal generator are coexistent for carrying out the speed change into high gear by adding the aforesaid electric signal to said one terminal of said bistable memorial circuit; an OR-circuit for generating an output electric signal when one of the electric signals for the one-stage lower gear position speed change from said running signal generator is present; an AND-circuit for carrying out the speed change into the one-stage lower gear position by adding an electric signal to said other terminal of said bistable memorial circuit by generating the output electric signal when the electric signal from said OR-circuit, the electric signal from the high gear position signal and the electric signal from the synchronous time retaining circuit are coexistent; and means for operating said bistable memorial circuit and said distribution valve; and AND-circuit between said means and said bistable memorial circuit; and providing a kickdown signal generator for delivering kickdown signal to said AND-circuit through NOT-means; whereby the said distribution valve is brought into non-operable state when the signal from said NOT-means among the signals from NOT-means and said bistable memorial circuit is eliminated, thereby effectuating a kickdown as aforesaid.

3,653,282

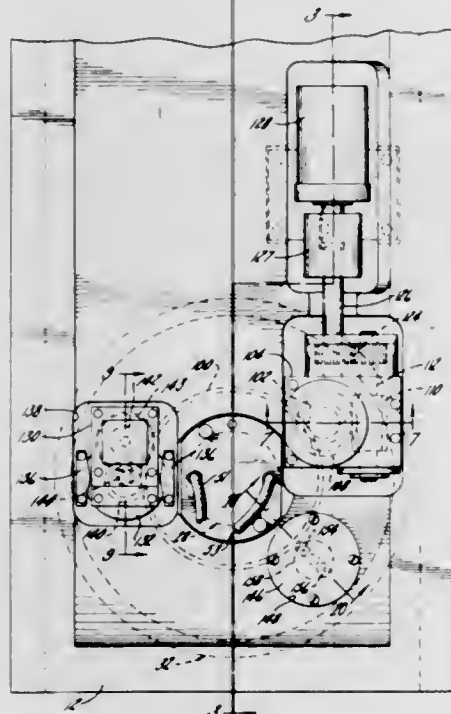
POWER TOOL TURRET ASSEMBLY

Russell D. Boufflou, McFarland, and Christian A. Nielsen, Madison, both of Wis., assignors to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed Oct. 13, 1969, Ser. No. 865,630
Int. Cl. B23b 29/32

U.S. Cl. 74—815

16 Claims



A machine tool turret head, more particularly a power operated turret head, is provided with fluid power actuated toggle means for axially clamping the turret head to the machine tool ram or saddle. When a wedge member is withdrawn from a position between the toggle members, the turret head is released from a clamped work position and al-

lowed to slide axially for a limited distance along a turret head stem. Logic circuitry and a resolver are employed to cause a motor and drive train to rotate the turret head and to locate the head via the most expeditious route within the predetermined initial angular tolerance limits of a new work position. The wedge member is then reinserted between the toggle means to move the turret axially back along the stem, and reclamp the turret in its new work position. A lost motion coupler is included in the drive train to allow the turret head to rotate slightly as it moves into its clamped position without damage to the associated drive train or other parts.

3,653,283

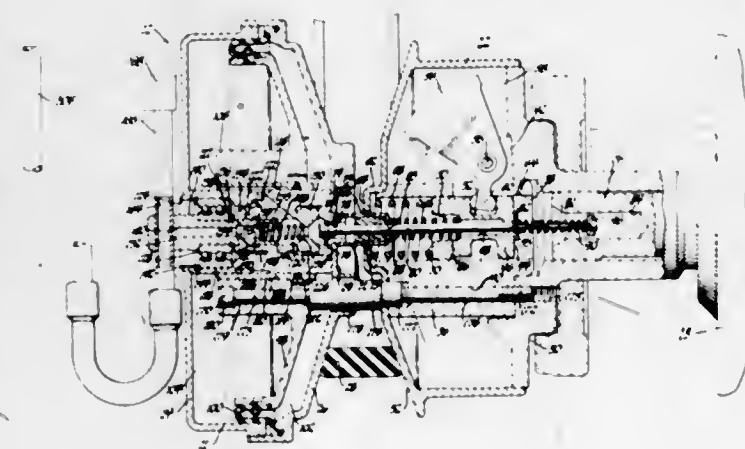
ACCESSORY DRIVE MECHANISM

David W. Betz, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed June 8, 1970, Ser. No. 44,155
Int. Cl. B60k 21/10; F16h 9/18

U.S. Cl. 74—864

5 Claims



An engine accessory drive mechanism wherein a first pulley portion is driven by the crankshaft and a second pulley portion is mounted on the water pump shaft and driven by a belt interconnecting the two pulleys. The second pulley portion includes provisions formed thereon for mounting additional belts to drive the other engine accessories. Each pulley portion includes one wall which is movable in response to changes in engine vacuum, with the influence of the engine vacuum on the movable walls being modified by the action of centrifugal force, the flyweight mechanism therefor being mounted on the first pulley portion, and the overall result being that the interconnecting belt is moved alternately in and out of the variable pulley grooves, changing the respective pitch diameters as required to drive all the accessories at a substantially constant speed throughout the full range of engine speeds.

3,653,284

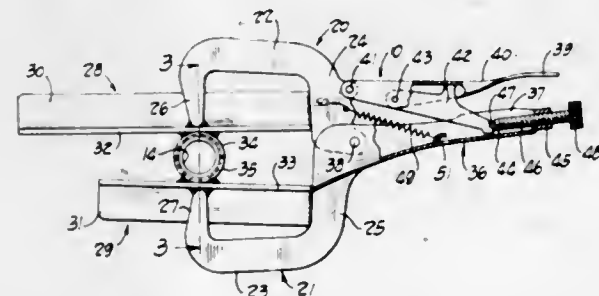
PLASTIC PIPE GRIPPING TOOL

George O. Pyncheon, 54 Northfield Avenue, Northfield, Ohio, and James H. Hulse, Jr., 116 Elmridge Road, Mansfield, Ohio

Filed Oct. 27, 1970, Ser. No. 84,317
Int. Cl. B25b 7/02, 27/00

U.S. Cl. 81—5.1 R

3 Claims



The invention relates to a vice-grip plier having rest surfaces adapted to maintain the plier in a horizontal plane on

the top end of a well casing while holding a plastic pipe, being inserted into the casing, in a vertical plane centered in the casing.

3,653,285

APPARATUS FOR TRIMMING OPENING RIMS OF SYNTHETIC-RESIN CONTAINERS

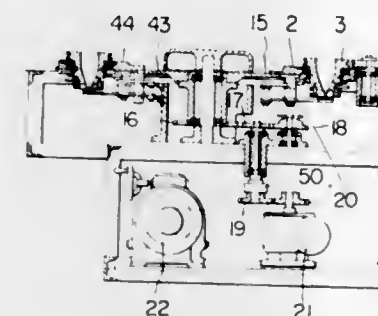
Shinsuke Yoshikawa, and Yuji Sawa, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed July 10, 1970, Ser. No. 53,732

Int. Cl. B23b 3/04, 7/00, 5/14

U.S. Cl. 82—101

2 Claims



Several trimming devices are mounted in a circle on a turn-table and thereby undergo orbital revolution, each trimming device comprising a rotary holder for holding a synthetic-resin container having a neck, a clamping device for firmly holding the neck, and a cutting-tool device for feeding a knife to the container in rotating state to trim off surplus material from the opening rim, and coordinating mechanisms are provided so that, during one revolution of the turn-table, each of the trimming devices successively carries out one cycle of the operational steps of receiving a container, trimming the rim thereof, and discharging the same.

3,653,286

WORKPIECE SUPPORTING DEVICE

Takahito Okada, Aichi, Japan, assignor to Toyoda Koki Kabushiki Kaisha, Aichi-ken, Japan

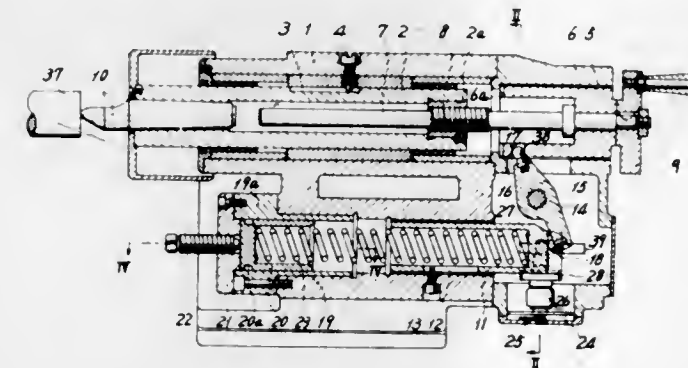
Filed Oct. 23, 1970, Ser. No. 83,308

Claims priority, application Japan, Oct. 24, 1969, 44/101562

Int. Cl. B23b 23/00

U.S. Cl. 82—31

4 Claims



A workpiece supporting device comprises a holding shaft carrying at its one end a center adapted to support one end of a workpiece. A holding force is applied against the workpiece by a spring interposed between first and second coaxial sleeves, the first sleeve being operably connected to the other end of the holding shaft through a swing arm. The holding force applied on the workpiece may be varied by adjusting the spring force, which is effected by moving the second sleeve axially. A pointer and a dial scale are connected to the first and second sleeves by rack and pinion mechanisms,

3,653,287

(LATHE ATTACHMENT) APPARATUS FOR ADJUSTING THE CENTER OF A TURNING MACHINE

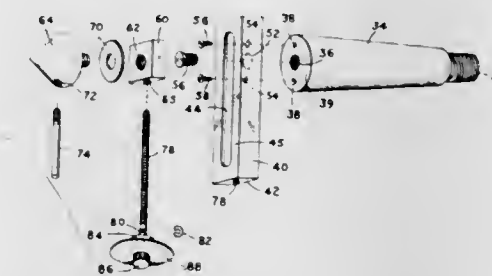
Rhinhold J. Zeeb, Lesterville, S. Dak.

Filed Nov. 10, 1969, Ser. No. 875,344

Int. Cl. B23b 23/02

U.S. Cl. 82—33 A

3 Claims



An apparatus for adjusting the supporting center for the workpiece in a turning machine to facilitate the cutting of tapers on the workpiece. The apparatus fits into the normal housing for the supporting center of a turning machine and has an elongated body extending at a substantial angle from the support center housing. An adjustable center is slidably mounted on the elongated body and can be positioned anywhere along the length of the elongated body within predetermined limits by rotating an adjusting device. The adjustable center is then locked in position to fix the degree of taper of the workpiece and to provide the required support.

ERRATA

For Classes 83—82, 85—70 and 87—1 see:
Patent Nos. 3,653,293 thru 3,653,295

3,653,288

TUBULAR-SHAPED LAUNCHER FOR PROJECTILES, IN PARTICULAR FOR MISSILES

Emile Stauff, Versailles; Jean Guillot, Chateaufort-Malabry; Pierre Allard, Fontenay-Sous-Bois, all of France; Johannes Schubert, Putzbrunn, near Munich; Heinz Topfer, Munich-Perlach, and Erich Prier, Munich, all of Germany, assignors to Nord-Aviation Societe Nationale De Construction Aeronautiques, Paris, France

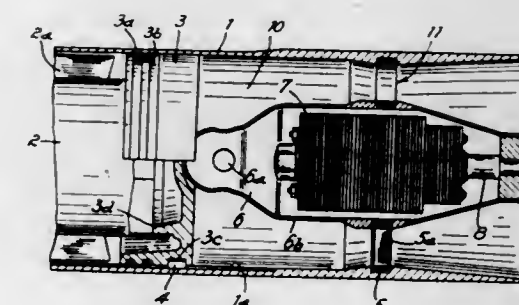
Filed Feb. 25, 1965, Ser. No. 435,785

Claims priority, application France, Feb. 26, 1964, 965 258

Int. Cl. F41f 15/00

U.S. Cl. 89—1.703

9 Claims



The present invention relates to a tubular-shaped launching device for projectiles, in particular for missiles.

3,653,289

CARTRIDGE BELT FEED SYSTEMS FOR AUTOMATIC WEAPONS

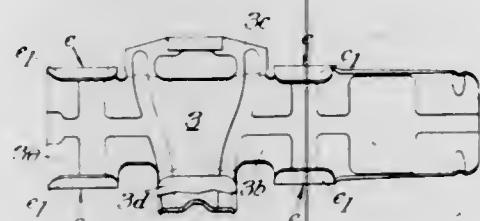
Bernard Maillard, Geneva, Switzerland, assignor to Brevets Aero-Mecaniques S.A., Geneva, Switzerland
Filed Dec. 4, 1969, Ser. No. 882,155

Claims priority, application Switzerland, July 14, 1969, 59100/69

Int. Cl. F42b 39/08

U.S. Cl. 89—35 A

2 Claims



A cartridge belt feed system for automatic weapons has an ammunition bearer which feeds a cartridge belt into the weapon. The belt grips each cartridge by a link with front and rear claws, having inwardly bent tips forming flat inclined tabs lying within the apparent cross-section of the claw. The links react against the lateral lips of the insertion aperture of the ammunition bearer base-plate, through the outer lateral walls of the tabs. The inclinations of the contact and reaction surfaces of the tabs and lips are such that they co-operate reversibly and permit subsequent extraction of the cartridge in conjunction with a radial distension of the claws. The reaction surfaces may be bevels at the respective claw levels. The front bevels extend higher than the rear ones, to incline the cartridge forwards on insertion.

3,653,290

GEAR GENERATING METHOD AND APPARATUS

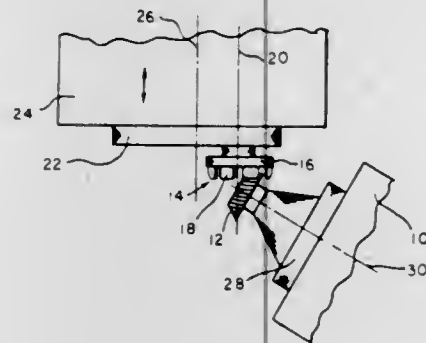
Ernst J. Hunkeler, Fairport, N.Y., assignor to The Gleason Works, Rochester, N.Y.

Filed June 29, 1970, Ser. No. 52,219

Int. Cl. B23f 9/10

U.S. Cl. 90—5

12 Claims



An improvement in gear cutting methods and apparatus of the type in which a multiple-tooth gear is manufactured from a blank by the generation of successive tooth slots by a cutter which makes a plurality of cuts during the generation of each successive slot. The improvement comprises an alteration in the timed relationship between the cutting rate and the generating roll during successive tooth slot cutting operations such that the number of cuts made by the cutter differs from slot to slot. While the effective contours of successive tooth slots generated by this improved method and apparatus are substantially identical, their cutting patterns differ, resulting in substantial reduction in the noise produced by power transmission systems utilizing gears generated in this manner.

3,653,291

PATTERN DUPLICATOR

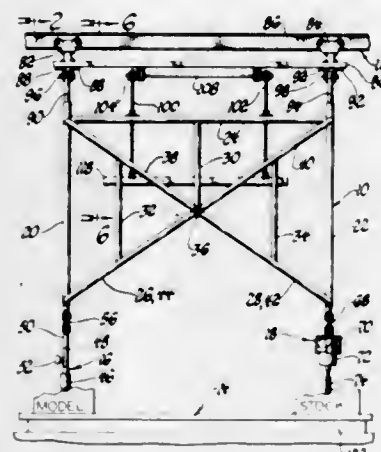
Robert L. Babcock, Algonac, Mich., assignor to Bonafide Pattern, Inc., Detroit, Mich.

Filed Dec. 11, 1969, Ser. No. 884,126

Int. Cl. B23c 1/16

U.S. Cl. 90—13.2

11 Claims



A pattern duplicating apparatus including a large rigid frame suspended by trolleys from an I-beam and carrying longitudinally spaced tracer and cutter assemblies. The frame is manually displaceable linearly in the longitudinal and vertical directions and pivotally about the longitudinal axis. The frame suspension includes interconnected sprockets and chains to ensure a pure rectilinear vertical displacement.

3,653,292

AUTOMATIC CONTOUR TRACING DEVICE

Kazuo Obuchi, 220 Isalda, Kamagawa, Odawara, Japan

Filed July 2, 1970, Ser. No. 52,058

Claims priority, application Japan, July 4, 1969, 44/52947

Int. Cl. B23c 9/00

U.S. Cl. 90—62

4 Claims



A first arm pivots about a tracing point which is spaced a fixed distance from a steering axis supporting a steering wheel which in turn is spaced at a fixed distance from a common vertical plane including a plurality of rear wheels for an automatic contour tracing device. A compensating mechanism controls both arms to satisfy a particular mathematical relationship.

3,653,293

PRESS UNLOADER

Bernard J. Wallis, 25200 Trowbridge Avenue, Dearborn, Mich.

Filed Aug. 7, 1970, Ser. No. 62,004

Int. Cl. B26d 7/06

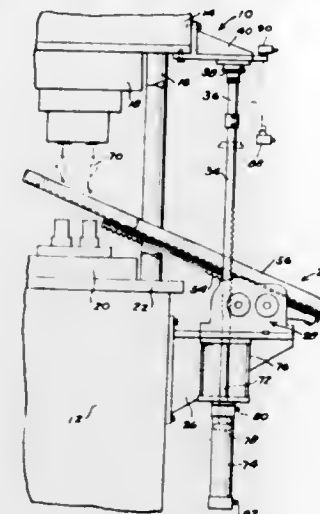
U.S. Cl. 83—82

12 Claims

A press unloader having a reciprocating tray for receiving workpieces ejected from an upper die in a press. The tray is

shifted to the work-receiving position at a rate controlled by the upward rate of the press ram and is rapidly retracted at a

packing material with a lubricant. The impregnant is extruded by pulsations into a central portion of braided packing as it is being formed.



rate independent of the rate of the press ram so that the next workpiece may be conveniently loaded into the press.

3,653,294

BLIND FASTENER

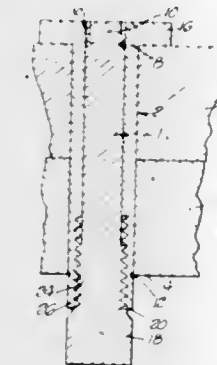
Edgar F. Nason, 7461 Canby Avenue, Reseda, Calif.

Filed June 27, 1969, Ser. No. 837,220

Int. Cl. F16b 13/06

U.S. Cl. 85—70

4 Claims



A blind fastener of two piece construction to be placed through a workpiece which is accessible only from one side which may be clamped up by conventional tooling. At installation the blind end of the core of the male core member is drawn into an annealed threaded section of the female nut member forming a bulb in the back of the work area and at the same time providing a deformed thread locking means to resist loosening under vibrations.

3,653,295

METHOD OF PROVIDING A LUBRICANT TO BRAIDED CORD

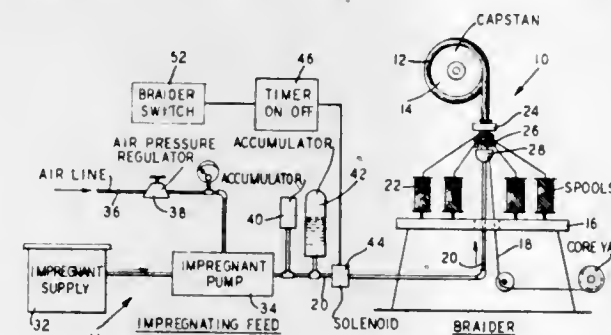
Frederick B. Pintard, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed Apr. 30, 1970, Ser. No. 33,414

Int. Cl. D04c 1/00

U.S. Cl. 87—1

4 Claims



This disclosure relates to the method of impregnating a

A reciprocating engine, particularly a steam engine having at least two cylinders, wherein the valving operation is achieved by means of slots in pistons co-acting with valving ports in cylinder walls of the engine.

3,653,296

FLUID POWERED OSCILLATORY DRIVE

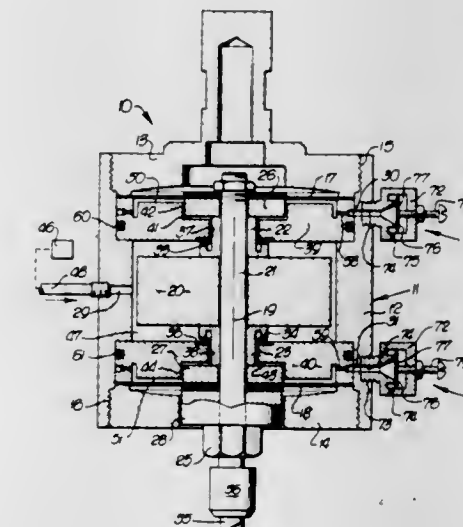
Wilbur H. Dexter, Inglewood, Calif., assignor to John H. Ransom Laboratories, Inc., Los Angeles, Calif., a part interest

Filed Dec. 12, 1969, Ser. No. 884,407

Int. Cl. F15b 13/02; F01i 15/14

U.S. Cl. 91—52

4 Claims



A high speed reciprocating tool such as a drill has a reciprocating system including a pair of diaphragms mounted for deflection within a chamber; the diaphragms are coupled to deflect coaxially and simultaneously, there being inertial mass that moves with the diaphragms; and valve means controls transmission of motive fluid pressure from a chamber inlet to impinge against the diaphragms in alternating sequence to effect system reciprocation.

3,653,297

RECIPROCATING ENGINE

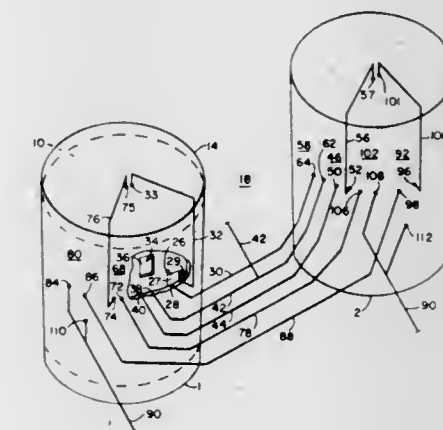
Jerry A. Peoples, 2419 Greenhill Drive, Huntsville, Ala.

Filed Feb. 27, 1970, Ser. No. 15,086

Int. Cl. F01i 21/02

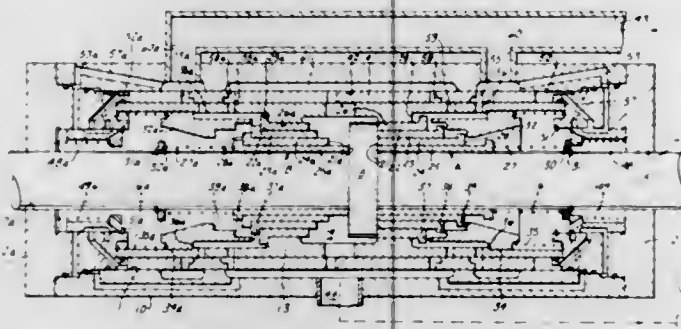
U.S. Cl. 91—184

7 Claims



3,653,298
RECIPROCATING FLUID MOTOR HAVING A VARIABLE DRIVE PISTON AREA
 Paul J. Bilodeau, Utica, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y.
 Filed June 3, 1970, Ser. No. 42,962
 Int. Cl. F611 25/06; F01b 7/04
 U.S. Cl. 91-306

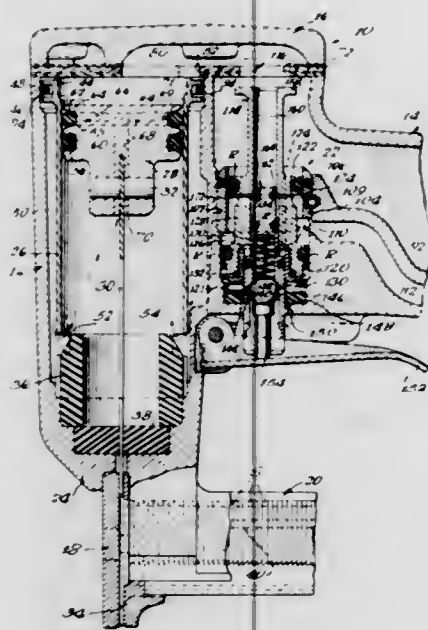
12 Claims



A reciprocating motor having a piston rod upon which a group of piston sleeves varying in length is hydraulically actuable against a shoulder of the rod to drive the rod in one direction. Arresting structure is provided to cause the sleeves to become successively arrested in their driving movement so that an initial large area of the combined sleeves which is subjected to the driving fluid is progressively decreased during the stroke. A second similar group of sleeves is similarly operable to return the piston. A separate re-setting element is arranged to automatically reset each group of sleeves to a driving condition preparatory to effecting the next driving stroke of the rod, and to also cushion overtravel of the rod. The rod is cooperably during its stroke with valve elements to cause automatic hydraulic feed alternately to each group of sleeves.

3,653,299
PNEUMATIC PISTON RETURN SYSTEM AND VALVE ASSEMBLY FOR IMPACT TOOLS
 Frank C. Howard, Mt. Prospect, Ill., assignor to Signode Corporation, Chicago, Ill.
 Filed May 11, 1970, Ser. No. 36,313
 Int. Cl. F15b 15/17, 11/08, 13/042
 U.S. Cl. 91-416

11 Claims

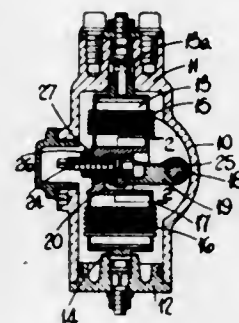


A piston return system for air cylinders in an impact tool wherein live air, when introduced into the cylinder on the pressure side of the piston, initiates the power stroke. A check valve by-passes live air around the cylinder to an ex-

pansion chamber on the opposite side of the piston where it expands when air pressure is relieved on the pressure side of the piston to return the piston to its uppermost position. The expansion air is bled to atmosphere through a passageway in the piston and through a valve carried by the piston when the piston returns to its uppermost position. A cartridge-type valve assembly is mounted in the tool to bleed air through a bore in one of the valve members to the atmosphere from the pressure side of the piston and from the expansion chamber when the piston reaches its uppermost position.

3,653,300
BELLOWS UNIT
 Joseph Lewis Bloom, Baie D'Urfe, Quebec, Canada, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
 Filed Apr. 29, 1970, Ser. No. 32,821
 Int. Cl. F01b 19/00
 U.S. Cl. 92-13.2

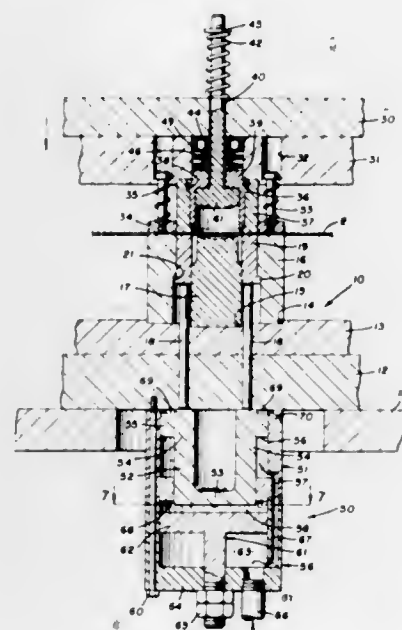
5 Claims



The invention relates to a bellows unit in which expansion of a bellows rotates an output spindle. The spindle is engaged with the bellows via a lever arm formed with recesses at different distances from the spindle. A thrust member is locatable in any recess and engages an end of the bellows, whereby the torque exerted by the bellows on the spindle is adjustable.

3,653,301
DRAWING PRESS PRESSURE CONTROL
 William H. Clendenin, Massillon, and Thomas B. Paumier, Canton, both of Ohio, assignors to Paumier, Inc., Canton, Ohio
 Filed July 6, 1970, Ser. No. 52,167
 Int. Cl. F01b 7/00
 U.S. Cl. 92-62

7 Claims

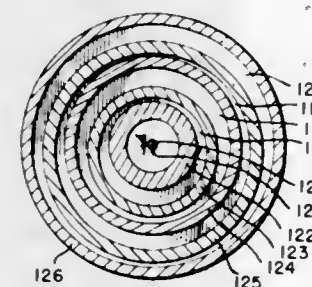


A mechanism for controlling the pressure resisting the stroke of a drawing press consists primarily of two fluid actu-

ated control pistons. The drawing stroke is first resisted by only one of the pistons and then, after a predetermined amount of movement, is resisted by both pistons. The time which the stroke is resisted only by the first piston can be varied according to the physical properties of the material being drawn so that undesirable distortions in the article being manufactured are avoided.

3,653,302
HYDRAULIC LIFT MECHANISM
 Leo J. Notenboom, 121 Lake Street South, Kirkland, Wash.
 Filed Mar. 24, 1969, Ser. No. 809,751
 Int. Cl. F01b 7/20
 U.S. Cl. 92-53

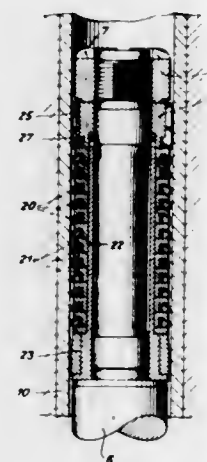
5 Claims



Double acting telescoping hoists are coupled by a common fluid control system for raising and lowering a platform connected to the hoists. The hoists have expansion and retraction chambers for inwardly and outwardly telescoping the hoists with the areas on which fluid acts being greater in the expansion chambers than in the retraction chambers. The force created by fluid in the retraction chambers causes each hoist to experience substantially the same load thereby enabling them to expand at substantially the same rate. In one embodiment non-concentric shaped spacers separate the telescoping units of the hoists to prevent their rotation.

3,653,303
GUIDE MEANS FOR A PISTON IN A CYLINDER
 Alfred Zurcher, Winterthur, Switzerland, assignor to Sulzer Brothers, Ltd., Winterthur, Switzerland
 Filed Apr. 21, 1970, Ser. No. 30,420
 Claims priority, application Switzerland, Apr. 24, 1969, 6229/69
 Int. Cl. F01b 31/00
 U.S. Cl. 92-162

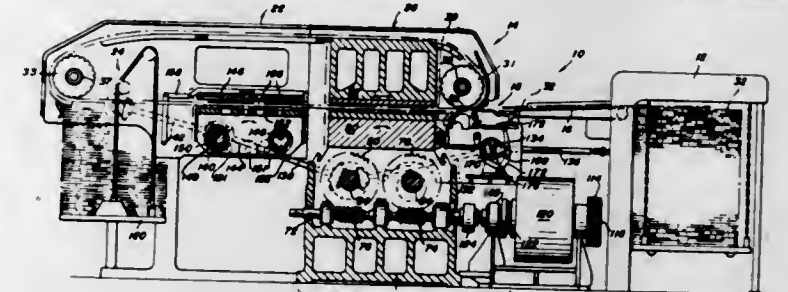
10 Claims



The piston is provided with a thin-walled split ring which has grooves in the outer periphery communicating the end faces of the ring with each other. The ring serves to guide the piston in the cylinder during abnormal operating conditions and is made of an antifriction material so that wear between the piston and cylinder is reduced to a minimum.

3,653,304
APPARATUS FOR CUTTING AND CREASING SHEETS
 Franz Lenoir, Marcinelle, Belgium, assignor to Miller Printing Machinery Co., Pittsburgh, Pa.
 Filed Oct. 23, 1970, Ser. No. 83,335
 Int. Cl. B31b 1/16; B26d 7/18; B31b 1/86
 U.S. Cl. 93-58.3

14 Claims



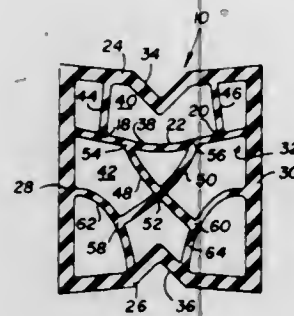
The cutter and creaser includes a sheet feeder that feeds sheets down an inclined table to a sheet transfer unit. The front and side edges of the sheet are moved into register in the transfer unit and accelerated to press speed. The front edge of the sheet is engaged by grippers on a transverse gripper bar and conveyed through the press by an endless chain conveyor device. The press unit includes a cutter and creaser section, a stripper section and a delivery section. The cutter and creaser section has a lower platen mounted on a pair of eccentric shafts that provide a non-circular oscillatory type motion for the upper horizontal surface of the lower platen. The motion imparted to the upper surface of the lower platen has both horizontal and vertical components. An upper platen is positioned in overlying relation with the lower platen and is supported for horizontal movement in the press side frames. The upper platen is connected to the lower platen so that the upper platen reciprocates horizontally with the lower platen. The sheet conveyed by the endless chain gripper mechanism is positioned between the platens as the lower platen moves upwardly into abutting relation with the upper platen so that the elements on either the upper or lower platen cut and crease the sheet between the platens. The sheet is thereafter transferred by the conveyor mechanism to a stripper section where the cutout portions are removed from the sheet by means of dies in an upper stripper platen. The lower stripper platen is also mounted on a pair of eccentric shafts and is arranged to move the upper horizontal surface in a similar non-circular oscillatory path with both horizontal and vertical components and into abutting relation with the upper platen. The upper platen is slidably supported in the press side frame members and connected to the lower platen for horizontal reciprocatory motion therewith. The grippers on the endless conveyor chains convey the sheet from the stripper section to the delivery section where the grippers open and the sheets are released and stacked on a receiver. The drive means for the various sections of the cutter and creaser includes a single motor that is drivingly connected to both of the eccentric shafts in the cutter and creaser section. Gearing and shafting connects one eccentric shaft in the cutter and creaser section with the drive mechanisms in the transfer section, the stripper section and the delivery section so that all of the components of the cutter and creaser are mechanically connected and driven in timed relation.

3,653,305
SEALING DEVICE
 Mario R. Trieste, Rockville Centre, N.Y.; Kenneth Hall, Saginaw, and Samuel McCrady, Birmingham, both of Mich., assignors to Elastomer Seals, Inc., Birmingham, Mich.
 Filed Sept. 2, 1970, Ser. No. 69,014
 Int. Cl. E01c 1/10
 U.S. Cl. 94-18

1 Claim

A comparatively wide, extruded elastomeric sealing strip, for sealing expansion grooves in bridges or the like, having a

wall construction including a transversely oriented internal wall to resist lateral compression thereof and a criss-crossed arrangement of walls supporting the transverse wall from below, such wall construction having the unique feature of a



sufficient number of internal walls as to obviate a length in any one such wall that might collapse under its own weight prior to completion of the curing of the elastomeric, and yet not having that great a number of walls as to complicate the fabrication of the device by extrusion.

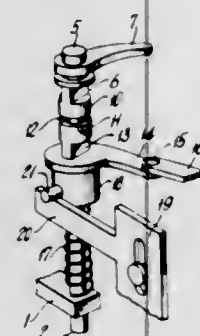
3,653,306

WATERPROOF CAMERA ACTUATING MECHANISM
Sho Takahama, Takarazukashi, Japan, assignor to Minolia Camera Co., Ltd., Osaka, Japan

Filed Mar. 3, 1970, Ser. No. 16,176
Int. Cl. G03b 17/08, 17/38

U.S. Cl. 95-11 W

8 Claims



An operating mechanism for a waterproof camera includes a rotatable axially movable shaft projecting through a bore in the camera housing and sealed thereto by an O-ring. A shoulder carried by the shaft engages the camera shutter release member and a lever slideably engages the shaft and is rotatable therewith and is linked to the camera film advancing and shutter cocking member so that depression of the shaft actuates the shutter release and rocking of the shaft by an external lever slideably engaging the shaft actuates the film advancing and shutter cocking member.

3,653,307

DEVICE FOR COMPENSATING CYLINDRICAL DISTORTION IN PANORAMIC AERIAL PHOTOGRAPHS
Gerard Andries Scheltema De Heere, Pijnacker, and Rinze Veenenga Kingma, Delft, both of Netherlands, assignors to N.V. Optische Industrie de Oude Delft, Delft, Netherlands

Filed Aug. 25, 1969, Ser. No. 852,696

Claims priority, application Netherlands, Aug. 29, 1968, 6812263

Int. Cl. G03b 29/00

U.S. Cl. 95-12.5

4 Claims

For compensating cylindrical distortion in panoramic aerial recordings an array of parallel light conducting fibers is used whose entrance surface is concave and circle-cylindrical

cal, and whose exit surface has a convex cylindrical shape so calculated that the cylindrical distortion of a panoramic

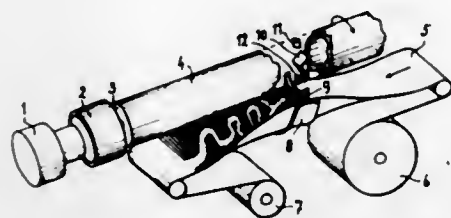


image focused on the entrance surface of the array, or of an original aerial photographic transparency placed on that surface, is compensated for the exit surface.

3,653,308

PHOTOGRAPHIC APPARATUS
Irving Erlichman, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1970, Ser. No. 179

Int. Cl. G03b 17/52

U.S. Cl. 95-13

40 Claims



Variable geometry photographic apparatus for carrying a photosensitive element from an exposure position through a plurality of pressure-applying rollers a distance sufficient to clear the rollers, and then returning the photosensitive element to the main body of the photographic apparatus. A lighttight drawer is utilized which only temporarily alters the normal fixed geometry and volume of the photographic apparatus so that processing of the photosensitive element can begin almost immediately after exposure. This temporary altering of the normal fixed geometry of the photographic apparatus enables the static dimensions of the photographic apparatus to be held to a minimum while producing a developed photosensitive element in a minimum time after exposure.

3,653,309

PHOTOGRAPHIC CAMERA HAVING ONE OR MORE DETACHABLE MAGAZINES

Kohel Ochlal, Tokyo, and Kiyokira Kato, Chiba, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 7, 1970, Ser. No. 26,352

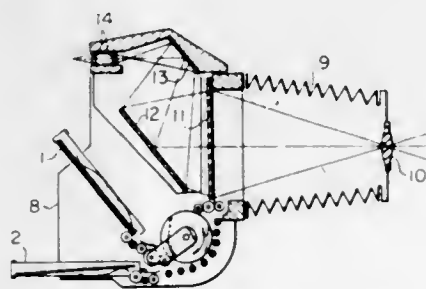
Claims priority, application Japan, June 14, 1969, 44/47223;

June 17, 1969, 44/47746

Int. Cl. G03b 19/10

U.S. Cl. 95-24

6 Claims



Photographic camera having a view finder and a detachable film cassette and comprising film feed means for auto-

matically feeding film sheets in the cassette to the film exposure frame one by one after the exposure thereof and for returning the respective exposed film sheets to the same cassette or to another cassette detachably mounted on the camera. The film feed means is energized by the operation of a handle thereof and comprises roll means driven by the energization of the film feed means for feeding and guiding the film sheets.

3,653,310

SYSTEM FOR TAKING AND PROCESSING STILL PICTURES

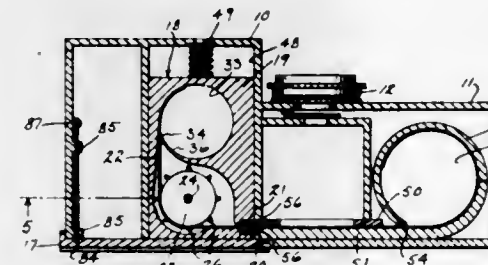
John H. Van Osch, 3415 Honey Creek Court, Milwaukee, Wis.

Filed Oct. 22, 1965, Ser. No. 501,321

Int. Cl. G03b 19/04

U.S. Cl. 95-31

21 Claims



A camera incorporating a roll film magazine which is enclosed in the body of the camera and which has no openings except a light tight slot through which the film can be moved out of the magazine to the exposure area and back again following exposure, by a sprocket wheel enclosed in the magazine and rotatable by a mechanical arrangement extending through the side of the magazine, which automatically interfits with cooperating drive mechanism in the camera.

3,653,311

SHOCK ABSORBER (SHOCK ISOLATION DEVICE) FOR MIRROR OF SINGLE-LENS REFLEX CAMERA

Akihiko Sato, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

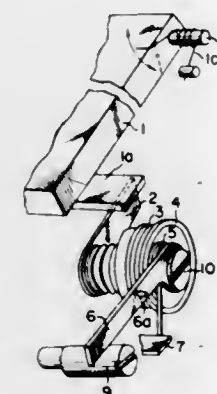
Filed Mar. 13, 1970, Ser. No. 19,336

Claims priority, application Japan, Mar. 27, 1969, 44/26697

Int. Cl. G03b 19/12

U.S. Cl. 95-42

1 Claim



A shock absorber assembly for a hinged mirror of a single-lens reflex camera for reducing the noise and shock caused by the downward movement of the mirror. The absorber assembly is disposed at a position where the mirror is held stationary when the mirror is lowered. When the mirror is lowered it engages with the absorber assembly with the downward impact energy of the mirror being absorbed as friction between a drum and a coil spring. The mirror stops after it passes over its regular reflecting position and then is caused to return to its regular reflecting position by the action of a return spring.

3,653,312

FILM WINDING DEVICE FOR SINGLE-LENS REFLEX CAMERA

Hidenobu Kondo, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

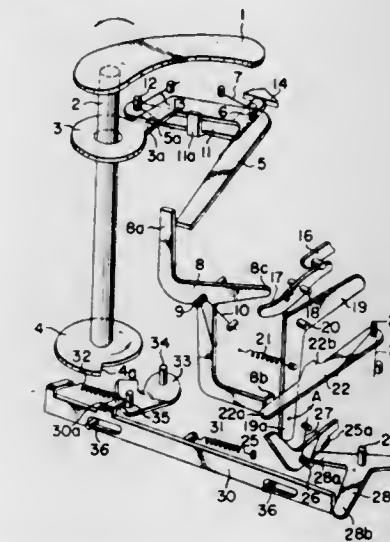
Filed Nov. 24, 1970, Ser. No. 92,419

Claims priority, application Japan, Nov. 27, 1969, 44/112101

Int. Cl. G03b 19/12

U.S. Cl. 95-42

1 Claim



A film winding device for a single-lens reflex camera which eliminates the necessity of effecting preliminary ineffective exposure operations, that is, so called "blank" exposures after the film loading by the use of a simple mechanism utilizing various parts employed in the conventional camera and only requiring a few additional parts.

3,653,313

EXPOSURE COUNTER FOR SINGLE-LENS REFLEX CAMERA

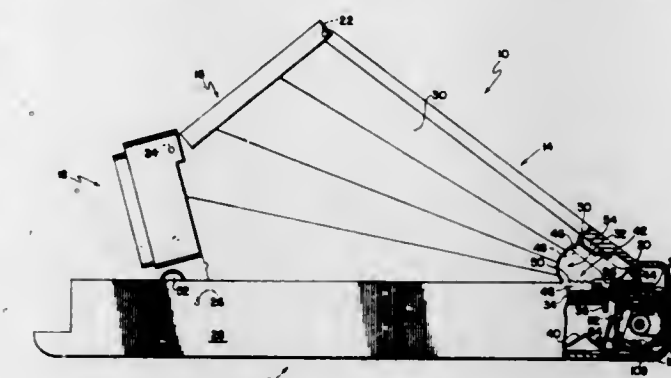
Robert D. Leduc, Marlboro, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 29, 1970, Ser. No. 102,435

Int. Cl. G03b 19/12

U.S. Cl. 95-42

10 Claims



A camera of the single-lens reflex type having a reflecting member mounted for movement between first and second positions and an exposure counter coupled to an actuated by the movement of the reflecting member between the first and second positions. The camera also includes a lever and pawl system for automatically resetting the exposure counter upon removal of a film container from the camera.

3,653,314

TWIN LENS PARALLAX FREE CAMERA SYSTEM
Carl C. Swann, 1334 Belmeade Forest, Kingsport, Tenn.

Filed Mar. 9, 1970, Ser. No. 17,548

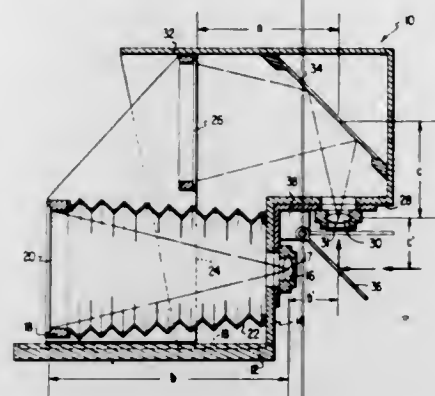
Int. Cl. G03b 3/00, 3/04

U.S. Cl. 95-44 A

9 Claims

A camera system having a picture taking lens and a view finder lens positioned at some suitable angle to each other and a reflector positioned between the lenses at an angle

bisecting the angle formed with respect to a line through the center of each lens used as a means of focusing the camera



system and movable out of the path of the picture taking lens before actuation of the camera shutter.

3,653,315

FLASH CUBE ROTATING DEVICE

Susumu Fukuda, Nishinomiyashi, Japan, assignor to Fuji Photo Film Co., Ltd., Ashigara-Machi, Ashigara-Kamigun, Kanagawa, Japan

Filed Nov. 24, 1969, Ser. No. 879,071

Claims priority, application Japan, Nov. 27, 1968, 43/103428

Int. Cl. G03b 17/38

U.S. Cl. 95—11 L

4 Claims



A rotating base supports a flash cube, the base is connected to a ratchet wheel which in turn engages a stopper. The stopper is moved out of engaging position with the ratchet wheel in response to movement of the pointer of an exposure meter when the meter indicates the necessity for flash light operation for proper exposure of the film.

3,653,316

INDUSTRIAL BUILDING DESIGN

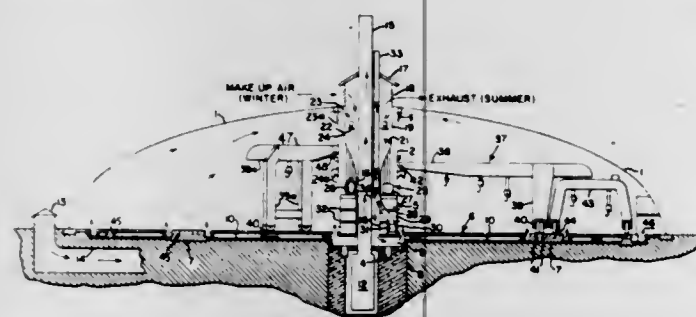
George A. Moline, 8 Glenwood Drive, Ballston, N.Y.

Filed Nov. 27, 1970, Ser. No. 93,181

Int. Cl. F24f 13/00

U.S. Cl. 98—33

7 Claims



An industrial building has an annular shell and is supported at its center by a vertical structural support framework. Within the central support framework are the support facili-

ties together with a major portion of the heating and ventilating system. The power requirements and the heating relationship for ventilating air are provided by a combustion powerplant within the building.

3,653,317

LOUVERS

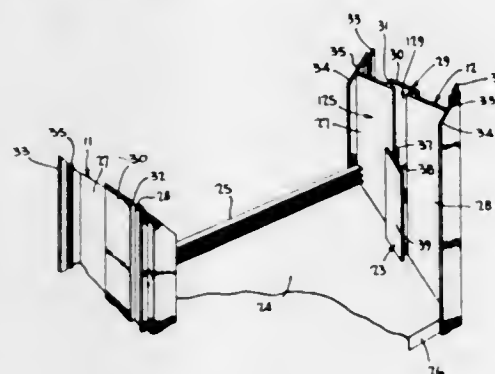
Nicholas Joseph Costanzo, Jr., 5106 Brentford Road, Rockville, Md., assignor to Etelson, Costanzo & Associates, Silver Spring, Md.

Filed Dec. 22, 1969, Ser. No. 887,068

Int. Cl. F24f 13/00

U.S. Cl. 98—110

16 Claims



A louver includes a sill, header and jambs, all having the same cross section including a wall with a longitudinally extending slot therein. Spacers are inserted in the slot of each jamb and include means extending beyond the jamb wall toward the other jamb for supporting louver blades. The blades have a uniform cross section throughout the length thereof which is slightly less than the separation between the walls of the two jambs. In an embodiment wherein the blades are fixed, the spacers have sloping top and bottom edges which cooperate with flanges on the jambs for holding the blades in situ. In another embodiment wherein the blades are pivotable, the spacers include fingers which fit into slots in the blades.

3,653,318

COMBINED VENTILATING AND ILLUMINATING APPARATUS

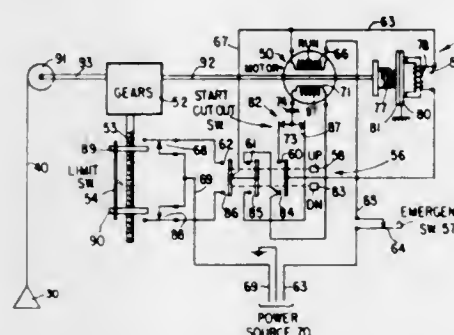
Ron Shimosawa, Chicago, Ill., assignor to Kiku Co., Chicago, Ill.

Filed June 2, 1970, Ser. No. 42,799

Int. Cl. F23j 11/00

U.S. Cl. 98—115

10 Claims



An apparatus for use in connection with a dining table in a restaurant on which food is cooked, heated, and the like, and eaten, the apparatus comprising a vertically extending retractable ventilating duct with a hood which extends over the table and which serves to suck up the hot gases and odors emanating from the table and to withdraw same from the room. The retractable ventilating duct telescopes into and out of a hidden section normally positioned above a false ceiling. The said hood also has illuminating means to illuminate the table area.

3,653,319

METHOD FOR BRIQUETTING GRASS AND SIMILAR GREEN CROPS

Alfred T. Nielsen, Holte, Denmark, assignor to Unldry K/S Engineering and Development Group, Copenhagen, Denmark

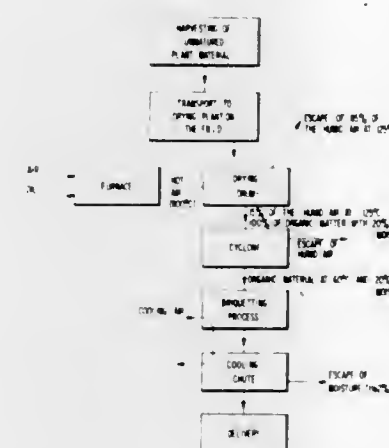
Filed Feb. 9, 1970, Ser. No. 10,047

Claims priority, application Denmark, Feb. 10, 1969, 719/69

Int. Cl. B30b 15/34

U.S. Cl. 100—38

1 Claim



In the manufacture of fodder briquettes, especially for ruminants, the green crops are artificially dried to a moisture content of 15–22% and, while at a temperature of 45°–65° C. (110°–150° F.), are fed to a reciprocating briquette press for being compressed to a specific weight of 0.7–0.9 grams per cm³. The briquette rod produced is cooled while passing through a guide pipe somewhat larger in diameter than the rod which is displaced through the guide pipe against a resistance to counteract longitudinal expansion of the briquette rod.

3,653,320

CALENDAR ADJUSTMENT MECHANISM

Erich Oehlmann, Kirchhorst, and Herbert Orth, Misburg, both of Germany, assignors to Hermann Berstorff Maschinenbau GmbH, Hannover-Kleefeld, Germany

Filed May 15, 1970, Ser. No. 37,690

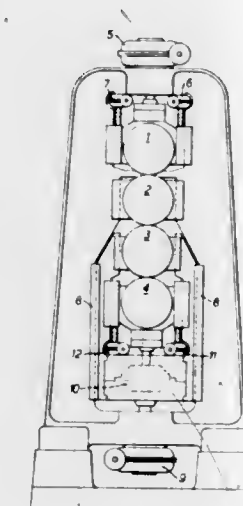
Claims priority, application Germany, May 17, 1969, P 19 25

261.0

Int. Cl. B30b 3/04

U.S. Cl. 100—158

2 Claims



A 4 high calendar includes gears for adjusting the gaps between cooperating rolls and further gears for adjusting the obliquity of the bottom roll relatively to the next above roll in the event the lower roll deflects.

3,653,321

TYPE MOUNTING MEANS FOR HIGH SPEED FRONT PRINTER

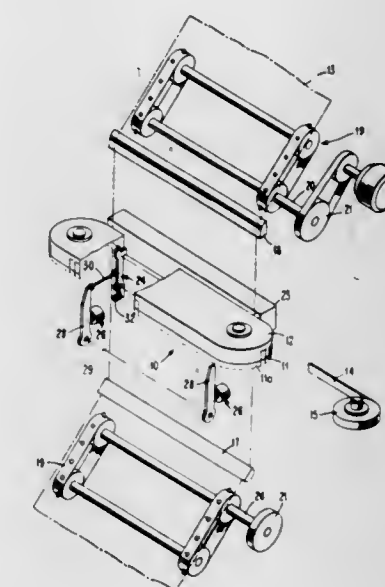
James M. Cunningham, Bradenton, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 15, 1969, Ser. No. 884,953

Int. Cl. B41j 7/38, 1/20

U.S. Cl. 101—93 C

6 Claims



In a high speed front printer a type cartridge comprises a plurality of type carriers guided along a print line by a continuous guide rail. Each type carrier has a plurality of pivotal levers carrying raised type characters adjacent their free ends. The type carrier levers are impacted by selected type hammers in the different print positions to impact a document and a ribbon or the like for printing in selected positions as the type carriers move by the print positions.

3,653,322

REGISTER INDICATING SYSTEM

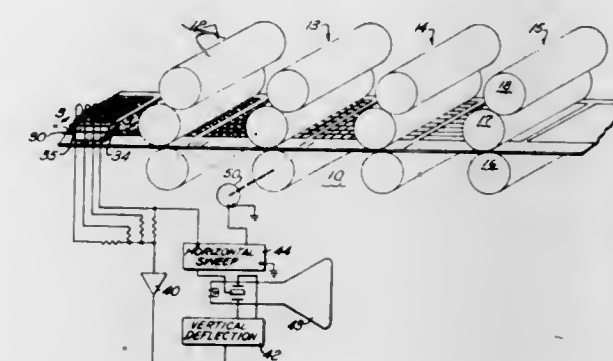
James Ivor Richardson, Montville, N.J., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Filed Aug. 5, 1969, Ser. No. 847,611

Int. Cl. B41f 13/24

U.S. Cl. 101—248

15 Claims



Multi-unit machine for operating on sheet material in web form or in the form of individual sheets with the operations performed by each unit to be in precise registry with the operations performed by the other units. Each unit applies a register mark to the sheet material which has a fixed position relative to the operation of the unit on the sheet material. The register marks are scanned as a group to provide output signals for checking the timing of the units. The output signals are pulses which are combined to provide a predetermined pulse pattern when the units are in registry and different pulse patterns when one or more of the units is out of registry. A cathode ray tube is utilized to display the pulse patterns.

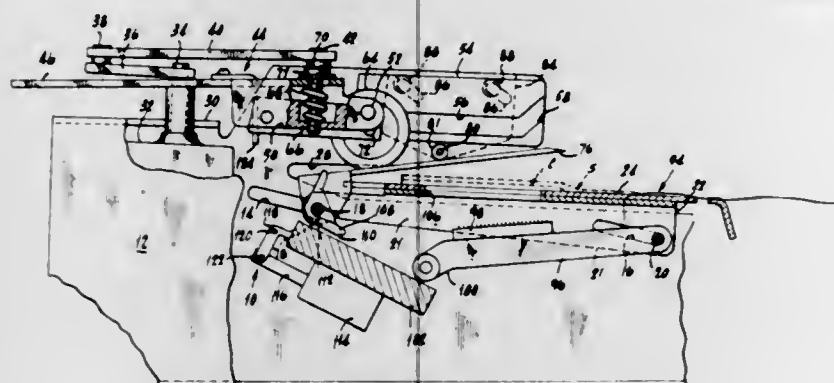
3,653,323

CARD POSITIONING AND PRINTING UNIT FOR CREDIT CARD READING AND IMPRINTING EQUIPMENT
Jared McGowan, Lansdale; John Di Lello, Warminster, and Edward Kelly, Philadelphia, all of Pa., assignors to Credit Systems, Inc., Colmar, Pa.

Filed Nov. 3, 1969, Ser. No. 873,384
Int. Cl. B41f 3/20

U.S. Cl. 101-269

6 Claims



A tray supporting a credit card and sales slip, when advanced, causes a hold-down plate to clamp the card and slip in print position. The plate is adjustably presettable to meet customer requirements. An operating mechanism drives a spring-loaded printing roller to imprint the slip, and has a long-stroke capability to increase the print area. The insertion of a card allows imprinting either from the side or end of the slip anywhere along its length and also allows extension of the credit card legend longitudinally of the path of roller travel to improve print quality.

3,653,324

ELECTRONIC DEVICE APPLICABLE TO ORDNANCE SAFETY AND ARMING SYSTEMS

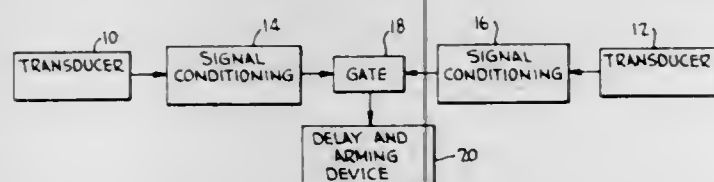
John J. Furlani, Rockville; Harry J. Davis, Wheaton, both of Md., and Philip Ingersoll, Fairfax, Va., assignors to The United States of America as represented by the Secretary of the Army

Filed Feb. 10, 1970, Ser. No. 10,173

Int. Cl. F42c 11/02, 11/06, 15/40

U.S. Cl. 102-70.2 R

7 Claims



An all-electronic device for the detection and processing of those environmental signatures associated with the launching of a munitions round. The non-mechanical device imposes stringent requirements that the environmental signatures must meet before the device will issue a command signal to arm the round. Two transducers are utilized to sense two distinct conditions that are peculiar to the round's launching. In a particular embodiment, the two transducers used are a piezoelectric crystal that senses acceleration set-back and a magnet and coil arrangement that is triggered when the round leaves the gun barrel. Furthermore, the environmental signatures that are sensed must fall within certain voltage ranges and time intervals that have been preselected according to the particular weapon and round combination under consideration. When the various signals meet all requirements, the device will provide a useable signal for any subsequent delay and arming function of the round.

3,653,325

DELAYED ARMING DEVICE FOR THE PROXIMITY FUSE OF A BOMB

Jaklin Boaz Popper, Kiryat Motzkin, Israel, assignor to The State of Israel, Ministry of Defense, Hakiria, Tel Aviv, Israel

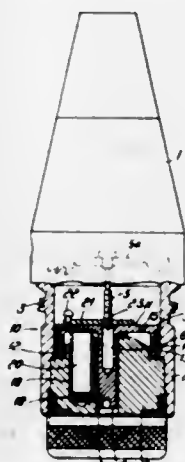
Filed Feb. 25, 1969, Ser. No. 802,110

Claims priority, application Israel, Feb. 27, 1968, 29536

Int. Cl. F42c 13/00, 15/12, 15/28

U.S. Cl. 102-70.2 P

4 Claims



A proximity type bomb fuse provided with means designed to ensure that the full arming of the fuse is delayed sufficiently for the bomb to have become separated from its point of release or propulsion by a safe distance.

3,653,326

WADS FOR CARTRIDGES

Peter John Howsam, 10 St. Margaret's Avenue, Nottingham, and John Dalton Barton, 12 Nottingham Road, Lowdham, both of England

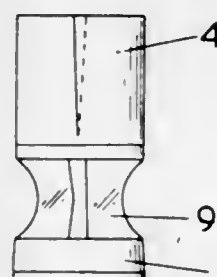
Filed Feb. 4, 1970, Ser. No. 8,542

Claims priority, application Great Britain, Feb. 12, 1969, 07,480/69

Int. Cl. F42b 7/08

U.S. Cl. 102-95

7 Claims



A one piece plastic wad for a shotgun cartridge forming a cover for the powder charge, having conical leaves forming a shot pouch, the leaves being axially separated with their edges inclined to the radius of the wad.

3,653,327

MACHINE FOR THE TAMPING OF BALLAST OF RAILWAY TRACKS

Gerard Sauterel, Pully, Switzerland, assignor to Matisa Materiel Industriel S.A., Crissier, Switzerland

Filed Mar. 20, 1970, Ser. No. 29,332

Claims priority, application Switzerland, Mar. 24, 1969, 4371/69

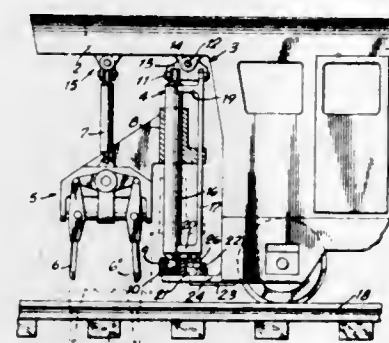
Int. Cl. E01b 27/16

U.S. Cl. 104-12

18 Claims

This invention comprises railway track tamping units which are displaceable in height and comprise pairs of tools

working in opposition, are arranged on either side of the same line of rails and that the height displacement of each of them is controlled by an independent mechanical member



3,653,330

PORTABLE WAGON SHIFTER

William James Yard, Cavan, South Australia, Australia, assignor to Aresco Trak-Chief Proprietary Limited, Cavan, South Australia, Australia

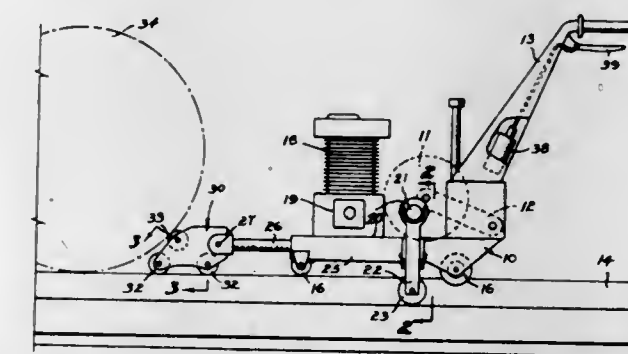
Filed Dec. 24, 1969, Ser. No. 887,919

Int. Cl. B60s 9/22; B61c 17/00; B61d 15/12

U.S. Cl. 105-90 A

5 Claims

having one of its ends articulated to a fixed support of the machine chassis and the other end displaceable at least transversally to the railway track axis.



3,653,328

TOW TRUCK

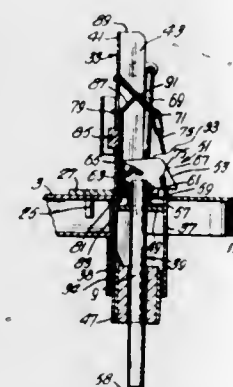
Guy R. Abram, Montreal, Quebec, and Emil Offerman, Therese West, Quebec, both of Canada, assignors to Matthew Moody Ltd., Terrebonne, Quebec, Canada

Filed Jan. 5, 1970, Ser. No. 537

Int. Cl. B65g 17/42

U.S. Cl. 104-172 BT

10 Claims



A tow pin attachment for tow trucks. The attachment can be removably connected to a tow truck. A tow pin carried by the attachment is movable between operative and inoperative positions. Means on the tow pin lock the attachment to the truck when the tow pin is in operative position.

3,653,329

ELECTROMAGNETIC TRACTION INCREASING ASSEMBLY

Akio Sasaki, Hiroshi Sakata, and Nobuyoshi Tsuboi, all of Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

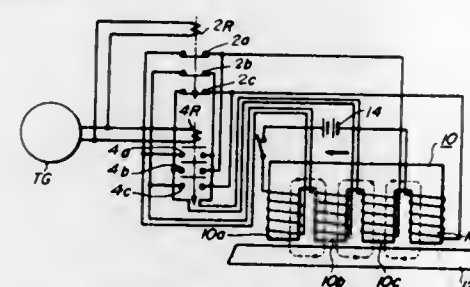
Filed Sept. 18, 1969, Ser. No. 858,949

Claims priority, application Japan, Sept. 20, 1968, 43/67612

Int. Cl. B61c 15/04; H02k 49/04; H02p 15/00

U.S. Cl. 105-77

3 Claims



In railway transportation facilities and the like having a rail track system and a running system running on the rail track by means of running wheels, a system for increasing the axle

load having a plurality of magnetic poles disposed in one of the two systems for producing magnetic flux, and a magnetic material disposed in the other system for producing an attractive force between the two systems by the action of the magnetic flux and a braking effort by the transfer movement of the magnetic flux, wherein the magnetic poles are energized within a speed range in which the product of the attractive force and the coefficient of adhesion is greater than the braking effort.

3,653,331

BOLSTER AND SIDE BEARING RAILWAY CAR LEVELING MECHANISM

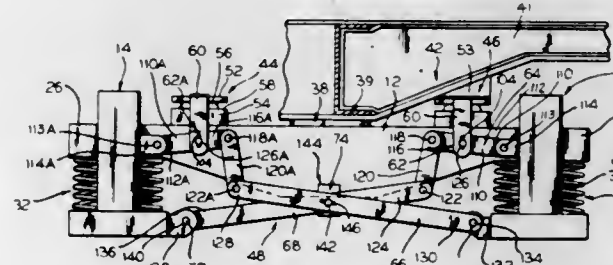
Osvaldo F. Chierici, Elmhurst, Ill., assignor to Holland Company

Filed Dec. 8, 1969, Ser. No. 882,864

Int. Cl. B61f 5/14, 5/24, 17/04

U.S. Cl. 105-199 R

9 Claims



A combination bolster, side bearing, and side frame truck leveler for railroad car trucks in which the truck bolster carries on either side of its center plate structure a side bearing that is of a constant contact type, with each bearing including a bearing plate acting on a body of resilient elastomeric material, in which the bearing plates are connected through a lost motion connection to a scissors lever type linkage assembly linking the side frames and the bolster mid portion, with the arrangement being such that roll tendencies in excess of those absorbed by the side bearings are translated into vertical movement of the bolster by applying to the bolster at its mid portion most of the unbalanced forces involved in such roll tendencies.

3,653,332

CONVERTIBLE RAIL-HIGHWAY VEHICLE

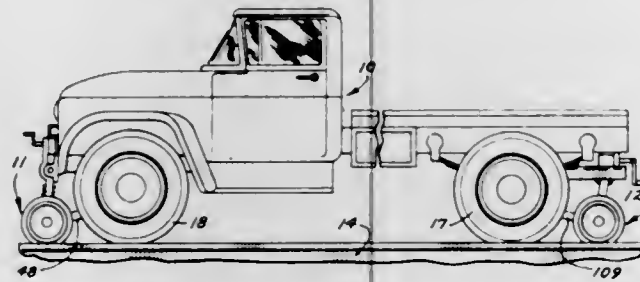
Buford W. Olson, Sr.; Eldrid W. Nelson, and Albin A. Davidson, all of Minneapolis, Minn., assignors to Chas. Olson & Sons Incorporated, Minneapolis, Minn.

Filed Feb. 12, 1970, Ser. No. 10,893

Int. Cl. B61d 15/00; B61f 9/00; B62d 61/12

U.S. Cl. 105-215 C

7 Claims



Guide wheel assemblies mountable on a highway vehicle for movement between a retracted position and a rail travel position to guide the vehicle while the vehicle's flangeless wheels provide the driving power. Each embodiment of the guide wheel assemblies includes a left and a right guide wheel subframe mounted for independent pivotal movement about a first transverse shaft, a second transverse pivot member, an overcenter lock assembly operated by the second member between the retracted and rail travel positions, and drive mechanism for pivoting the second member. In one embodiment the overcenter lock mechanism is connected to a transverse load transfer member having opposite ends pivotally connected to the adjacent subframe through a resilient mount and in a second embodiment the load transfer member provides an extensible connection having opposite ends connected to the adjacent subframe to pivot about a diagonal axis. In the third embodiment there is provided two overcenter lock assemblies, each being pivotally connected to the adjacent subframe. Also one of the embodiments includes mechanism for blocking the use of the vehicle steering mechanism for steering the vehicle. Also there is provided mechanism for properly aligning the first pivot shaft relative the vehicle.

3,653,333

HEAT-INSULATED RAILWAY TANK CARS AND A METHOD OF MAKING THE SAME

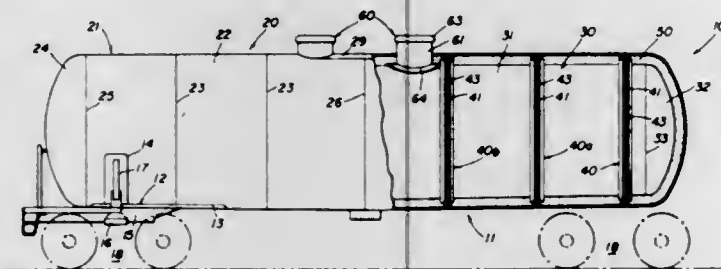
William A. Taylor, Sharpsville, Pa., assignor to General American Transportation Corporation, Chicago, Ill.

Filed Jan. 21, 1970, Ser. No. 4,506

Int. Cl. B61d 5/00

U.S. Cl. 105-360

5 Claims



There is disclosed a heat-insulated railway tank car and a method of making the same, comprising positioning one or more barriers on an elongated inner liner, the barrier having a flexible portion and a rigid portion, sliding an elongated outer shell onto the inner liner while radially compressing the flexible portion of the barrier, the barrier thus defining separate fluidtight compartments between the inner liner and the shell, and filling the compartments with an insulating substance.

METHOD AND APPARATUS FOR ABSORBING IMPACT FORCES

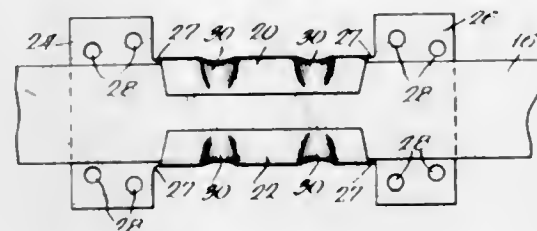
William A. Meler, Roselle, Ill., assignor to Signode Corporation

Filed Mar. 27, 1970, Ser. No. 23,264

Int. Cl. B60p 7/10; B61d 45/00

U.S. Cl. 105-369 A

8 Claims



The practice of the method disclosed herein acts to absorb the effect of impact forces placed on articles shipped in a railroad car, or other moving vehicle, to prevent or minimize movement of the articles relative thereto. A strap adapted to be disposed about a package being transported is located within a cushion seal, which is subsequently crimped to interlock the strap and seal. The seal is then secured to the base of the transporting member, which will act to absorb the imposed shock loads. The impact energy on the strapped article is converted into heat due to the high friction developed tending to move the strap through the cushion seal. With the cushion seal disclosed herein, a controlled slippage of the strap and thus controlled movement of the article is obtained, which prevents the article from becoming damaged due to hitting the end of the car, or another article in the car, or from sliding into a position where it would block an unloading doorway. The holding power of the cushion seal is of lesser magnitude than the strap tensile force, so that the article will move before the strap is broken.

3,653,335

MACHINES FOR PRODUCING SNACK FOOD IN THE SHAPE OF A SCOOP

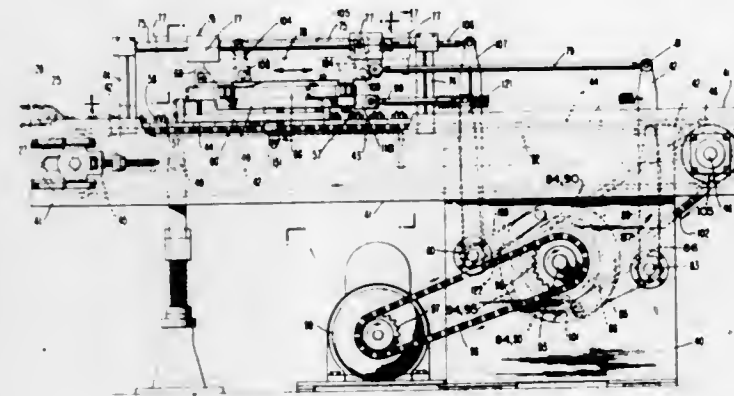
Arthur J. Griner, Wyckoff, N.J., and William A. Blain, Spring Valley, N.Y., assignors to Nabisco, Inc.

Continuation of application Ser. No. 754,415, Aug. 21, 1968, now abandoned. This application Aug. 20, 1970, Ser. No. 65,727

Int. Cl. A21c 11/10

U.S. Cl. 425-307

34 Claims



A machine for continuously embossing a strip of edible material to produce a design on at least one side thereof and shaping the embossed strip to provide spoon-shaped body portions and integral finger grip sections which are severed in said body portions and finger grip section simultaneously during passage of the strip through the machine thus forming individual snack products each having a scoop-shaped body portion and a finger grip portion for use in spooning prepared dip mixtures as currently used at social gatherings.

3,653,336

AUTOMATIC MOLDING APPARATUS FOR PRODUCING RING-SHAPED DOUGHNUTS CONTAINING FILLINGS

Ryutano Kaneko, and Yoshio Kaneko, both of 1-8, Sannonocho, Minami-ku, Yokohama-shi, Japan

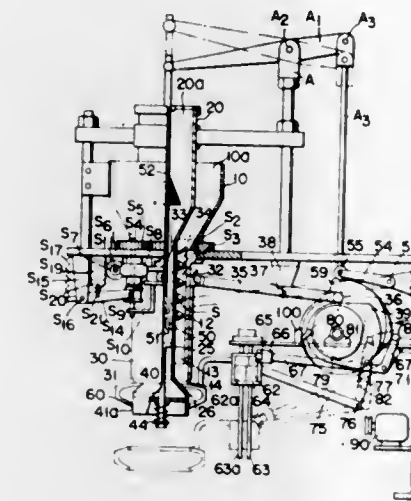
Filed Oct. 19, 1970, Ser. No. 82,057

Claims priority, application Japan, Oct. 22, 1969, 44/84053

Int. Cl. A21d 11/16

U.S. Cl. 425-133

11 Claims



An automatic molding apparatus for producing ring-shaped doughnuts with one or more kinds of filling contained therein in annular form, wherein uncooked dough and filling are separately stored in coaxially arranged hoppers, each of which has an inlet opened at the upper end to allow the raw material to be easily charged at a desired time under atmospheric pressure without stopping the apparatus; the dough is squeezed out at predetermined intervals from an annular opening defined between two cylindrical outlet pipes; the filling such as cream or jam is drawn out, also at predetermined intervals, from an annular opening positioned within the hole of the preliminarily formed dough so as to be completely wrapped in the dough; the mixed mass being taken out of the apparatus to be subjected to frying or other means of cooking in the succeeding process.

3,653,337

FOOD COOKING APPARATUS

Roger H. Hanson, 808 47th Street South, Great Falls, Mont.

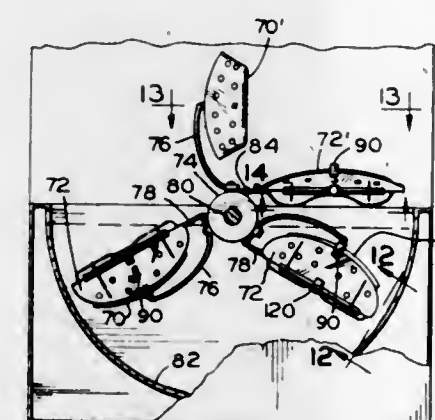
Continuation-in-part of application Ser. No. 659,634, Aug. 10, 1967, now abandoned. This application Feb. 26, 1970,

Ser. No. 14,340

Int. Cl. A23p 1/00

U.S. Cl. 425-394

15 Claims



A taco is manufactured from a tortilla cake in an apparatus which folds the tortilla cake between a male member shaped substantially like the desired finished taco and a female member which closes thereagainst providing a centrally creased taco having angularly related sides. At the end of

such crease, end forming members move angularly upwardly against the end portions of the tortilla cake to form end gussets gathered between the sides of the taco as end folds or pleats. These end gusset portions are desirably somewhat thicker than the remainder of the taco to avoid cracking.

3,653,338

HOLLOW POLYETHYLENE ROLLING PIN

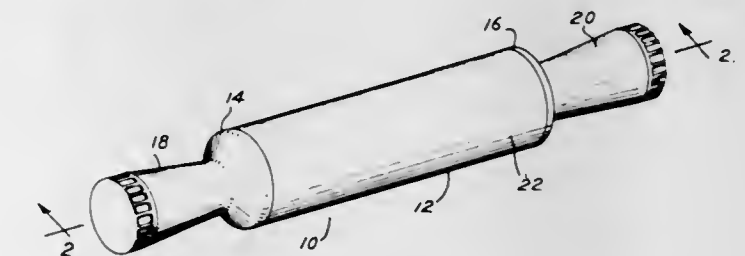
William R. Sauey, Baraboo, Wis., assignor to Flambeau Plastics Corporation

Filed Sept. 17, 1970, Ser. No. 73,055

Int. Cl. A47j 43/00

U.S. Cl. 29-110.5

5 Claims



An improved rolling pin is provided which includes a hollow cylindrical center member formed of polyethylene and adapted to contain a freezable gel which includes an aqueous cellulosic filler. A pair of hollow handles are provided for sealing the ends of the hollow cylindrical center member. The hollow handles are adapted to contain an insulating material such as polystyrene for insulating the freezable gel.

3,653,339

MULTIPURPOSE TABLE

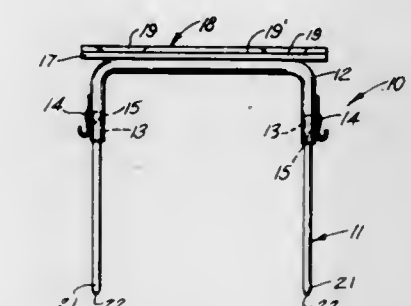
Thomas M. Hester, Sr., 55875 Mount View Trail, Yucca Valley, Calif.

Filed Apr. 16, 1970, Ser. No. 33,116

Int. Cl. A47f 5/12

U.S. Cl. 108-1

1 Claim



A table for many uses, such as reading, writing, etc. This table includes a tubular frame having the free end slideable within an inverted U-shaped tubular member which includes spring means for adjusting the height of the front edge. The top portion of the table includes a rail which is removeable, the rail having recessed portions to form arm rests and a book rest.

3,653,340

ROTARY TABLE

Charles H. Bugg, Mount Clemens, Mich., assignor to Machine Products Corporation, Detroit, Mich.

Filed July 1, 1970, Ser. No. 51,598

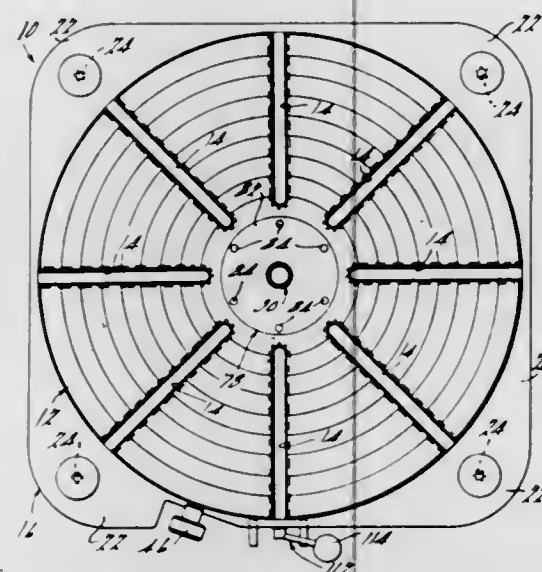
Int. Cl. A47b 11/00

U.S. Cl. 108-139

8 Claims

A free-wheeling rotary table comprising a base member, a horizontally disposed rotatable table member adapted to support an object for rotation about a generally vertical rota-

tional axis, antifriction bearing means on one of the members arranged generally coaxially of the rotational axis, and a bearing surface on the other of the members engageable with



the bearing means and defined at least in part by an imaginary sphere having its center located along the rotational axis of the table member.

3,653,341

LEVELING DEVICE FOR POOL TABLES

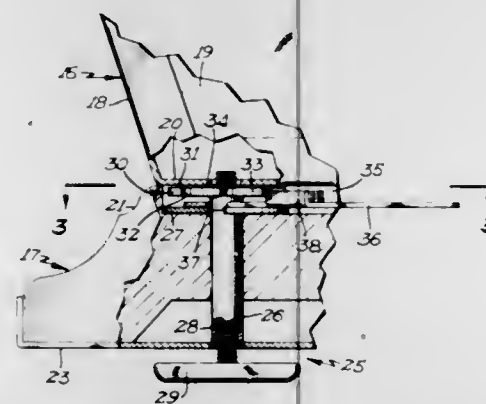
Otto Sevenen Nielsen, 4875 Sorill Avenue South, Minneapolis, Minn.

Filed Aug. 26, 1970, Ser. No. 70,627

Int. Cl. A47b 9/00; F16m 11/12, 11/24

U.S. Cl. 108—144

5 Claims



A pool table comprises a table top having a pair of leg structures secured thereto. Each leg structure is provided with a pair of leveling devices, each of which includes a vertical threaded foot member having a floor engaging element on the lower end thereof. Each foot member is threadedly engaged by a threaded foot shifting member which may be revolved by an actuating lever in either direction to cause vertical movement of the table while each foot member remains stationary. The actuating lever is provided with indicia (up or down) to readily apprise a user of the direction the foot member is being shifted.

3,653,342

MEANS FOR DISCOURAGING THEFT

Homer S. Chilton, Wichita, Kans., assignor to Music Service Company, Inc., Wichita, Kans.

Filed July 21, 1970, Ser. No. 56,836

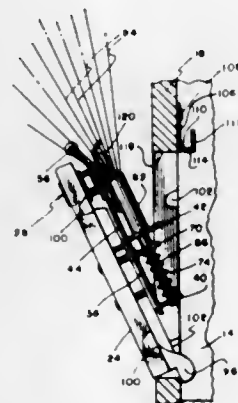
Int. Cl. G08b 15/02, 13/08

U.S. Cl. 109—31

15 Claims

Theft prevention apparatus associated with a key locked door or closure, such apparatus including a striker normally cocked to strike a container of a pressurized mixture of tear

gas and marking dye and thereby causing release of the mixture, a trigger is provided that is movable into and out of a position preventing striker movement by the key lock mechanism as the latter is operated by the key lock respec-



tively to unlock and lock the closure. The striker is associated with a means for preventing operation thereof solely when the closure is in its closing position, whereby the striker is released if the closure is opened and the key lock has not been moved to its unlocking position.

3,653,343

PERSONAL HOTEL SAFE

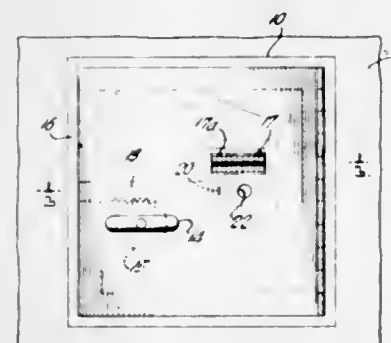
Hilda Y. E. McMartin, Elephant Walk, Tucker's Town, Bermuda

Filed Nov. 9, 1970, Ser. No. 87,845

Int. Cl. E05g 1/00; E05b 37/02

U.S. Cl. 109—64

4 Claims



The invention relates to a personal safe for installation in a hotel room and for use at the convenience of a guest. The safe has a combination lock for which the combination can be set as desired by the guest. Setting of the combination is controlled by a key-operated mechanism operable by a key furnished by the hotel. The key-operated mechanism is associated with a movable member which secures the safe in closed or locked condition and access to the key-operated mechanism is provided only when the movable member is in unlocked condition.

3,653,344

AIR POLLUTION DEVICE

Miles Gregory Masek, and Sophia D. Masek, both of 1558 Janquil Terrace, Ill.

Filed July 22, 1970, Ser. No. 57,099

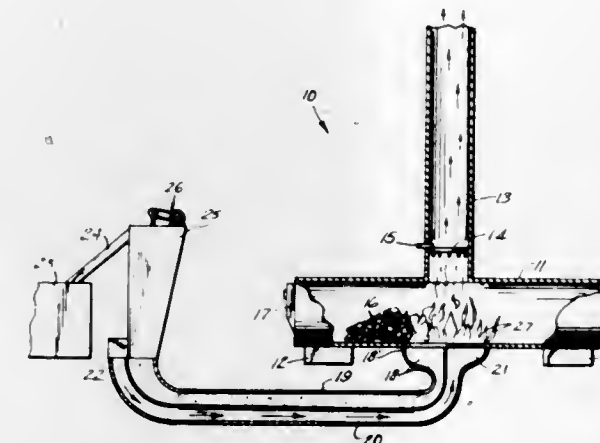
Int. Cl. F23g 5/00

U.S. Cl. 110—8 A

3 Claims

A natural gas burning device for preventing air pollution. This device serves to completely burn smoke particles, carbon, sulfur-gases and the like that have been accumulated by

the burning of coal and garbage. The device includes a gas jet above the furnace containing the garbage and coal, the



gas burner serving to completely burn the smoke particles and gasses.

3,653,345

SEWING MACHINE FOR MAKING WELTED POCKETS

Nereo Bianchi, Pavia, Italy, assignor to Necchi, Societa per Azioni, Pavia, Italy

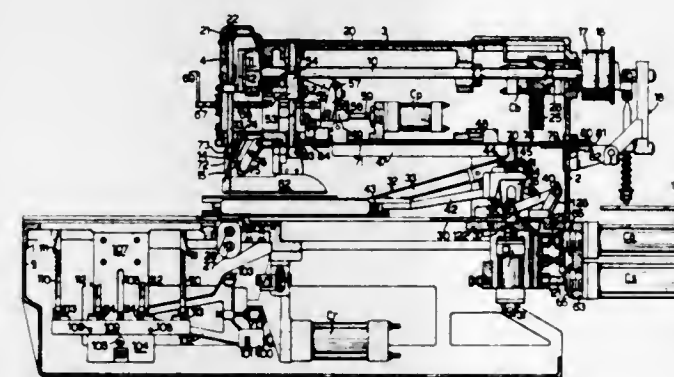
Filed July 27, 1970, Ser. No. 58,577

Claims priority, application Italy, July 30, 1969, 32417 A/69

Int. Cl. D05b 3/10

U.S. Cl. 112—65

5 Claims



Sewing machine for making welted pockets comprising an arm carrying a driving shaft, a lock mechanism, a work plate slidable along the longitudinal axis of the machine beneath said arm, a work clamp movable with the work plate to secure thereon a piece of fabric to be sewn, a pair of lateral pressers movable with the work plate and a center blade, said pressers being provided for positioning a patch of fabric over said fabric and thereafter making a suitable folding of said patch, a pair of needles operatively connected to said driving shaft to form two parallel longitudinal stitchings on the fabrics after said folding, the fabrics moving together with the work plate, a cutter movable together with the needles to make a slit on the fabric parallel to the stitchings, vertically movable patch turners and tab slit cutters positioned below the work plate at the end of the displacement of said work plate and pneumatic means to control and actuate the operation of the machine lock mechanism, the movement of the work plate supporting the fabric, the oscillation of the patch turners and the tab slit cutters, the lateral movement of the presser members and the work clamp, pre-set control members being provided in the circuit of said driving means to determine the succession of their operation during the automatic cycle.

3,653,346

TUFTING MACHINES

Ronald Parsons, Blackburn, England, assignor to Singer Company (U.K.) Limited, London, England

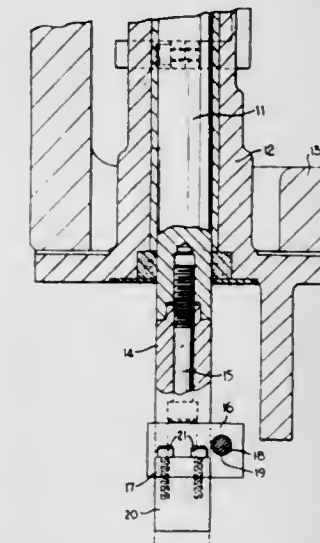
Filed Oct. 12, 1970, Ser. No. 79,783

Claims priority, application Great Britain, Oct. 11, 1969, 50,026/69

Int. Cl. D05c 15/20; D05b 55/14

U.S. Cl. 112—79 R

5 Claims



In order to provide a ready facility for adjusting the bottom dead-center position of the tufting needles of a tufting machine on needle change or needle-stroke adjustment, the push-rods upon which the needle-bar is mounted are each provided with an extension arm releasably attachable thereto, the arm having a mounting bracket thereon to receive the needle-bar.

3,653,347

AUTOMATIC APPARATUS FOR SEWING A SEAM OF A PREDETERMINED CONFIGURATION

Nereo Bianchi, Pavia, Italy, assignor to Necchi S.p.A., Pavia, Italy

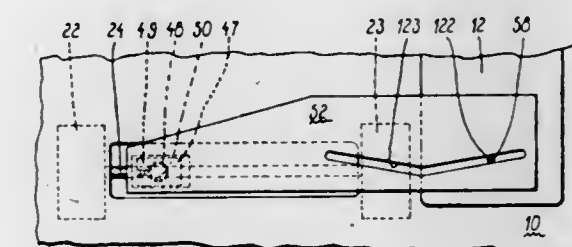
Filed July 16, 1970, Ser. No. 55,314

Claims priority, application Italy, July 20, 1969, 32418 A/69

Int. Cl. D05b 21/00

U.S. Cl. 112—121.12

3 Claims



A sewing machine including means for automatically sewing a seam of a particular configuration. Fabric clamp means are guided past the sewing needle by a guide means which simultaneously imparts a rectilinear and a rotative motion to the clamp means.

3,653,348

RUFFLING ATTACHMENT FOR A STITCHING MACHINE

Irving Baumhaft, Wilkes Barre, Pa., assignor to Pennsylvania Sewing Research Corporation

Filed Jan. 22, 1968, Ser. No. 699,598

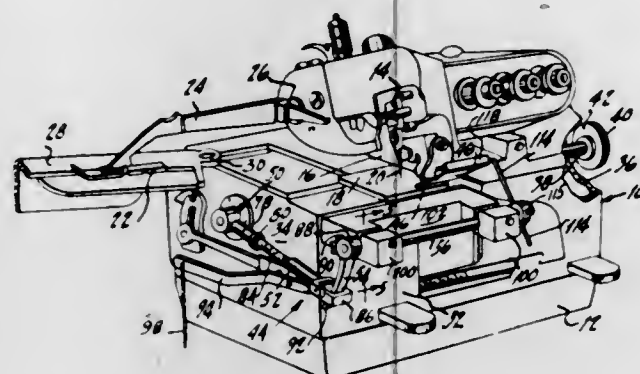
Int. Cl. D05b 35/08

U.S. Cl. 112—134

7 Claims

A ruffling attachment for a stitching machine of the type having a frame with front and side vertical walls, a needle plate mounted on the frame, and a drive shaft extending

through side wall. The ruffling attachment is comprised of a rocker shaft mounted on the front wall, means for converting the rotary motion of the drive shaft to oscillating motion in



the rocker shaft, and means for converting the oscillating motion in the rocker shaft to reciprocating motion of a ruffler blade above the needle plate.

3,653,349

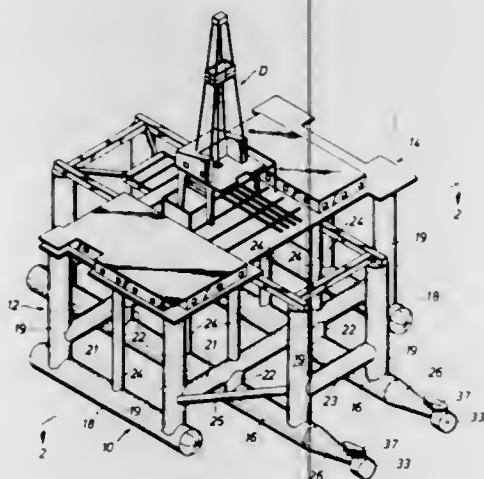
SELF-PROPELLED SEMI-SUBMERSIBLE DRILLING RIG
Elliot E. Brown, Metairie, La., assignor to Ocean Drilling & Exploration Company

Filed May 18, 1970, Ser. No. 38,218

Int. Cl. B63b 35/00

U.S. Cl. 114-0.5 D

7 Claims



A self-propelled drilling rig of the semi-submersible type for drilling wells at marine locations generally from an afloat position and having hull members provided with self-contained propulsion units for propelling the rig between marine locations.

3,653,350

PRESSURE BALANCING OIL SYSTEM FOR STERN TUBES OF SHIPS

Harold O. Koons, New Berlin; Donald W. Pautz, Greenfield, and Willis W. Gardner, Waukesha, all of Wis., assignors to Waukesha Bearings Corporation, Waukesha, Wis.

Filed Dec. 4, 1970, Ser. No. 95,208

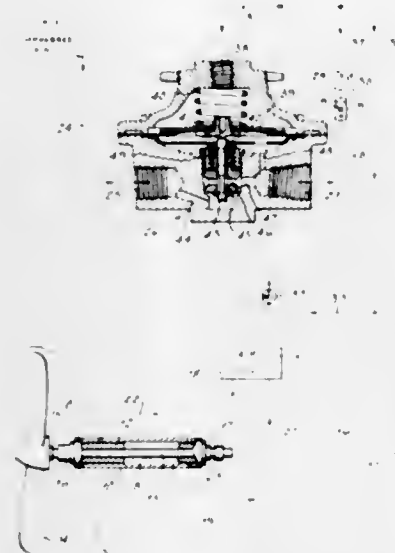
Int. Cl. B63b 35/00; F16j 15/40

U.S. Cl. 114-0.5 R

11 Claims

The oil in the stern tube is normally maintained at a predetermined pressure. A conduit leading from a source of compressed air has an outlet in the region of the center line of the tail shaft, the air in said conduit being at a pressure to normally bleed air from the outlet, and there being valve means in said conduit between the source of compressed air and the outlet which is responsive to changes in the air pressure in the conduit, caused by changes in the draft of the ship, for varying the oil pressure in the oil chamber to maintain it at a predetermined value above sea pressure. In one

form of the invention the air pressure in the conduit serves as a medium to transmit changes in the draft of the ship to the oil in a closed head tank. In another form of the invention the air pressure in the conduit acts to control the flow of oil



3,653,351

MAGNETIC DETECTOR

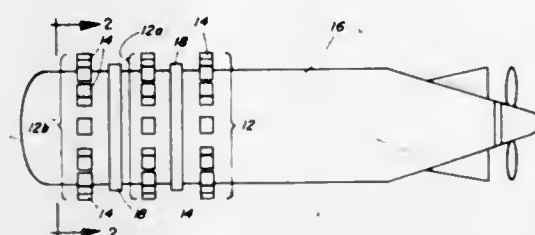
Raymond Gerald Martin, Ellicott City, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed July 16, 1969, Ser. No. 842,198

Int. Cl. F42b 19/34; F42c 15/08, 11/09

U.S. Cl. 114-20 R

7 Claims



A magnetic detector for a torpedo having three rings of magnets and a pair of inducting coils alternately positioned on a torpedo body in longitudinally spaced positions thereon. Each ring of magnets and coil lies in a plane parallel to the plane of each other ring and coil and perpendicular to the longitudinal axis of the torpedo. The coils are connected in series opposition and their combined output is fed into a low frequency amplifier.

3,653,352

HULL FORM OF A SHIP PROVIDED WITH A CYLINDRICAL BOW

Takeshi Tomiyama, and Masanobu Sudow, both of Tokyo, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed May 13, 1970, Ser. No. 36,839

Claims priority, application Japan, May 16, 1969, 44/37589

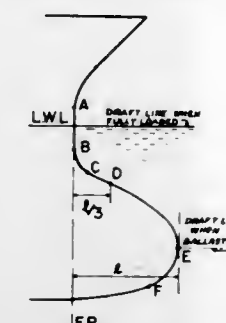
Int. Cl. B63b 1/04

U.S. Cl. 114-56

9 Claims

According to the invention the hull of the ship has at its bow a substantially cylindrical configuration at the full-load line and the configuration of a forwardly projecting fin at the ballast line. The upper portion of the forwardly projecting fin

has the configuration of a convex ridge providing a transition between the cylindrical portion and forwardly projecting por-



tion of the fin which is beyond the convex ridge configuration of the upper fin portion.

3,653,353

ATTACHMENT POINT

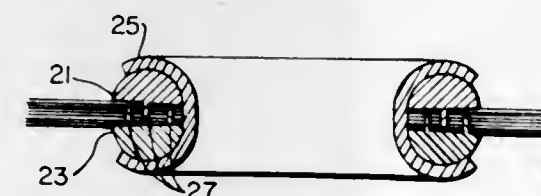
Harry T. Davis, West Peabody, Mass., assignor to Hood Sailmakers, Inc., Marblehead, Mass.

Filed Sept. 23, 1970, Ser. No. 74,773

Int. Cl. B63h 9/08

U.S. Cl. 114-115

2 Claims



The attachment point disclosed herein is adapted for applying a substantial load to a fabric sheet. A particularly fitting example of an application for such an attachment point is at the clew of a sail such as a Genoa jib where, in a large sailboat, the jib sheet (a rope) may be holding the sail in position under a load of several hundreds to several thousands of pounds. The attachment point employs a pair of complementary ring members, each having a multiplicity of needle-like teeth. These ring members are clamped on opposite sides of a plurality of cloth layers by means of a metallic inner liner which is rimmed down over the ring members so as to apply a clamping force sufficient to prevent combing of the teeth through the cloth layers under a lateral pressure in the same order of magnitude as the strength of the cloth layers themselves.

3,653,354

CATAMARAN STABILIZER

Frans V. A. Pangalila, Matawan Township, N.J., assignor to Flume Stabilization Systems, Inc., Westwood, N.J.

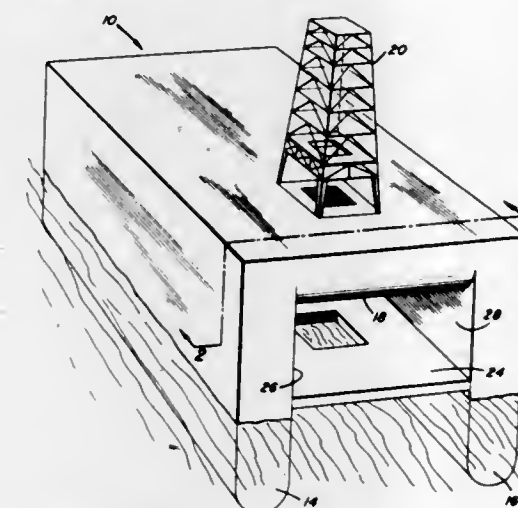
Continuation-in-part of application Ser. No. 850,574, Aug. 15, 1969, now abandoned. This application Mar. 2, 1970,

Ser. No. 15,798

Int. Cl. B63b 43/06, 35/00

U.S. Cl. 114-125

5 Claims



A free-surface stabilizing tank for a catamaran-like structure. The catamaran is defined by a pair of buoyant bodies

lying side by side, joined together by a deck plate. The free-surface tank is defined by the two adjacent walls of the bodies and a bottom plate lying below the surface of the water and, like the deck plate, joining the two buoyant bodies. The bottom plate is positioned so as to be above the water level when the catamaran-like structure is in transit and so as to be below the water level when the structure is in its working position.

3,653,355

MUD ANCHOR

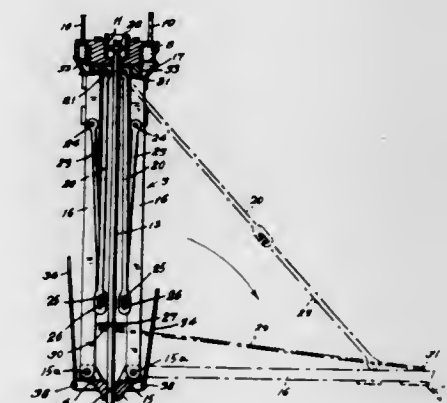
John A. Christians, Springfield, and Otis R. Pannell, Alexandria, both of Va., assignors to The United States of America as represented by the Secretary of the Army

Filed Aug. 6, 1970, Ser. No. 61,571

Int. Cl. B63b 21/28

U.S. Cl. 114-206 A

8 Claims



An explosive embedment anchor for use in mud bottoms which are too soft for efficient utilization of existing explosive embedment anchors. Anchors for this type are shot from a gun into the bed of a body of water, the anchor being the projectile. The anchor, after embedment, unfolds outward when pulled upward, much in the manner of an inverted umbrella. It consists of flukes hinged to a nose. The flukes are connected to a head by tie bars. A fabric attached to the flukes spreads out upon unfolding to hold it in the mud upon an upward pull of the head.

3,653,356

COATING MACHINE

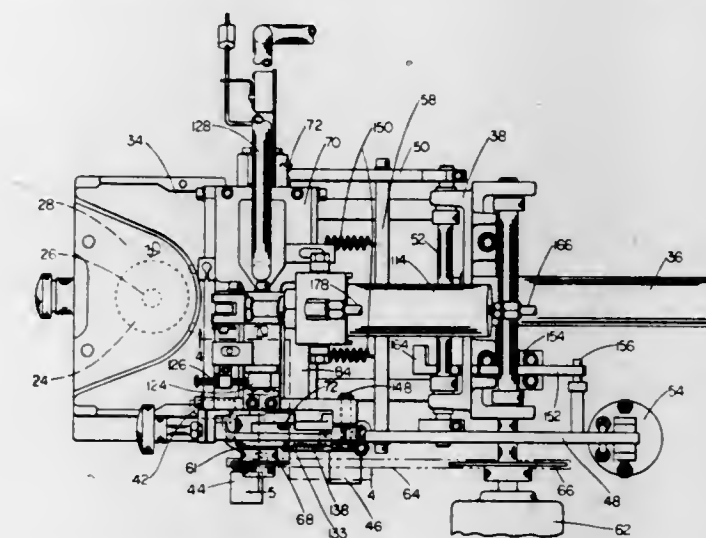
Carl H. Brastow, Foxborough, Mass., assignor to Jacob S. Kamborian, West Newton, Mass.

Filed Sept. 2, 1970, Ser. No. 69,069

Int. Cl. B05c 11/00

U.S. Cl. 118-7

6 Claims



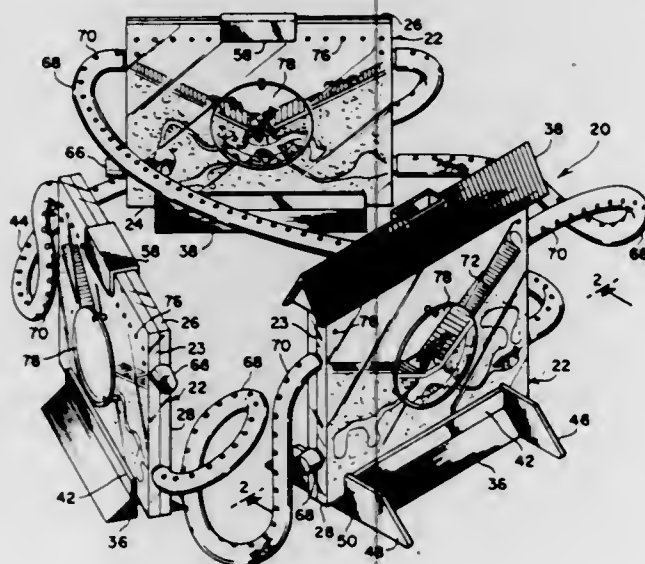
A machine, that incorporates an applying mechanism, for applying coating material to a portion of the vamp of a shoe upper to form a box toe. The applying mechanism includes a roll rotatable within a housing between a pair of

walls, the bottom of one of the walls constituting a scraper blade. The movement of the vane beneath the applying mechanism causes the roll to apply the coating material to the vane to a thickness determined by the scraper blade.

3,653,357
ENTOMOLOGICAL OBSERVATION DEVICE
Stanley S. Sheldower, 43 Burton Avenue, Woodmere, N.Y.,
and Elliot S. Glanz, 4005 Greentree Drive, Oceanside, N.Y.
Filed June 1, 1970, Ser. No. 41,917
Int. Cl. A01k 01/00

U.S. Cl. 119-1

5 Claims

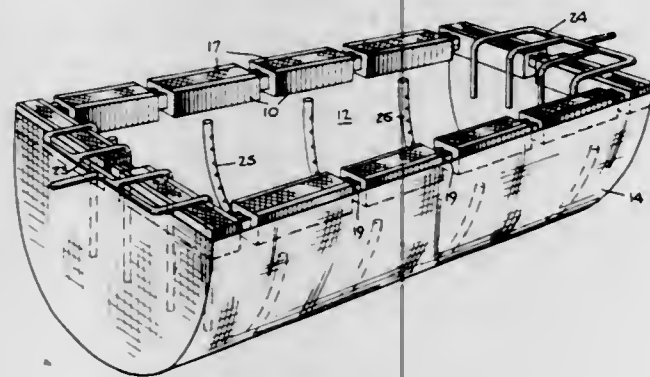


A device for entomological observation comprised of a modular enclosed structural unit having transparent walls and adapted to simulate therein the natural environment of the insects under study. The modular unit is further provided with openings in top and bottom walls for permitting interlocking engagement between several of the units for assembly or stacking thereof. Flexible transparent plastic tubing is used to interconnect the several units to allow the insects therein to traverse between the units. A magnifying lens is affixed to one of the transparent walls for enlarging any insects within the field of view.

3,653,358
FLOATING FISH GROWING TANK
Howard J. Fremont, New York, N.Y., assignor to Marine Protein Corporation, New York, N.Y.
Filed Apr. 6, 1970, Ser. No. 25,907
Int. Cl. A01k 63/00

U.S. Cl. 119-3

8 Claims



A floating growing tank for fish. Moored floats support a closed watertight liner filled with water and immersed in a relatively large body of water. A protective mesh surrounds the liner. A plurality of such tanks can be grouped around a service platform to form a system.

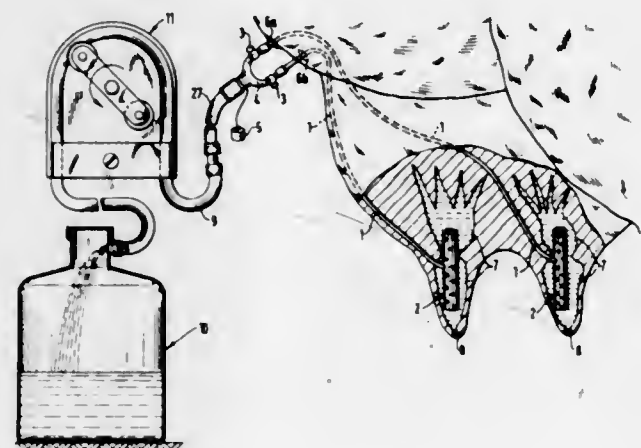
3,653,359
METHOD AND APPARATUS FOR MILKING DAIRY ANIMALS BY MEANS OF A CATHETER
Adolf Tolle, Kiel-Kitzeberg, Drosseleck 4, and Hans Zeidler, Post Ralsdorf, Schlesweg-Holstein, Schadtbeck, both of Germany

Filed Mar. 9, 1970, Ser. No. 17,696
Claims priority, application Germany, Mar. 12, 1969, P 19 12 585.0

Int. Cl. A01j 03/00

U.S. Cl. 119-14.02

24 Claims



To provide for germ-free milk removal, a suction element, introduced into the udder of a dairy animal is connected to a catheter, which is carried beneath the skin of the animal to a point conveniently accessible for germ-free connection of milking apparatus, such as, for example, near the knee of one of the legs of the animal. The suction element may be an open, perforated tube, ball-shaped or the like, and the catheter secured thereto. The exit wound is closed off by means of a collar or sleeve, which may be perforated to promote tissue regrowth and effective sealing of regrown skin.

3,653,360
ANIMAL FEEDER AND TIMING MECHANISM THEREFOR

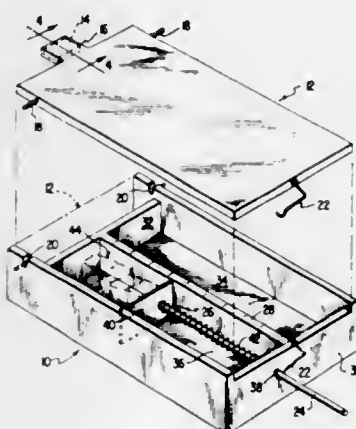
William C. Foster, 603 Bay Drive, Baltimore, Md.

Filed Jan. 19, 1970, Ser. No. 4,010

Int. Cl. A01k 5/02

U.S. Cl. 119-51.12

1 Claim

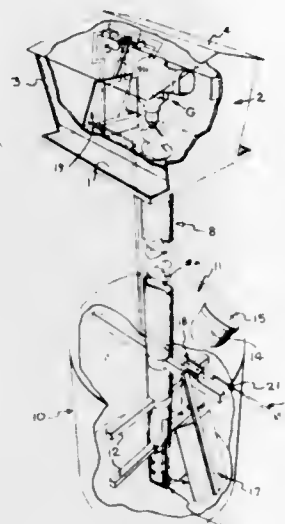


The disclosure is directed to an inexpensive feeder which will deny animal access to the contents thereof for a predetermined time interval as controlled by a timer employing ice as a meltable timer element.

3,653,361
AUTOMATIC SELF-FILLING BIRD FEEDER
Don Holliday, 10323 Sierra Dawn Drive, Sylvania, Ohio
Filed July 17, 1970, Ser. No. 55,892
Int. Cl. A01k 39/00

U.S. Cl. 119-52 AF

1 Claim



A feeding device for birds and the like in which a container has a large quantity of granular or pulverulent feed material which is elevated to a feeder by a screw conveyor operating in a tube. An electric motor operates the screw conveyor intermittently in response to a switch in the feeder, which is actuated by a pendulum-like arm swung by gravity when the feed supply is reduced or exhausted. A similar pendulum operated switch is in the container and is connected in the circuit with the other switch. It breaks the circuit when the supply of feed in the container is exhausted.

3,653,362
DISPOSABLE PET ANIMAL FEED CONTAINER AND HOLDER

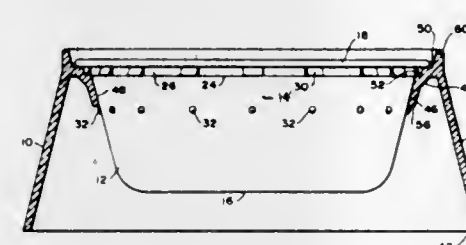
Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.

Filed Aug. 19, 1970, Ser. No. 65,166

Int. Cl. A01k 5/00

U.S. Cl. 119-61

10 Claims



A pet feeder having a reusable holder and disposable liner with both the liner and holder being separately nestable with other like liners and holders when empty.

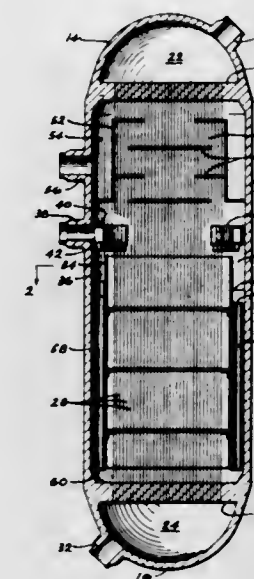
3,653,363
DOWNCOMER FLOW CONTROL
Nicholas D. Romanos, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 10, 1970, Ser. No. 96,680
Int. Cl. F22b 1/06

U.S. Cl. 122-32

10 Claims

A shell and tube type vapor generator is disclosed in which the vaporizable liquid supply to the evaporator region of the apparatus is automatically regulated in response to load changes on the unit. The vapor generator incorporates a plurality of conduits arranged to conduct liquid from the

downcomer reservoir to the evaporation region. The conduits are arranged in such a way that the number of conduits con-



ducting liquid from the reservoir to the evaporator is variable according to the load demand on the unit.

3,653,364
COMBUSTION CONTROLLING ANTI-POLLUTION DEVICE

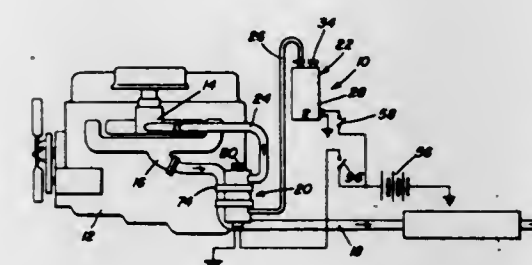
Simeon Bogan, Wilkes-Barre, Pa., assignor to Elizabeth P. Mensch, Dallas, Pa., a part interest

Filed Oct. 27, 1970, Ser. No. 84,421

Int. Cl. F02b 43/08; C01b 1/08

U.S. Cl. 123-3

6 Claims



A device for producing hydrogen gas and introducing it into the intake manifold of an internal combustion engine with the device being in the form of a container having iron balls therein heated by an exhaust pipe from the engine, and electrically energized heating device with the container being in communication with a steam producing device whereby water vapor passing over the heated iron balls will cause oxidation of the iron balls and production of hydrogen gas.

3,653,365
ELECTRONIC CONTROL SYSTEM FOR THE INJECTORS OF INTERNAL ENGINES

Louis A. Monpetit, L'Etang-La-Ville, France, assignor to Societe des Procédes Modernes d'Injection Sopromi, Les Mureaux, France

Filed Mar. 5, 1970, Ser. No. 16,735

Claims priority, application France, Mar. 10, 1969, 6906642

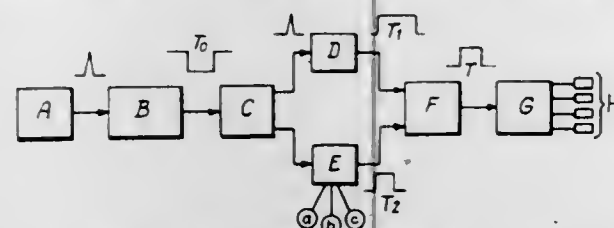
Int. Cl. F02m 51/00

U.S. Cl. 123-32 EA

9 Claims

An electronic circuit system for triggering the successive injectors of an internal combustion engine, chiefly a Diesel engine. A first circuit controlled by the rotation of the engine provides for the starting of saw-tooth voltage wave, the length of the rising slope of which depends on the speed of rotation while the peaks of said pulses trigger the injections which last until the end of the pulse. A delay for said trigger-

ing is advantageously obtained by the difference between the time constants of two flip-flops the first of which is constant while that of the second flip-flop depends on the operative



parameters of the engine, the end of the injection being defined by the end of the signal produced by the first flip-flop.

3,653,366 CONTROL DEVICE FOR THE AIR-INTAKE OF CARBURETOR-TYPE INTERNAL COMBUSTION ENGINES

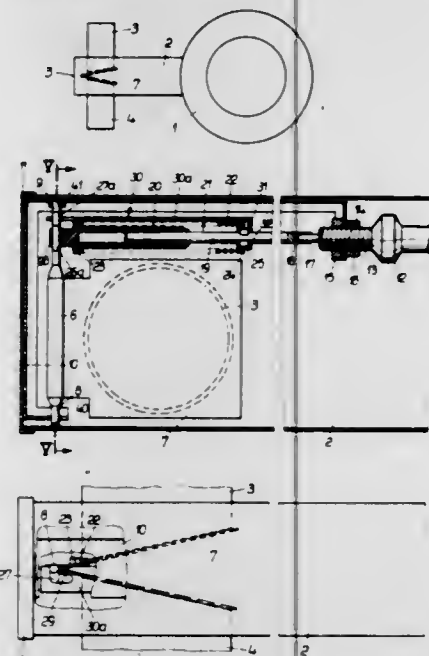
Richard Hoferer, Bissinger, Germany, assignor to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany
Filed Mar. 23, 1970, Ser. No. 21,876

Claims priority, application Germany, Apr. 2, 1969, P 19 16 864.0

Int. Cl. F02m 35/04

U.S. Cl. 123—122 D

7 Claims



An air intake control device admitting preheated and/or cold air to the carburetor in response to changes in the air temperature, the device having a thermostat-controlled control flap pivoting between the intake openings of a cold-air duct and a warm-air duct, closing off the one or the other in its end positions. The control linkage includes a telescopically compressible push linkage with an overload spring and a pushinsensitive pull member pulled by the overload spring in its retracting node and connected to the control flap shaft at a greater pivot arm than that of the push linkage, so that the overload spring serves also as the return spring for the control flap. The control members are mounted on a removable frame inside the main intake duct.

3,653,367 CONTACTLESS IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Kazuo Oishi, Kariya-shi, Japan, assignor to Nippondenso Kabushiki Kaisha

Filed Dec. 15, 1969, Ser. No. 884,803

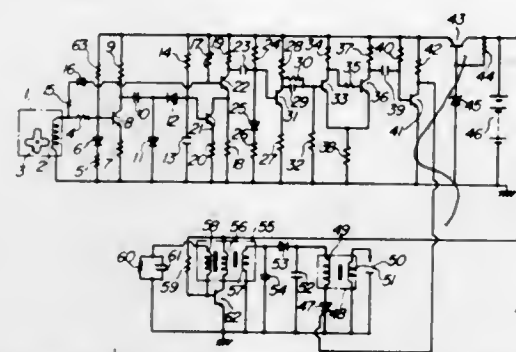
Claims priority, application Japan, Dec. 18, 1968, 43/93368
Int. Cl. F02p 3/06

U.S. Cl. 123—148 E

8 Claims

A contactless ignition system for an internal combustion engine wherein the signal source comprises of a signal generator whose output signal voltage increases in proportion

to an increase in the rotation speed of the engine, and the waveform of the output signal from said signal generator is changed by means of a level detector circuit such as a satura-



tion amplifier and a Schmitt circuit for detecting signal levels, whereby any desired advance characteristics are easily attained.

3,653,368 VALVE CHAMBER FOR THE INLET VALVE OF A FOUR-CYCLE INTERNAL COMBUSTION ENGINE

Hans O. Scherenberg, Stuttgart-Heumaden, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

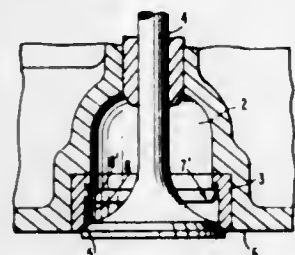
Filed Dec. 12, 1969, Ser. No. 884,537

Claims priority, application Germany, Dec. 14, 1968, P 18 14 694.6

Int. Cl. F011 3/00

U.S. Cl. 123—188 S

9 Claims



A valve chamber for the inlet valve of a four-cycle internal combustion engine in which the valve chamber is provided with at least one detaching step in proximity to the valve seat which forms a sharp edge pointing in the direction of the flow of the air to facilitate detachment of fuel precipitated along the walls.

3,653,369 SPACER DECK FOR CYLINDER BLOCK

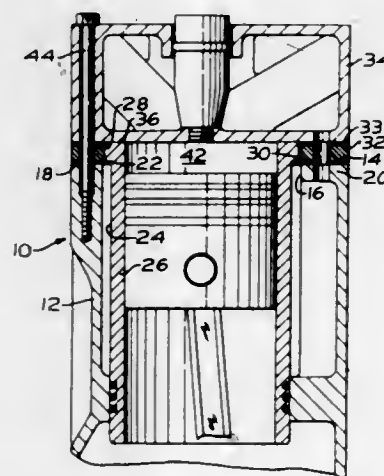
Charles N. Fangman, and Walter R. Gutzwiller, both of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 19, 1969, Ser. No. 808,473

Int. Cl. F02f 1/10

U.S. Cl. 123—193

4 Claims



A spacer deck for an engine cylinder block comprising two plates between the top deck of the cylinder block and the bottom deck of the cylinder head, the lower plate utilized as

a resilient seating member for a cylinder liner flange while the upper plate serves as a spacer.

3,653,370 BARBECUE COOKER

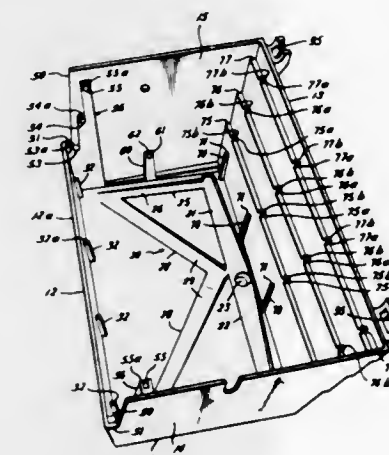
Roger T. Shaper, and John E. Germann, both of Houston, Tex., assignors to Metal Window Products, Inc.

Filed Aug. 6, 1970, Ser. No. 61,762

Int. Cl. A47j 37/00; F24b 3/00

U.S. Cl. 126—25 A

3 Claims



The specification discloses an outdoor barbecue cooker having a housing with means in the housing for supporting a cooking grill at various elevations above the heat source whereby the distance between the heat source and the food being cooked can be adjusted as desired. The means for supporting the grill at various elevations includes a plurality of steps or vertically spaced ledges formed in the rear of the housing and a plurality of recesses formed in the front corners of the housing for supporting the grill.

3,653,371 HOT AIR FURNACE HAVING L-SHAPED BURNERS

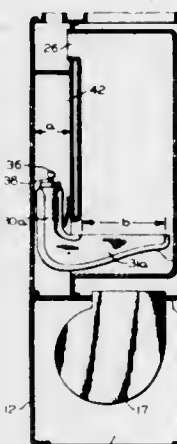
Herbert C. McManus, Elyria, Ohio, assignor to American Standard Inc., New York, N.Y.

Filed Oct. 29, 1970, Ser. No. 84,967

Int. Cl. F24h 3/00, 9/18

U.S. Cl. 126—91 R

7 Claims



A hot air furnace having special L-shaped gas burners extending partially into heat exchanger shells. The fuel-air mixing portions of the burners are located outside the shells in a narrow compartment such that the total depth of the furnace can be somewhat less than under conventional practice.

3,653,372 CHEMICALLY HEATED CONTAINER

Beverly Douglas, 423 Sunnyside Drive, Nashville, Tenn.

Filed Dec. 12, 1969, Ser. No. 884,515

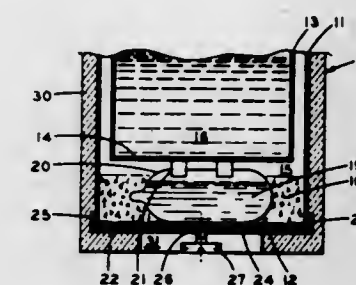
Int. Cl. A47g 23/04; F24j 1/00

U.S. Cl. 126—263

7 Claims

A chemically heated stove having a heating chamber containing a solid chemical reactant and a frangible capsule con-

taining another chemical reactant, and a pressure actuator member, such as a lever or thumb-screw, mounted on the container for breaking the capsule upon the application of pressure to cause the chemical reactants to mix in an exothermic reaction.



In a preferred form of the invention, the stove is made integral with the bottom of a comestible container, and the walls are insulated, not only to make the heating of the comestible more efficient, but to protect the hand of the person holding the container.

3,653,373 APPARATUS FOR ACOUSTICALLY DETERMINING PERIODONTAL HEALTH

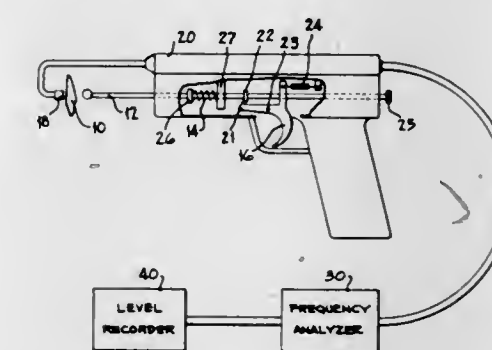
Steven C. Batterman, 109 Charlann Circle, Cherry Hill, N.J.

Filed Jan. 19, 1970, Ser. No. 3,938

Int. Cl. A61b 5/00

U.S. Cl. 128—2 K

7 Claims



A pre-determined exciting force is imparted to a patient's teeth to cause them to emit a measurable sound or radiation response. The response is picked up by a microphone located inside the oral cavity immediately behind the teeth, and then is conveyed to a frequency analyzer positioned near the patient. Optionally, a sound level recorder can be connected to the frequency analyzer so as to automatically record the sound spectra on preprinted recording paper. Since the emitted sound is a function of the frequency response of the teeth, which in turn depends upon the rheology and hence the health of the periodontium or teeth supporting structures, periodic checks of the teeth's frequency response can provide a record of the changes in the patient's periodontal health.

3,653,374 SPIROMETER

Daniel A. Talonn, University City, and Marvin D. Stumpf, St. Louis, both of Mo., assignors to Sherwood Medical Industries Inc.

Filed Dec. 17, 1969, Ser. No. 885,758

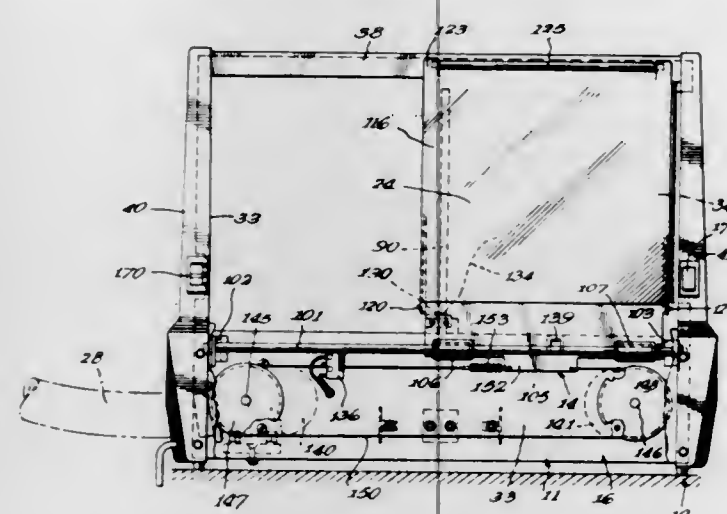
Int. Cl. A61b 5/00

U.S. Cl. 128—2.08

17 Claims

A spirometer of the bellows type having a frame that releasably holds a pivotal bellows assembly carrying a vertically movable stylus that impresses a tracing on a spirogram record carried by a translating carriage assembly adjacent the stylus, with the spirogram being traced on one side of a pressure sensitive record permitting viewing of the tracing from

the other side as it is being recorded. Ease of removal of the bellows permits rapid cleaning of the bellows while the pivoted bellows mounting permits use of a curved recording



surface resulting in use of a linear chart. The chart is readily insertable into a self-centering chart holder which accurately aligns the chart ready for receiving a spirogram record.

3,653,375

MASSAGING CHAIR

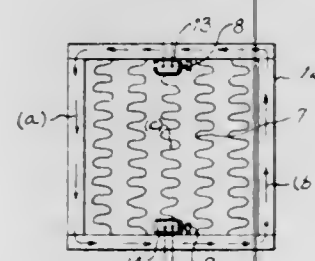
Marvin J. Raffel, 135 W. Indian Creek Court, Milwaukee, Wis.

Filed Oct. 30, 1970, Ser. No. 85,598

Int. Cl. A61h 1/00

U.S. Cl. 128-33

11 Claims



Two vibrators are mounted on opposite sides of a chair frame below the seat so that the path lengths of the waves traveling through the chair from the vibrators are equal in both directions in a closed path. There are two controls for the vibrator motors, one control regulating the amount of massaging action by controlling the speed of both the vibrators, while the other control regulates the speed and direction of massaging action by controlling the differential speed between the two vibrator motors.

3,653,376

METHOD AND APPARATUS FOR CONTROLLING AUTOMATIC SHAMPOO MACHINE

Wendell L. Martin, 2815 Kersdale Road, Pepper Pike, Ohio

Filed May 25, 1970, Ser. No. 40,198

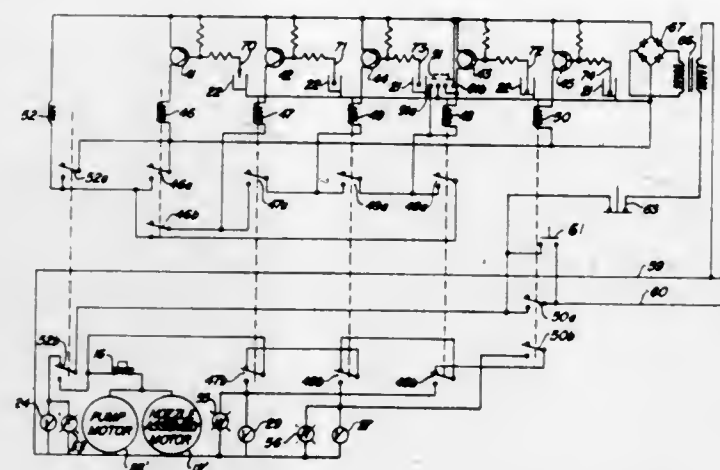
Int. Cl. A61h 9/00

U.S. Cl. 128-66

12 Claims

Apparatus and method for applying hair treating solutions to hair on the human head. Measured amounts of water are collected in individual tanks and pumped through valves to an oscillating nozzle assembly which directs jets of liquid solutions at the hair. Additives are mixed with the water while in the containers or in the valves. Probes detect the levels of liquid in the tanks and control switches which actuate and release the valves in sequence according to the levels of liquid in the tanks to allow a measured amount of one

solution and then another to be supplied to the nozzle assembly. The sequence is repeated until a desired amount of



solution has been applied. A rest switch allows the apparatus to operate through only a part of the hair treating process.

3,653,377

PORTABLE POWER-OPERATED DOUCHING APPLIANCE

Jerome I. Rebold, Timonium, Md., assignor to Leonard Bloom, Baltimore, Md., a part interest

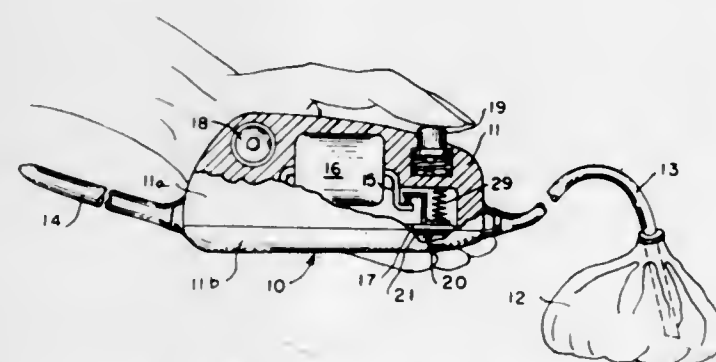
Continuation-in-part of application Ser. No. 681,364, Nov. 8, 1967, now abandoned. This application Oct. 1, 1970, Ser. No.

77,114

Int. Cl. A61h 9/00

U.S. Cl. 128-66

12 Claims



A portable power-operated douching apparatus is intended to be held in the user's hand and is furnished with a nozzle for insertion into the vagina. The appliance is compact, battery operated, and has a motor-driven pump for drawing the douching fluid out of a reservoir. The pump is of the oscillatory type, and the douching fluid flows out of the nozzle into the vagina in a series of interconnected fluid pulses, thereby developing a pulsating flow of variable intensity, and thereby improving the cleansing efficiency while providing a refreshing stimulation.

3,653,378

ADJUSTABLE SPLINT

Karl A. A. Reuther, 3070 Silver Lake Boulevard, Cuyahoga Falls, Ohio

Filed May 6, 1970, Ser. No. 35,170

Int. Cl. A61f 5/04

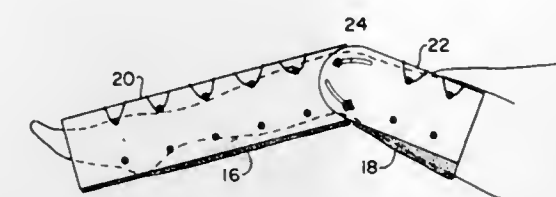
U.S. Cl. 128-88

7 Claims

A splint which may be easily adjusted to the angle of the knee or elbow of a broken leg or arm and which may be easily applied to the broken limb to hold the limb and the joint in position. The splint has a pair of side members which are joined together along one edge by canvas panels and along the opposite edge by removable lacing. The adjacent faces of the side members are covered with heavy padding. Each of the side members is formed of a pair of boards, the first

board being rectangular and the second, shorter board partially overlapping the first board. A pair of bolts extending through slots in the second board permit the angle between

taining the dosage may be introduced into the chamber and the capsule after emptying itself constitutes the moving element.



3,653,381

BELTED DIAPERS

Crystal E. Warnken, 4119 Big Meadows, San Antonio, Tex.

Filed Mar. 23, 1970, Ser. No. 21,764

Int. Cl. A61f 13/16

U.S. Cl. 128-284

8 Claims

the first and second boards to be adjusted. The canvas panel may be provided with an opening to permit access to the injured limb after the splint has been installed.

3,653,379

ADJUSTABLE PRESSURE IPPB VENTILATOR

Joseph G. Glenn, 1523 S. Delaware Place, Tulsa, Okla.

Continuation-in-part of Ser. No. 736,173, June 11, 1968,

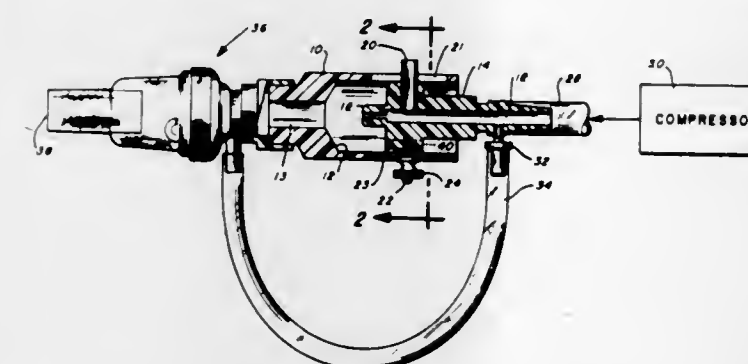
Pat. No. 3,581,742

Filed Aug. 20, 1970, Ser. No. 65,602

Int. Cl. A61m 15/00; A62b 7/02

U.S. Cl. 128-145.6

8 Claims



A breathing apparatus in which gas is delivered to a patient under pressure intermittently. Air or oxygen delivered into a venturi tube includes an adjustable nozzle for changing pressure as required for a particular patient's demand.

3,653,380

AEROSOL POWDER DOSAGE DISPENSING DEVICE

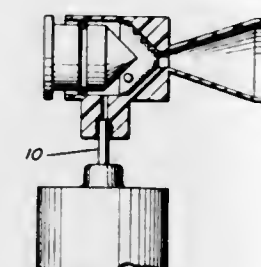
Lloyd Frank Hansen, Campbell Hall, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Feb. 16, 1970, Ser. No. 11,555

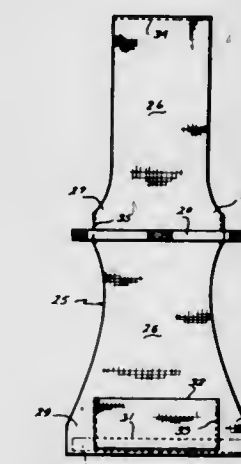
Int. Cl. A61m 13/00, 11/00; A61i 13/00

U.S. Cl. 128-266

2 Claims



A dispensing device is described with a mixing chamber in which a dose of powder or other medicament is introduced through an outlet for a human body cavity, such as a mouthpiece or a hollow projection suitable for inserting in a nostril. A source of gas under pressure, for example from an aerosol can, is introduced into the chamber at an angle, and there is present in the chamber a larger movable element, such as a steel ball, which vibrates and breaks up the particles or aggregates. In one modification a half capsule con-



A belted diaper comprising a washable fabric of desired shape with an elongated strip of loop type fastening means secured thereto; a removable belt passed through folds of said fabric includes hook type fastening means which are adjustably secured to said loop type fastening means to provide a snug and comfortable fit.

3,653,382

EXPANDABLE AIRFELT PAD

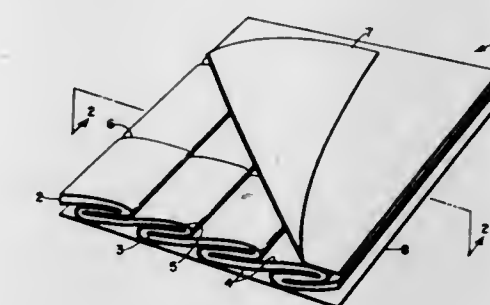
Charles E. Easley, and Charles L. Wosaba, II, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 22, 1969, Ser. No. 886,878

Int. Cl. A61f 13/16

U.S. Cl. 128-284

8 Claims



A composite pad composed of a topsheet and a bottom sheet with an absorbent, folded planar airfelt pad disposed therebetween. The absorbent, folded planar airfelt pad consists of a glabrous surfaced and folded airfelt composed of less than textile length fibers such as wood pulp fibers and intended for use as an absorbent layer in disposable articles, for example disposable diapers having a topsheet, an absorbent layer, and a relatively water impermeable backsheet. The glabrous surfaced and folded airfelt provides interface slippage between substantially horizontal folds thereby avoiding tensile stresses and preventing in use rupture failure of the absorbent layer in the disposable articles, while contributing to toilet flushing disposal and absorbency.

3,653,383

ALGIN SPONGE AND PROCESS THEREFOR

Raymond G. Wise, Evansville, Ind., assignor to Freeze Dry Products Inc., Evansville, Ind.

Filed July 30, 1969, Ser. No. 846,276

Int. Cl. A61f 13/00

U.S. Cl. 128—296

7 Claims

Water-absorbent and water-disintegrative open-celled porous algin sponges are provided, which sponges may be used as medical receptors for biological fluids. The process for making the water-absorbent and water-disintegrative algin sponge includes freezing an algin dispersion, such as a gel of sodium alginate and calcium alginate, and thereafter sublimating the frozen dispersion medium.

3,653,384

APPARATUS FOR DIRECTING A LIGHT BEAM

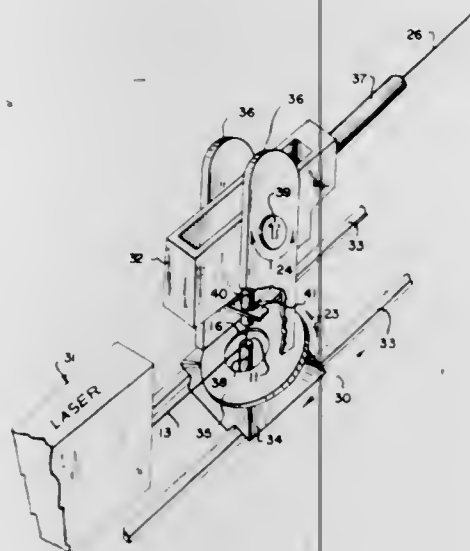
Charles Hermas Swope, Holliston, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed Oct. 13, 1970, Ser. No. 80,290

Int. Cl. A61b 17/36

U.S. Cl. 128—303.1

9 Claims



Apparatus for directing a light beam in a desired direction without moving the light source. An optical system is disclosed, including a laser and a linearly translatable optical device for directing or orienting a beam from the laser. The optical directional device includes a series of mirrors arranged to successively reflect the laser beam and further includes structure for rotating the mirrors about various axes to allow exiting of the laser beam from the last of these mirrors in a desired direction. The laser system is particularly useful in the process of photocoagulation and is useful in other medical and optical applications as well.

3,653,385

PRODUCTION OF FOCAL BRAIN LESIONS BY INDUCTIVE HEATING

Charles Burton, 1718 Sylvan Lane, Gladwyn, Pa.

Filed Oct. 20, 1970, Ser. No. 82,366

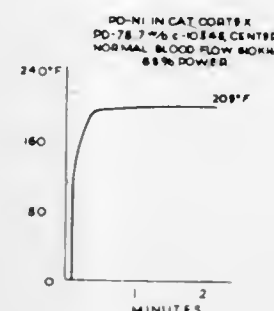
Int. Cl. A61b 17/36; A61n 3/00

U.S. Cl. 128—303.17

4 Claims

A metallic pellet or seed is physically implanted into the brain in a position where a brain lesion is to be produced. The seed is composed of a metallic alloy of predetermined composition capable of being inductively heated by radio frequency energy. By virtue of the composition of the alloy,

the seed reaches but does not exceed a predetermined temperature, and the desired size and degree of lesion is controlled as a function of time during which the radio frequency field is in operation.



trolled as a function of time during which the radio frequency field is in operation.

3,653,386

PACIFIER AND SAFETY TEETHING RING ASSEMBLY

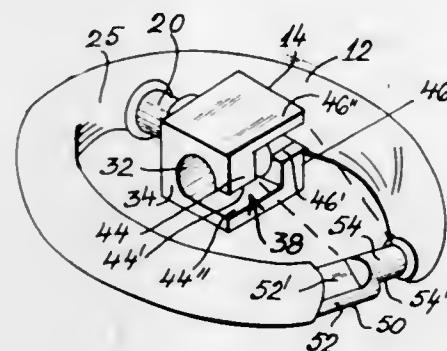
Rodman M. Jacobus, 67 Rosedale Road, Valley Stream, N.Y.

Filed Feb. 11, 1970, Ser. No. 10,468

Int. Cl. A61j 17/00

U.S. Cl. 128—360

6 Claims



A pacifier and teething ring assembly includes a solid, endless ring handle, a fitting rotatably engaged on a section of the handle, a nipple on a stud extending from the block and a disc on the nipple. The length of stud and nipple, and the diameter of the disc both exceed the diameter of the inside opening of the ring handle so the fitting cannot be positioned inside the opening. The fitting has a cylindrical bore with lateral irregularly shaped slot to fit on the irregularly shaped section of the handle only by lateral movement of the fitting when inside the handle opening with nipple and disc detached. This arrangement prevents accidental removal of the fitting from the solid, endless ring handle.

3,653,387

PROTECTOR CIRCUIT FOR CARDIAC APPARATUS

Richard R. Celer, East Aurora, N.Y., assignor to Cardiac Electronics, Inc., Clarence, N.Y.

Continuation of application Ser. No. 653,201, July 13, 1967, now abandoned. This application May 8, 1970, Ser. No. 33,172

Int. Cl. A61b 5/04

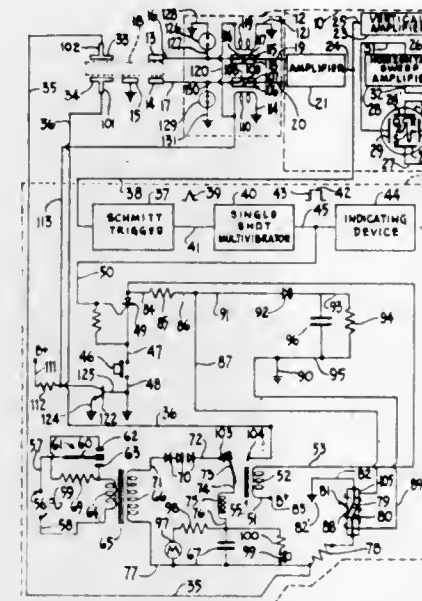
U.S. Cl. 128—2.06 R

3 Claims

A protector circuit having relay arrangement and gas discharge tubes coupled between first electrodes attached to a patient and the amplifier of an electrocardiograph, the relays comprising fast acting reed relays which break the circuit when a defibrillator is energized to apply a countershock voltage across second electrodes mounted on said patient, to prevent the countershock voltage from distorting the heart-

beat waveform produced by the electrocardiograph. The gas discharge tubes prevent voltages in excess of a predeter-

at inner ends by a hinge section of reduced cross-section so that outer sections of the arms are disposed substantially parallel to each other when the arms are in their normally inoperative position. When the arms are operated, the outer ends of the teeth engage before or simultaneously with the engagement of the innermost ends of the strengthening ribs.



mined value from reaching the amplifier by conducting such voltages to ground, whether the relays are opened or closed.

3,653,388

CATHETER INSERTION TROCER

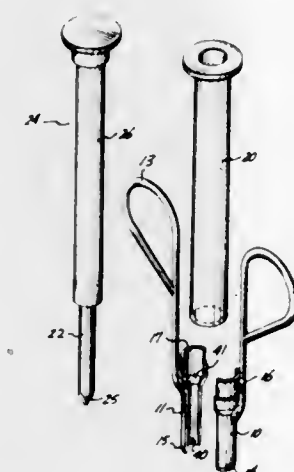
Heinrich A. M. Tenckhoff, Seattle, Wash., assignor to Battelle Development Corporation, Columbus, Ohio

Filed Dec. 4, 1969, Ser. No. 882,107

Int. Cl. A61b 17/34; A61m 27/00

U.S. Cl. 128—347

4 Claims



A trocar for insertion of catheters into a body wall is described. The trocar comprises a bivalved type tapered tip with a handle attached to each portion of the tapered tip, a tubular member adapted to encircle the rearward portion of the tapered tip and a stylet which is adapted to fit inside both the tubular member and the bivalved tapered tip. This device permits insertion of a flexible tubing catheter into a body member wall for prolonged intermittent access to a cavity beyond the body wall. This device is particularly useful in insertion of cuffed catheters into the abdominal wall.

3,653,389

DISPOSABLE FORCEPS

Suel Grant Shannon, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

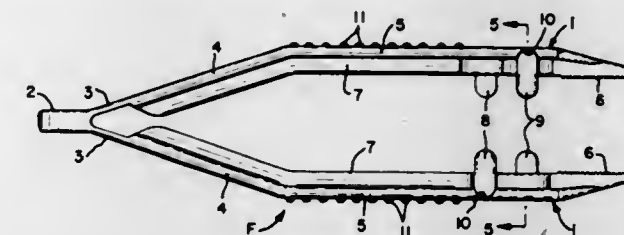
Filed Jan. 19, 1970, Ser. No. 3,682

Int. Cl. A61b 17/30; B25b 1/02

U.S. Cl. 128—354

6 Claims

Disposable forceps are molded from a suitable sterilizable plastic material and they have a pair of arms joined together



3,653,390

CIGAR STRUCTURE

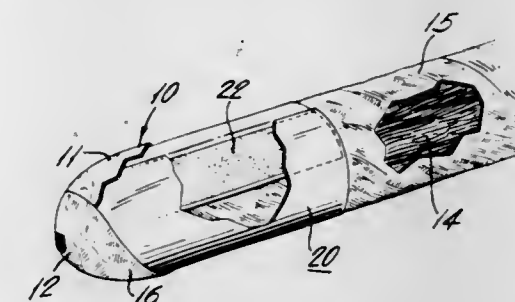
William G. Loudon, Bucks County, Erwinna, Pa.

Filed Mar. 17, 1970, Ser. No. 20,260

Int. Cl. A24d 01/04; A24f 07/00

U.S. Cl. 131—11

7 Claims



A cigar having a tobacco filler, a binder surrounding the filler and a wrapper overlying the binder, is provided with a sheet of extensible material intermediate the filler and the wrapper in the head of the cigar forwardly of its tip. The extensible sheet stretches when the head of the cigar is engaged by the teeth of a smoker thereby to reduce stress on the binder and wrapper at the cigar tip caused by the normal tendency of the filler tobacco to be displaced rearwardly into the cigar tip during the smoking process. In the present instance, the extensible material is preferably lightweight paper having a stretch of about 4-20 percent, preferably 6-12 percent, and being wrapped around the filler or binder and underlying the wrapper in the head of the cigar to dispose the stretch properties circumferentially therearound.

3,653,391

HAIR ROLLERS OR HAIR CURLERS

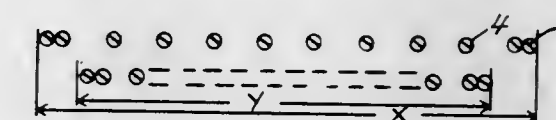
Ann Andrews, and Peter Andrews, both of 190 Gebhardt Road, Penfield, N.Y.

Filed Feb. 15, 1965, Ser. No. 432,576

Int. Cl. A45d 2/00

U.S. Cl. 132—40

15 Claims



A cushion padded hair roller means which is coaxially bendable and resilient but yet having at least one portion thereof diametrically substantially rigid for use by persons in the hair roller do-it-yourself art whereby a chic look may be achieved.

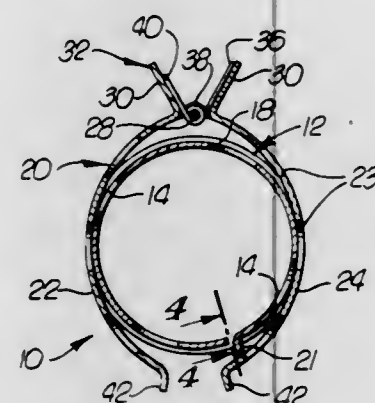
obtained even when traveling as well as when going out and the persons, when substantially sleeping on some of the hair roller means which are dressed in their hair will still substantially receive sleeping comfort as well as protection for at least one portion of their scalp which is generally protected from becoming hair roller numb; deficient or unhealthy and thereby leading to loss of hair or balding; and at times preventing stiff necks and the formation of dandruff, accordingly.

3,653,392 HAIR CURLER

Armando Hassey, and Gina Hassey, both of 2795 Wynwood Lane, Los Angeles, Calif.

Filed Sept. 1, 1970, Ser. No. 68,639
Int. Cl. A45d 2/26

U.S. Cl. 132-41



A hair curler comprising a cylinder provided with a row of teeth so that hair may be wound around it and secured thereon, together with a cylindrical clip member formed by two half cylinders joined together by hinges and provided with spring means to maintain the clip member fitting closely around the cylinder.

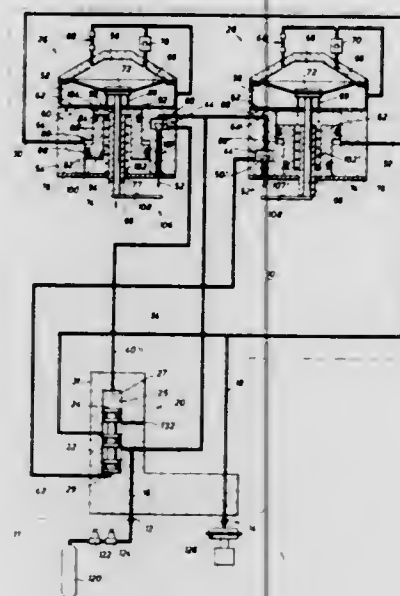
3,653,393

TIMING VALVES AND FLUID CONTROLLERS

Addison N. Love, Houston, Tex., assignor to Harold Brown Company

Filed May 5, 1969, Ser. No. 821,745
Int. Cl. F16k 31/12

U.S. Cl. 137-102



This invention relates to timing valves and to controllers using such timing valves for controlling the pressure fluid between a supply line and a utilization line servicing one or more pressure utilization devices with pressure signals of ad-

justable duration and frequency. The operation of a pair of complementary timing valves in the controller is synchronized by the pressure signals applied to the utilization line. One timing valve begins its predetermined delay period on the application of the pressure signal, while the other timing valve begins its delay period on the termination of the pressure signal. Each timing valve includes a time-calibrated variable orifice forming part of a timing chamber which includes fluid which is placed under pressure by a flexible diaphragm. A master control valve coupling the supply line to the utilization line is controlled by the successive displacements of the diaphragms.

3,653,394

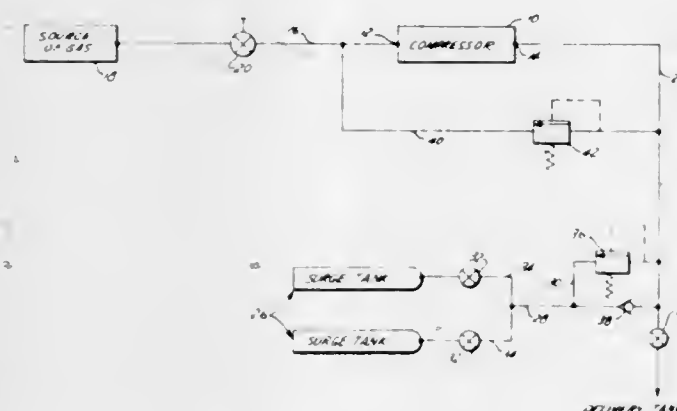
PRIORITY CHARGING SYSTEM

Robert W. McJones, 529 Via Del Monte, Palos Verdes Estates, Calif.

Filed Nov. 4, 1970, Ser. No. 86,843
Int. Cl. G05d 11/00

U.S. Cl. 137-114

3 Claims



Previously charged surge tanks supply the initial charging gas for delivery tanks until a predetermined pressure between gas in the delivery tanks and the surge tanks is reached, at which point a compressor charges the delivery tanks. The surge tanks are themselves charged when the pressure in an outlet line from the compressor reaches a predetermined value.

3,653,395

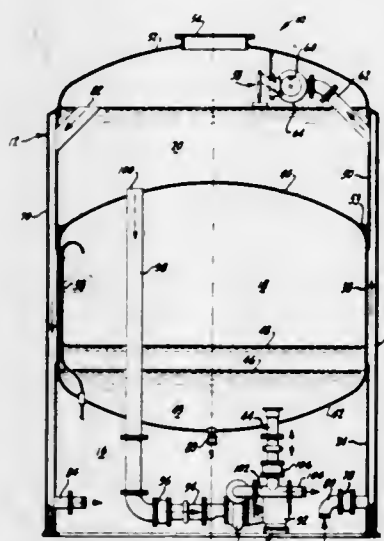
PACKAGE PNEUMATIC AIR-GAP PUMP STATION

William E. Chapman, 266 Deerfield Drive, Moraga, Calif.

Filed Apr. 21, 1971, Ser. No. 136,068
Int. Cl. F04b 19/06, 13/02; F04d 31/00

U.S. Cl. 137-209

12 Claims



A pneumatic pump station for supplying water under pressure in water systems incorporating an air-gap feature to

preclude back flow and water source contamination. The pump station provides a compact, easily transportable unit including a hydro-pneumatic tank, holding tank and equipment compartment arranged in a housing with a plurality of vertically extending ribs forming either an inlet channel, overflow channel or drain channel and the like. An altitude valve in the holding tank discharges inlet water on a demand basis through an air-gap defined above the water level in the holding tank. Pump means in the equipment compartment pumps water from the holding tank through a supply column extending through the pneumatic tank and delivers it into either the pneumatic tank or to the end use system.

3,653,396

CONVERTIBLE SOLENOID-ACTUATED, BALANCED SPOOL VALVE

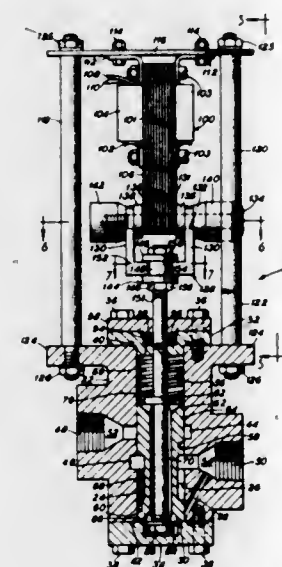
Henry H. Logan, 6107 Newburg Avenue, Chicago, Ill.

Filed Dec. 7, 1970, Ser. No. 95,713

Int. Cl. F16k 3/24

U.S. Cl. 137-270

12 Claims



A solenoid-actuated spool valve which can be converted from normally-open to normally-closed condition by removing a single access closure and reversing the valve spool.

3,653,397

VALVE APPARATUS

Tage Werner, Rocky River, Ohio, assignor to Arthur G. McKee & Company, Cleveland, Ohio

Filed Dec. 9, 1970, Ser. No. 96,477

Int. Cl. F16k 43/00

U.S. Cl. 137-315



Bleeder valve apparatus for blast furnaces are disclosed in which valve parts subject to wear or erosion by abrasive-laden gas are readily accessible from the top of the apparatus

for replacement or repair, without the necessity of removing supporting levers or other parts that impair access from the top. The valve members are supported and actuated from below to leave the tops of the valve members accessible. The valve apparatus, which may be either of the outer opening type or inner opening type, also comprises a movable valve member having two seats and a cooperating stationary member or body having two seats, one of the seats of each member being a primary seat that can be removed for repair or replacement. When the primary seats are removed, the remaining seats of the members can engage to prevent flow of gas out of the valve.

3,653,398

INSTRUMENT CAPSULE FOR CONTROL OF A SUBMARINE PETROLEUM INSTALLATION

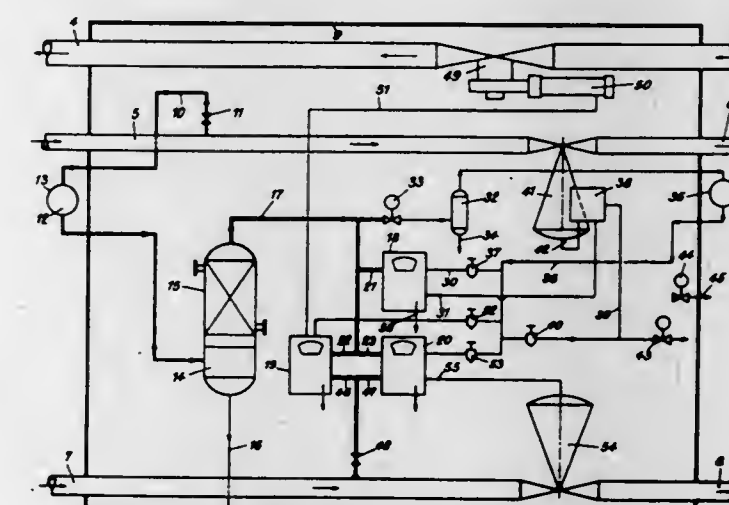
Pierre P. Orieux, Paris, France, assignor to Compagnie Française Des Petroles, Paris, France

Filed Oct. 9, 1969, Ser. No. 864,997

Claims priority, application France, Oct. 9, 1968, 169240
Int. Cl. F16k 49/00

U.S. Cl. 137-334

9 Claims



A fluid proof container houses a number of Bourdon tube pressure gauges which govern the fluid pressure of a control fluid for setting the flow rates of various fluid conduits. A bleed line removes a portion of the gas in the controlled fluid conduits. The gas is passed through a series of heating, pressure reduction and drying to eventually supply both the inert atmosphere in the container and serve as the control fluid.

3,653,399

GAS FLOW CONTROLLING SYSTEM

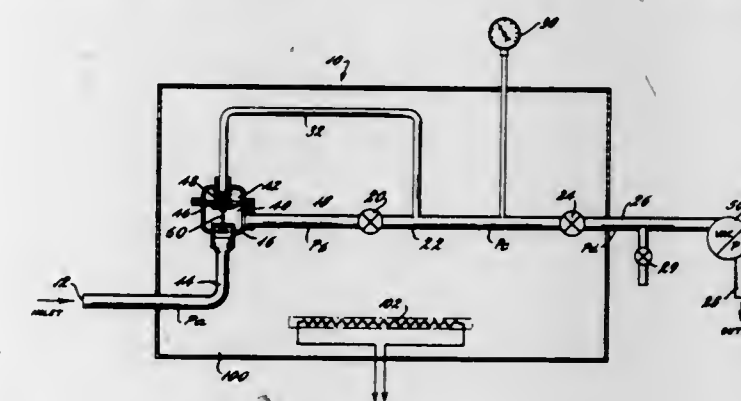
Dale I. Steele, Silver Spring, Md., assignor to National Instrument Laboratories, Inc., Rockville, Md.

Filed June 15, 1970, Ser. No. 45,965

Int. Cl. F16k 49/00

U.S. Cl. 137-334

6 Claims



The present invention relates to an arrangement for controlling the mass rate of flow of a particular gas to a predeter-

mined level and to a high degree of accuracy. The arrangement is particularly adapted to form part of a gas sampler arrangement. The errors of the prior art gas sampling techniques attributable to changes in temperature, barometric pressure, flow resistance, and pump efficiency are obviated. The arrangement is also well adapted to control the mass flow rate of compressed gases.

The arrangement is a three valve system through which the gas flows. The first valve is a pressure regulator valve controlled by the downstream pressure drop through the second valve and set to increase or reduce gas flow as needed to maintain the pressure drop across the second valve constant. The third valve which is downstream of the regulator and the second valve is set to operate under critical pressure ratio conditions. The flowing gas is then exhausted from the system, usually by operation of a vacuum pump or by discharge to the atmosphere.

If the three valve arrangement is maintained in a thermostatically controlled, heated enclosure, the gas flows through the three valve arrangement at a constant mass rate, regardless of changes in flow resistances, pump efficiency temperature and barometric pressure of gas entering the system.

3,653,400

SELF-PROPELLED IRRIGATION SPRINKLING SYSTEM

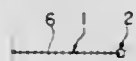
Robert N. Coates, 108 Cascade Key, Bellevue, Wash.

Filed Mar. 7, 1969, Ser. No. 805,312

Int. Cl. B05b 9/02; E01h 3/02

U.S. Cl. 137-344

3 Claims



A self-propelled irrigation apparatus wherein a rigid water-distributor pipe is revolved about one of its ends as a pivot which also provides a connection to the water source, the distributor pipe being conveyed over the ground to be sprayed by individual electric motor-powered mobile supports. The pipe sections between mobile supports are strengthened by trussing with cables located beneath the level of the pipe and the individual motors driving the multiple support assemblies are controlled in response to horizontal flexing of the distributor pipe due to lagging or advancing of any one of the support assemblies relative to the others. Each support assembly constitutes a rigid A-frame structure with two pivotally-mounted and independently driven ground-wheel units located on opposite sides of the distributor pipe. The drive means for the support assemblies are synchronized so as to drive the respective support assemblies at the proper speed to make one revolution of the distributor pipe in a given time interval.

3,653,401

UTILITY OUTLET FIXTURE WITH SLACK TAKE-UP

Allan E. Beeler, Bensenville, and Steve J. Skowronski, Des Plaines, both of Ill., assignors to Chemetron Corporation, Chicago, Ill.

Filed Oct. 24, 1969, Ser. No. 869,301

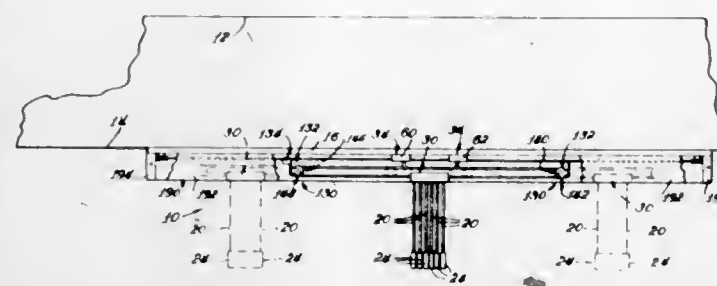
Int. Cl. H02g 11/06; B65h 75/46, 75/48

U.S. Cl. 137-355.17

15 Claims

A utility outlet fixture, which provides utility access at any position within a predetermined range of positions, is characterized by means for removing slack in elongated flexible utility conduits which are connected at opposite ends respectively to a fixed receptacle and to a carriage movable along a track.

terized by means for removing slack in elongated flexible utility conduits which are connected at opposite ends respectively to a fixed receptacle and to a carriage movable along a track.



tively to a fixed receptacle and to a carriage movable along a track.

3,653,402

PRESSURE RESPONSIVE VALVE

Evald Dunkels, Glen Ellyn, Ill., assignor to GPE Controls, Inc., Morton Grove, Ill.

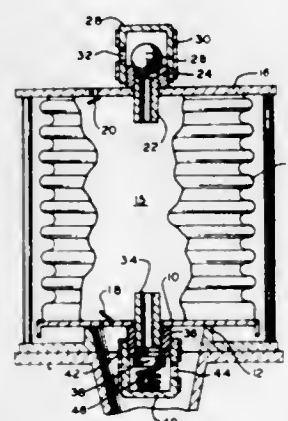
Original application Sept. 16, 1968, Ser. No. 760,020.

Divided and this application Sept. 15, 1970, Ser. No. 72,272

Int. Cl. F16k 17/19

U.S. Cl. 137-493

5 Claims



A pressure responsive valve having a single tank opening and single main pallet which provides pilot operation to relieve either overpressure or vacuum conditions within the tank. A pressure responsive pilot valve includes a pallet movable relative a seat, wherein the pallet is arranged within a housing and biased toward seated position, and adjustable aperture means is provided in the housing to regulate the volume-rate of gas flow past the pallet and through the valve.

3,653,403

ELECTRO HYDRAULIC CONTROL SOURCE FOR SUBMERSIBLE VEHICLE

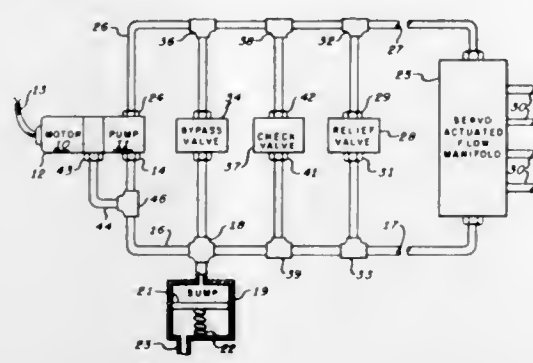
Robert Halsey Pettit, Huntington, N.Y., assignor to Sperry Rand Corporation

Filed Feb. 9, 1970, Ser. No. 9,757

Int. Cl. E03b 5/00

U.S. Cl. 137-565

9 Claims



An electro hydraulic system adapted for mounting on a submersible vehicle to supply high pressure fluid flow for

controlling the vehicle and various components affixed thereto. The system includes a hydraulic pump driven by a motor energized from a surface vessel, the fluid pressure at the pump output being regulated by a relief valve which has its low pressure port connected back to the return port of the pump. A preloaded sump tank coupled to the low pressure side of the relief valve operates to maintain the system fluid pressure in excess of the ambient water pressure independent of vehicle depth.

3,653,404

CUT-OFF VALVE

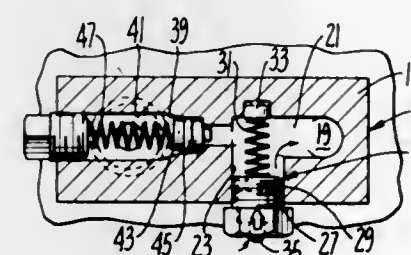
Charles D. Striplin, Box 515, Benica, Calif.

Filed July 14, 1970, Ser. No. 54,745

Int. Cl. F16k 15/02, 23/00

U.S. Cl. 137-512.3

2 Claims



A cut-off valve is provided for use on a pressurized line wherein pressure is applied to the line at intervals to dispense a fluid from the line. The valve of the present invention is in the nature of a check valve with a piston arrangement whereby as pressure is released from the line, the valve causes a negative pressure on the outlet, sucking back the last few drops, preventing dripping. The valve is particularly applicable to dispensing a viscous fluid such as glue.

3,653,405

FLUID LINE COUPLER

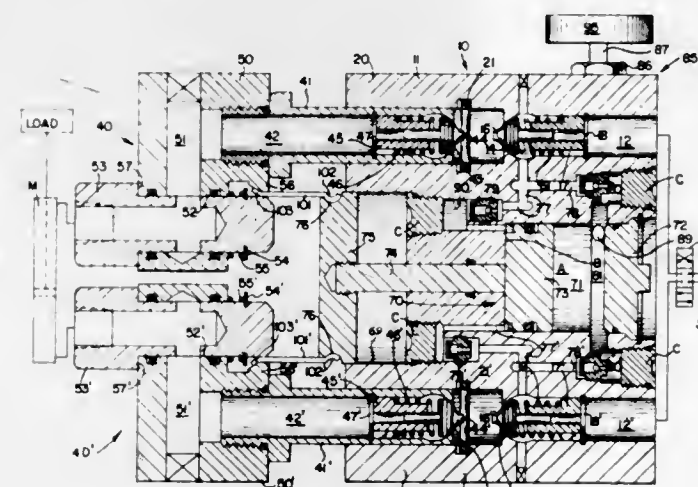
Vaughn A. Nelson, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Jan. 5, 1970, Ser. No. 755

Int. Cl. F16k 11/10

U.S. Cl. 137-594

16 Claims



A fluid line coupling including a male element, a female element, and fluid motor means associated with one of said elements which is adapted to be engaged with said other coupling element for hydraulically interlocking said coupling elements to complete a fluid circuit upon actuation of the motor means.

3,653,406

BRAKE CYLINDER PRESSURE RETAINING VALVE

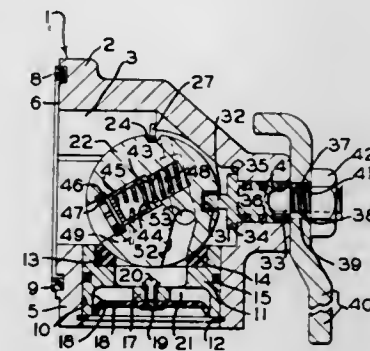
Francis R. Racki, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Mar. 20, 1970, Ser. No. 21,429

Int. Cl. F16k 3/22

U.S. Cl. 137-599.2

9 Claims



This invention relates to a three-position sealed ball-type brake cylinder pressure retaining valve device, for connection to the exhaust passageway of a railway car brake control valve device, having a body provided with a securing flange that has a port therein connecting the external face of the flange to a chamber in the body in which chamber a ball-type valve element is rotatably mounted by a handle movable in a plane parallel to the flange selectively to any one of its three positions. The ball-type valve element has a stepped bottomed bore extending inward from its spherical surface, in which bore is a spring-biased check valve. A leaf-type spring interposed between the ball-type valve element and the interior wall surface of the chamber in the body biases this valve element into tight seating contact with a resilient annular exhaust valve seat carried by a removable annular plug disposed in a bore connecting the chamber in the body to the exterior thereof. The ball-type valve element has therein a plurality of angularly spaced passageways and orifices opening at one end at its spherical surface and at the other end either into another passageway also opening at one end at this spherical surface or into the stepped bottom bore. These passageways and orifices, in cooperation with one another and with the check valve, are effective in three respective positions of the ball valve element to selectively provide a fast blow-down of brake cylinder pressure to atmosphere, a slow blow-down to a chosen pressure above atmospheric pressure, and a slow blow-down to atmosphere.

3,653,407

MIXING VALVE HAVING A SWIVEL SPOUT

Ilmari Katva, Gelsted, Denmark, assignor to Broen Armatur I/S, Assens, Denmark

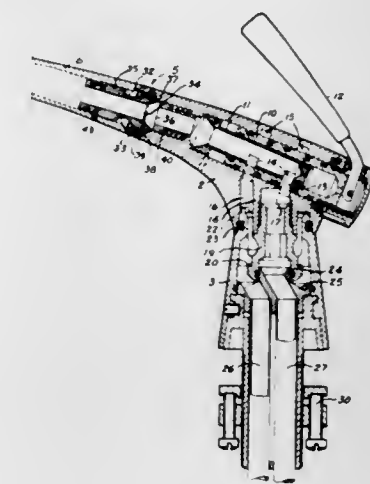
Filed Feb. 26, 1970, Ser. No. 14,586

Claims priority, application Denmark, Feb. 27, 1969, 1101/69

Int. Cl. F16l 27/00

U.S. Cl. 137-615

1 Claim



A mixing valve, especially for hot and cold water and for use in connection with a kitchen sink, is constructed with a

swivel spout which is articulated to permit rotation of the outer end of the spout about a horizontal axis perpendicular to the swivel axis.

3,653,408

DIAPHRAGM OPERATED LOGIC VALVES

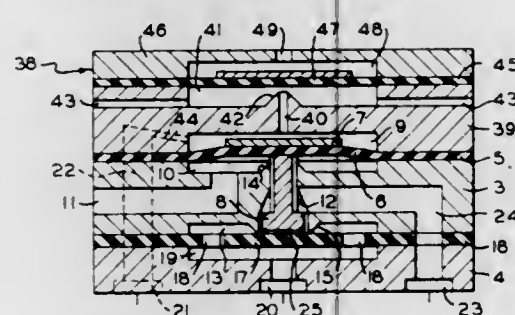
Ronald W. Coiner, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Nov. 24, 1969, Ser. No. 879,118

Int. Cl. F16k 31/385

U.S. Cl. 137—625.6

2 Claims



A diaphragm operated fluid logic valve device utilizing proportionate pressure areas on opposite sides of the diaphragms for obtaining differential pressures thereacross and, therefore, snap action during transition from one state to another, said valve device structurally including interface characteristics so as to be adaptable to a wide range of pressures and, therefore, directly applicable in a high pressure system without the use of a separate interface device, and being capable of integration with a variety of means, such as a low pressure fluidic signal, a small solenoid, or a Belleville spring to provide an interface function for piloting the control pressure functions of the valve device.

3,653,409

POWER ASSIST SERVO CONTROL FOR A VALVE

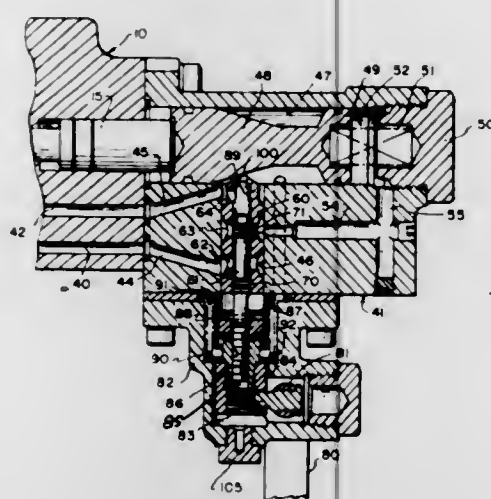
Edward O. Brannon, Racine, Wis., assignor to Rex Chainbelt Inc.

Filed Jan. 4, 1971, Ser. No. 103,385

Int. Cl. F16k 1/107

U.S. Cl. 137—625.63

10 Claims



A power assist servo control for a valve wherein a valve spool has opposed pilot areas with a first pilot area acted upon by pilot pressure and a second pilot of larger area is acted upon by a selectively variable pressure of a lesser value than full pilot pressure and including a servo sleeve coaxing with a servo ramp movable with the valve spool, a servo spool for controlling the pressure drop between pilot pressure and tank through a pair of orifices defined by a servo spool land and holes in the servo sleeve connecting to a

passage leading to the second pilot area whereby an intermediate pressure between the two orifices is established to act upon the second pilot area, and means remotely operable for positioning the servo spool to vary the size of said two orifices relative to each other to resultingly change the pressure acting on the second pilot area and position the valve spool accordingly with the null point being reached by movement of the servo sleeve by the servo ramp to bring the two orifices back to an equal size.

3,653,410

PLUGS AND CLOSURES

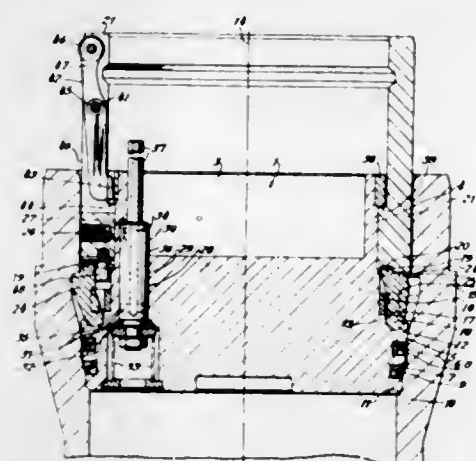
Derek West, Dorset, England, assignor to Flight Refueling Limited, London, England

Filed Feb. 28, 1969, Ser. No. 803,338

Int. Cl. F16l 55/10

U.S. Cl. 138—89

11 Claims



Cam-operated plugs or closures for use strut-like members the closing of openings in the fuel element stack pipes of atomic reactors. The plugs have a plurality of locking members mounted on the plug body, which locking members are pivotable by movement of a cam arrangement to a locking position in which they project beyond the periphery of the plug to engage the wall of the opening to prevent the plug from being withdrawn from the opening. The locking members comprise strut-like members which are arranged so that a force applied to the locking members by a tendency to withdraw the plug from the opening is a substantially compressive force.

3,653,411

CABLE HARNESS ASSEMBLY BOARD AND METHOD OF MAKING THE SAME

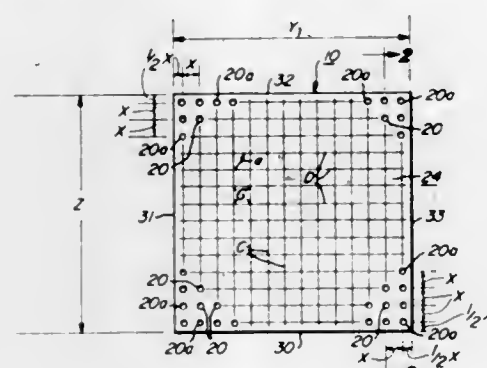
Frank Howard Mosher, West Palm Beach, and Earle Gifford Jenney, Lake Worth, both of Fla., assignors to RCA Corporation

Filed Feb. 11, 1970, Ser. No. 10,374

Int. Cl. B21f 21/00

U.S. Cl. 140—92.1

4 Claims



A harness cable assembly board includes one or more modular boards having pin receiving holes therein spaced in

a predetermined grid pattern. Harness cable layouts for a plurality of different cable assembly configurations are detachably secured to the assembly board as are cable assembly guide pins which are removably inserted in the pin receiving holes. The same modular board may be used for a variety of different cable configurations and the layouts may be repetitively used with any of a plurality of modular boards.

3,653,412

CONVEYOR TRANSFER UNIT

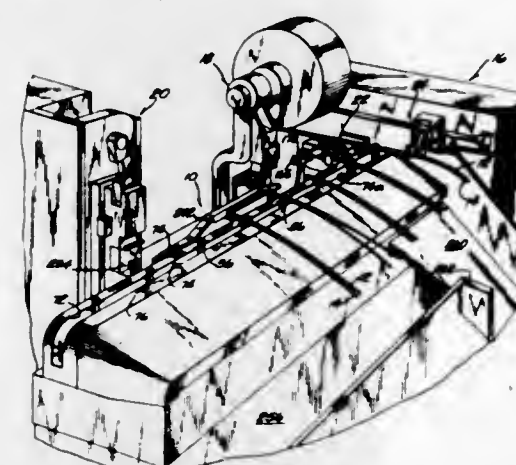
Ragnar Gudmestad, West Allis, Wis., assignor to Artos Engineering Company, New Berlin, Wis.

Filed June 15, 1970, Ser. No. 46,391

Int. Cl. B21f 15/00

U.S. Cl. 140—1

29 Claims



An apparatus for transferring a pair of parallel electric wire lengths from a measuring, cutting and stripping machine to a precise location with respect to a first terminal applicator and a second terminal applicator. The apparatus includes a pivotally mounted conveyor assembly in which the conveyor end closest to the cutting and stripping machine is movable in the vertical plane up into the path of the horizontal wire in the cutting and stripping machine, and down from said path a like amount. A plurality of wire length carrying clamps are mounted on the conveyor assembly for lateral movement between a pair of conveyor chains to predetermined positions with respect to the cutting machine and the applicators. A mechanical linkage is operatively connected to coordinate the pivotal movement of the conveyor assembly, the operation of the drive mechanism for the conveyor chains and the opening and closing of the clamps with the operation of the cutting and stripping machine. A wire length gatherer is provided around the end of the conveyor assembly.

3,653,413

PUMP APPARATUS FOR BOTTLED WATER

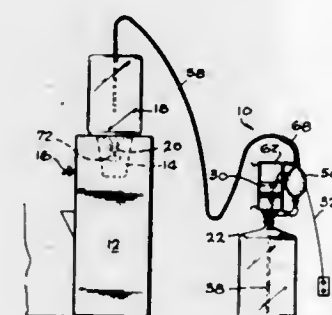
Fred Sheya, 5312 Cartwright, North Hollywood, Calif.

Filed Apr. 2, 1970, Ser. No. 25,180

Int. Cl. B65b 1/16

U.S. Cl. 141—1

17 Claims



The pump apparatus is an economic and trouble-free apparatus for pumping drinking water from a source bottle

positioned on the floor, where it is delivered, to an elevated vessel from which it can gravitationally flow. The apparatus comprises a centrifugal or other non-selfpriming pump which can be set directly on the mouth of the source bottle on the floor. A pump suction pipe extends into the source bottle. An elastomeric spheroidal squeeze bulb is serially connected to the pump, directly in its output line. Check valves are positioned on opposite sides of the squeeze bulb, with the suction check valve preferably on the input side of the pump. Manual squeezing of the bulb primes the pump. A flexible hose from the squeeze bulb discharges the water to the elevated bottle.

Since the elevated vessel has a filling opening in the top and a discharge opening in the bottom, means are provided to close the bottom opening during filling to prevent the water from running directly out. This is alternatively accomplished by means of a float valve or by means of a manually operated valve which is closed during the filling operation.

3,653,414

METHOD OF CHARGING A THERMOSTATIC SYSTEM WITH A CONDENSIBLE AND A NONCONDENSIBLE MEDIUM

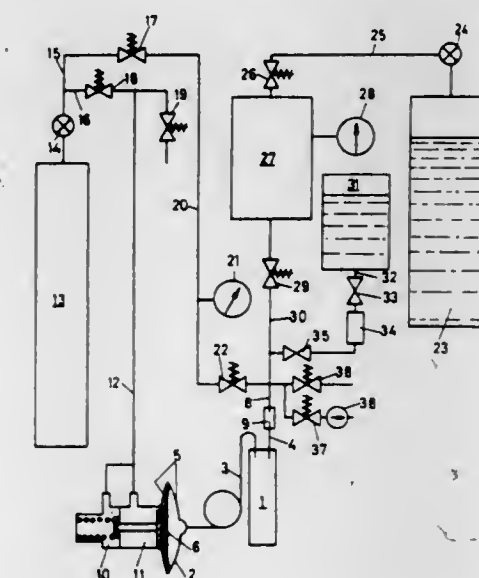
Eric Weldner, Augustenborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed May 11, 1970, Ser. No. 36,312

Int. Cl. B65b 31/02

U.S. Cl. 141—4

1 Claim



The invention relates to a method and apparatus for charging a thermostatic system with condensible and noncondensable mediums such as Freon and nitrogen. The noncondensable medium is introduced first at a predetermined partial pressure followed by the introduction of a measured quantity of the condensible medium. An aspect of the invention involves a preliminary flushing of the system with nitrogen at the system testing pressure such that not only is the system purged of air but the system is tested at the same time.

3,653,415

AUTOMATIC SHUT-OFF DISPENSING NOZZLE

William Donald Boudot; Chester W. Wood, and Charles A. Holder, all of Cincinnati, Ohio, assignors to Dover Corporation, Cincinnati, Ohio

Filed Dec. 4, 1969, Ser. No. 882,028

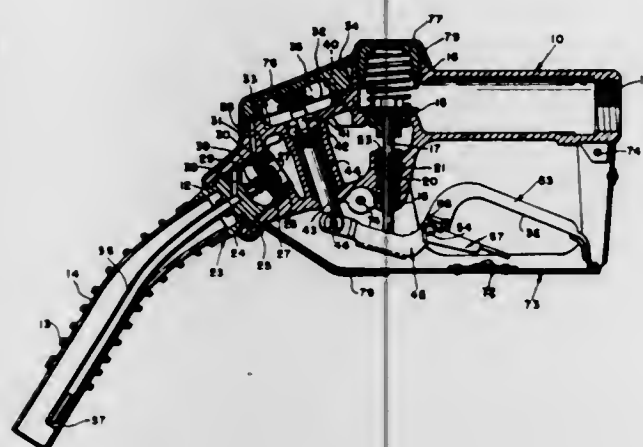
Int. Cl. B67d 5/375

U.S. Cl. 141—208

25 Claims

Fluid flow through a nozzle body is controlled by a valve having a stem slidably mounted in the body. When a lever, which has one end pivotally and slidably connected to a plunger that is slidably mounted in the body and its other end pivotally connected to a handle, is moved by the handle, the

lever engages the bottom of the stem to open the valve. When a container, which is being filled by the nozzle, becomes filled, the plunger, which has been latched, is released so that a spring acting on the valve causes the stem,



which has its lower end engaging the lever, to move the lever about its pivotal connection to the handle so that the valve moves to its closed position. The handle may be held in a valve open position by a trigger, which is pivotally connected to the handle at its pivotal connection to the lever.

3,653,416

GAS LIGHTER FILLING MEANS

Robert R. Hocq, Boulogne-Billancourt, France, assignor to Societe Franco-Hispano-Americaine Francispam, Paris, France

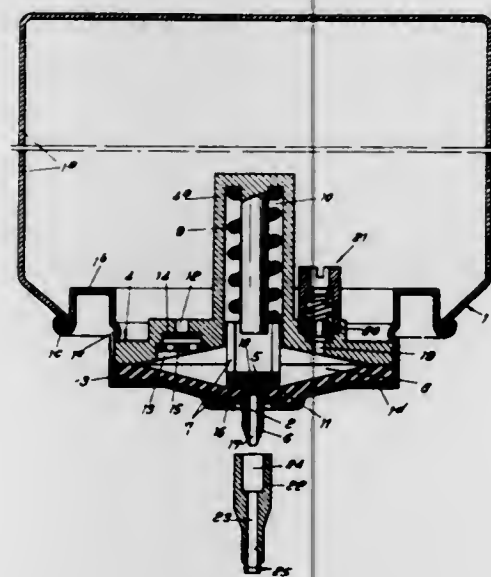
Filed Sept. 29, 1969, Ser. No. 861,673

Claims priority, application France, Sept. 30, 1968, 168157

Int. Cl. B67d 5/00

U.S. Cl. 141—353

9 Claims



A gas bottle for filling gas lighters in which the gas bottle is provided with a pump for pumping the contents of a metering chamber in the bottle into a lighter being filled. The pump is arranged to be operated by a spigot projecting outside the lighter and which when moved opens a valve to allow the contents of the metering chamber to be expelled. The volume of the chamber is a fraction of the volume of the lighter being filled. The bottle is connected to the lighter by a detachable connection, and a cover is provided to protect the spigot and valve.

3,653,417
LOG BARKER DELIMBER AND REFUSE-REDUCING MECHANISM

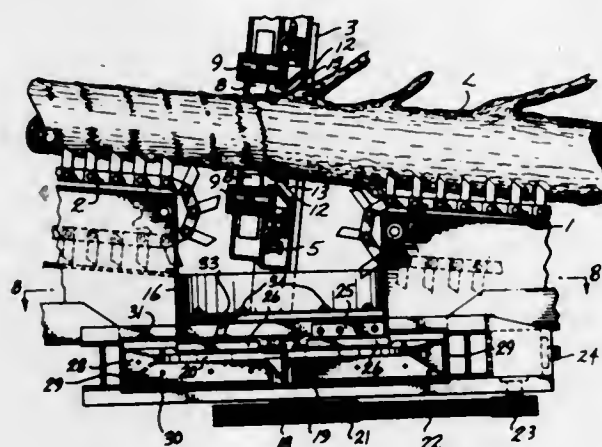
Peter J. Cervenak, Seattle, Wash., assignor to Nicholson Manufacturing Company, Seattle, Wash.

Original application Mar. 30, 1967, Ser. No. 627,067, now Patent No. 3,536,265. Divided and this application Oct. 26, 1970, Ser. No. 84,056

Int. Cl. A01g 23/08

U.S. Cl. 144—3 R

5 Claims



The rotary ring of a log barker has a flaring mouth carrying limb-cutting bits in radial planes. Hooked ends of swinging arms rotate around a log as it is moved lengthwise to scrape off the bark. Bark and limb pieces fall into a hog having stationary shearing bars cooperating with rotary shearing bars carried above a plate rotating about a vertical axis. Hogged material dropping through apertures in the plate is swept out of the casing by vanes carried by the rotor.

3,653,418

BRUSSELS SPROUTS TRIMMING MACHINE

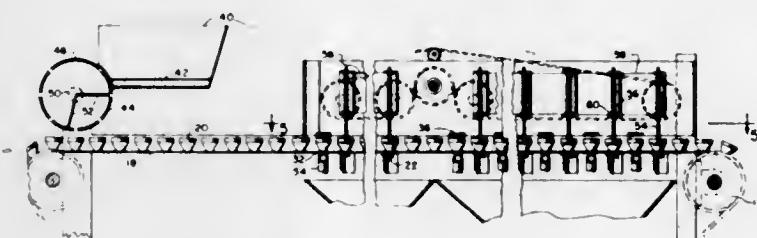
Charles G. Oldershaw, Peter of Avon, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

Filed Oct. 7, 1969, Ser. No. 864,396

Int. Cl. A23n 15/04

U.S. Cl. 146—81 R

5 Claims



A Brussels sprouts trimming machine comprises parallel endless chains provided with laterally disposed, horizontal conveyor flights each carrying pockets in the form of an inverted frustum of a right circular cone. A series of knives are provided beneath the bottom surface of the flights, ahead of which are nozzles directed upwardly toward each pocket. The nozzles are adapted to direct a blast of fluid upwardly into each pocket to orient the Brussels sprout therein properly, with its stem end downwardly, for cutting by the knives. Coacting plungers are employed to depress the Brussels sprouts into the pockets as the stem ends are presented to the knives.

The feed section of the machine comprises means for feeding lines of Brussels sprouts to a continuously-rotating drum with perforations or indentations whereby the Brussels sprouts will be retained on the periphery of the drum as they are directed thereto from the feeding means. The drum preferably rotates through 270° to deliver Brussels sprouts from the feeding means to the pockets on the

conveyor flights. The perforations or indentations in the periphery of the drum are appropriately spaced and aligned with the pockets on the conveyor flights whereby, as each line of perforations or indentations on the drum registers with the pockets on the flights, a sprout will be transferred therefrom into each pocket on the flights.

feeder mechanism, the worm auger can be pulled from the feed container through the tubular throat of the feeder mechanism.

3,653,421

TIRE, BEAD BUFFER IN COMBINATION WITH RIM ADAPTORS

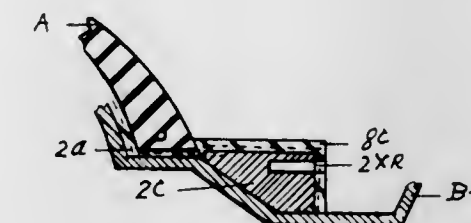
Tilden William Johnson, 5630 Sawtelle Blvd., Culver City, Calif.

Filed June 16, 1969, Ser. No. 834,244

Int. Cl. B60c 17/04

U.S. Cl. 152—158

12 Claims



3,653,419
EXTRUDER SCREEN PLATE CHANGE-OVER MECHANISM

Dieter Schutter, Hannover, Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hannover-Kleefeld, Germany

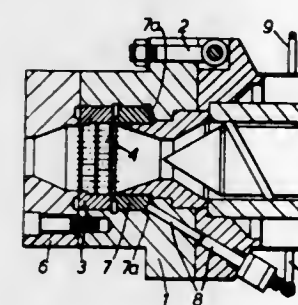
Filed Mar. 25, 1970, Ser. No. 22,574

Claims priority, application Germany, Apr. 16, 1969, P 19 19 269.9

Int. Cl. B29b 5/00

U.S. Cl. 146—174

3 Claims



An extruder screen plate change-over mechanism comprises a slide carrying two screen-plates and movable transversely to a flow passage to the mix to place a selected one of the plates in alignment with the flow passage. The plate is clamped in position by a bush forced against the slide by thrust pins arranged uniformly around the bore of the bush. The axis of each pin defines a generator line of the same imaginary cone.

3,653,420

MEAT GRINDER

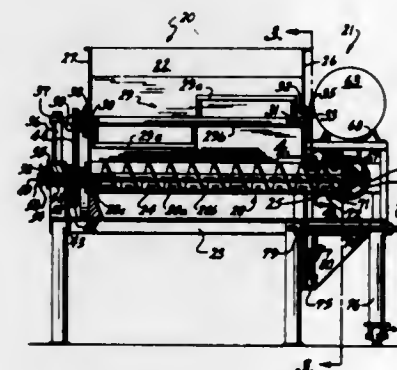
John G. Viene, Shawnee Mission, Kans., assignor to Koch Supplies, Inc., Kansas City, Mo.

Filed Feb. 24, 1970, Ser. No. 13,459

Int. Cl. B02c 18/22; B01f 15/02

U.S. Cl. 146—186

7 Claims



A combination of a feeder mechanism and a high speed grinder with a grinder supporting frame hingedly mounted to a feeder supporting frame to swing outwardly therefrom on castor wheeled legs. A rotatable worm auger to move material from the container of the feeder mechanism to the high speed grinder has an extension received by a rotatable sleeve connected to the motor of the feeder mechanism. A locking pin having a spring loaded retainer ring connects the auger extension and rotatable sleeve. With the spring loaded retainer ring manually depressed, the locking pin can be removed, and with the grinder swung outwardly from the

3,653,422

PNEUMATIC TIRES

Tom French, Sutton Coldfield, England, assignor to Dunlop Holdings Limited, London, England

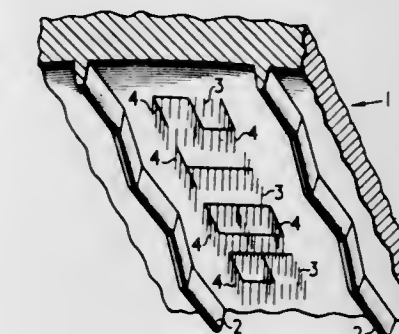
Filed June 19, 1969, Ser. No. 834,714

Claims priority, application Great Britain, June 29, 1968, 31,199/68

Int. Cl. B60c 11/00

U.S. Cl. 152—209 R

11 Claims



A pneumatic tire and moulding matrix therefore, the tire tread incorporating a traction pattern which changes distinctively when only a predetermined amount of tread rubber remains, thus warning the tire user that his tire is approaching the legal or safe limit and will soon have to be replaced or retreaded.

3,653,423

BONDING EPDM TO BUTADIENE RUBBERS

Charles F. Paddock, Wayne, N.J., assignor to Unroyal, Inc., New York, N.Y.

Filed May 13, 1970, Ser. No. 37,030

Int. Cl. B32b 27/08; B60c 5/00; C08d 11/00

U.S. Cl. 152-330

10 Claims

A vulcanized composite laminate comprises a first layer of compounded EPDM rubber and a second compounded layer of butadiene-styrene rubber, a polybutadiene rubber or a blend of polybutadiene rubbers. The layers are bonded by depositing between them, prior to vulcanization, a graft copolymer consisting of an ethylene-propylene-ethylidene norbornene copolymer onto which has been polymerized butadiene and styrene; and a method of forming such composite rubber laminates.

3,653,424

METHOD AND APPARATUS FOR CONCENTRATING SOLUTIONS OR SUSPENSIONS OR FOR RECOVERING THE DRY SUBSTANCE THEREOF

Eric Harald Carlsson, Planteringsvagen 7B, 26200 Angelholm, Sweden

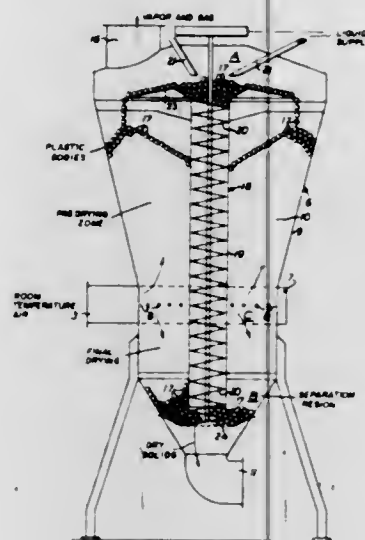
Filed Oct. 30, 1969, Ser. No. 872,635

Claims priority, application Sweden, Oct. 31, 1968, 14751/68

Int. Cl. B01d 1/14; B05c 7/14; B01d 47/16

U.S. Cl. 159-16

4 Claims



A method and an apparatus for subjecting a liquid containing dissolved or suspended dry substance to treatment with air to concentrate the solution or the suspension or to recover the dry substance. The liquid is spread and distributed onto a great many bodies in the form of partly interengaging spheres or polyhedrons, whereby the air can flow forth between the bodies. The bodies are caused to move in a closed path and also in relation to each other thereby disturbing the liquid film on the bodies and accelerating the escape of the liquid in gaseous form and ensuring loosening of the dry substance from the bodies.

3,653,425

METHOD OF REMOVING COOLANT FROM METAL SURFACES

Herbert E. Elliott, and Frank A. Simons, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed July 29, 1970, Ser. No. 59,075

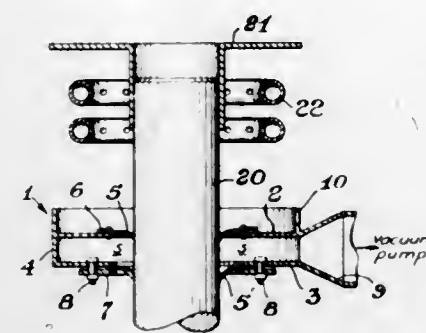
Int. Cl. B22d 11/12

U.S. Cl. 164-89

1 Claim

An apparatus for removing coolant from a moving metal surface which comprises a housing defining a chamber, having an opening therein facing the moving metal surface; a flexible contacting member attached to at least the leading

edge of the housing opening, and preferably to both the leading and trailing edges of the housing opening, in contact with the metal surface; and suction means connected to the hous-



ing to evacuate the chamber. Such apparatus can be used in a method of removing coolant from metal surfaces by contacting the surface with a flexible member and passing the surface through a suction zone.

3,653,426

FURNACE POURING AND CASTING SYSTEM

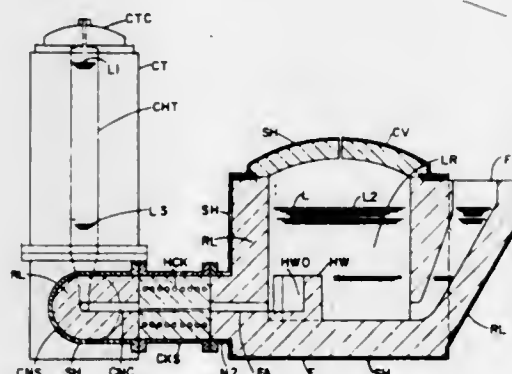
Daniel Edward Groteke, and Donald Keith Lazor, both of Louisville, Ky., assignors to American Standard Inc., New York, N.Y.

Filed June 12, 1969, Ser. No. 832,792

Int. Cl. B22d 27/16

U.S. Cl. 164-257

37 Claims



The disclosure covers a furnace system including therein a furnace or ladle having a good-sized reservoir which is fluidically coupled to a tower, called a charging tower, into which molten material from the reservoir is to be drawn by suction. The molten material is then transmitted under pressure into the cavity of a mold system, and the path from the charging tower to the mold system may include a second tower, called a pouring tower. Although both towers are fluidically connected to the reservoir the connections are arranged to prevent or reduce to an acceptable minimum, the back-flow of the molten material to the reservoir.

3,653,427

DUMMY BAR MECHANISM

Clive Evans, Cardiff, England, assignor to Mitsubishi Heavy Industries, Ltd., Tokyo, Japan

Filed July 14, 1970, Ser. No. 54,700

Claims priority, application Sweden, July 21, 1969, 11175/69

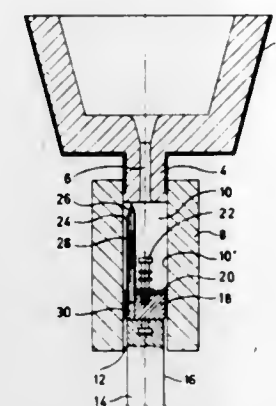
Int. Cl. B22d 11/08

U.S. Cl. 164-274

14 Claims

A dummy bar mechanism for the continuous casting of metals in a mold sealingly connected with a casting vessel, comprising a starter head means destined to sealingly engage

with said mold. The starter head means is equipped with a ventilation opening extending therethrough, and means are



provided for preventing discharge of liquid metal through such ventilation opening.

3,653,428

APPARATUS FOR ALIGNING CONTINUOUS CASTING MOLD WITH THE CASTING METAL SUPPLY VESSEL

Hans Bieri, Oberrick, Switzerland, assignor to Erik Olsson AG, Zurich, Switzerland

Filed July 15, 1969, Ser. No. 841,832

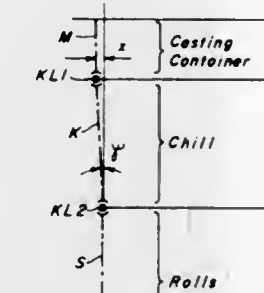
Claims priority, application Switzerland, July 19, 1968,

10868

Int. Cl. B22d 11/10

U.S. Cl. 164-281

5 Claims



In case of oscillating chills, mechanical disturbances in operation of the installation frequently occur because the chill sticks to the nozzle or when a large one-sided deposit between the nozzle and the interior wall of the chill is formed, which affects the life of this part. This shows that these mechanical disturbances can be basically associated with the nozzle slightly changing its position and/or its direction in the course of the casting process. This position or direction change of the nozzle is connected with the thermal effects, those to which the wall of the casting container supporting the nozzle is exposed. The changes of the position between the surface of the nozzle and the wall of the chill resulting from the changes of the position, or direction, of the nozzle can also lead to molten metal entering the slot between the corresponding opposed surfaces of the chill and of the nozzle, which occasionally leads to blocking of the chill when this metal solidifies in the slot.

3,653,429

WATER HEATING SYSTEM

Willis Thompson Lawrence, Winchester, Mass., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed May 6, 1969, Ser. No. 822,243

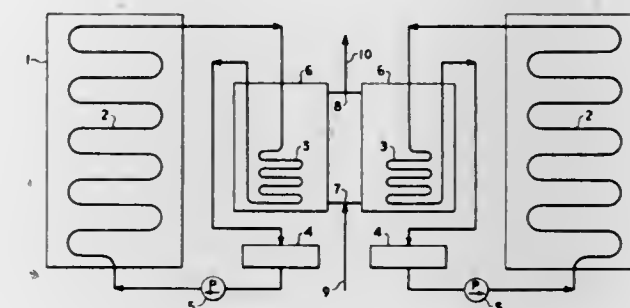
Int. Cl. F28d 15/00

U.S. Cl. 165-1

4 Claims

Several heat storage modules may be connected by manifold means to one or more water holding tanks. The heat storage modules may be connected either in parallel or

series to water holding tanks. A single water holding tank may be employed in which a separate condenser is provided for each heat storage module or in which a common condenser is employed within the water holding tank. Furthermore, several heat storage modules may be connected in se-



ries to a single water holding tank. The provision of several heat storage modules in conjunction with one or more water holding tanks effects a more dependable water heating system by providing larger heat storage capacity, more constant heat delivery over a given period of time, and more convenient unit size.

3,653,430

RADIATOR CONSTRUCTION

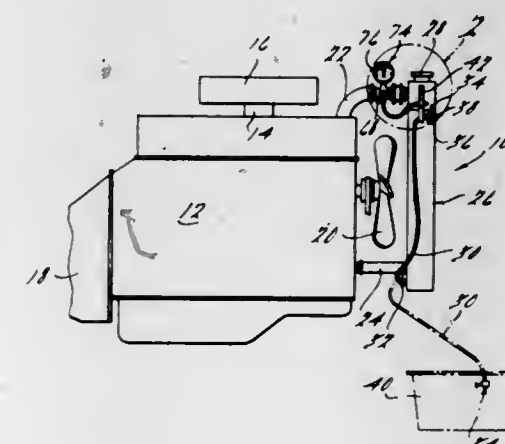
Leonard L. Kinast, 31437 Brown, Garden City, Mich.

Filed Apr. 8, 1969, Ser. No. 814,379

Int. Cl. F01p 11/02

U.S. Cl. 165-11

2 Claims



A radiator construction adapted for use with a water cooled internal combustion engine and comprising a first relatively flexible conduit communicable at one end thereof with a drain outlet provided at the lower end of the radiator, the conduit having a manually actuatable pet cock valve or the like on the opposite end thereof adapted to be opened so that the conduit may be directed toward a suitable receptacle adapted to receive the contents of the radiator; a second relatively flexible conduit communicable with the upper end of the radiator and being provided with a manually actuatable relief valve and a pressure gauge, the relief valve being adapted to be opened when the internal pressure in the radiator, as indicated by the gauge, is in excess of a predetermined magnitude so as to relieve the pressure of the radiator and thereby prevent injury to a person subsequently opening or removing the radiator cap on the radiator.

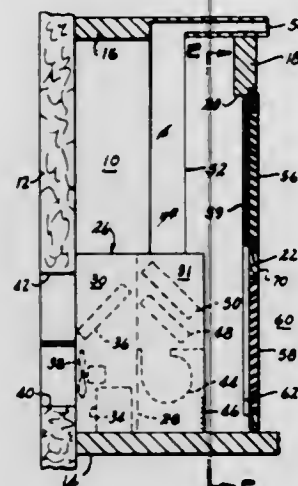
3,653,431

AIR CONDITIONER CLOSET DOOR CONSTRUCTION
Joseph D. Loveley, Grosse Pointe Woods, Mich., assignor to American Standard Inc., New York, N.Y.

Filed Nov. 5, 1970, Ser. No. 87,125
Int. Cl. F24f 3/00

U.S. Cl. 165—53

4 Claims



An air conditioner within the closet of a living space, said closet having a special access door equipped with dampered openings adjacent its top and bottom edges. During the cooling season the air conditioner draws its supply air from the upper door openings, and during the heating season the air conditioner draws its supply air through the lower door openings. The invention improves air conditioner efficiency and minimizes stratification and temperature differentials between the floor and ceiling.

3,653,432

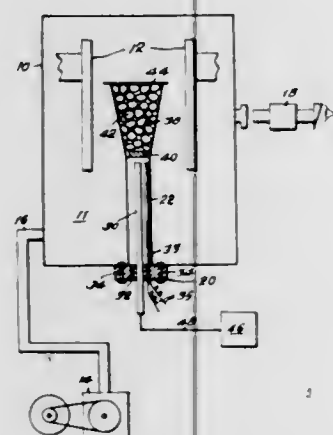
APPARATUS AND METHOD FOR UNIDIRECTIONALLY SOLIDIFYING HIGH TEMPERATURE MATERIAL

Frederick Schmid, Marblehead, and Dennis J. Viechnicki, Wellesley, both of Mass., assignors to The United States of America as represented by the Secretary of the Army

Filed Sept. 1, 1970, Ser. No. 68,803
Int. Cl. F25b 29/00

U.S. Cl. 165—61

14 Claims



An apparatus and method for unidirectionally solidifying high temperature materials comprising a graphite resistance furnace having a heat exchanger vertically positioned in the chamber thereof. The heat exchanger has inlet and exit means for the passage of an inert coolant gas therethrough. In operation, a crucible is loaded with a seed and the ceramic material to be melted and positioned in the interior of the chamber of the furnace in contact with the heat exchanger. The temperature of the melt is raised to about 50° C above its melting temperature. The melt temperature is slowly decreased with a correspondingly increase in the flow of the

inert coolant gas through the heat exchanger thereby unidirectionally solidifying the material to produce a single crystal.

3,653,433

COOLING ARRANGEMENT FOR SEMICONDUCTOR VALVES

Otto Scharli, Baden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland

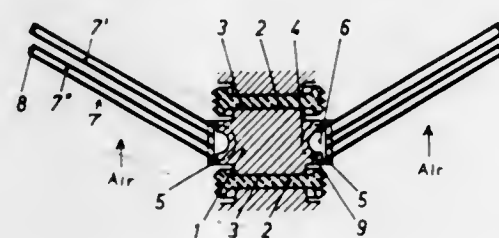
Filed Apr. 15, 1970, Ser. No. 28,616

Claims priority, application Switzerland, Apr. 30, 1969, 6576/69

Int. Cl. F28f 7/00; F28d 15/00

U.S. Cl. 165—80

11 Claims



A cooling arrangement for the operating components of an electronic system such as semiconductor valves in disk form comprises cylindric heat sinks having the end faces in contact with the faces of adjacent semiconductor valves to establish flow of heat from the semiconductor disks to the heat sinks, an annular vessel formed at the periphery of each heat sink and a radial array of inclined cooling pipes communicating with the interior of the vessel. The vessel is partially filled with a cooling fluid which, during operation of the valve system is in a liquid as well as a vapor phase. The fluid vapor is forced outwardly along the tubes where it is re-condensed along the tube walls and flows back by gravity.

3,653,434

CYLINDRICAL PRESSURE VESSEL

Sigfrid Andersson, Grevgatan 36, Stockholm, Sweden

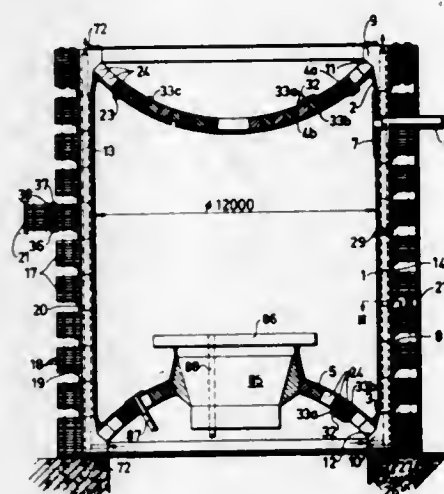
Filed May 14, 1969, Ser. No. 824,563

Claims priority, application Sweden, May 17, 1968, 6755/68

Int. Cl. F28f 3/12

U.S. Cl. 165—169

13 Claims



A pressure vessel consists of a comparatively thin-walled container and a pressure-resistant construction supporting the container. The pressure-resistant construction comprises girders extending longitudinally, and annular members extending circumferentially around the girders. The girders have top and bottom shoulders to engage top and bottom walls.

3,653,435

MULTI-STRING TUBINGLESS COMPLETION TECHNIQUE

Carl E. Reistle, III, Houston, Tex.; Thomas W. Childers, Woodland Hills; Joseph A. Burkhardt, Chatsworth, both of Calif.; Dewitt L. McLallen, Jr., Corpus Christi, Tex., and Carroll A. Woolley, Chatsworth, Calif., assignors to Esso Production Research Company

Filed Aug. 14, 1970, Ser. No. 64,519

Int. Cl. E21b 43/00

U.S. Cl. 166—5

18 Claims



Method and apparatus for completing multi-string tubingless underwater wells with through flowline (TFL) pumpdown tool servicing capability. A subsea borehole is drilled through the productive oil and/or gas formations. At least two parallel small diameter casing strings are run into the borehole guided by a riser assembly. These casing strings have a common hanger at their upper ends and are connected together at various levels with a plurality of gas-lift crossover mandrels and at least two (upper and lower) circulation crossover mandrels for tool circulation. Then a Xmas tree is lowered on a disconnectable running pipe to a well-head guided by guidelines. The Xmas tree has at least two parallel small diameter casing strings extending from the lower end thereof. These upper casing strings have a common connector on their lower ends for connection to the hanger. Each upper casing string fluidly communicates with a lower casing string through the connector and hanger. A tensioner located in the Xmas tree applies tension to both the upper and lower sections of casing strings and properly spaces out the upper ends of the upper sections of casing strings in the Xmas tree. The upper ends of the casing string sections in the Xmas tree are connected to a production manifold. Suitable control fluid conduits are lowered with the Xmas tree for operation of the tensioner and for operation of safety valves located in each of the upper sections of casing strings. The lower circulation crossover port between two of the casing strings is then opened for perforating operations. A perforator gun is landed in a landing nipple adjacent a formation and is reciprocated until it rotates to the proper direction to avoid perforating the other pipe string in the borehole and then is fired. After each of the formations has been perforated, production of the formation may be maintained by natural formation energy. Various well servicing operations may be carried out using pump-down tools and techniques. A producing formation or zone may be blocked off using a pump-down patch tool and the well fluids may be artificially lifted by positioning pump-down gas-lift valves in one of the casing strings.

3,653,436

FORMATION-SAMPLING APPARATUS

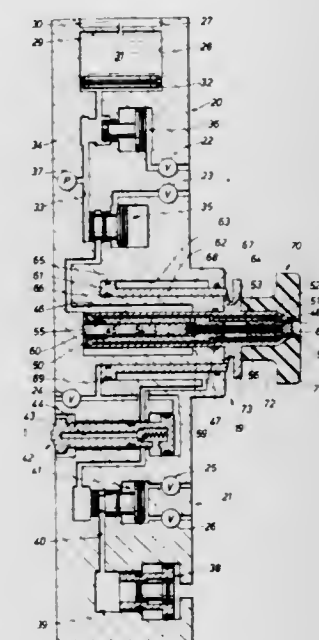
Ronald A. Anderson, and Frank R. Whitten, both of Houston, Tex., assignors to Schlumberger Technology Corporation, New York, N.Y.

Filed Mar. 18, 1970, Ser. No. 20,685

Int. Cl. E21b 49/00

U.S. Cl. 166—100

26 Claims



In the representative embodiment of the new and improved fluid-sampling apparatus disclosed herein, sample-admitting means adapted to be selectively extended therefrom include an annular sealing pad operatively arranged around the forward end of a tubular sampling member so that, upon contacting a well bore surface, the pad will make firm sealing engagement therewith. First new and improved means are provided for delaying the establishment of flow communication between a sample-collecting system in the apparatus and an earth formation being tested until the sample-admitting means have been extended and mudcake and formation materials that might otherwise plug the sampling apparatus have been removed from the forward portion of the sampling member. Second means are uniquely arranged for limiting the admission of formation materials into the sampling member so that the sealing engagement of the sealing pad will not be disrupted by the entrance of additional formation materials into the sampling member. As a result of this new and improved apparatus, fluid samples can be obtained at high flow rates.

3,653,437

VISCOUS SURFACTANT WATERFLOODING

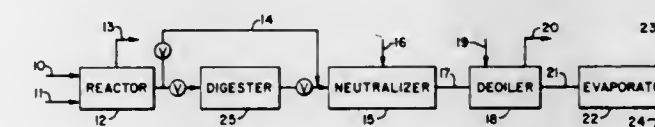
Walter W. Gale; Milton O. Denekas, both of Houston, Tex., and Stanley J. Storfer, Edison, N.J., assignors to Esso Production Research Company

Filed May 25, 1970, Ser. No. 40,240

Int. Cl. E21b 43/22

U.S. Cl. 166—252

10 Claims



A method of recovering oil from a subterranean formation using an aqueous surfactant solution with a predetermined and controlled viscosity. The ability of the surfactant to impart viscosity to the aqueous solution is dependent upon the

ratio of water-insoluble/pentane-insoluble sulfonates. This ratio must be maintained within the range of 0.01 to 0.30 to produce a surfactant with desirable oil-recovery properties. The ratio can be maintained within this range and varied in value to change the viscosity-imparting properties of the surfactant by adjusting the process reaction conditions.

3,653,438

METHOD FOR RECOVERY OF PETROLEUM DEPOSITS

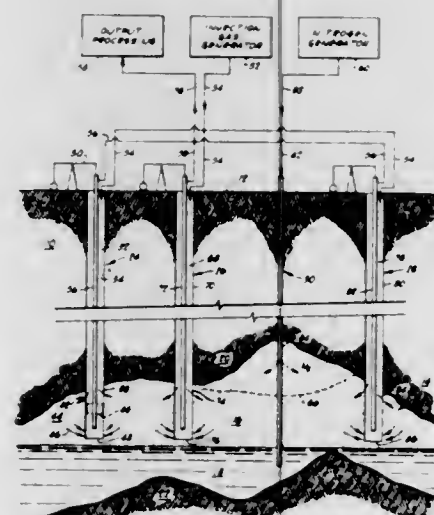
Robert J. Wagner, 2014 Gatewood, Oklahoma City, Okla.

Filed Sept. 19, 1969, Ser. No. 859,293

Int. Cl. E21b 43/24, 43/18

U.S. Cl. 166—266

10 Claims



A method for recovery of petroleum deposits, particularly those deposits which are underlain by a water zone, which method includes the steps of introducing a dissolving gas product into an upper region of a petroleum deposit to enable gravity head build-up of more soluble petroleum products which then flow downward toward a recovery zone for delivery to a surface recovery unit. The method is particularly adaptable for utilization with a single well-bore whereupon a dissolving injection gas can be introduced down an outer annulus of the pipe string while recovered petroleum can be withdrawn from a lower recovery zone for conduction up a tubing string or such to the earth's surface. An inert gas introduced through another bore into upper regions of the deposit serves to maintain proper pressure balance throughout the system.

3,653,439

SUBSURFACE SAFETY VALVE

James W. Kisling, III, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed June 1, 1970, Ser. No. 42,372

Int. Cl. E21b 33/00

U.S. Cl. 166—226

16 Claims

A combination slip joint and safety valve apparatus including an inner member telescopically and non-rotatably disposed within an outer member, a barrier means for blocking the bore through said members, a normally open flow course extending past said barrier means and adapted to

be closed by a longitudinally movable valve sleeve, a means responsive to complete telescoping or closing movement of



said members for moving said valve sleeve from open to closed position.

3,653,440

SECONDARY AND TERTIARY OIL RECOVERY PROCESS

Joseph Reisberg, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 23, 1970, Ser. No. 21,799

Int. Cl. E21b 43/22

U.S. Cl. 166—273

9 Claims



A waterflood process for producing oil from an underground reservoir is improved by injecting an oil-displacing surfactant system, a gas, and an aqueous drive liquid so that, within the reservoir, the relative permeability of liquid that is injected and displaced is reduced by the gas.

3,653,441

PROCESS FOR CEMENTING WELL BORES

Robert N. Tuttle, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed June 3, 1970, Ser. No. 43,070

Int. Cl. E21b 33/14

U.S. Cl. 166—291

10 Claims

A process for cementing well bores is disclosed wherein high viscosity drilling mud in the area to be cemented is displaced by a liquid slug which in turn is displaced by a lower viscosity cement. The leading edge of the liquid slug has a viscosity substantially equal to or greater than the viscosity of

the drilling mud during displacement thereof. The viscosity of the trailing edge of the liquid slug is substantially equal to



or lower than the viscosity of the cement during displacement of the liquid slug.

3,653,442

STIMULATING LOW PRESSURE NATURAL GAS PRODUCING WELLS

Rupert D. Ross, Robinson, Ill., assignor to Marathon Oil Company, Findlay, Ohio

Continuation-in-part of application Ser. No. 762,129, Sept. 24, 1968, now Patent No. 3,554,288. This application Mar. 16, 1970, Ser. No. 20,098

Int. Cl. E21b 43/25

U.S. Cl. 166—305 R

14 Claims

Water blockage in subterranean formations, commonly known as water coning, is effectively removed by injecting into the formation a sufficient amount of a micellar solution to contact the area of water blockage. The micellar solution "solubilizes" the water to facilitate the flow of hydrocarbon toward the well bore.

3,653,443

FIRE EXTINGUISHING SYSTEM FOR COOK STOVES AND RANGES

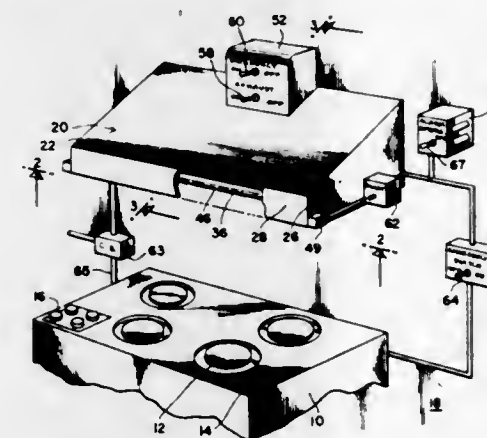
Walter E. Dockery, 2120 La Vera Dr., Tuscaloosa, Ala.

Filed Sept. 25, 1970, Ser. No. 75,403

Int. Cl. A62c 3/00

U.S. Cl. 169—2 R

9 Claims



An automatic fire extinguishing system for a cooking range having top burners includes a hood mountable over the range. A tank containing fire extinguishing fluid is removably mounted in the hood. The tank has a solenoid operated valve connected in circuit with a thermostat and power line to discharge fluid from the tank when the thermostat is operated. The range may have electric or gas burners. A solenoid operated switch or solenoid operated valve is con-

nected in circuit with the thermostat to open the power line to the electric burners or to open the gas main to the gas burners when the thermostat operates. An automatically operated exhaust fan and alarm are also provided. The system includes manually operable set and reset switch means.

3,653,444

FIRE PROTECTION SYSTEM

William L. Livingston, 283 Norwood St., Sharon, Mass.

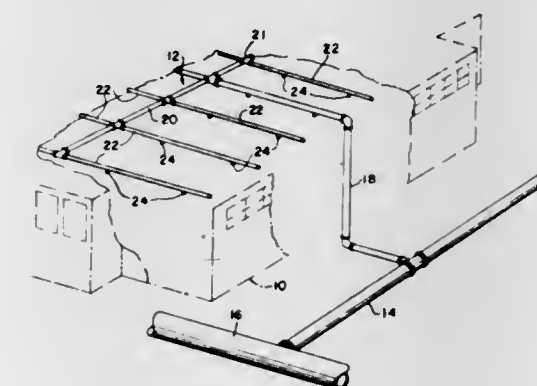
Continuation-in-part of application Ser. No. 864,612, Oct. 8, 1969, and a continuation-in-part of 885,501, Dec. 16, 1969.

This application Sept. 15, 1970, Ser. No. 72,333

Int. Cl. A62c 35/00

U.S. Cl. 169—5

25 Claims



An automatic fire protection system for protecting buildings. Direct spray nozzles are used in place of the conventional sprinkler heads. The nozzles have larger outlet orifices to deliver larger quantities of extinguishant with larger size droplets as compared to sprinkler heads. The system is designed to limit the number of nozzles which will be actuated by a high challenge fire and the supply of extinguishant is designed to accommodate only the limited number of nozzles. With this system, the effectiveness of these nozzles in fighting the fire is not diminished by the opening of a large number of additional nozzles which would divert the extinguishant to areas remote from the fire where it serves no useful purpose and increases the damage to items located in these remote areas.

3,653,445

BEET HARVESTER

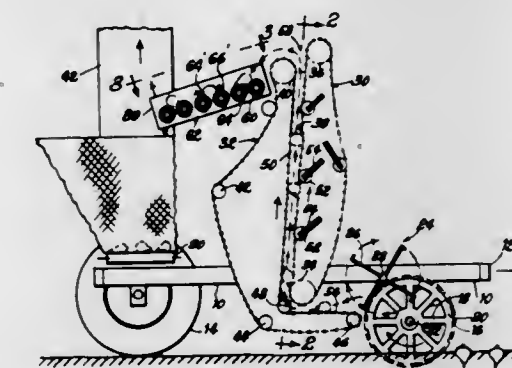
Andrew F. Barnes, R.R. 1 Box 292, Longmont, Colo.

Filed Nov. 19, 1970, Ser. No. 90,901

Int. Cl. A01d 17/00

U.S. Cl. 171—58

16 Claims



This invention is addressed to an improved beet harvester including a hugging chain assembly forming a forward hugging chain and a rearward hugging chain, each of which include a rising portion with the rising portions of each of the hugging chains being substantially parallel to thereby define a space therebetween adapted to receive beets in a pressure engage-

ment to elevate and clean the beets, with the rear hugger chain including a conveyor portion which extends in a forward direction to receive beets removed from the ground by lifter wheels for feeding the beets so removed to the space defined by the rising portions of the hugger chains to further enhance the cleaning, and a grab roll bed communicating with the space between the rising portions of the hugger chains including at least two pair of driven rolls to further clean the beets fed to the grab rolls from the hugger chain assembly.

3,653,446

DRAFT AND POSITION CONTROL FOR TRACTOR DRAWN IMPLEMENTS

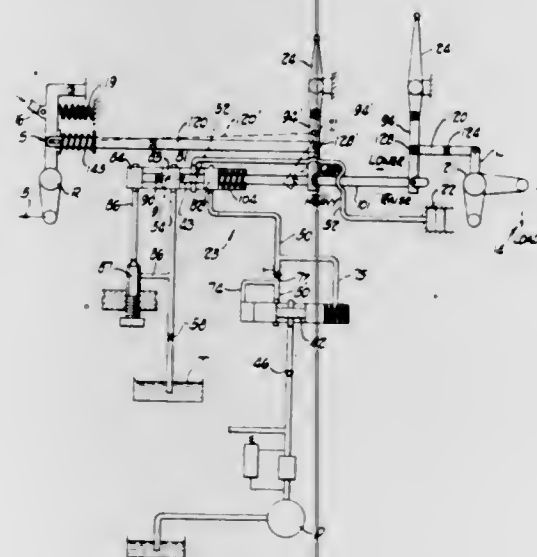
Dennis H. Kalmon, Eden Prairie, Minn., assignor to White Farm Equipment Company

Filed July 24, 1969, Ser. No. 844,481

Int. Cl. A01b 63/112

U.S. Cl. 172-4

10 Claims



The disclosure pertains to an agricultural tractor having a draft and position responsive hitch control for maintaining an implement at a constant working depth in spite of varying working conditions. The hitch is activated by a power cylinder to vary the working depth of the implement drawn by the tractor. A valve controls the power cylinder and is arranged to receive draft or position command and feedback signals from an actuating linkage including a yoke lever and one-way link which coordinates the command and feedback signals controlling the valve.

3,653,447

LOW SPEED LAWN EDGER

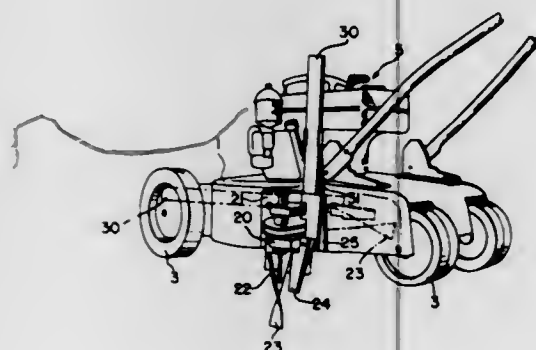
John H. Stoner, 425 South 156th St. #129A, Seattle, Wash.

Filed Jan. 22, 1970, Ser. No. 4,802

Int. Cl. A01b 45/00

U.S. Cl. 172-16

17 Claims



A low blade speed rotary edger useful as an independent tool or as an attachment to a conventional power mower in-

cludes a (1) cultivator-rotary blade turning on a vertical shaft and (2) a shearing bar contacting the rotary blade. When used as an attachment for a power mower the rotary blade is connected to the power source of the mower by a belt and pulley system or other suitable drive means. The edger assembly mounted on the power mower is provided with means for retracting the edger to an inoperative position when it is not needed.

3,653,448

SOD HARVESTING VEHICLE

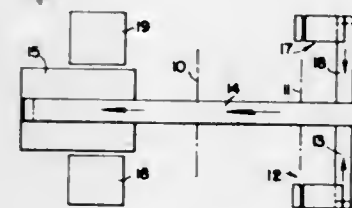
Donald W. Morrill, Hanna, Ind., assignor to Big J. Products, Inc., Hanna, Ind.

Filed Feb. 6, 1970, Ser. No. 9,237

Int. Cl. A01b 45/04

U.S. Cl. 172-19

4 Claims



A sod harvesting vehicle having means at the forward end for simultaneously rolling pre-cut sod into rolls and elevating same from the ground, a transverse conveyor adapted to transport sod rolls laterally from the rolling and elevating means, a longitudinal conveyor in effective relation with the transverse conveyor for transporting sod rolls longitudinally to the rear of the vehicle and a platform for personnel and pallet handling means at the rear of the vehicle. In preferred form, the vehicle has two sod rolling and elevating means, one on each forward side of the vehicle, two transverse conveyors and two pallet handling means, one on each rearward side of the vehicle. The two rolling and elevating means enable the vehicle to harvest sod back and forth continuously along the same edge of a sod field, thereby avoiding non-productive trips back to the beginning end of the field, and the two pallet handling means enable operators to load two pallets with rolled sod more or less simultaneously, thereby keeping pace with the high production capability of each rolling and elevating means.

3,653,449

ROTARY CULTIVATOR WHEEL

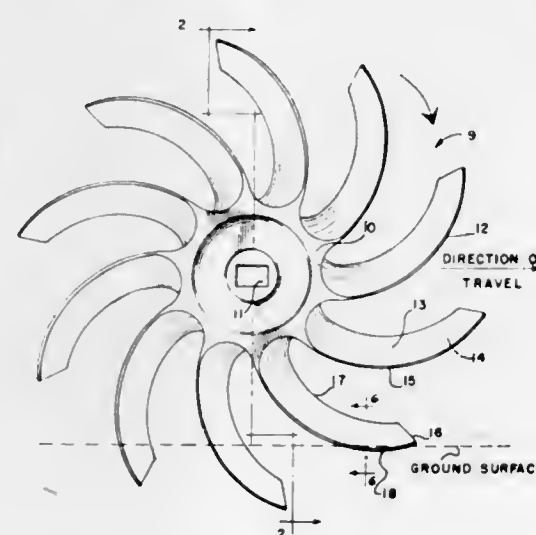
Charles Boetto, Naperville; John F. Stufflebeam, Lockport, and Noel G. Artman, Chicago, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Oct. 16, 1970, Ser. No. 81,238

Int. Cl. A01b 21/02, 23/02

U.S. Cl. 172-548

8 Claims



A rotary hoe wheel is adapted to be propelled at an angle to the direction of travel and is provided with teeth extending

radially from a hub and curved rearwardly with the surface of the ground being first engaged by a curved portion of each tooth between the hub and the outer end thereof. A cross-section of the tooth is disposed in a tilted plane to provide an earth penetrating leading edge and each tooth has a lower convex surface and an upper concave surface forming a scoop to lift and turn the soil.

3,653,450

TILT COMPENSATION LINKAGE FOR TILTING BULLDOZER MOLDBOARD

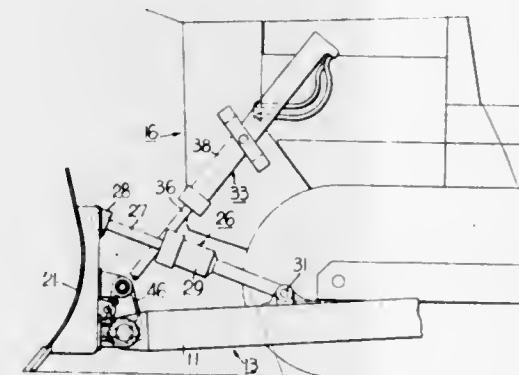
Harvey W. Rockwell, and Wesley A. Poore, both of Springfield, Ill., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed June 1, 1970, Ser. No. 41,899

Int. Cl. E02f 3/76

U.S. Cl. 172-803

7 Claims



Compensating linkage for a tilting bulldozer moldboard including a link depending from the rear of the moldboard with its lower end pivotally connected, at longitudinally spaced points, to the two dozer push arms.

3,653,451

TILT LINKAGE FOR BULLDOZER BLADE MOUNTING ASSEMBLIES

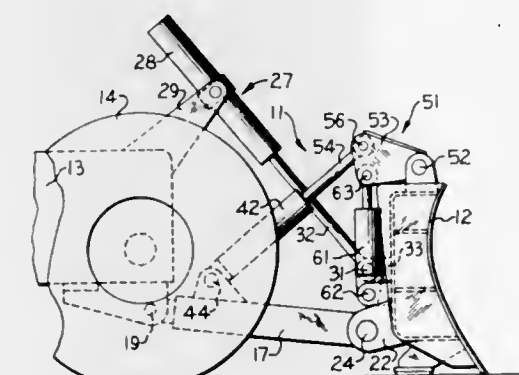
Max D. Fryrear, and Eugene M. Wilson, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 9, 1970, Ser. No. 1,623

Int. Cl. E02f 3/76

U.S. Cl. 172-804

11 Claims



A mounting assembly providing for tilt adjustment of a bulldozer blade. The blade is pivotally supported by a pair of push arms. Motor means are pivotally interconnected between the respective push arms and the blade for adjusting blade pitch with one of the motor means being connected with the blade by means of a pivotal link. The blade is tilted by additional motor means interconnected between the blade and the link.

3,653,452

METHOD FOR REDUCING EROSION AND CORROSION OF METAL SURFACES DURING GAS DRILLING

Paul W. Fischer, 836 W. Beverly Blvd., Whittier, Calif.; George P. Maly, 800 Bison St., Newport Beach, Calif., and Delbert E. Pyle, 283 Oaktree Drive, Santa Rosa, Calif.

Filed June 8, 1970, Ser. No. 44,661

Int. Cl. E21b 21/04

U.S. Cl. 175-69

17 Claims

Erosion and corrosion of metal surfaces exposed to a flowing stream of hot gases containing dispersed particles of solid material is reduced by introducing into the flowing stream an additive that decomposes at the temperature and pressure of the gas to release ammonia or a vaporous amine and form a resinous residue. The additive is preferably introduced into the gas in an inert carrier liquid. The method is especially useful in reducing erosion and corrosion of metal drill pipe used in the gas drilling of wells into high temperature earth formations, such as are encountered in gas drilling wells into subterranean steam-bearing formations.

3,653,453

DEVICE FOR IMPROVING THE STEERABILITY OF A MOTOR SLED

Jussi Antti Tiitola, Takkulan Kartano, Lahti 3, Finland

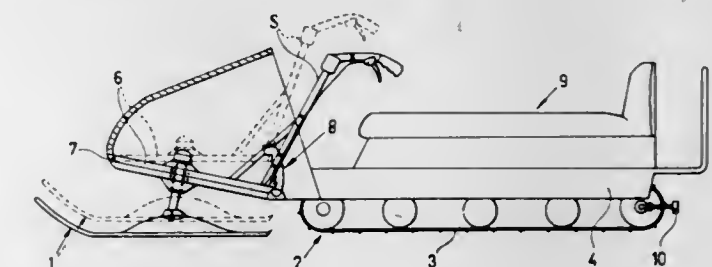
Filed Mar. 31, 1970, Ser. No. 24,255

Claims priority, application Finland, Apr. 1, 1969, 948/69; Mar. 5, 1970, 609/70

Int. Cl. B62m 27/02

U.S. Cl. 180-5 R

2 Claims



A mechanical or hydraulic lifting device provided in a motor sled for improving its steerability, by means of which the relationship in height between the steering device, such as a ski element, and the traction surface or part of the traction surface of the propagation device, such as an endless track, is made variable during driving.

3,653,454

WHEEL-DRIVE SYSTEM INCORPORATING A HYDRAULIC MOTOR

Soren Nielsen, Hinnerup, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Apr. 8, 1970, Ser. No. 26,654

Claims priority, application Germany, May 5, 1969, P 19 22 832.1

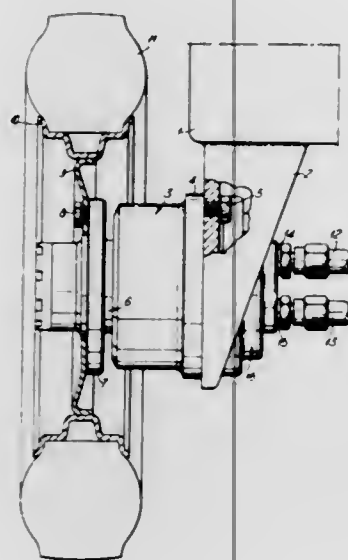
Int. Cl. B60k 7/00

U.S. Cl. 180-66 F

6 Claims

The invention relates to a wheel drive system incorporating a hydraulic motor of the toothed wheel type. The motor portion comprises a rotating casing and a stationary shaft member. The motor casing is rotatably journaled in a hub member and the casing has a flange to which a ground engaging wheel may be attached. Expanding and contracting chambers are formed by relative movement between a toothed ring member which is fixedly attached to the casing for rotation therewith and surrounds a toothed wheel member, the ring member being rotatable about its own axis

and the toothed wheel member is capable of only orbital movement about the ring axis. The casing and shaft member



having cooperating fluid passages for feeding and exhausting the expanding and contracting chambers.

3,653,455

OFF-ROAD VEHICLE WHEEL SUSPENSION

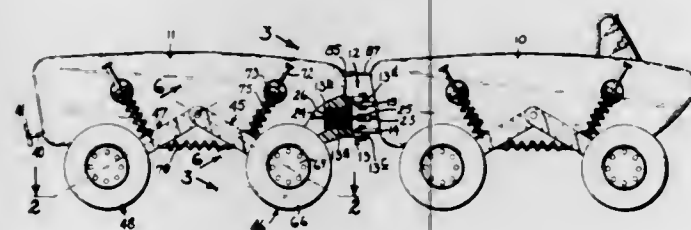
Allen E. Hetteen, Route #3, Roseau, Minn.

Filed Aug. 1, 1969, Ser. No. 846,689

Int. Cl. B62d 53/00

U.S. Cl. 180-85

2 Claims



An articulated off-road vehicle is shown, having a front body portion and a rear body portion, connected for pivotal movements relative to each other about a substantially vertical axis, and for twisting movements relative to each other about a longitudinally extending, substantially horizontal axis. A drive shaft powered by an engine extends through the connections between the body portions, and is provided with a universal joint to accommodate the pivotal movement. An axle is mounted on each body portion and a differential for each axle is driven by the drive shaft. A wheel assembly, mounted on each end of each axle, has first and second wheel support arms each journaled at an upper end thereof on the axle, with the first arm extending forwardly and downwardly therefrom, and the second arm extending rearwardly and downwardly therefrom. A wheel is rotatably mounted on the lower end of each arm and a drive chain extends from the axle to each wheel for driving the wheel. A spring is connected between the arms intermediate the ends thereof to exert a force tending to draw the arms and attached wheels together.

3,653,456
CONTROL SYSTEM FOR MOVING VEHICLE ALONG A PREDETERMINED PATH

Saburo Uemura, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan

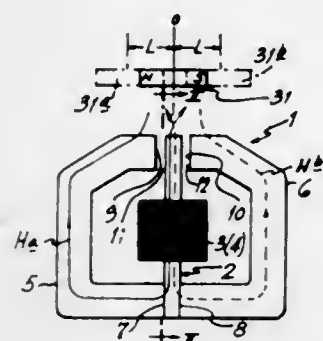
Filed Mar. 24, 1970, Ser. No. 22,279

Claims priority, application Japan, Apr. 14, 1969, 44/28835

Int. Cl. B62d 1/24

U.S. Cl. 180-98

9 Claims



A control system for directing a movable vehicle along a predetermined course has a transversely magnetized guiding element extending along the course, a plurality of dual-gap magnetic flux responsive heads spaced apart on the movable vehicle in the direction of movement of the latter and each being arranged so that the direction across the gaps of the head extends substantially transversely with respect to the magnetized guiding element, and circuits connected with the heads to provide control signals indicative of deviations of the vehicle from the course and by which steering of the vehicle is controlled for maintaining the vehicle on the course. Additional magnetic heads may be provided on the vehicle to detect the magnetic fields of associated magnets arranged at selected locations along the course, and circuits are connected to such additional heads to provide respective control signals by which the speed of movement and/or stopping of the vehicle are controlled.

3,653,457

ANTI-THEFT DEVICE FOR AUTOMOTIVE VEHICLES AND OTHER APPARATUS

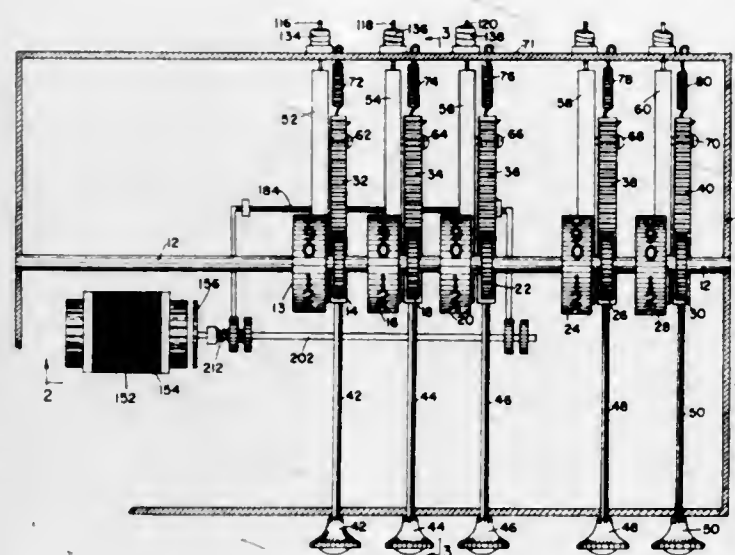
Walfrido R. Lopez, 24-46 44th Street, Astoria, N.Y.

Filed Jan. 8, 1970, Ser. No. 1,371

Int. Cl. B60r 25/04

U.S. Cl. 180-114

8 Claims



New and improved anti-theft device for use in automobiles and the like is provided and comprises fuel flow control means which, when activated, are effective to prevent fuel flow to the automobile engine and, when deactivated, will

not interfere with such fuel flow. Means are included to automatically activate said fuel flow control means upon the turning off of the automobile ignition. Additional fuel flow control means which include an auxiliary fuel tank of relatively limited capacity are included and are operable, when activated, to enable limited movement of the automobile as for movement in a parking lot or the like.

3,653,458

COMBINED PERIPHERAL JET AND PLENUM CHAMBER AIR CUSHION DEVICE

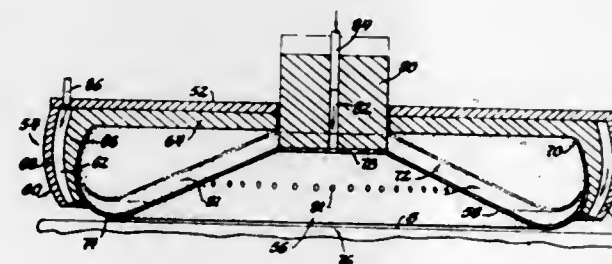
Richard H. Donlon, Troy, Mich., assignor to Transportation Technology, Inc., Madison Heights, Mich.

Filed Oct. 29, 1969, Ser. No. 872,019

Int. Cl. B60v 1/02, 1/04

U.S. Cl. 180-124

14 Claims



An air cushion device comprising a base and nozzle means for providing an endless jet curtain beneath the base to confine a cushion of air for supporting the base above a surface when air under pressure is supplied to the nozzle means. A flexible diaphragm is selectively extendable to form a plenum chamber beneath the base having a compliant peripheral wall projecting beneath the base a distance at least as far as the lower end of the nozzle means so as to confine a cushion of air for supporting the base above a surface when air under pressure is supplied to the plenum chamber and permitted to escape only through the clearance slot or gap between the compliant peripheral wall and the surface over which the base is supported.

3,653,459

SURFACE, MATERIAL AND HEALTH PROTECTIVE DEVICE

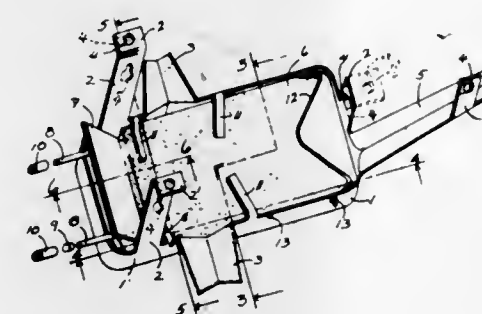
Peter Andrews, 190 Gebhardt Road, Penfield, N.Y.

Original application June 17, 1963, Ser. No. 288,159, now abandoned. Divided and this application Oct. 21, 1965, Ser. No. 508,624. The portion of the term of this patent subsequent to May 2, 1985, has been disclaimed.

Int. Cl. B62d 25/20

U.S. Cl. 180-69.1

18 Claims



A fluid retaining receptacle device which is removably secured to the underside of a motor vehicle by use of hanger means which may be connected to the vehicle by using accessible, bolt securing means, holes, clamping means thereof. The device retains fluid which drips therein from at least one portion of the vehicle. The motor vehicle being a car, truck, bus, racing car and even a boat. A generated draft of air, generated by the forward drive motion of at least one of the

3,653,460

SEISMIC ENERGY WAVESHAPE CONTROL APPARATUS AND METHOD

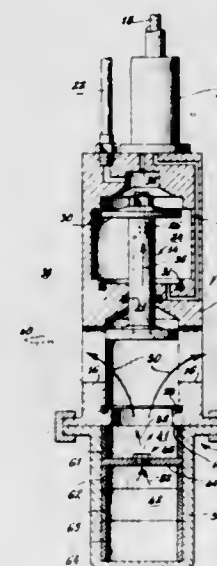
Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Filed Nov. 14, 1969, Ser. No. 876,861

Int. Cl. G01v 1/14

U.S. Cl. 181-.5 H

15 Claims



Seismic energy wave-shape control apparatus and method in which the waveshape of the acoustical waves generated in the water by the use of submerged airgun seismic sources can be controlled and selected by the survey crew to provide the waveshape which is most desirable for use under the conditions being encountered as the survey is being carried out. The pressurized gas holding charge container is provided with a plurality of chambers such that an initial abrupt flow of pressurized gas as shown at 50 in FIG. 2 occurs from a primary chamber and passes out through the discharge ports into the surrounding water with explosive-like abruptness. Delayed after-flow of pressurized gas as shown at 52 in FIG. 2 then occurs from a secondary chamber for reducing the relative magnitude and changing the waveform of the second pressure peak P2. The relative volumes of the primary and secondary chambers are conveniently changeable by detaching the casing and shifting the position of a removable barrier, thus obtaining differing waveshapes as seen by comparing FIGS. 6; 7, and 8 with FIG. 5. If desired a tertiary chamber may be utilized to provide further changes in the waveshape.

3,653,461

HYDRAULIC ROTARY DAMPENER

Thomas C. Huxley, III, Camarillo, and Franklin W. Dooze, Monrovia, both of Calif., assignors to Del Mar Engineering Laboratories, Los Angeles, Calif.

Filed July 23, 1970, Ser. No. 57,562

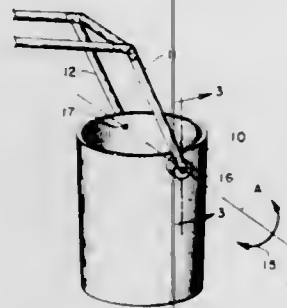
Int. Cl. B66f 11/04; F15b 15/22

U.S. Cl. 182-2

10 Claims

A rotary dampener includes a cylinder with a piston threaded in the cylinder such that relative rotary motion between the cylinder and piston causes axial movement of the piston in the cylinder. Hydraulic fluid in the cylinder is forced through a by-pass passage in the cylinder from one

side of the piston to the other in response to the axial movement of the piston. By restricting the passage, a proper



degree of dampening of relative rotary motion between the piston and cylinder and thus between first and second members secured to these components can be realized.

3,653,462

LADDER ATTACHMENT

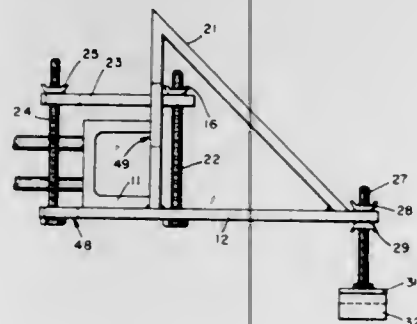
John J. Courtney, 123 Clinton Rd., East Weymouth, Mass.

Filed June 22, 1970, Ser. No. 48,384

Int. Cl. E06c 5/36, 7/48

U.S. Cl. 182-108

4 Claims



A device for attachment to a ladder which enables the ladder to bridge windows and distribute the force of the ladder over a larger area thereby providing a greater margin of safety against the ladder sliding off the building and at the same time a greater freedom in the work area yet be lighter and inexpensive.

3,653,463

COLLAPSIBLE LADDER ARRANGEMENT

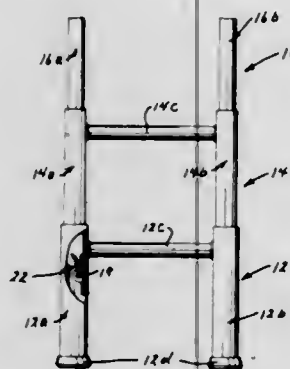
Vernon L. Neal, Ballwin, Mo., and Jerry D. Conyer, Paducah, Ky., assignors to E. T. Hannan & Associates, Inc., Paducah, Ky., a part interest

Filed June 22, 1970, Ser. No. 48,016

Int. Cl. E06c 1/12

U.S. Cl. 182-195

4 Claims



A collapsible ladder arrangement characterized by the use of spring-urged clip members on each ladder section for accomplishing the assembly of one ladder section with the next ladder section in expanding the ladder from a collapsed position.

3,653,464

ENGINE OIL PAN

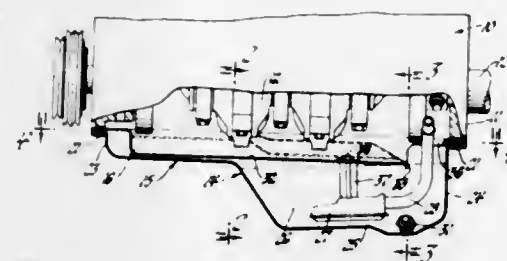
Eudell G. Jacobsen, Romeo, and David A. Martens, Washington, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 13, 1970, Ser. No. 27,924

Int. Cl. F01m 1/106

U.S. Cl. 184-6.2

3 Claims



An oil pan assembly for the combustion engine in a motor vehicle in which an oil pan of suitable configuration for the engine is provided with a separate cover baffle member which encloses all but the rear portion of the oil pan so that oil will be retained within the pan during normal motor vehicle operation and will also be retained therein when the motor vehicle is shipped in a nose-down position in a railroad car.

3,653,465

METHOD AND APPARATUS FOR HANDLING COMPRESSED AIR

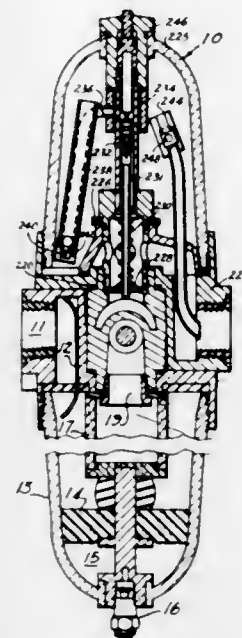
Harry L. Wheeler, Jr., 1538 Huntingdon Trail, Dunwoody, Ga.

Filed July 31, 1969, Ser. No. 846,339

Int. Cl. F01m 1/08; F16n 7/34

U.S. Cl. 184-55 A

14 Claims



A vapor forming device may be used as an air lubricator which has an inlet and an outlet and oil is stored in a reservoir defined by a lube bowl and the air chamber housing. To pass, the air must move a float, which builds up back pressure transmitted to an impact tube to an adjustable pressurizing valve, which when opened permits air to flow down an air feed tube to which is attached a large adjustable, vapor generator tube. Air enters the vapor generator tube through a small passage and oil enters the generator tube through a small hole. The air and oil mix into a foam which has a lower average specific gravity than the oil and is thus forced up into the tube. At the mouth of the vapor generator tube the foam breaks up and disperses into a shower of small droplets ranging upward from a few microns to several hundred microns in

size. Air leaves the oil reservoir through a take-off tube one end of which projects above the surface of the oil in the reservoir and the other end being located in a low pressure zone of an outlet. The device may be made two-stage with air lift pumps and a stand pipe. Another form uses a vibrating reed to separate the air and shatter the oil droplets.

3,653,466

LUBRICANT VALVE ASSEMBLY

Hiroshi Fujita, Shiga-ken, and Akimori Kuruma, Settsu, both of Japan, assignors to Dalkin Kogyo Co., Ltd., Osaka, Japan

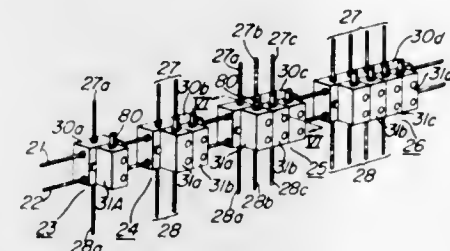
Filed June 1, 1970, Ser. No. 42,068

Claims priority, application Japan, Oct. 15, 1969, 44/97968

Int. Cl. F01m 1/06; F16n 7/14, 13/22

U.S. Cl. 184-7 D

3 Claims



A lubricant valve assembly comprising one manifold block unit and at least one valve element coupled with said manifold block unit. The valve element has only one measuring piston and one valving piston slidably disposed therein, and the manifold block unit has required numbers of inlets and outlets integrally therewith. Further, the manifold block unit is so constructed as to supply lubricant, introduced therein from a lubricant supply pump, to the individual valve elements coupled therewith and to receive measured quantities of lubricant from said respective valve elements and discharge the same to the points to be lubricated. Between the valve element and the manifold block unit is interposed a cross-porting structure, so that the lubricant discharged from a pair of outlet passageways of the valve element may be led to only one of the outlet passageways of said manifold block unit. Further, an adjusting rod to verify the operation of the measuring piston disposed in the valve element is fluid-tightly sealed by a sealing member which is made from polytetrafluoroethylene and hence the lubricant valve assembly is highly resistive to high temperatures.

3,653,467

COMPENSATING SHEAVE APPARATUS FOR ELEVATORS

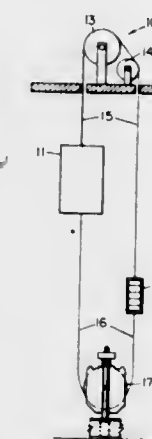
John Melville Showalter, Clark, N.J., assignor to Otis Elevator Company, New York, N.Y.

Filed Jan. 21, 1969, Ser. No. 792,352

Int. Cl. B66b 1/104

U.S. Cl. 187-22

13 Claims



Compensating sheave apparatus for an elevator system having an elevator car, a counterweight, a hoisting machine,

hoisting roping and compensating roping, wherein the compensating sheave apparatus includes a tensioning sheave for said compensating roping, a weight frame for said tensioning sheave, fixed guide rails for guiding the weight frame, and a safety device for coupling the weight frame to the guide rails only when the safety device is upwardly accelerated at a predetermined acceleration rate by the weight frame, and wherein the safety device includes coupling members, operative to grip the guide rails when the coupling members are actuated, and an inertial actuator having an inertial mass, operative to actuate the coupling means when the inertial mass senses the predetermined acceleration rate.

3,653,468

EXPENDABLE SHOCK ABSORBER

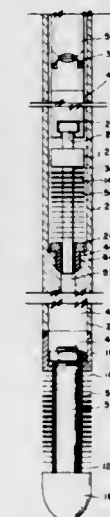
Gallen D. Marshall, P.O. Box 85, Sugar Land, Tex.

Filed May 21, 1970, Ser. No. 39,491

Int. Cl. F16f 7/12

U.S. Cl. 188-1 C

9 Claims



An expendable shock absorber especially adaptable for use with wellbore instruments being go-deviled into the wellbore. The shock absorber has washer-like projections extending from a hollow cylinder. A cutter bar which can slide over the hollow cylinder engages the washer-like projections and upon impact of the survey tool, the shock is expended by the cutter bar shearing off the washer-like projections.

3,653,469

BRAKING SYSTEM FOR RAIL VEHICLES

Lars Erik Landeborg, Per Albin Hanssons vag 52 B, Malmö; Sune Torsten Henriksson, Kvartsvagen 9, and Ragnar Ludvig Muotka, Kyrkogatan 44, both of Kiruna, all of Sweden

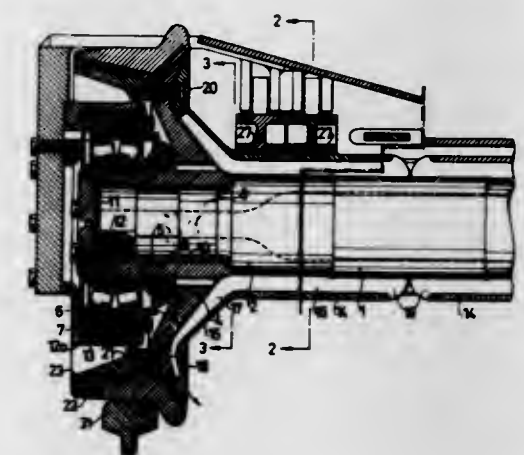
Filed Nov. 20, 1969, Ser. No. 878,476

Claims priority, application Sweden, Nov. 26, 1968, 16064/68

Int. Cl. B61h 1/00

U.S. Cl. 188-58

6 Claims



A wheel axle unit comprising a frame, at least one axle and at least one wheel at each end of said axle is provided with a

braking system comprising a tubular brake roller at least partially surrounding said axle and spaced therefrom, said brake roller being unrotatably connected to at least one of said wheels, and a pair of brake shoes adapted to engage the outer surface of said brake roller during braking. In a preferred embodiment of the invention the braking roller has a flared end portion provided with radially extending flanges constituting a centrifugal fan for generating a stream of air cooling the brake roller.

3,653,470

DISC BRAKE WITH HYDRAULIC AND MECHANICAL ACTUATION AND WEAR ADJUSTMENT MEANS

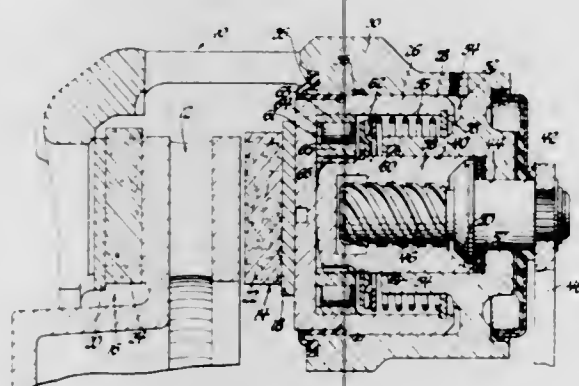
William H. Travis, Union, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 18, 1970, Ser. No. 73,463

Int. Cl. F16d 65/56

U.S. Cl. 188—71.9

5 Claims



A hydraulically actuatable piston is slidable in a first caliper bore and engages a brake shoe assembly. Mechanical actuation is by an adjuster nut slidable in a second caliper bore and threadedly engaging a member which is rotatably received through the wall of the caliper housing so that axial movement is imparted to the adjuster nut and the abutting piston upon rotation of the member. Wear adjustment is through a spring which urges the adjuster nut to advance into retraction limiting engagement with the piston following each hydraulic actuation and a one-way clutch acting between the piston and adjuster nut which permits rotary movement of the adjuster nut in the adjusting direction only.

3,653,471

INSTALLATION FOR THE BRAKE-LOCKING PREVENTION IN VEHICLES

Manfred H. Burckhardt, Walblingen, and Paul Schwerdt, Esslingen-Hegensberg, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Germany

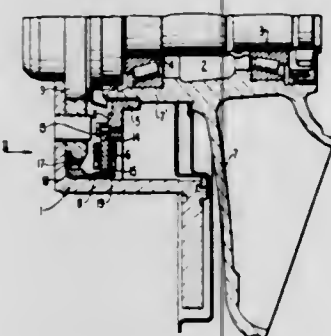
Filed Mar. 13, 1970, Ser. No. 19,382

Claims priority, application Germany, Mar. 19, 1969, P 19 13 814.8

Int. Cl. B60t 8/08

U.S. Cl. 188—181 A

20 Claims



An installation for preventing the locking of the brakes in vehicles, in which sensing elements are provided at the

wheels that produce an output signal corresponding to the wheel rotational speed which is fed to a common comparator; the sensing members are each arranged within the area of the wheel mounting outside of the inner and outer wheel bearing.

3,653,472

DISC BRAKES

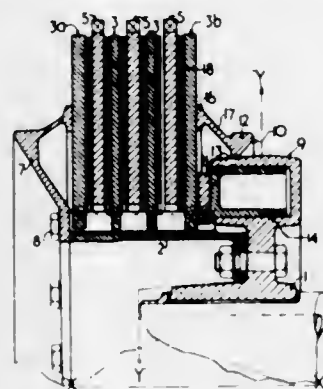
Frederick S. Dowell, Coventry, England, assignor to The Dunlop Company Limited, Birmingham, England

Filed Sept. 30, 1970, Ser. No. 76,660

Int. Cl. F16d 55/12

U.S. Cl. 188—217

26 Claims



In an aircraft brake a brake thrust transmission member is arranged between a stack of friction members and a circular arrangement of spaced brake actuators to provide even circumferential distribution of the localised thrusts exerted by the actuators. The transmission member has at least one deformable section of frusto-conical shape, an annular ring engaged by the actuators, and another annular ring, which may have two or more co-planar surfaces, for engagement with a friction member.

3,653,473

VEHICLE BRAKE CONSTRUCTIONS

Benjamin Andrew Clay, and Glyn Phillip Reginald Farr, both of Kings Rd., Tyseley, Birmingham, 11, England, assignors to Girling Limited

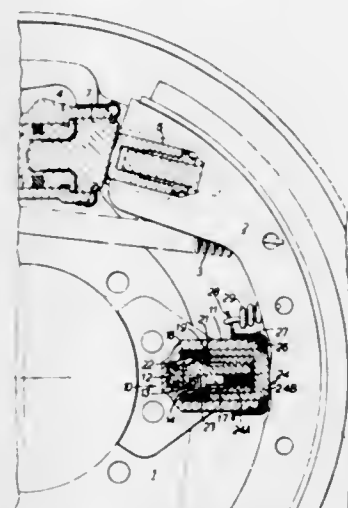
Filed Nov. 3, 1969, Ser. No. 873,316

Claims priority, application Great Britain, Nov. 14, 1968, 54,114/68

Int. Cl. F16d 65/26

U.S. Cl. 188—353

10 Claims



In a drum or disc brake having a locking means for holding the friction elements applied mechanically for parking etc., the locking means is operatively connected to a friction element independently of the normal actuation means. The locking means preferably comprises an extensible strut nor-

mally free to extend and contract to follow up friction element movements. A clutch is operative to lock the strut in extended condition to apply the lock and is releasable by means of a pressure operated clutch release motor having a piston directly engageable with one of the strut members. To release the lock the piston displaces the said strut member to disengage the friction clutch, whereafter the strut can contract to release the brake. These arrangements therefore cut out lost motion which takes place if (a) the lock acts on a brake actuating linkage instead of on a friction element; or (b) if the clutch release motor acts on the clutch mechanism instead of on the strut itself.

3,653,474

ROLLING LUGGAGE

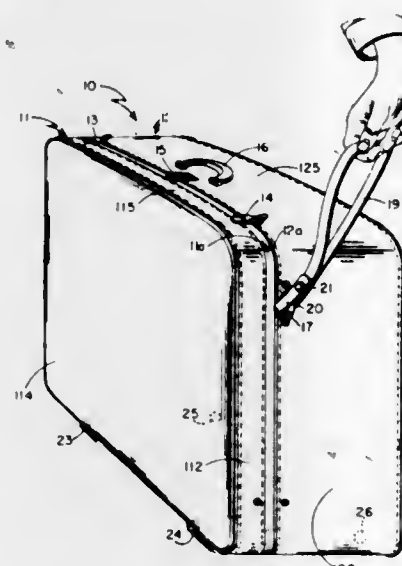
Bernard D. Sadow, Chappaqua, N.Y., assignor to United States Luggage Corp., Fall River, Mass.

Filed Feb. 16, 1970, Ser. No. 11,383

Int. Cl. A45c 13/00

U.S. Cl. 190—18 A

3 Claims



An article of luggage is described which has a plurality of rollers permanently mounted on its bottom wall and a flexible transport strap attached to its upper part.

3,653,475

FRICTION CLUTCH

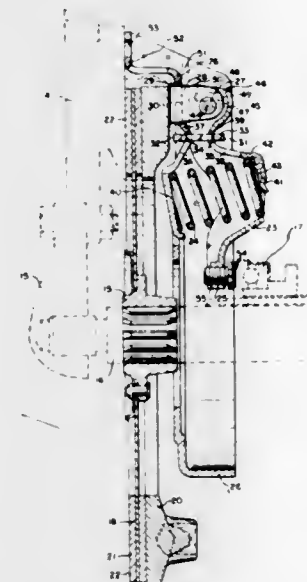
W. Vincent Thelander, P.O. Box 385, Sugar Loaf Mountain Ranch, Cave Creek, Ariz.

Filed June 1, 1970, Ser. No. 42,013

Int. Cl. F16d 21/00

U.S. Cl. 192—99 A

11 Claims



The present small diameter low cost clutch units embody improvements over those of our U.S. Pat. Nos. 1,985,301

and 2,214,789 centered in the release levers, which, while still affording the mechanical advantages of the previously patented clutches of higher engaging pressure with lighter pedal pressure for disengagement, are pivotally connected at their outer ends to the drive lugs on the pressure plate and have novel low friction oscillatable stirrup type fulcrum members to fulcrum the levers near their outer ends on the spider or back plate. These stirrup members compensate by their oscillation for the slight change in center distance between the fulcrum and pivot pin during clutch operation for not only lower friction but reduced wear, while the pivot pin tieup of the levers with the drive lugs on the pressure plate results in the levers giving added engaging pressure due to centrifugal force, which advantage can easily be augmented by adding weight to the back of the levers at their outer ends. The stirrups may be of one piece I-shaped construction, as in one of the present clutches, or of an adjustable type, as in the other clutch.

3,653,476

SLIP CONTROL SYSTEMS FOR AIR CLUTCHES

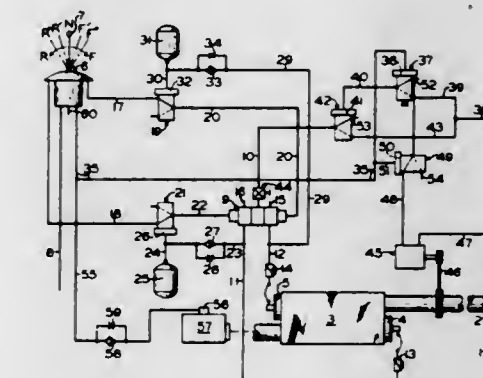
Clifford W. Allen, and Richard F. Wilson, both of Lexington, Ky., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 29, 1970, Ser. No. 59,103

Int. Cl. F16d 43/24, 25/12

U.S. Cl. 192—104 F

10 Claims



Apparatus for automatically modulating the operating pressure supplied to a slip clutch control mechanism driving a ship propeller, whereby the speed of the propeller is maintained constant in accordance with the preselected degree of such operating pressure established by the operator's setting of the controller, particularly during low speed operations.

3,653,477

SELF-COOLING CLUTCH AND BRAKE

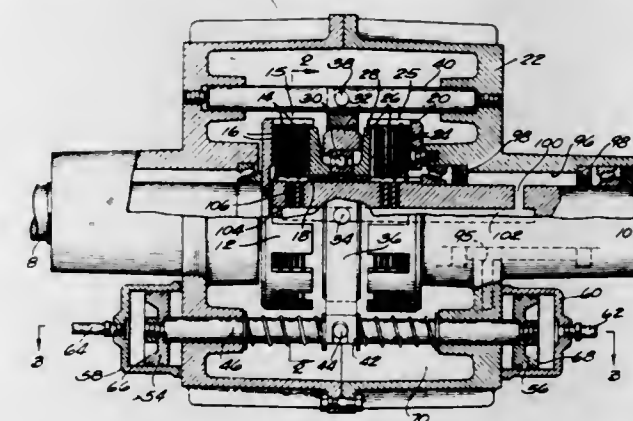
Quinten A. Hansen, 4338 Highway 38, Franksville, Wis.

Filed July 21, 1970, Ser. No. 56,905

Int. Cl. F16d 13/72, 67/02

U.S. Cl. 192—113 B

10 Claims



A rod which operates the disks of a clutch or brake is provided at its ends with pistons which, in each operation, pump coolant from a sump and eject it onto the disks for the cool-

ing thereof. The same pistons may constitute fluid pressure means for the operation of the rod.

3,653,478

COIN CONTROLLER MECHANISM FOR ENTERTAINMENT GAMES ADJUSTABLE TO RECEIVE DIFFERENT COINS

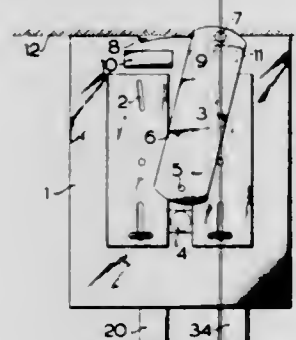
Xaver Leonhart, 8381 Harburg near Landau, Isar, Germany
Filed Apr. 16, 1970, Ser. No. 29,075

Claims priority, application Germany, Apr. 18, 1969, G 69 15 526.6

Int. Cl. G071 1/02

U.S. Cl. 194-1 E

2 Claims



A coin controller for entertainment games, and the like, that includes a pair of coin deposit slots for receiving coins of different value and a release bar for operating the entertainment game that is unlocked for operation by the deposit of specified coins in one of the slots. One edge of the coin controller is adjacent the closed lid of the game and carries a guide groove that cooperates with the closed lid for locking a plate pivoted to the front of the coin controller in a position overlying one or the other of the coin deposit slots so the entertainment game owner can control the price per game for different demand periods.

3,653,479

COIN-ACTUATED GOLF BALL TESTING APPARATUS

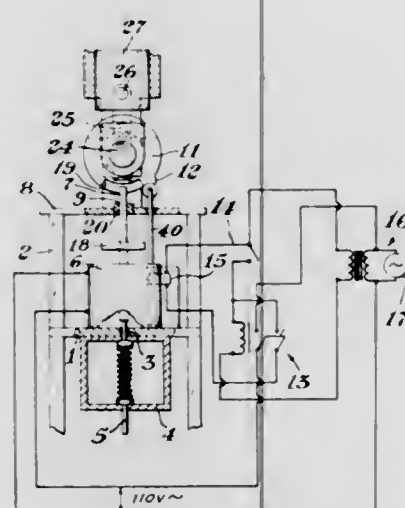
Larry B. Phillips, Bay City, Mich., assignor to New Golf, Inc., Essexville, Mich.

Filed Mar. 23, 1970, Ser. No. 21,713

Int. Cl. G071 1/104

U.S. Cl. 194-9

5 Claims



This disclosure relates to a coin-actuated golf ball testing apparatus for testing the compressibility of a golf ball. This testing apparatus has a base, a plate with a bore opening which supports a housing containing therein a resilient actuating pin which permits this actuating pin to move vertically through this bore opening in the base plate. A solenoid is mounted to the top of the base plate and in direct contact with the actuating pin. To this solenoid is mounted a locking

pin which extends through a bore hole in a second plate. This locking pin is in direct contact with a cammed drum. Mounted to the cammed drum are extending brackets which support the cammed drum. The cammed drum supports means for testing the physical compressibility of a golf ball.

3,653,480

AUTOMATIC VENDING SYSTEM

Mititaka Yamamoto, and Masanori Nagata, both of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

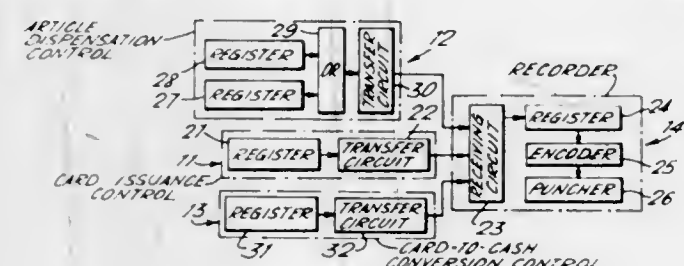
Filed Oct. 9, 1969, Ser. No. 865,082

Claims priority, application Japan, Oct. 14, 1968, 43/74886

Int. Cl. G071 1/06

U.S. Cl. 194-4

3 Claims



An automatic vending system in which cards having predetermined monetary values accorded thereto are utilized to purchase an article or service. The system comprises, in combination, a card issuance control device, an article dispensation control device and a card-to-cash conversion control device. By presenting a desired amount of money to the system, the customer may obtain a card having the corresponding monetary value accorded thereto. The owner of a card may obtain an article or service by using the card in the system. When a purchase has been made, the price of the article purchased is subtracted from the monetary value the card had prior to the purchase, and the resultant new monetary value is written on the card in place of the original monetary value thereof. The owner of a card may at any time have the card converted to cash corresponding to the monetary value the card then has.

3,653,481

ELECTRICAL/ELECTRONIC COIN OR TOKEN IDENTIFICATION SYSTEM

Ronald Stanley George Boxall, Bracknell, and Anthony Charles Dennes, Winnersh, both of England, assignors to Mars Incorporated, McLean, Va.

Continuation of application Ser. No. 745,500, July 17, 1968, now abandoned. This application May 11, 1970, Ser. No. 36,116

Claims priority, application Great Britain, July 17, 1967, 32,672/67; Feb. 19, 1968, 7,967/68; June 15, 1968, 28,608/68
Int. Cl. G071 3/02

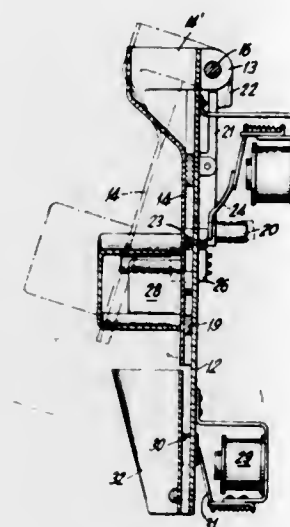
U.S. Cl. 194-100 A

34 Claims

Two coin sensing devices are disclosed suitable for use in automatic vending machines. In both devices a coin is subjected to two separate tests and only if both of these tests are passed is the coin accepted.

In the first of these devices a coin is caused to roll down a slope passing in succession two photoelectric sensors. A portion of the pathway between the two sensors lies in a magnetic field in which the coin is subjected to eddy current braking forces characteristic of the resistivity of the coin and, hence, the material of which it is made. The time taken to pass between the two sensors is measured as the first test. Measurement is also made of the time for which the second of these photoelectric sensors is occluded by the coin. This, the second test measures a quantity dependent on the diameter of the coin. Both measurements are compared electronically with predetermined standard results for acceptable coins. If both of these tests are passed the coin is recorded electronically in a totaliser and passed to an accepted-coin receptacle.

In the second of these devices, a coin is rolled down a slope through a magnetic field which causes eddy current braking of the coin. A portion of the slope is interrupted by a trap through which the coin, if acceptable, will fall. A plastic coin will not be subjected to eddy current braking and will pass over the trap and continue down the slope and be rejected. The coin that falls through the trap passes a photoelectric sensor and impinges on a transducer. The time taken to fall past the photoelectric sensor is measured and is



the subject of the first test. The impact of the coin on the transducer causes deflection of a moving part and this deflection which is dependent on the momentum of the coin, is measured. This measurement is used in the second test. In the two tests the measurements are compared electronically with predetermined standard results for acceptable coins.

An electronic circuit is disclosed whereby the device can be programmed to examine and totalize three different denominations of coins.

3,653,482

FRONT FEEDING DEVICE FOR AN ACCOUNTING OR LIKE MACHINE

Alessandro Cortona, Banchette, and Piero Musso, Ivrea, both of Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea (Turin), Italy

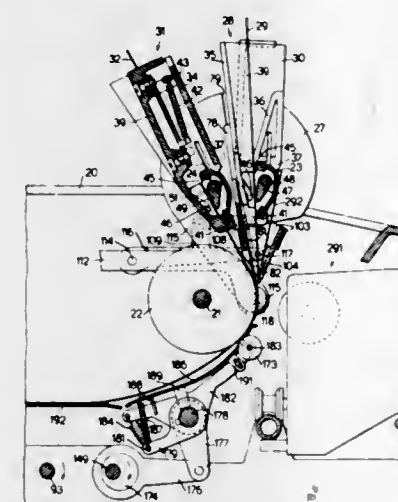
Filed Feb. 26, 1969, Ser. No. 802,494

Claims priority, application Italy, Mar. 1, 1968, 50726-A/68

Int. Cl. B41j 11/48

U.S. Cl. 197-128

9 Claims



A front feeding device for an accounting or like machine having a platen, the device including a plurality of paper-pressing rollers for clamping paper to the underside of the platen, clamping means for clamping paper above the platen, and operating means for selectively opening and closing the rollers and clamping means.

3,653,483

PAPER FEED SYSTEM FOR ACCOUNTING MACHINES

Alessandro Cortona, and Piero Musso, both of Torino, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

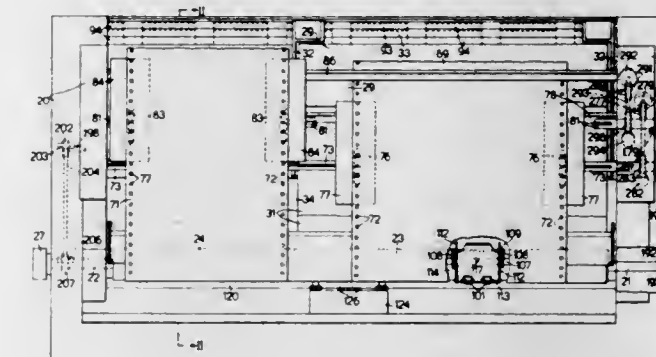
Filed Jan. 16, 1969, Ser. No. 791,666

Claims priority, application Italy, Jan. 18, 1968, 50170 A/68

Int. Cl. B41j 15/18

U.S. Cl. 197-129

13 Claims



A paper feed system for an accounting machine or the like which includes a main platen and an independent platen over which continuous forms are fed by a line feed mechanism and journal sheets are fed by a form feed mechanism. The line feed and form feed mechanisms are selectively driven from a common shaft through corresponding clutch mechanisms. The common shaft is selectively driven from a continuously rotating motor shaft through a selectively actuated clutch. The engagement of the clutches is controlled by a programmed operating device.

3,653,484

HANDRAIL DRIVING ASSEMBLY FOR BELT TYPE MOVING PASSENGER CONVEYORS

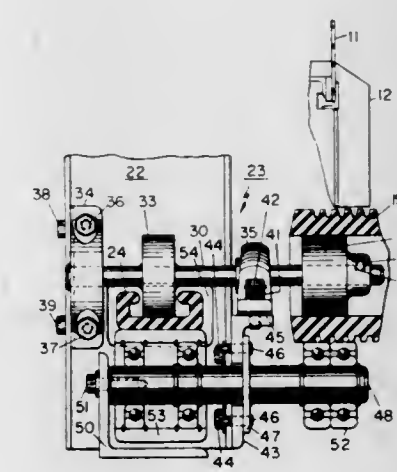
Alastair Charles Taylor, Long Island, N.Y., assignor to Otis Elevator Company, New York, N.Y.

Filed Mar. 3, 1971, Ser. No. 120,603

Int. Cl. B66b 9/14

U.S. Cl. 198-16 R

8 Claims



A handrail driving assembly for belt type moving passenger conveyors in which a plurality of traction providing rollers are disposed along the length of the conveyor to operate independently of each other, each deriving its motive power from the motion of the belt.

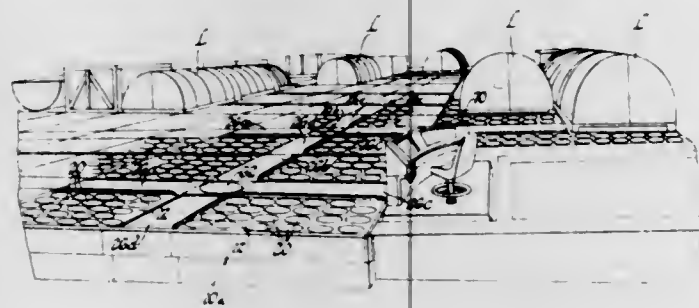
3,653,485

AN AIR BEARING CONVEYOR

Richard H. Donlon, Troy, Mich., assignor to Transportation Technology, Inc., Madison Heights, Mich.
Continuation-in-part of application Ser. No. 778,546, Nov. 25, 1968, now abandoned. This application Mar. 5, 1971, Ser. No. 121,605
Int. Cl. B65g 1/04

U.S. Cl. 198—25

7 Claims



Article handling apparatus including load supporting means in the form of air bearings mounted on decks and actuable to provide a film of air for supporting a load above the surface of the decks. Propulsion means, which may be in the form of conveyor belts, are associated with one or more of the decks and have extended and retracted positions respectively engageable with, and spaced from, a load supported above the surface of the decks on the film of air. The propulsion means may be actuable to an extended position in response to energization of the air bearings so that the path of movement of the load can be determined by energization of a particular group of air bearings, and the direction of movement along the path can then be determined by energization of the propulsion means.

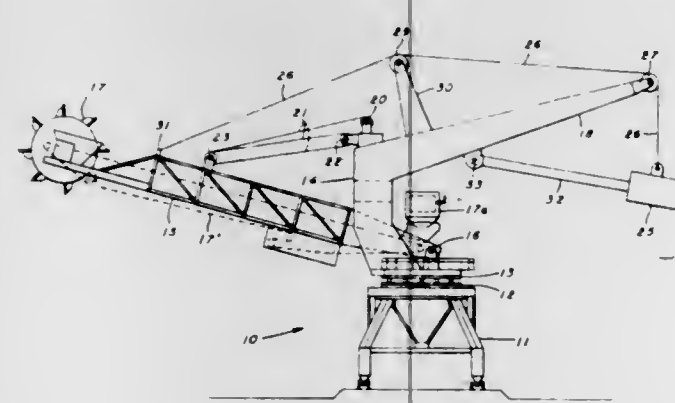
3,653,486

MATERIAL HANDLING APPARATUS

William B. McLean, Moon Township, Allegheny, and Laimons Naruns, Pittsburgh, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.
Filed July 17, 1970, Ser. No. 55,889
Int. Cl. B66c 23/72

U.S. Cl. 198—36

7 Claims



There is shown a mobile material handling structure, such as a bucket wheel stacker and reclaimer having a carriage on which is a turntable structure comprising the turntable itself, with a mast, a load boom pivoted to swing in a vertical arc, and a counterweight at the end of a pivoted strut that extends out beyond the turntable in a direction diametrically opposite the load boom. A cable, connected with the counterweight, passes over the mast and is attached to the boom, so that as the boom swings up or down from a level position, the pivoted strut with its counterweight swings in an opposite direction from a level position. The center of mass of the counterweight is roughly about as far from the center of rotation of the table as the center of mass of the load boom so

that the moment arms through which the two masses are effective to counterbalance each other are approximately equal at all times.

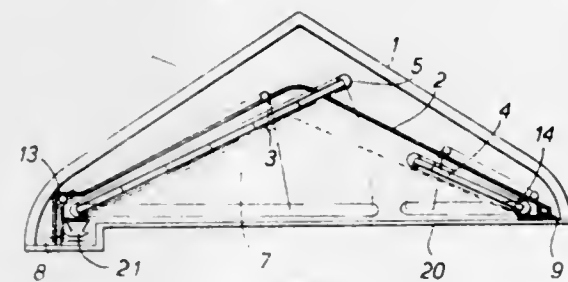
3,653,487

SHED SERVICE SCRAPER

Heinz Berthold, Rohrbach (Saar); Kurt Kamm, Hassel (Saar), and Wolfgang Forster, Saarbrücken, all of Germany, assignors to Pohlig-Heckel-Bleichert Vereinigte Maschinenfabriken A.G.
Filed Sept. 9, 1969, Ser. No. 856,341
Int. Cl. B65g 65/28

U.S. Cl. 198—36

7 Claims



A shed service scraper including a travelling gantry and a main scraper chain and an auxiliary scraper chain mounted thereon the scraper chains being adapted to be driven in opposite directions so that the auxiliary scraper chain conveys loosened materials to the working region of the main scraper chain.

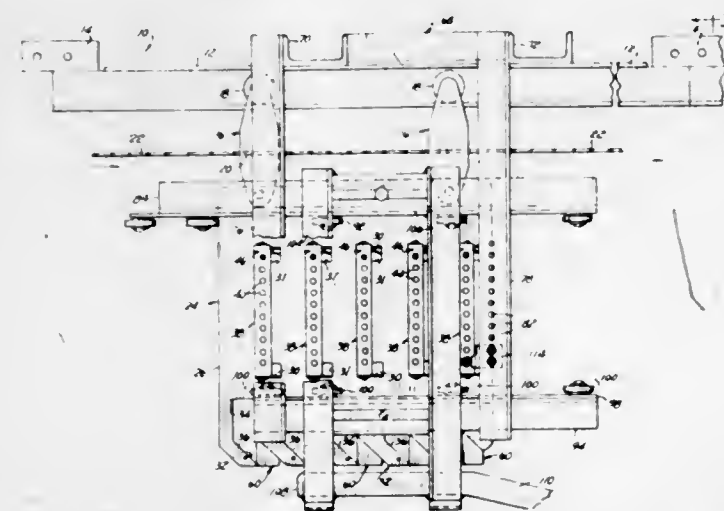
3,653,488

TROLLEY CONVEYOR SYSTEM AND DISPATCH STATION

George L. Witt, Oxford, Mich., assignor to My-T-Veyor Corporation, Oxford, Mich.
Filed Nov. 23, 1970, Ser. No. 91,838
Int. Cl. B65g 17/20

U.S. Cl. 198—38

5 Claims



A trolley conveyor system which includes an elongated trackway and a plurality of longitudinally spaced trolley conveyors movably mounted thereon, and which includes a dumping system by which hangers removably mounted upon a plurality of pendent plates suspended from the trolley conveyors are automatically disengaged from the pendent plates as the corresponding trolley conveyors by which the plates are suspended move through the dumping station to effect an automatic unload.

3,653,489

POWER CONVEYOR SYSTEM FOR PRODUCTION LINES

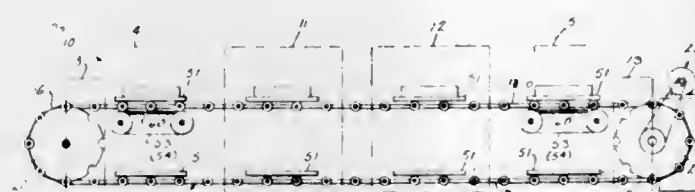
Lyell C. Tullis, Janesville, and Richard G. Moon, Beloit, both of Wis., assignors to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed Dec. 22, 1969, Ser. No. 887,128

Int. Cl. B65g 21/12, 15/00

U.S. Cl. 198—110

1 Claim



A continuously moving power conveyor for transferring work-holding fixtures through a series of work performing stations in which the conveyor supports the fixtures so as to provide for cyclic or interrupted movement of the fixtures through some stations while providing positive and continuous feed of the fixtures through at least one of the stations or manual work areas.

3,653,490

BOUSTROPHEDONIC TRANSPORT DEVICE

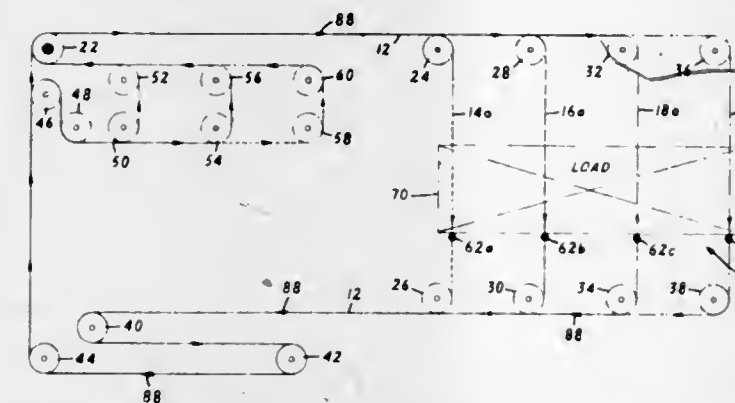
Alfonso DePietro, Valhalla, and Guenther L. Kuehl, Peekskill, both of N.Y., assignors to Guenther Systems, Inc., Buchanan, N.Y.

Filed Jan. 2, 1970, Ser. No. 112

Int. Cl. B65g 17/04

U.S. Cl. 198—153

6 Claims



A transport device in which a plurality of flexible support members of equal length form closed loops and are adapted to move about a plurality of guides in a circulatory manner. Corresponding flexible support members are arranged in pairs and are connected by a platform device on which a load can be carried. The guides are arranged so that the platform and the load move in a first horizontal direction, then in a vertical direction, and then in a second horizontal direction opposite to the first. A magazine through which the flexible support members pass reverses the order of the components of the platform device to compensate for the effect of the guides which control vertical motion.

3,653,491

CONVEYOR CHAIN AND CONTROL METHOD

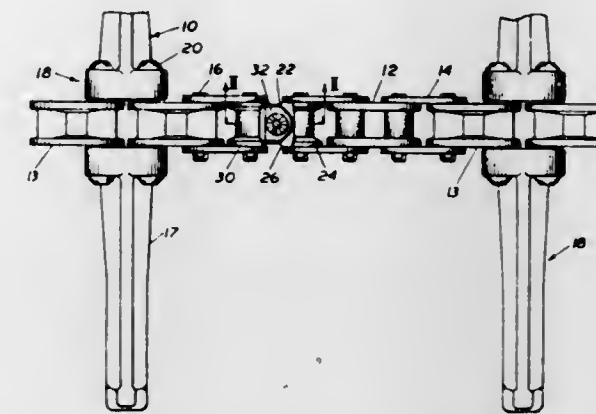
John Safko, Jr., 419 McLelland Road, Canonsburg, Pa., and Glenn S. McDowell, 601 Wylie Avenue, Franklin, Pa.
Continuation of application Ser. No. 684,166, Nov. 20, 1967, now abandoned, which is a continuation of application Ser. No. 670,360, Sept. 25, 1967, now abandoned. This application Aug. 19, 1970, Ser. No. 65,269
Int. Cl. B65g 19/00

U.S. Cl. 198—171

6 Claims

A flight conveyor chain having plurality of links between flight sections, such links being flexible in a direction normal

to the plane of the flights, and the chain having a universal



link intermediate of the flight sections which is flexible in the direction parallel to the plane of the flights.

3,653,492

SCRAPER CHAIN CONVEYORS

Helmut Temme, Im Elckel, Germany, assignor to Gewerkschaft Eisenhütte Westfalen, Wethman near Lunen, Westfalen, Germany

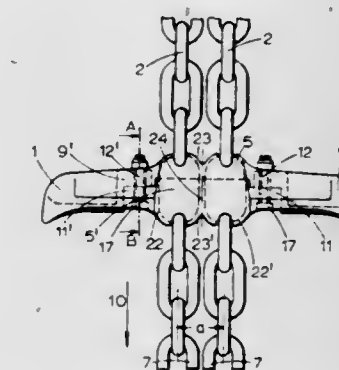
Filed Jan. 7, 1971, Ser. No. 104,616

Claims priority, application Germany, June 27, 1970, P 20 31 874.5

Int. Cl. B65g 19/24

U.S. Cl. 198—175

9 Claims



A scraper chain conveyor with an assembly composed of two centrally disposed chains interconnected at intervals with scraper elements and locking brackets. Each scraper element is tapered in cross-section and has a recess through which the chains extend and the underside of the central portion of the element overlying the recess has shaped compartments receiving horizontal links of the chains and depending lugs extending through these links. The lateral ends of the recess are bounded by apertured webs which mate with apertured end portions of the associated bracket which is disposed beneath the chains. The end portions of the bracket are offset in relation to the remainder of the bracket and have recessed parts which accommodate the heads of the connecting bolts extending through the apertures so as to prevent rotation of the bolts.

3,653,493

CONVEYOR APPARATUS

Douglas M. Kerr, Richardson, Tex., assignor to Stewart Engineering Equipment Company, Inc., Richardson, Tex.

Filed June 1, 1970, Ser. No. 42,346

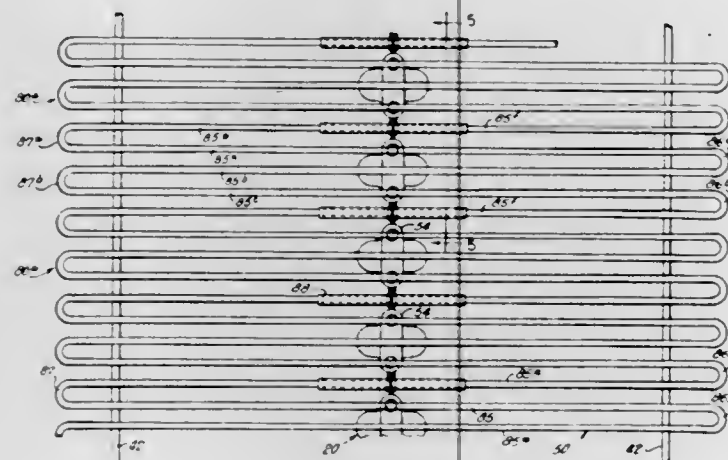
Int. Cl. B65g 17/00, 15/00

U.S. Cl. 198—189

9 Claims

A conveyor apparatus having an endless conveyor which includes an elongate draw member or chain articulated for pivotal movement about mutually perpendicular longitudinally spaced axes so that the conveyor may in its closed

path of movement change direction about both vertical and horizontal axes. A conveyor having a central longitudinal draw member or chain articulated for pivotal movement about mutually perpendicular longitudinally spaced axes and having a support member mounted on the draw member which extends laterally outwardly in both directions from the



draw member in a convoluted or zig zag manner, the support member being connected to the draw member at longitudinally spaced locations by means permitting pivotal movements of intermediate alternate parallel portions of the support member which extend perpendicularly and horizontally relative to the draw member about longitudinally spaced perpendicular axes.

3,653,494

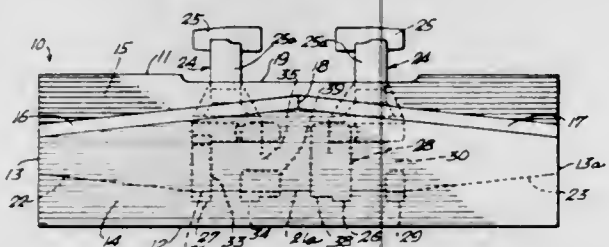
ARTICULATED LINK CONVEYOR

Eldon S. Miller, 6645 S.W. 129th Terrace, Miami, Fla.
Filed May 14, 1970, Ser. No. 37,155 The portion of the term of the patent subsequent to May 26, 1987, has been disclaimed.

Int. Cl. B65g 15/30

U.S. Cl. 198-195

1 Claim



A conveyor of like, individual, flat-top articulated links is described wherein the articulating mechanism permits angular movements in a common plane and wherein the individual links are downwardly stepped at a top front surface portion and upwardly stepped at a bottom rear surface portion to provide for nesting interfitting of top and bottom surface portions of successive links permitting fanning out in a common plane without mutual separation while at the same time presenting link upper surface support portions lying in a common plane.

3,653,495

SHIPPING AND DISPLAY CONTAINER

Laverne E. Gray, Dallas, Tex., assignor to Lone Star Container Corporation, Dallas, Tex.

Filed Sept. 25, 1970, Ser. No. 75,549

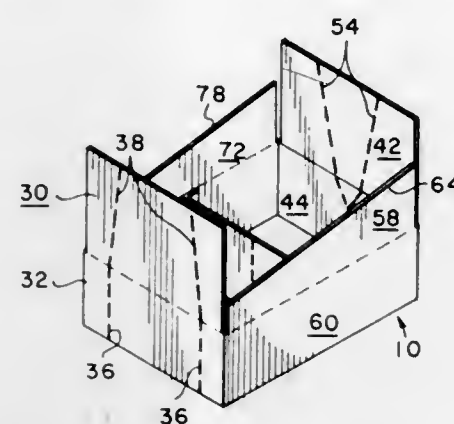
Int. Cl. B65d 81/36

U.S. Cl. 206-45.12

27 Claims

A shipping container or carton having weakened portions

which allow the container to divide into two display tray portions to display the plurality of articles therein.



3,653,496

FILLER FOR POLYGONAL SHAPED ARTICLES

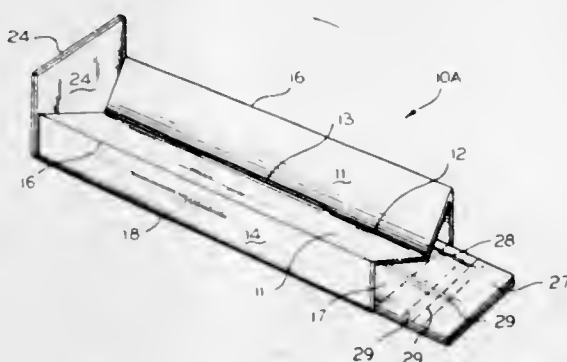
James E. Roberts; Ralph E. Barrow, and Robert B. Dickerson, all of Winston Salem, N.C., assignors to Container Corporation of America, Chicago, Ill.

Filed Feb. 9, 1970, Ser. No. 9,830

Int. Cl. B65d 85/64, 85/68, 5/58

U.S. Cl. 206-46 FN

4 Claims



A corner protector for an article of furniture or similar article. The protector is formed from a cut and scored blank which is folded to define a tube consisting of a pair of panels connected along a fold line and having an included angle which can vary according to the corner angle of the article of furniture. A panel extends from distal portions of each of said panels and laterally of the sides of the article, each of said panels being connected to flanking panels folded into facing relationship and having end flaps thereof folded over and under the furniture article. The ends of certain of the panels have flaps folded back upon the same to give extra thickness to the protector at the lower and upper ends of the article as desired.

3,653,497

SHRINK-ON PACKAGING FOR MOTOR VEHICLES

Herbert Hornstein, Viersen, Germany, assignor to Feldmuhle Aktiengesellschaft, Dusseldorf-Oberkassel, Germany

Filed May 6, 1970, Ser. No. 35,083

Claims priority, application Germany, May 12, 1969, P 19 24 079.0

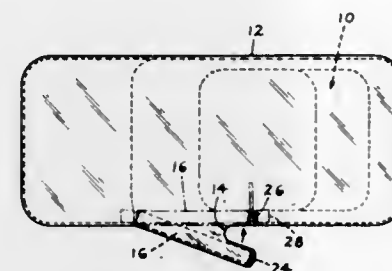
Int. Cl. B65d 75/00; B65b 53/02

U.S. Cl. 206-46 M

7 Claims

A shrink-on plastic foil package for protection of motor vehicles in transit or storage. The shrink-on package envelops the motor vehicle on all sides and a non-shrunk fold of foil extends into the car's interior between the driver's door and the door frame to allow this door to be opened and closed to a degree without damaging the outer shrink-on

package. When the fold is slit the door can be completely opened and closed allowing access to the steering wheel of



the vehicle. When the door is closed again the package is sealed against the atmosphere.

3,653,498

STATIC CHARGE PROTECTIVE PACKAGES FOR ELECTRON DEVICES

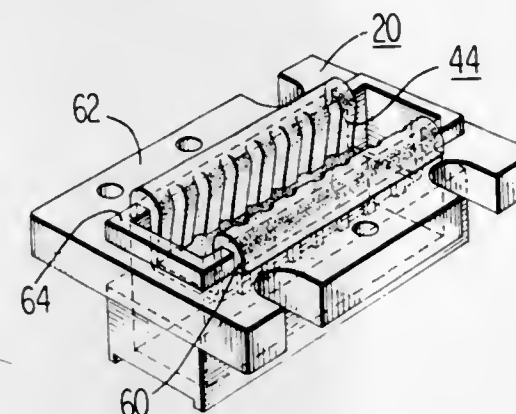
Thaddeus William Kisor, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 24, 1970, Ser. No. 101,316

Int. Cl. B65d 85/00

U.S. Cl. 206-46 H

4 Claims



A carrier is provided for receipt of an electron device having extending leads, the carrier having an array of grooves for receipt of the leads. A lead contacting member, of electrically conductive material, has a relief pattern of ridges which extend into the grooves and into contact with the leads, thereby shorting together the leads.

3,653,499

STORAGE STABLE PARA-FORMALDEHYDE STERILIZING COMPOSITION

Ferdinand Joseph Richter, Danbury, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of application Ser. No. 798,542, Jan. 28, 1969, now abandoned, Continuation-in-part of application

Ser. No. 636,501, May 5, 1967, now abandoned. This

application Mar. 2, 1970, Ser. No. 15,448

Int. Cl. B65d 79/00; A61k 27/00; A61l 13/00

U.S. Cl. 206-47 A

9 Claims

A dry two-part composition or substantially anhydrous one-part composition produces a clear, aqueous, storage stable, germicidal, sporicidal and detergent composition which prevents coagulated blood from adhering to instruments during sterilization, etc., and is used to decontaminate surgical items, such as needles and sponges. One part of the composition is paraformaldehyde having an average molecular weight of about 360 free from polymer chains over a molecular weight of 3,000. The melting point in a sealed tube does not exceed 172° C. The remainder of the composition contains an alkali metal triphosphate and a water soluble buffer, such as sodium carbonate, to give a final aqueous solution having a pH between about 10 and 11. If the materials are

substantially anhydrous, that is to say, free from chemically unbound water, all of the constituents can be mixed together in a powder and stored in a container hermetically sealed against the entrance of moisture. If the constituents or any of them are not substantially anhydrous, the composition must be in a two-part package separately sealed in waterproof pouches, one containing the paraformaldehyde and the other the polyphosphate and buffer.

3,653,500

FILLED CAPSULES

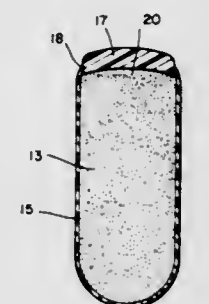
Howard C. Allisbaugh, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed July 11, 1969, Ser. No. 841,044

Int. Cl. B65d 79/00; A61k 9/04; B65b 1/00

U.S. Cl. 206-56 AA

1 Claim



A method for making filled capsules containing dry material in which the dry material is placed into a capsule body to a level slightly below the open end of the body and a measured amount of molten gelatin is placed over the body's open end in contact with the dry material whereby upon solidification of the molten gelatin a fused joint is effected with the capsule body's open end.

3,653,501

PACKAGE OF MOISTURE-SENSITIVE METAL PLATES

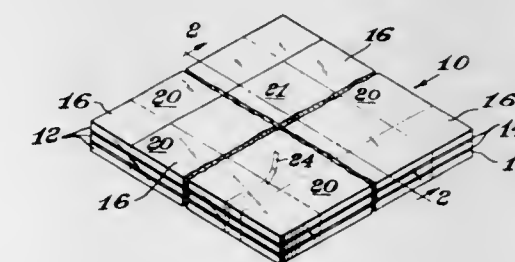
Charles A. Sauer, Russellville, Ark., assignor to The Dow Chemical Company, Midland, Mich.

Filed Aug. 20, 1970, Ser. No. 65,497

Int. Cl. B65d 85/48, 85/62

U.S. Cl. 206-62 R

6 Claims



Described herein is a package of moisture-sensitive metal plates such as are used in photoengraving work. The plates have sheets of neutral interleaving material between them. The package is held together by a polymeric film barrier positioned along the edges of the superposed plates thereby to encompass all the edges. The film also serves as a moisture barrier protecting the interior surfaces of the plates from the atmosphere. The package permits moisture-sensitive plates to be shipped or stored without streaking, discoloration or other damage from "water-marking."

3,653,502

PACKAGED SURGICAL PAD HAVING PROTECTED WOUND-CONTACTING SURFACE AND METHOD OF PACKAGING SAME

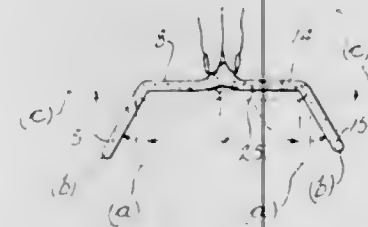
John F. Beaudoin, Milwaukee, Wis., assignor to Pratt Manufacturing Corp., Milwaukee, Wis.

Filed May 11, 1970, Ser. No. 36,081

Int. Cl. A61b 15/00

U.S. Cl. 206-63.2 R

8 Claims



A surgical pad, which comprises a filler of cotton or the like in a covering of non-woven material, has edge portions folded downwardly and inwardly under the pad over its bottom wound-contacting face to meet on the longitudinal center line therebeneath, and is wrapped in a tubular wrapper having a peel-away top closure. When the closure is peeled away it exposes a top surface of the pad which may be grasped to lift the pad upwardly out of the package, the folded portions having an inherent tendency to thereafter straighten out into the plane of the top portion of the pad. The method of packaging the surgical pad is also disclosed.

3,653,503

CARRIER PACKAGE

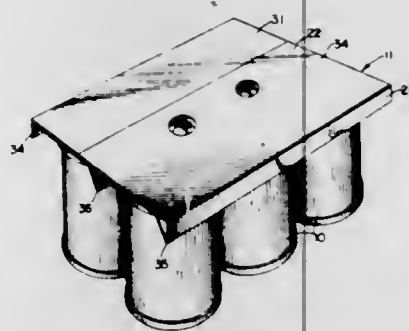
Edwin L. Arneson, Hillsdale, N.J., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Continuation-in-part of application Ser. No. 815,264, Apr. 7, 1969, now abandoned. This application Jan. 13, 1970, Ser. No. 2,457

Int. Cl. B65d 71/00, 85/62

U.S. Cl. 206-65 C

11 Claims



A package in which a plurality of beverage cans, bottles or other containers of similar character are arranged in row formation with the tops thereof locked to the bottom panel of a folded paperboard carrier by engaging portions of the chimes, or other projecting beads or flanges in oppositely disposed apertures arranged in spaced and paired relation along inwardly and upwardly inclined narrow side wall panels in a single row package and along like side wall panels and a narrow V-shaped center rib, in a double row package, the center rib in the latter depending from the bottom face of the carrier and disposed between the two rows of containers with small tabs cut from the material at the bottom side of each chime receiving aperture which are adapted to lie against the container wall with the top edges thereof engaging beneath the projecting chimes or other projecting means. The carrier may have finger holes or handle means permitting it to be more readily grasped for carrying the assembly.

3,653,504

CONTAINER PACKAGE

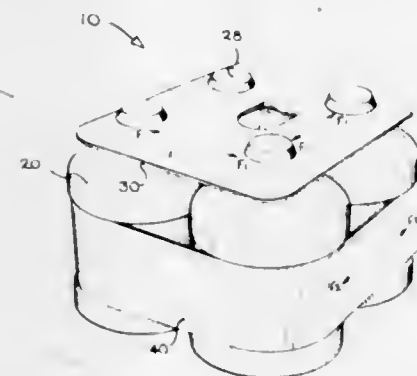
Robert W. Saumsiegle, Needham, Mass., assignor to Owens-Illinois, Inc., Toledo, Ohio

Continuation-in-part of application Ser. No. 33,333, Apr. 3, 1970, now abandoned. This application Aug. 7, 1970, Ser. No. 61,984

Int. Cl. B65d 71/00, 85/62

U.S. Cl. 206-65 E

11 Claims



Packaging device for a cluster of containers including a flat apertured carrier and an endless resilient band. The distance between the centers of the apertures in the carrier is less than the distance between the centers of the containers to be packaged. Both the carrier and band are under tension thereby producing a firm package.

3,653,505

PORTABLE ORE CLASSIFIERS AND CONDITIONERS

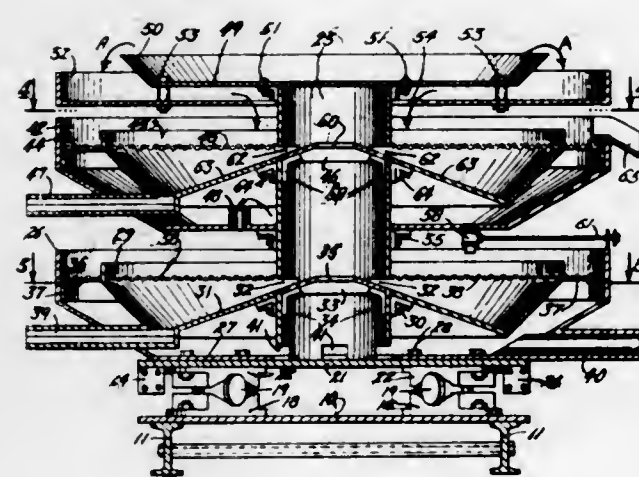
Arnold M. Phippen, 1550 Depeu Street, Denver, Colo.

Filed Nov. 21, 1969, Ser. No. 878,667

Int. Cl. B03b 7/00, 3/12

U.S. Cl. 209-44

8 Claims



This invention is designed as an improvement over the ore classifier disclosed in prior U.S. Pat. No. 2,992,740 and employs a portable supporting structure upon which a power device and a horizontal, rotatable, top plate, from the axis of which a hollow tubular stack vertically extends, is supported. The power device constantly jogs the top plate vertically and circumferentially. A plurality of substantially similar ore concentrating pans are mounted upon and concentrically surround the stack one above the other so the jogging movements of the top plate will be simultaneously imparted to all of the pans so as to discharge light weight materials into the stack and retain the relatively heavier materials for salvage.

3,653,506

LUMBER BIN SORTER WITH VERTICALLY-POSITIONABLE AND TILTABLE BIN FLOORS

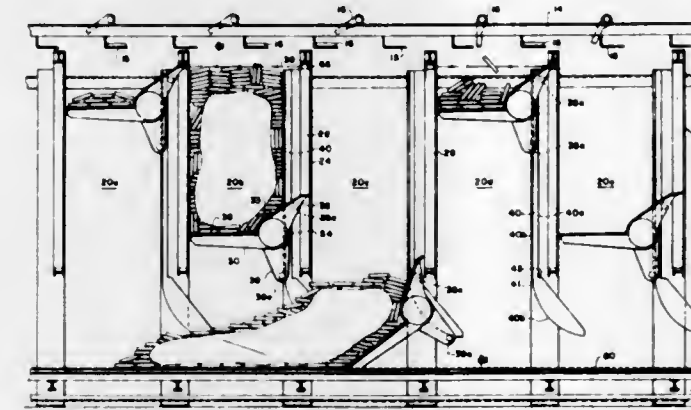
Donald B. Turner, and Albert H. Barnes, both of Portland, Oreg., assignors to Moore Dry Kiln Company of Oregon, Portland, Oreg.

Filed June 12, 1970, Ser. No. 45,819

Int. Cl. B07c 3/08

U.S. Cl. 209-74

3 Claims



A lumber bin sorter, of the type having a multiplicity of bins to which graded green lumber is carried by an overhead conveyor and ejected into designated bin locations, wherein each of the bins is provided with a vertically positionable floor member which is raised to the topmost position when the bin is empty and then, as the bin fills up with lumber, the floor indexes successively downward until it reaches the lowest point when the bin is full. The floor, which is guided in its travel by a cam follower mechanism, thereafter tilts downward to provide an opening in the bottom of the bin for dumping its contents onto a conveyor chain traveling underneath. Appropriate sensors, in the form of limit switches and photocells, are provided to generate control signals indicating the arrival of the bin floor at the respective uppermost and lowermost points of travel and for causing the floor to index downward in response to the progressive filling of the bin with lumber.

3,653,507

SILVERWARE SORTER

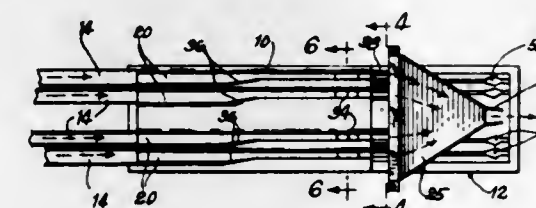
Ralph Ettlinger, Jr., Highland Park, and Frank J. Kostohryz, Elmhurst, both of Ill., assignors to Avant Industries, Inc., Wheeling, Ill.

Filed Mar. 30, 1970, Ser. No. 23,855

Int. Cl. B07b 13/04

U.S. Cl. 209-97

14 Claims



A silverware sorting construction for handling knives, forks and spoons. A bed is provided with vibrating means or other devices for moving silverware toward a discharge end of the bed. Knives on the bed are maintained in position and are discharged into collecting means located at the end of the bed. Discharge openings are defined at an intermediate location, and both forks and spoons pass through the discharge openings. A plate is positioned beneath the discharge openings, and slots are defined by the plate for receiving the forks and spoons. The slots are dimensioned so that the forks will pass through the plate into separate collecting means. The spoons are held suspended by their bowls and are moved

along the plate to discharge openings at the end of the plate. A separating means may be employed for separating spoons of different size, for example separating spoons with longer handles from spoons with shorter handles. Separate collecting means are then provided for the different types of spoons.

3,653,508

APPARATUS FOR SEPARATING DEFECTIVE ARTICLES FROM ACCEPTABLE ARTICLES

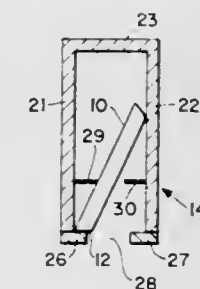
Raymond G. Tessmer, Jr., Cincinnati, Ohio, assignor to The Proctor & Gamble Company, Cincinnati, Ohio

Filed Aug. 20, 1970, Ser. No. 65,455

Int. Cl. B07c 5/02

U.S. Cl. 209-97

8 Claims



An apparatus designed to separate defective caps or like articles from acceptable caps so that only the latter are available for further processing. The apparatus includes an inclined cap chute which is fully enclosed at its upper end and which has a longitudinally slotted bottom opening at its lower end which is defined by inwardly projecting support members which may take the form of a pair of opposed ledges. Guide means which preferably take the form of a knife edge are provided projecting inwardly and spaced above the support ledges. The caps roll down the chute by gravity. Acceptable caps are supported by one of the ledges as the corresponding knife edge prevents the cap from rolling in toward the slotted bottom opening. Thus, satisfactory caps negotiate the entire length of the chute and are collected at the outlet thereof. Caps having defects are knocked out of rolling equilibrium by the guide means whereupon they fall through the slotted opening and are segregated from the acceptable caps.

3,653,509

SIZING APPARATUS

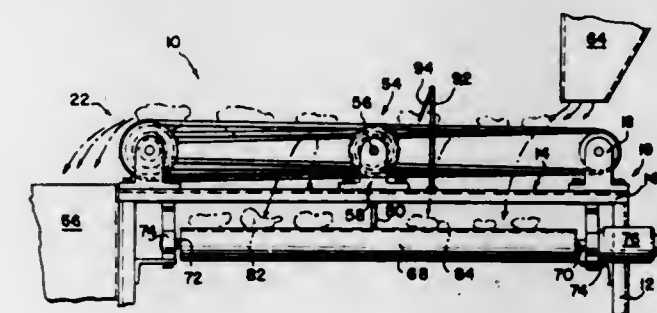
Hubert Coleman Goodman, Jr., Morgantown, W. Va., and Donald D. Hamann, Raleigh, N.C., assignors to Research Corporation, New York, N.Y.

Filed Dec. 9, 1969, Ser. No. 883,377

Int. Cl. B07b 13/04

U.S. Cl. 209-102

5 Claims



Apparatus and method for sizing ovoidal bodies is provided. The sizing apparatus includes a pair of step-pulleys carried by a driven shaft with the minimum diameter pulleys thereof in opposed relation, a plurality of idler pulleys rotatably mounted on an idler shaft and conveying belts carried by each of the steps of the step-pulleys and trained about

the idler pulleys. The step-pulleys and the idler pulleys are so arranged that the belts about the idler pulleys and the step-pulleys define a V-shaped slot increasing in width from the idler pulleys to the step-pulleys. Drive means are provided for driving the conveying belts.

3,653,510

OIL SKIMMING METHOD AND APPARATUS

Hugh J. Fitzgerald, Austin, Tex., assignor to Ocean Pollution Control, Inc., Dallas, Tex.

Continuation of application Ser. No. 811,713, Apr. 1, 1969, now Patent No. 3,523,611. This application Apr. 27, 1970, Ser. No. 32,187

Int. Cl. B01d 21/00

U.S. Cl. 210—83

19 Claims



Apparatus and method for skimming an oil film from the surface of a large body of water including a towed funnel assembly with a flexible cover and side skirts of impermeable sheet material with floats to keep the leading edge of the cover spaced above the surface of the water so that the oil film will pass beneath it, with the remaining portions of the cover supported on the floating oil, a bottom panel of netting to hold the side skirts in downwardly projecting position to confine the oil laterally, while permitting the water beneath it to escape freely, and a sump at the apex of the funnel to receive the oil for transfer to storage vessel.

3,653,511

SEDIMENTATION APPARATUS

Karl Axel Goran Gustavsson, and Knut Melker Evald Tornqvist, both of Enkoping, Sweden, assignors to Aktiebolaget Bahco Ventilation, Enkoping, Sweden

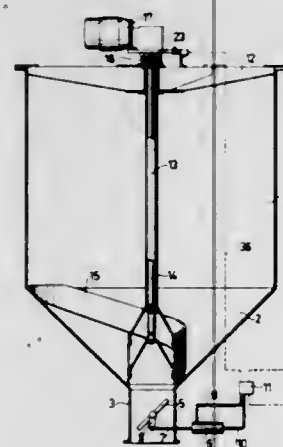
Filed May 13, 1970, Ser. No. 36,787

Claims priority, application Sweden, June 12, 1969, 8381/69

Int. Cl. B01d 21/20

U.S. Cl. 210—112

4 Claims



An improved sedimentation apparatus is disclosed. The sedimentation apparatus comprises a container with a lower outlet for discharging sediment and a rotating scraper for moving the sediment towards the outlet. The scraper is con-

nected by a shaft to a drive motor resiliently mounted on the container. The drive motor is pivotally mounted relative to the shaft. When resistance to scraper movement increases because of an accumulation of a certain quantity of sediment, the motor swings in relation to the shaft and actuates means to open the outlet. When a certain quantity of the sediment is removed, the motor returns to its normal position and the outlet closes.

3,653,512

FLUID FILTER DEVICE

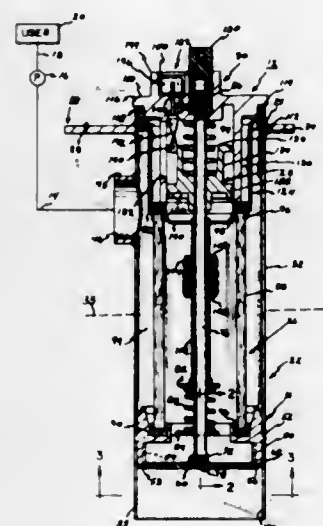
Carl A. Brown, Birmingham, Mich., assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed July 16, 1970, Ser. No. 55,385

Int. Cl. B01d 35/28

U.S. Cl. 210—130

6 Claims



A fluid filter device having an elongated tubular housing submerged in a fluid reservoir, the housing having an opening registering with the filler opening of the reservoir. The tubular housing has an inlet for receiving fluid and an outlet for discharging fluid with a fluid filter disposed therebetween. An elongated rod disposed within the tubular housing has one end threadedly engaging a cap adapted to close the open end of the tubular housing. The lower portion of the tubular housing has a pair of parallel spaced walls which form a transversely extending opening through which the lower end of the rod is disposed. The lower end of the rod has a transversely extending section which forms a T and which engages the underside of the spaced walls when rotated 90° with respect to the transversely extending opening. A spring carried by the rod biases the T section of the rod into engagement with a slot formed on the underside of the spaced walls to prevent relative rotational movement between the rod and the tubular housing when the cap is threadedly attached to the rod.

3,653,513

SWIMMING POOL FILTER APPARATUS

Robert Ortega, and Chester A. Sable, both of Orange County, Calif., assignors to Anthony Pools, Inc., South Gate, Calif.

Filed Nov. 4, 1969, Ser. No. 873,969

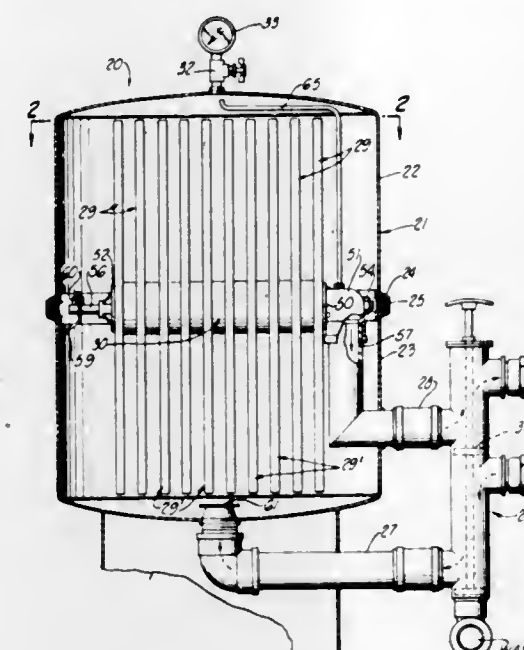
Int. Cl. B01d 29/34

U.S. Cl. 210—169

2 Claims

A plurality of generally planar filter elements are arranged in a mutually spaced stack which is mounted within a filtering chamber with the filter elements maintained planarly vertical. The stack mounting means provides resting support within the chamber while hydraulically connecting the stack externally of the chamber. Water to be filtered enters the bottom of the chamber and is spread to move along the chamber bottom and upwardly therein.

A further aspect is the construction of each filter element including a plurality of readily extending channels terminat-



ing in a central cavity. A fabric septum covers the entire grid except the cavity. Stacking is accomplished by connecting the grid elements in the region adjacent the central cavity.

3,653,514

WATER SOFTENER

Frank A. Holler, Santa Monica, and Radford G. King, Torrance, both of Calif., assignors to King-Holler International, Santa Monica, Calif.

Filed Dec. 7, 1970, Ser. No. 95,804

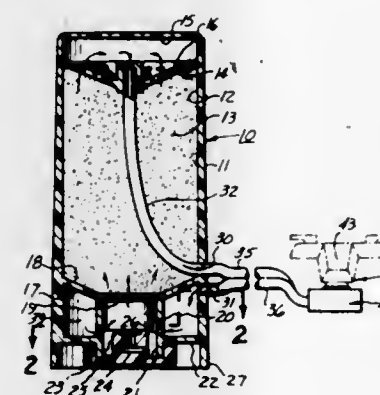
Int. Cl. B01d 35/02, 29/38

U.S. Cl. 210—281

8 Claims

U.S. Cl. 211—43

9 Claims



A water softener especially adapted for cosmetic use in a water supply system wherein the entire system flow is not subjected to softening. The device is intended for attachment to a faucet and includes a fluid-tight case having an internal resin chamber and an internal regenerant chamber in fluid communication with each other. A first and a second port pass through the case, one of the ports being in fluid communication with each of the chambers in such manner that water entering one of the ports must flow through both chambers to reach the other port. A removable closure gives access to the regenerant chamber so that a packet of regenerant material can be placed therein. A pair of hoses is attached to the ports, and diverter means connects the hoses to the faucet so that water may selectively be passed directly to the user without softening or may be diverted through the softener to deliver softened water. The regenerant is packed in a package, at least a portion of the cover of which is disintegrable upon contact with water, whereby a storable package may be dropped into the regenerant chamber and its contents become available for its intended purpose by the dissolution of the portion.

3,653,515

TIE RACK

George L. Rice, P.O. Box 112, R.D. #1, Temple, Pa.

Filed July 27, 1970, Ser. No. 58,495

Int. Cl. B42f 17/00

U.S. Cl. 211—13

4 Claims



A tie rack for hook-on ties includes a casing having a front plate whose edges terminate in a rearwardly directed flange. The rearwardly directed flange terminates with right angular ear means having openings for receiving suitable fastening devices for securing the rack to a vertical structure. The front plate has elongated slots disposed therein and arranged with their major axes in a horizontal plane. The slots are arranged in a matrix staggered in an alternate, interlaced configuration. Each slot is adapted to receive the central clip of a hook-on tie. The slots are generated through the front plate in a backwardly and downwardly directed manner so that the hook-on ties can be easily inserted into and removed from the tie rack.

3,653,516

BOOK PLATFORM STRUCTURE

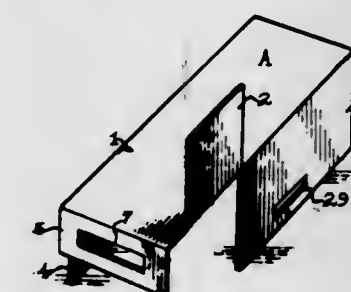
Hemah J. Herbert, P.O. Box 2812, San Diego, Calif.

Filed Oct. 21, 1969, Ser. No. 868,059

Int. Cl. A47b 65/00

U.S. Cl. 211—43

9 Claims



The invention described herein is to be found within an improved book platform structure which comprises a combination of useful purposes and particularly, because of its unique simplistic structure, results in a potential product that is easily manufacturable over devices which may partly possess some vaguely similar elements; thus it is therefore financially more reasonable to produce on a mass production basis and is capable of being considered practical for not only the reading room facilities of business or industrial establishments, or of places for the general public such as libraries, schools, et cetera, but also for domestic usage by the general consumer which, heretofore, has not been accomplished for a structure which is capable of performing the tasks described herein.

3,653,517

GUARD FOR INSULATING BOOMS

James L. Grasby, Little Rock, Ark., assignor to Saf-T-Boom Corporation, Little Rock, Ark.

Filed Dec. 7, 1970, Ser. No. 95,716

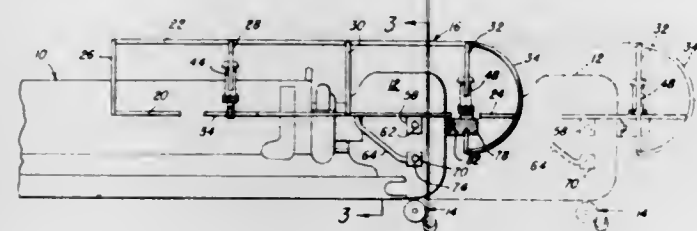
Int. Cl. B66c 15/00

U.S. Cl. 212—1

8 Claims

An insulated guard particularly adapted for use on telescopic crane booms as either initial installation or conversion

equipment; the guard consisting of a skeletonized framework electrically insulated from the extensible portion of a boom and including means substantially balancing the guard at the terminal end of the boom and providing an essentially



resilient or shock absorbing assembly to minimize fracturing of the cooperating elements, and including an improved mounting assembly minimizing the fasteners in number and complexity to enable relatively unskilled labor to maintain and repair the equipment.

3,653,518

STABILIZED REEVING FOR CRANES

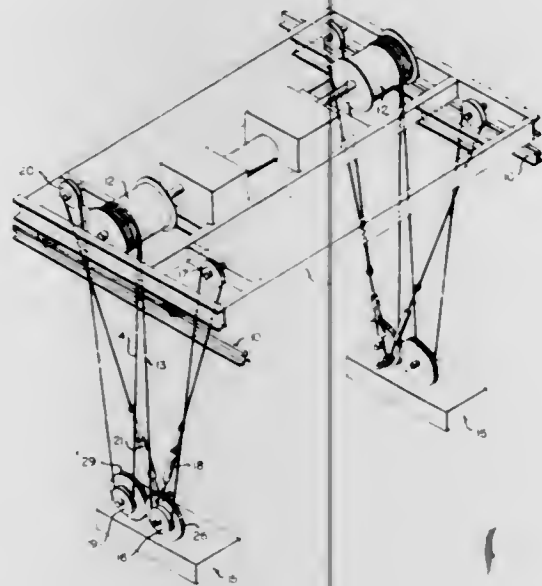
Karl L. Polen, Alliance, Ohio, assignor to The Alliance Machine Company

Filed Jan. 12, 1970, Ser. No. 2,256

Int. Cl. B66c 19/00

U.S. Cl. 212-125

5 Claims



A stabilized reeving system is provided for crane loading and unloading wherein the load suspended from the crane may be trimmed or stabilized for tilt or list.

3,653,519

METHOD OF AND APPARATUS FOR RECEIVING A WOUND COIL

Joseph W. Jurkovic, Sr., and Donald E. Schultz, both of Waukegan, Ill., assignors to United States Steel Corporation

Filed Nov. 17, 1970, Ser. No. 90,246

Int. Cl. A01k 97/06

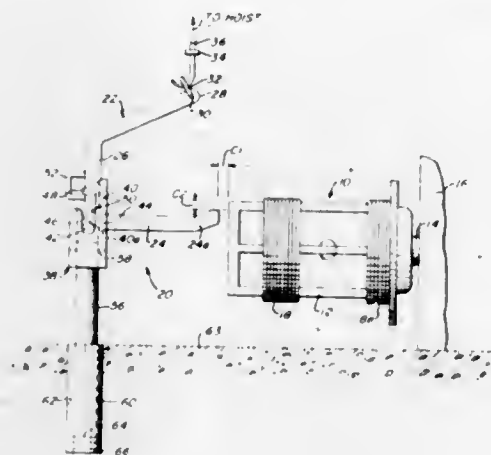
U.S. Cl. 214-1 R

18 Claims

A method of and apparatus for receiving a wound coil from a winding device, having a rotating block on which a longitudinal member is wound into the wound coil, is disclosed.

The wound coil receiving apparatus or device has a hook provided with a toe portion and a body portion. A hook positioning member is provided with a toe portion receiving aperture adapted to receive the toe portion in projecting alignment with the wound coil so that the wound coil may be transferred from the block to the toe portion.

The method includes the steps of positioning a hook having a toe portion and a body portion in a toe portion receiving aperture of a hook positioning member so that the toe



portion projects from the toe portion receiving aperture in projecting alignment with the wound coil on the block and transferring the wound coil from the block to the positioned toe portion.

3,653,520

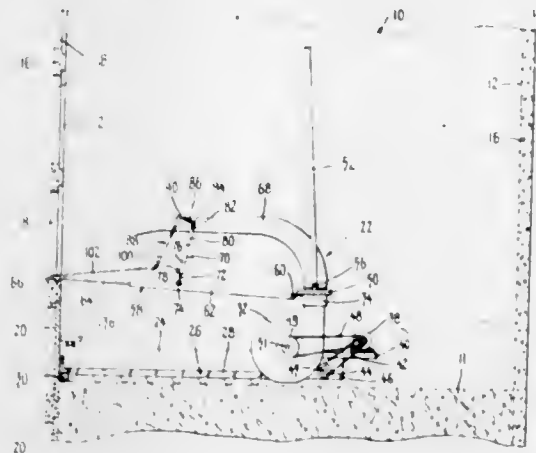
SILO UNLOADER DISCHARGE SPOUT AIMING SYSTEM

Erich G. Milchner, Oconto Falls, Wis., assignor to Badger Northland Inc., Kaukauna, Wis.

Filed Dec. 10, 1970, Ser. No. 96,822

U.S. Cl. 214-17 DB

4 Claims



A silo unloader for removing silage from a silo which includes a rotatable elongated frame, a silage collecting auger, a discharge conveyor assembly with impellers to blow the silage through openings in the silo wall, a discharge spout for directing silage blown from the discharge conveyor assembly through the openings in the silo walls and a discharge spout aiming device. The aiming device includes a torque arm with one section telescopically received in a second section, a support with adjustable length pivotally attached to the torque arm and a bell crank. The bell crank is pivotally attached to the discharge spout, has one arm pivotally attached to the support and has the other arm attached to the silo wall.

3,653,521

SYSTEM AND APPARATUS FOR HOLDING FREIGHT CONTAINERS OF VEHICLES AND THE LIKE

John Bridge, 407 South Dearborn Street, Chicago, Ill.

Filed Nov. 10, 1969, Ser. No. 875,477

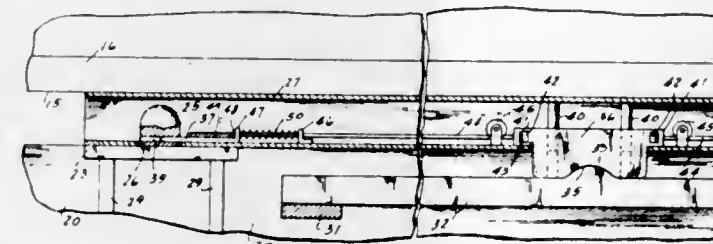
Int. Cl. B65g 67/02

U.S. Cl. 214-38 CA

5 Claims

Apparatus for locating and holding freight containers to the flat deck of a vehicle, such as a railway car, truck, trailer

and the like. The containers may be of various lengths and may be intermixed on the deck of the vehicle and are located on the deck of the vehicle by interengaging dome and socket connections and latch bolts locking the domes to the sockets. The latch bolts are released by the lifting devices of a conventional lift for lifting and placing containers on vehicle



decks. In one form of the invention, upward movement of the lifting device releases the latch bolts. In another form of the invention, inward movement of the lifting devices to engage under the container, serves to release the latch bolts and accommodate the container to be lifted above the deck of the vehicle.

3,653,522

VEHICLE LOADER

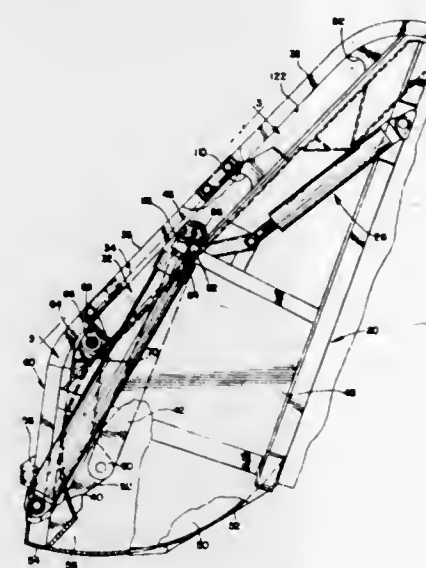
Cyril R. Gollnick, Oshkosh, Wis., assignor to Leach Company, Oshkosh, Wis.

Filed June 5, 1970, Ser. No. 43,918

Int. Cl. B65f 3/00

U.S. Cl. 214-83.3

2 Claims



A refuse loader including an improved mechanism for insuring proper sequential movement of a loading apparatus having a packer plate, a plate carrier, and at least one operating link and including means for pivoting, retracting, and repositioning the packer plate. The packer plate is pivotally mounted on a reciprocable carrier which, together with the plate, is adapted to be first extended and lowered for engaging loose material to be packed, whereupon the plate is swung through an arc to collect and compact the material. Thereafter the carrier and plate move together to a discharge portion of the loader. After performing the cycle, the packer plate is pivoted downwardly and returned to the original position for repetition of the cycle. The principal improvement comprises the provision of means associated with the carrier which have a predetermined resistance to sliding or reciprocable movement of the carrier in relation to the resistance to arcuate or pivotal movement of the plate, whereby, with only a single actuating means, such as a piston and cylinder assembly, and one link extending between the carrier and the pivot, operation will be carried out in the proper sequence.

3,653,523

LOAD COMPENSATING HYDRAULIC CIRCUIT

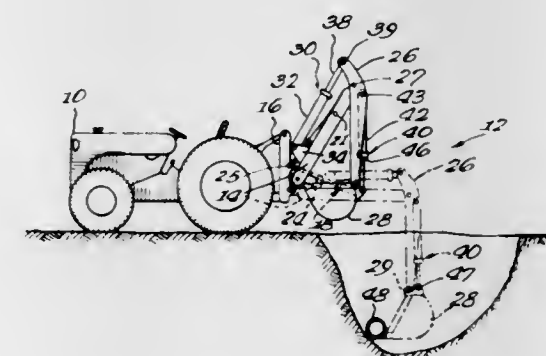
Elton B. Long, Burlington; Arthur G. Short, Bettendorf, both of Iowa, assignors to J. I. Case Company, Racine, Wis.

Filed July 24, 1969, Ser. No. 844,563

Int. Cl. E02f 3/74

U.S. Cl. 214-138

5 Claims



A hydraulic circuit for automatically initiating operation of a first, controlled hydraulic ram in response to the pressure build up in a second controlling hydraulic ram including a sequence control valve having an inlet port and a pressure port connected to the controlling hydraulic ram and an outlet port connected to the controlled hydraulic ram. The valve opens in direct response to the build up of pressure in the controlling ram to interconnect the inlet and outlet ports and thereby initiate operation of the controlled ram. A hydraulic valve connected in the drain line of the sequence control valve can be utilized to vary the response of the valve to operate at selected values of pressure built up in the controlling ram and may also be used to lock out the control valve.

3,653,524

DITCH CLEANING ATTACHMENT FOR HIGH LIFT MATERIAL HANDLING EQUIPMENT

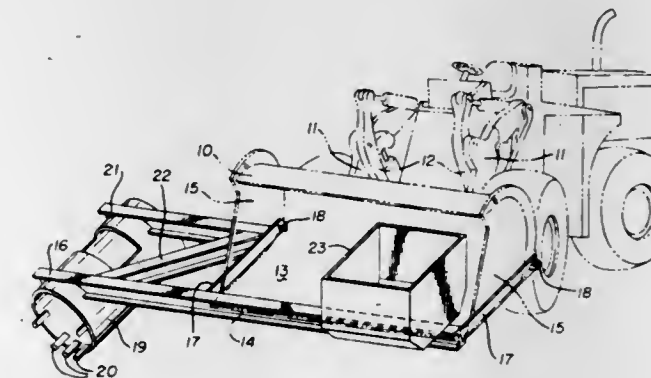
Andrew V. Rich, P.O. Box 2, and Eugene F. Zarlengo, P.O. Box 286, both of Hillsville, Pa.

Filed Aug. 21, 1970, Ser. No. 65,845

Int. Cl. E02f 3/00

U.S. Cl. 214-145

5 Claims



A ditch cleaning attachment for a so-called high lift shovel has an arm attachable to the bucket of the high lift and extending sidewardly therefrom and mounting a scoop on its outer end. The scoop is disposed below the arm and below the level of the bottom of the bucket and is spaced sidewardly with respect thereto where it can be manipulated by moving the bucket of the high lift shovel.

3,653,525 CONTAINER UNLOADING AND TRANSFERING APPARATUS

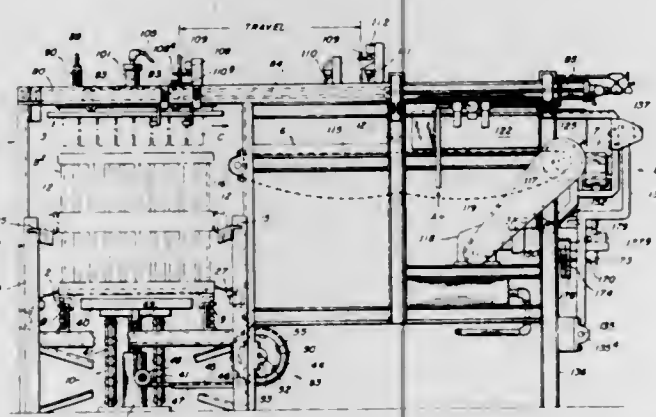
Albert H. Merkner; Alessandro Viecili, both of Pittsburgh, Pa., and Robert C. McCoy, deceased, late of Pittsburgh, Pa. (by Betty May Cornell McCoy, legal representative), assignors to H. J. Heinz Company, Pittsburgh, Pa., by said Merkner and said Viecili

Filed Jan. 30, 1970, Ser. No. 7,149

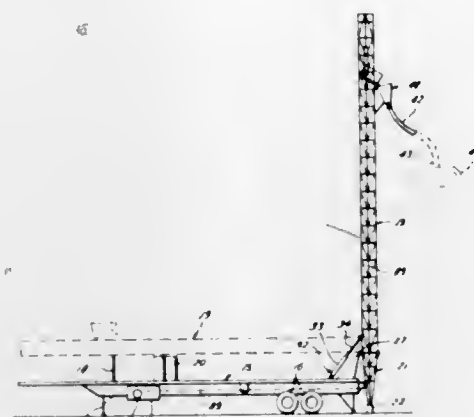
Int. Cl. B65g 59/02

U.S. Cl. 214-309

21 Claims



the material may be positioned and which automatically tilts, upon reaching the unloading position, to dump the material



into a hopper from which it is piped to the vessel being loaded.

3,653,527 VEHICLE WHEEL DOLLY

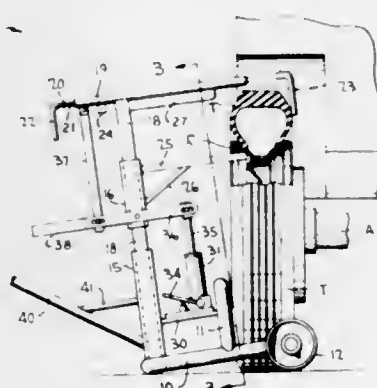
Glenn C. Seymour, Bradford County, Pa., assignor to George R. Clapp, Burdett, N.Y., a part interest

Filed Nov. 3, 1970, Ser. No. 86,543

Int. Cl. B60b 29/00

U.S. Cl. 214-331

10 Claims



The apparatus disclosed is particularly, but not exclusively, applicable for removing hot filled tins from a sterilizing basket where they are arranged in multiple layers or tiers on a vertically-movable bottom panel by raising the bottom panel in increments such that the cans of each layer in turn are pushed against a magnetic head and the basket then lowered sufficiently to leave the uppermost layer of cans suspended from the magnetic head. Said head then moves the layer of cans as a group laterally and drops them onto an endless conveyor, each layer in the basket being successively removed in this way. The conveyor carries the cans between parallel divider strips that arrange them in a plurality of lanes. Gate means are provided for simultaneously discharging the lead can in each lane onto a cross conveyor at the discharge end of the first conveyor, and when a can from each lane is positioned on the cross conveyor, the row of cans is carried single file from the ends of the lanes for transfer to a transport conveyor that takes them to a labeling machine or other apparatus to which they are to be delivered in single file. As each row of cans is carried away from the discharge end of the first conveyor, the magnet head will repeat its cycle to deposit another layer of cans, the operation continuing until all of the layers in the basket have been thus unloaded.

3,653,526 DRY PRODUCT LOADING APPARATUS

Alvin B. Kennedy, Jr., Alvin, Tex., assignor to Catalyst Services, Inc., Alvin, Tex.

Filed July 2, 1970, Ser. No. 51,800

Int. Cl. B65g 9/00

U.S. Cl. 214-313

1 Claim

Apparatus for loading towers or other vessels with particulate dry product, for instance, catalyst material, which apparatus may be readily transported in recumbent position to the loading area and then erected for elevating the material to the vicinity of the top of the vessel to be loaded. The elevator includes a pivoted carriage in which containers of

A device for removing, transporting, and replacing heavy truck wheels with tires mounted thereon. A dolly is provided with a linkage system for first gripping the wheel between the wheel rim and tire periphery at the upper side of the wheel, and thereafter lifting the wheel by force applied to the gripped portion of the wheel to release it from the axle. A single power source, preferably a hydraulic ram, applies to the linkage an upward thrust to first grip and then to raise the wheel. In a modified arrangement the linkage and power source are supported on a motor vehicle to facilitate transportation of the removed wheel.

3,653,528 STOPPER FOR MEDICAMENT FLASKS

Hans Wimmer, Vicht, Germany, assignor to The West Company, Phoenixville, Pa.

Continuation-in-part of application Ser. No. 801,914, Jan. 28, 1969, which is a continuation-in-part of application Ser. No. 697,749, Jan. 5, 1968, now abandoned. This application Mar. 3, 1970, Ser. No. 16,154

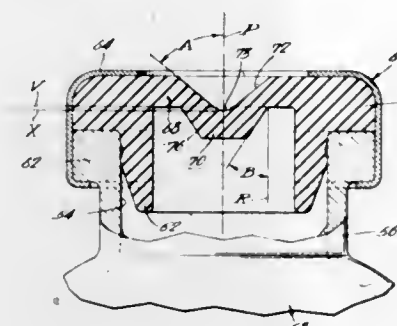
Int. Cl. B65d 41/20

U.S. Cl. 215-38 R

9 Claims

A stopper adapted to be held in place in an opening in a container by means of an outer cap member comprising a disc-like top portion having an enlarged outer annular wall

section and an inner radial wall section of smaller cross section than the outer wall, means defining at least one indenta-



tion in the outer surface of the top portion adapted to be pierced by a hypodermic needle or the like.

3,653,529 RINSABLE BOTTLE CAP SEAL DEVICE

Bruno Segmuller, Niederfeld, Switzerland, assignor to Segmuller AG., Stein am Rhine, Switzerland

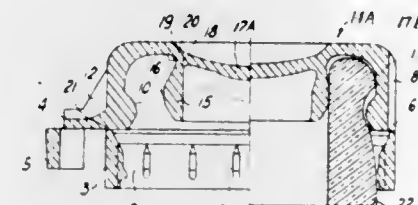
Filed Aug. 26, 1970, Ser. No. 67,128

Claims priority, application Germany, Apr. 21, 1970, P 20 15 779.3; Switzerland, Oct. 21, 1969, 15732/69

Int. Cl. B65d 41/22

U.S. Cl. 215-41

7 Claims



A snap-on bottle cap seal device is made of an elastic material, such as a plastic, and is formed of a reusable sealing cap and a ring-shaped safety strip detachably secured to and extending circumferentially about the lower end of the cap when it is initially secured on a bottle. The centrally disposed portion of the top surface of the sealing cap is concave and a tubular projection extends downwardly from the under side of the centrally disposed portion for engagement within the mouth of the bottle being sealed. An inwardly directed protuberance is formed on the inner surface of the skirt of the sealing cap and an outwardly directed protuberance is formed on the lower end of the tubular projection so that both protuberances provide a sealing effect against opposite surfaces of the bottle. A lifting lug is formed on the lower edge of the sealing cap and a tear-off tab, attached to the safety strap, is secured by small web sections to the lug. Passages are formed between the safety strip and the bottle and the passages extend between the lower end of the strip and grooves formed in the lower outer surface of the sealing cap. The passages are arranged to effect a rinsing of the sealing device after the bottle has been filled and sealed.

3,653,530 CLOSURE WITH REMOVAL MEANS

Hal C. Winfrey, 4160 Hawkeye Way, De Kalb County, near Stone Mountain, Ga.

Filed June 12, 1970, Ser. No. 45,794

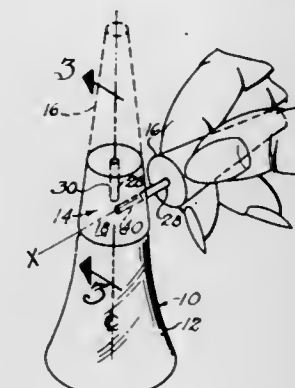
Int. Cl. B65d 41/04

U.S. Cl. 215-43

9 Claims

A closure cap which may be used on a fingernail polish bottle or glue tube, and which may be made as by molding in conventional form from plastic material, has a transverse tunnel in which is inserted a small metal rod or shaft so that when grasped in the fingers a twist or torque may be applied

to the cap to exert considerable force to remove stuck caps. The cap may be one or two-piece, solid or hollow, with the upper part carrying and concealing the rod normally inserted into an opening in the bottom part of the cap for conceal-



ment but easily removed to insert into the transverse tunnel; or the shaft or rod may be a separate member left in the transverse tunnel, separate therefrom or suspended by a cord.

3,653,531 STORAGE TANK

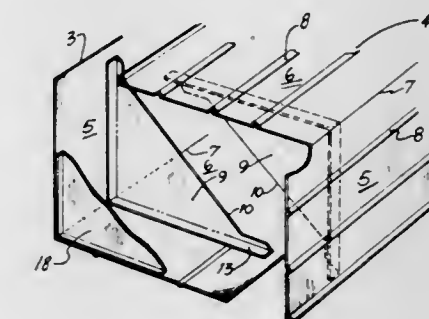
Robert C. Zurmuehlen, Jennings, Mo., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed June 18, 1970, Ser. No. 47,217

Int. Cl. B65d 25/04, 7/02

U.S. Cl. 220-5 A

4 Claims



A storage tank including opposed anti-slosh baffle means extending normally from the inner walls thereof to form a diagonally extending flow-through slot therebetween, the anti-slosh baffle means further serving as structural strengthening members for the tank.

3,653,532 PLASTIC REFRIGERATOR WITH REINFORCING FRAMEWORK

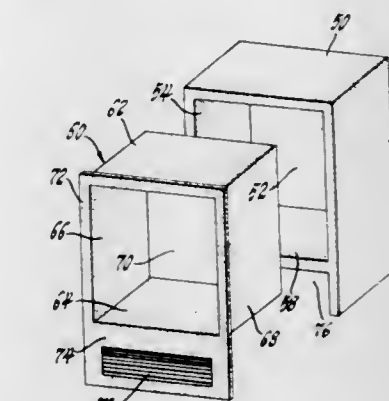
Leonard J. Mann, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 30, 1970, Ser. No. 33,226

Int. Cl. B65d 25/18

U.S. Cl. 220-9 F

1 Claim



In the preferred form of this refrigerator cabinet for installation in a wall, a rectangular framework supports walls of

plastic foam insulation surrounding the insulated compartment. This framework is embedded in the insulation. A plastic sheet inner liner extends within and lines the insulated compartment and has outwardly extending flanges forming the front of the cabinet and hiding the foam insulation.

3,653,533

DOOR ASSEMBLY

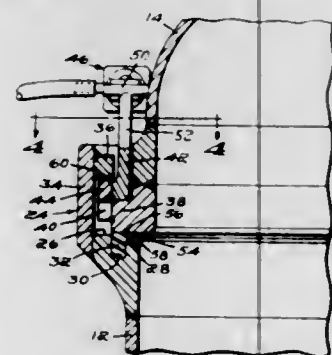
Peder Mortensen, Skovbrynet 1, Bagsvard, Denmark

Filed Oct. 24, 1969, Ser. No. 869,169

Int. Cl. B65d 41/06

U.S. Cl. 220-40 R

5 Claims



A door construction for an opening in a pressure vessel, including an annular collar into which a door member is seated when in the closed position. The door member carries a rotatable locking ring having radially disposed circumferentially spaced lugs which cooperate with lugs on the collar to lock the door in the closed position.

3,653,534

SPHERE-O-RING GAS-TIGHT SEAL ASSEMBLY

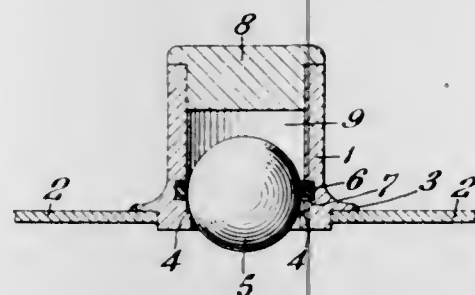
Alfred Barthel, Indianapolis, Ind., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,484

Int. Cl. B65d 53/00

U.S. Cl. 220-46 R

5 Claims



A gas-tight seal assembly, a preferred form of which comprises a rigid tube with a rigid sphere lodged therein between a rigid annular seat which is part of the inner wall of said tube on the low pressure side of said ball, and a resilient, elastic seat on the high pressure side of said ball, such that a seal is formed between the ball and the resilient elastic seat.

3,653,535

RETAINABLE TEAR-AWAY TAB FOR CONTAINER
Russell W. Brown, Wichita, Kans., assignor to Envir-O-Tab, Inc., Wichita, Kans.

Filed Nov. 20, 1970, Ser. No. 91,255

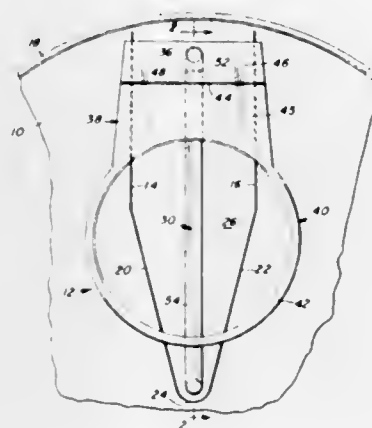
Int. Cl. B65d 17/24

U.S. Cl. 220-85

10 Claims

This disclosure relates to a tear-away tab or closure for cans, in which, the tear-away closure is retained on the can. The top of the can is formed with a tab defined by a scored segment extending radially from approximately the center of the top to the rim of the can. A stem overlying the tab is secured to the inner end of the tab and extends along the tab

towards the rim of the can. A pulling ring overlies the stem and is secured to the outer end of the stem. The can is opened by lifting the ring upwardly and pulling the stem to a generally vertical position over the inner end of the tab, then



forcing the stem and ring downwardly so that the tab will break away from the can top along the scored edges to form the opening in the can. The outer end of the tab is not scored, and thus remains attached to the top when the can is opened.

3,653,536

EASY OPENING DEVICE FOR A RECTANGULAR CONTAINER END

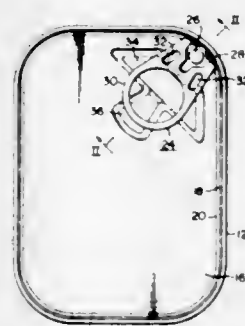
Howard Dale Schrecker, Hyde Park, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 31, 1970, Ser. No. 68,318

Int. Cl. B65d 17/24

U.S. Cl. 220-54

5 Claims



An easy opening rectangular container wall which has a line of weakness around its periphery defining a removable portion in the container wall and which has a tab attached to the removable portion in one corner, as by means of an integral rivet, and a downward embossment in the removable portion including a wing section spread outwardly from adjacent the attachment and a narrow tail section joined to the wing section.

3,653,537

FUEL TANK OF AUTOMOTIVE INTERNAL COMBUSTION ENGINE

Masaji Shiobara, and Yoshio Toda, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Feb. 6, 1970, Ser. No. 9,365

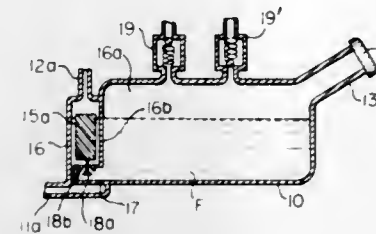
Int. Cl. B65d 25/00

U.S. Cl. 220-85

4 Claims

A fuel tank for an automotive internal combustion engine, adapted to prevent the liquid fuel from being vapourized and discharged from the breathing vent in the tank wall, which

tank has a float having the coverage that is substantially coextensive with the surface of the liquid fuel that is other-



wise to be exposed to the atmosphere through the breathing vent.

3,653,538

METHOD AND SYSTEM FOR DISTRIBUTION OF ARTICLES IN RESIDENTIAL AREAS

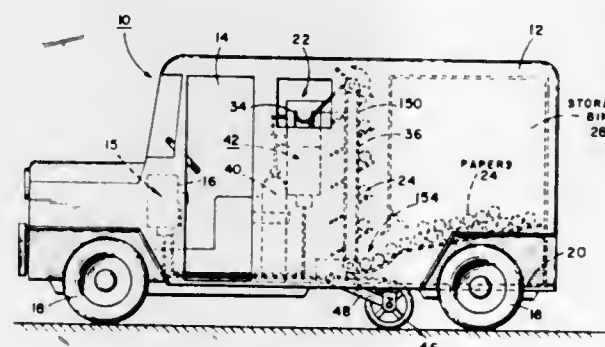
Robert L. Lamar, deceased, late of 2318 Rosefield St., Houston, Tex. (Mary Ann Carey Lamar, executrix)

Filed May 25, 1970, Ser. No. 40,212

Int. Cl. B65g 59/00

U.S. Cl. 221-1

17 Claims



An automatic method and system for the distribution of articles, such as newspapers, in residential areas. Programmed information concerning a desired distribution route provides the input to a closed-cycle mobile article launcher. A measured quantity, related to the distance travelled by the mobile launcher from an initial reference position on the distribution route, is used to control the rate at which the programmed information is delivered to the closed-cycle firing system of the article launcher. The firing control system can operate as a closed-cycle or as an open-cycle at the command of the vehicle driver.

3,653,539

LABEL DISPENSING MECHANISM

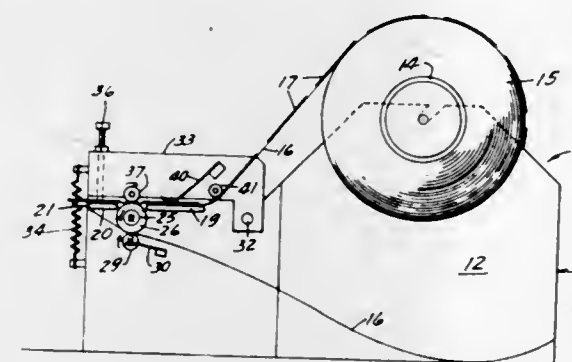
Wilfred E. Stageberg, Minneapolis, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn.

Filed Nov. 26, 1969, Ser. No. 880,193

Int. Cl. B65h 5/28

U.S. Cl. 221-73

12 Claims



A label stock dispenser for incrementally driving a liner upon the surface of which are spaced adhesively mounted

labels. The apparatus will drive the liner to successively position a label in a dispensed separated position relative to the liner, and upon the application of a force to complete the removal of the dispensed label the apparatus will automatically dispense a successive label to that position. The apparatus comprises a pair of opposed rollers, at least one of which is driven, while rollers are mounted on parallel axes and the peripheries are spaced a distance less than the thickness of the liner and the label of the label stock but greater than the thickness of the liner, thus affording a frictional drive for the label stock and discontinuance of the drive upon reaching the end of each successive label.

3,653,540

DISPENSING MACHINE HAVING MULTIPLE DUAL HELIX CONVEYORS

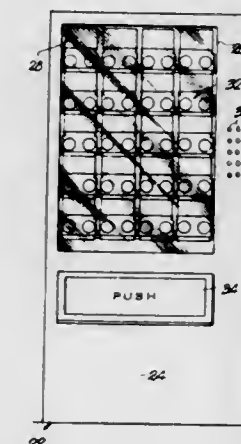
Elmer Bradley Offutt, Independence, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed Feb. 6, 1970, Ser. No. 9,291

Int. Cl. G07f 11/00

U.S. Cl. 221-75

15 Claims



An article dispensing machine having a plurality of elongated, parallel dispensers arranged in vertical and horizontal rows and wherein each is provided with dual, parallel, spaced, helical article-delivery conveyors having convolutions wound in opposite directions. The conveyors are adapted to be simultaneously rotated in opposite directions to successively force articles from the discharge end of a respective dispenser in response to successive operations thereof. Drive mechanism for the dispensers includes a rotatable clutch member for each dispenser provided with a shiftable actuator thereon while a selection solenoid is operably associated with each actuator for shifting the latter from standby to an operated position. In the operated position, each actuator is located to engage gear structure on an associated dispenser for rotating the dual conveyors thereof in opposite directions in response to rotation of the respective clutch member. All of the clutch members are rotated simultaneously through an operating arc and then back by cables trained therearound and coupled to a common drive assembly. An operated actuator is cammed back to standby by a stop adjacent each clutch member, during return rotation of the clutch members.

3,653,541

FOOD HEATING AND DISPENSING MACHINE
Wayne M. Crum, Anaheim, Calif., assignor to Ven-Dog International, Fullerton, Calif.

Filed Mar. 31, 1970, Ser. No. 24,305

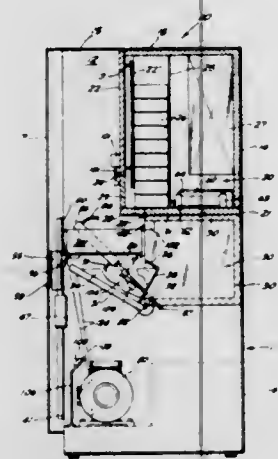
Int. Cl. G07f 11/00

U.S. Cl. 221-150 HC

17 Claims

A food heating and dispensing machine including a cabinet having a refrigeration zone at the upper end thereof, the refrigeration zone enclosing a plurality of vertically disposed storage racks adapted to receive boxes containing food items such as hotdogs. Positioned immediately below the refrigera-

tion zone is a conventional microwave oven having a front door pivotable about a horizontal axis at the bottom of the oven. A plurality of pneumatic cylinders are positioned behind the storage racks so as to selectively force one of the boxes out of one of the racks, such box falling into the oven.



After being heated in the oven, the oven door conveys the boxed food item to a delivery bin. According to one embodiment of the invention, the delivery bin comprises an elevator which operates, under the control of the oven door, to deliver the food item at the same height as the oven door.

3,653,542

MEANS FOR HOLDING AND DISPENSING ARTICLES
Gerald Werner Russell, 65 Uphill Road, Mill Hill, London, N.W., England

Filed Feb. 18, 1969, Ser. No. 800,064

Claims priority, application Great Britain, Mar. 4, 1968, 10,420/68

Int. Cl. A47f 1/04; G07f 11/04

U.S. Cl. 221-307

2 Claims



A holder with a plurality of articles arranged and captively held therein so that they can be fed in sequence to a dispensing point, the holder being formed at this dispensing point so that when an article is located there part of the article is exposed whereby this part can be secured to another article, for example by welding or adhesive, while still being positively held in the holder.

3,653,543 PROPORTIONAL BIN LEVEL AND FLOW CONTROL SYSTEM

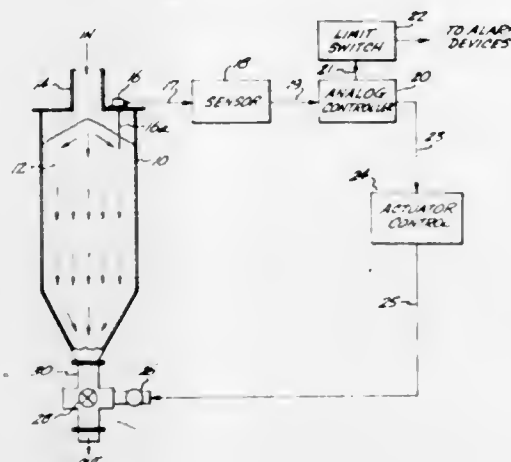
Fritz K. Prellschat, 16020 Lake Hills Boulevard, Bellevue, Wash.

Filed July 13, 1970, Ser. No. 54,286

Int. Cl. B67d 5/08

U.S. Cl. 222-52

14 Claims



A system for providing proportional and continuous control of the level of a product within a bin includes a sensor which provides an output signal which is proportionally related to the actual level of the product within the bin, an analog controller which compares that output signal with a reference to derive therefrom an error signal, and further including means responsive to the error signal for providing a control signal which incorporates the work function associated with the bin, an actuator control circuit, an actuator, and a flow rate regulating device. The actuator control circuit responds to the control signal to appropriately modify the setting of the actuator and thus vary the flow rate established through the flow rate regulating device in a manner which returns the bin level to a desired value represented by the reference in the analog controller. The sensor may comprise a metallic rod and provide its output signal by determining the complex impedance existing between the rod and the bin wall, wherein the rod is partially immersed in the product. The flow rate regulating device may control the flat rate of discharge either into or from the bin. One such device comprises a linear pinch valve useful in regulating the flow rate of discharge from the bin which includes a conical transfer section and a three-point pinching mechanism. A general description of the analog controller and its relation to the bin's work function is given. Finally, a circuit for providing appropriate signals when the bin level reaches maximum or minimum values is disclosed.

3,653,544

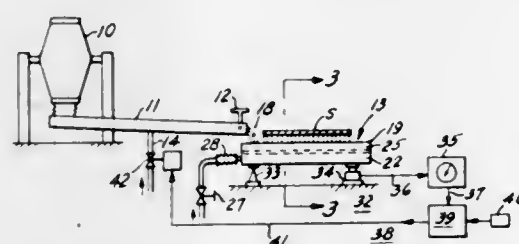
PARTICLE DISPENSING APPARATUS AND METHOD
Harold K. Young; Herbert Wald; William O. Blanch, and Lacy C. Meadows, all of Baltimore, Md., assignors to Bethlehem Steel Corporation

Filed May 29, 1969, Ser. No. 829,014

Int. Cl. G01g 11/04

U.S. Cl. 222-55

8 Claims



Particle dispensing apparatus coats one or more surfaces of a workpiece such as a moving web, strip, sheet, plate or flat

wire. Particles are fed from at least one source over fluidized conveyors to separate particle applicators associated with each surface to be coated. Each particle applicator includes a receiver-dispenser having a fluidized bed and counter-rotating brush rolls which continuously picks up fluidized particles and discharges them against one of the surfaces to be coated in an amount which varies with particle level in the receiver-dispenser. A separate load cell supports each receiver-dispenser and drives a load indicator which produces weight signals that are related to particle level in each receiver-dispenser. A controller receiving the weight signals acts on the conveyor means to independently maintain a predetermined level of particles in each receiver-dispenser. This provides a uniform application of particles on each surface of the workpiece to be coated.

3,653,545

FLUID PROPORTIONING SYSTEM

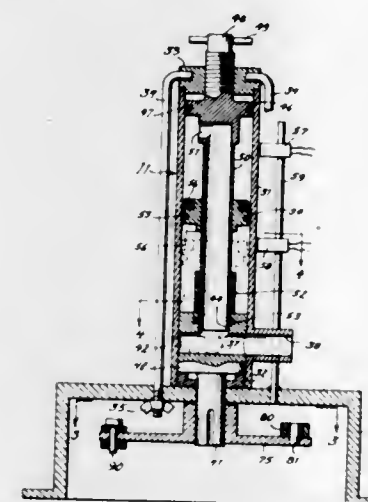
Dale Tanner, 21 Academy Avenue, Woodbury Heights, N.J.

Filed Feb. 24, 1970, Ser. No. 13,528

Int. Cl. G01f 11/44

U.S. Cl. 222-61

5 Claims



A plurality of cylinder and piston assemblies for connection on their inlet sides to respective fluid sources and on their outlet sides to a common vessel, the cylinder-and-piston assemblies each including valve means operable to communicate a selected side of the respective piston with one of the associated supply fluid and common vessel, and communicate the other piston side with the other of the supply fluid and common vessel, the valve means being interconnected for operation in predetermined relation.

3,653,546

DISPENSING CLOSURE WITH RUPTURABLE DIAPHRAGM SEAL

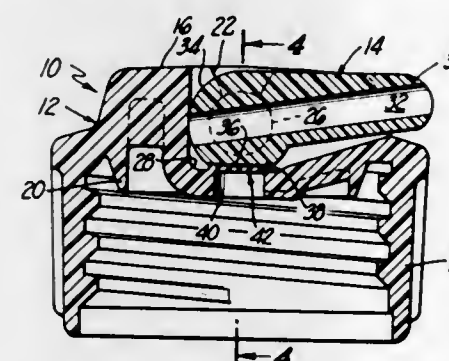
Robert E. Hazard, North Kingstown, R.I., assignor to Polytope Corporation, Slatersville, R.I.

Filed Mar. 23, 1970, Ser. No. 21,882

Int. Cl. B67b 7/12

U.S. Cl. 222-83

6 Claims



A rupturable diaphragm seal is disclosed for use in dispensing closures having a closure body including a

dispensing opening leading there through and having a spout rotatably mounted on the body so as to be capable of being rotated from an initial closed position in which a passage in the spout is out of alignment with the dispensing opening to an open position in which the passage of the spout is aligned with the dispensing opening. In such a closure the rupturable diaphragm is secured to the closure body so as to extend across the opening. The spout used is formed so as to overlie the diaphragm in an initial closed position of the spout and is formed so as to engage and apply pressure to the diaphragm when the spout is rotated from this initial closed position to an open position so as to rupture the diaphragm.

3,653,547

FOUR PART, TWO FLUID DISPENSER

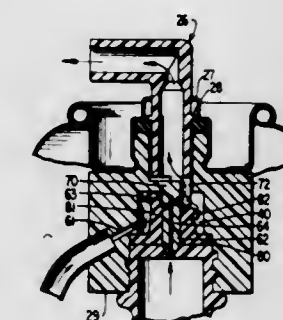
Leonard L. Marraffino, 1824 R.W. 36 Court, Oakland Park, Fla.

Filed Oct. 12, 1970, Ser. No. 79,805

Int. Cl. B65d 35/22

U.S. Cl. 222-94

5 Claims



A four part non-metallic fluid mixing and dispensing device is provided for an aerosol can which dispenses two fluids, one of the fluids being destructive of metal. Fine ducts are provided in unique positions whereby manufacturing costs are reduced, and reliability in use and long shelf life are ensured. The location of the ducts in the combination of the four parts accomplishes these desired results.

3,653,548

TAPPING COCK FOR MIXED DRINKS CONTAINING CARBONIC ACID

Hans Kotscha, Ratingen-Tiefenbroich; Karel Van Moock, and Herbert Kubnt, both of Lintorf, all of Germany, assignors to Tornado GmbH, Lintorf, Germany

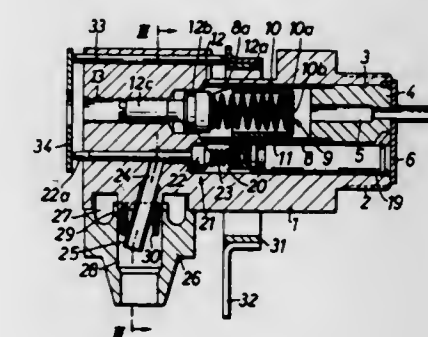
Filed Dec. 11, 1969, Ser. No. 884,259

Claims priority, application Germany, Dec. 14, 1968, P 18 14 695.7

Int. Cl. B67d 5/56

U.S. Cl. 222-129.1

5 Claims



A tapping cock for mixed drinks which comprises a feeding conduit each for fruit syrup and for carbonated water. Both said conduits are disposed in a cock housing. A discharge valve is operable from the outside in each of the conduits and opening and closing, respectively, the conduits. An outlet mouth piece receives the conduits. A control valve is disposed in the cock housing between the feeding conduit

for fruit syrup and the discharge valve coordinated thereto holding constant the passing quantity thereof, independently from the pressure, temperature and viscosity, and the control valve having outlet openings disposed adjacent to the corresponding discharge valve.

3,653,549 CLEANER APPLIANCE

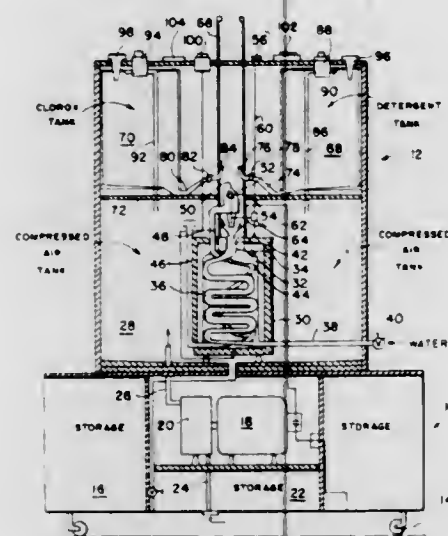
Charles Worth Cannon, 556 Meighan Boulevard, Gadsden, Ala.

Filed May 5, 1969, Ser. No. 821,785

Int. Cl. B05b 7/16

U.S. Cl. 222-132

4 Claims



An appliance designed for simple cleaning jobs comprising various components for introducing and mixing water, air, and detergent in the form of a jet stream that is directed onto a surface to be cleaned. The appliance includes a mixing valve for air and water, means for heating the air and water, means for introducing detergent into the mixture of air and water, and various components and controls to provide a self-contained mobile unit.

3,653,550 PLANTING METHOD AND APPARATUS

David M. Williams, Salinas, Calif., assignor to Bruce Church, Inc., Salinas, Calif.

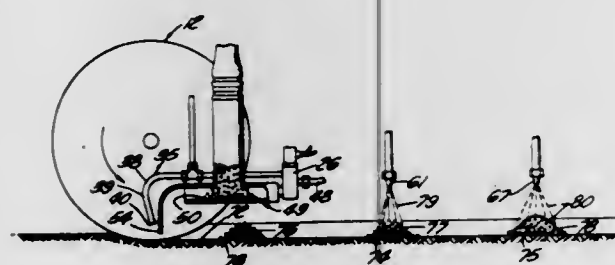
Continuation-in-part of application Ser. No. 559,562, June 22, 1966, now Patent No. 3,467,278, dated Sept. 16, 1969.

This application Jan. 30, 1969, Ser. No. 795,321

Int. Cl. B67d 5/52

U.S. Cl. 222-136

2 Claims



Seeds to be planted are gravity fed from a hopper to a substantially horizontal portion of an outlet tubing. At the appropriate time a blast of pressurized air ejects a measured amount of seeds into a furrow. Simultaneously, a discrete quantity of vermiculite is gravity fed into a horizontal compartment from which it is also pneumatically ejected with the seeds to form a common mass in the furrow. Subsequently, the vermiculite-seed mass is sprayed with liquid fertilizer and then sprayed with an asphalt stabilizer. A further aspect is the provision of a plurality of such apparatus disposed trans-

versely of the furrows with timed commutators providing planting locations of adjacent furrows in a staggered arrangement.

An improved vermiculite dispensing apparatus is provided for metering the discrete quantity of vermiculite which is pneumatically expelled. The dispenser comprises a vertical delivery tube and a horizontal dispensing tube which join to form a generally inverted T-shaped volumetric measuring structure. The lower rear end of the vertical delivery tube tapers inwardly and extends partially into the dispensing tube.

3,653,551 AEROSOL DISPENSER VALVE

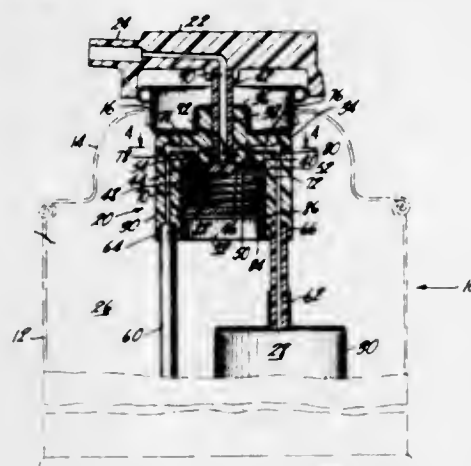
George Peter Koch, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Apr. 20, 1970, Ser. No. 29,797

Int. Cl. B67d 5/52

U.S. Cl. 222-136

8 Claims



A valve for dispensing a mixture from plural ingredient compartments in an aerosol dispenser. The valve has a hollow main body provided with a pair of passages each communicating respectively with a separate ingredient compartment within the container. A closure element in the form of a disc and integral discharge tube is mounted slidably in the valve body and spring means normally urge the disc against the outlet openings of the passages in closure condition of the valve. By depressing the discharge tube and its connected disc, the valve is opened to allow discharge from the passages into a mixing chamber in the valve from whence the product mixture enters the discharge tube through orifices therein for discharge from the dispenser.

3,653,552 ADHESIVE APPLICATOR

Bernard Edwin Ash, Kent, England, assignor to International Standard Electric Corporation, New York, N.Y.

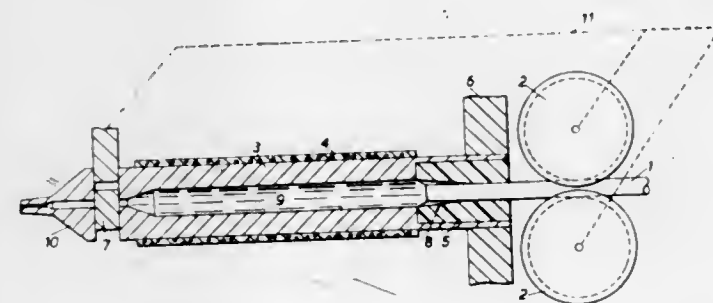
Filed Oct. 22, 1969, Ser. No. 868,538

Claims priority, application Great Britain, Nov. 7, 1968, 52,772/68

Int. Cl. B05c 5/02

U.S. Cl. 222-146 HE

5 Claims



A device for dispensing liquid resinous material from solid rods includes a heated melting tube having a dispensing jet

3,653,555 GREASE DISPENSING HEAD

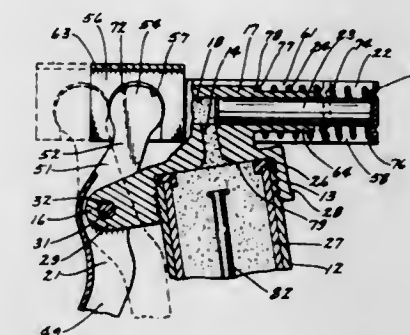
Chester Dorn, Spencer, Iowa, assignor to Superior Manufacturing Company, Spencer, Iowa

Filed June 19, 1970, Ser. No. 47,708

Int. Cl. G01f 11/00

U.S. Cl. 222-256

11 Claims



3,653,553 SELF-CLEANING VALVE FOR AEROSOL CONTAINERS

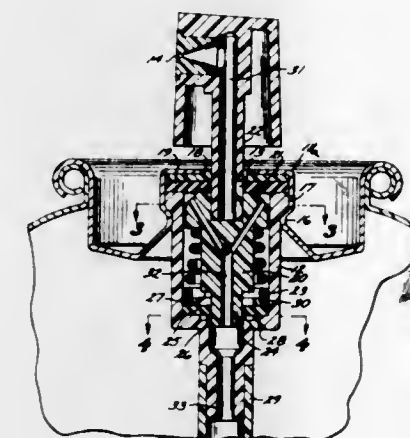
Samuel Benjamin Prussin, Los Angeles, and Jimmie L. Mason, Hacienda Heights, both of Calif., assignors to Dart Industries, Inc., Los Angeles, Calif.

Filed Oct. 27, 1969, Ser. No. 869,496

Int. Cl. B65d 83/14

U.S. Cl. 222-148

2 Claims



A valve is described wherein vaporous purging substance in the head space above the material to be dispensed in an aerosol container can be introduced into the valve in such quantity as to clean the valve and reduce the flow of the material to be dispensed therethrough. A method of cleaning a valve is also described.

3,653,554 DISPENSING DEVICE FOR SHOWERS AND THE LIKE

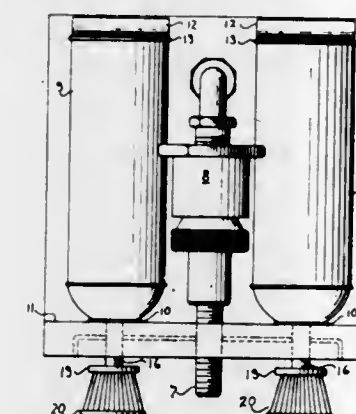
Frank W. Turben, Columbus, Pa.

Filed Oct. 27, 1970, Ser. No. 84,264

Int. Cl. B67d 5/06

U.S. Cl. 222-181

9 Claims



A holder for sepro or like cans of fluid under pressure having a valve member which seals against the nozzle when pushed to release fluid and which directs the fluid to the desired outlet. The fluid may be liquid or foam. One use is for showers where the fluid may be directed either to the line leading to the shower head or to an outlet adjacent the valve.

3,653,556 LIQUID DISPENSING APPARATUS

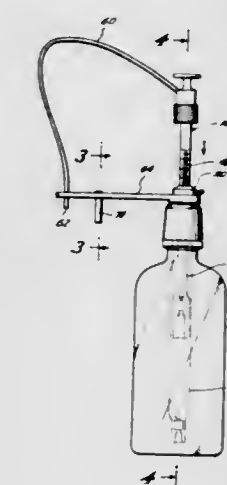
John J. Moran, and Robert C. Querry, both of Houston, Tex., assignors to Hycel, Inc., Houston, Tex.

Filed Jan. 5, 1970, Ser. No. 700

Int. Cl. G01f 11/06

U.S. Cl. 222-309

2 Claims



A manually operated liquid dispensing apparatus for use in dispensing chemical reagents and corrosive liquids from a container. A glass plunger having a ground glass piston slidable in a glass cylinder and a flat ground glass check valve in the lower end of each of the cylinder and plunger whereby corrosive liquids can be admitted into the cylinder and discharged through the plunger. The plunger having calibration means and an adjustable stop for dispensing a measured amount of liquid therefrom. A flexible outlet hose connected to the plunger outlet and a hose support adapted to be connected to the apparatus and including a hose holding means and also including means for closing the end of the hose for eliminating drippage and evaporation.

3,653,557

KEG SEALING AND TAPPING APPARATUS

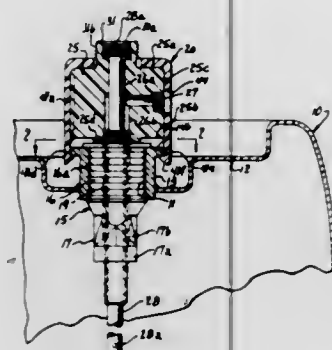
Kay R. Lamb, 1105 Ridge Avenue, Rockford, Ill.

Filed Apr. 20, 1970, Ser. No. 30,000

Int. Cl. B65d 83/00; B67d 5/54

U.S. Cl. 222-400.7

8 Claims



An apparatus for sealing and tapping containers for pressurized liquids such as beer kegs and the like including a resilient valve plug mounted in the tap hole of a keg and tap head removably mounted on the keg having an inner liquid delivery tube and an outer fluid supply tube extending downwardly through the valve plug into the keg to allow pressurized fluid to be supplied to the keg through the fluid supply tube and liquid to be withdrawn from the keg through the liquid delivery tube. The plug has integral valve means arranged to seal against the outer fluid supply tube when the head is mounted on the container, and which is adapted to close and seal the container when the head is removed.

3,653,558

AEROSOL VALVE HAVING SELECTABLE SPRAY RATE

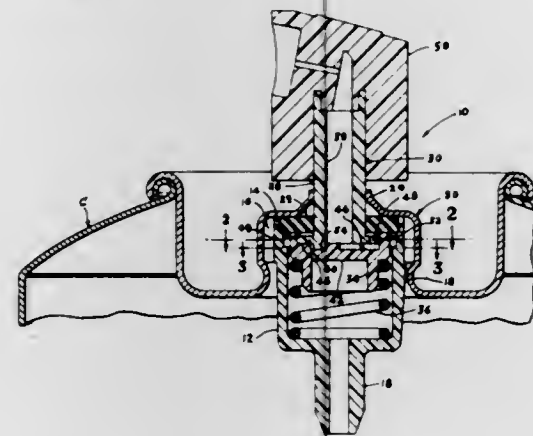
Joseph John Shay, Manchester, N.H., assignor to Scovill Manufacturing Company, Waterbury, Conn.

Filed Oct. 15, 1970, Ser. No. 81,024

Int. Cl. B65d 83/00

U.S. Cl. 222-402.17

6 Claims



Aerosol valve has valve member having, aside from the conventional rim seal valve, a rotary valve comprising two parts of the valve member to control flow. Turning the valve stem makes the adjustment.

3,653,559

DISPENSING CONTAINER AND CLOSURE

James R. Dreps, Kinnelon, and Ira H. Miller, West New York, both of N.J., assignors to Owens-Illinois, Inc.

Continuation of application Ser. No. 737,018, June 14, 1968, now abandoned. This application May 1, 1970, Ser. No. 31,869

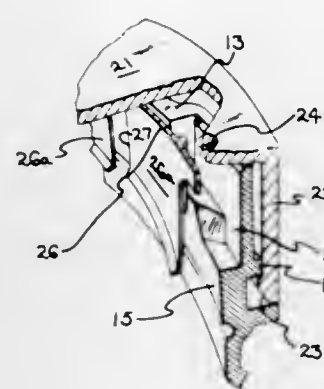
Int. Cl. B65d 47/00

U.S. Cl. 222-545

13 Claims

A two-piece dispensing package is provided in which one of the parts functions as the container for retaining the

product and the other part cooperates therewith to function alternately as a closure and as a dispenser. The container has a finish contoured to receive the one-piece closure member which is rotatable thereon between a closed sealing position and an open dispensing position. Vertical grooves are formed on the inner surface of the container neck. Sealing flanges



3,653,560

SEAM SEALER DISPENSING HEAD

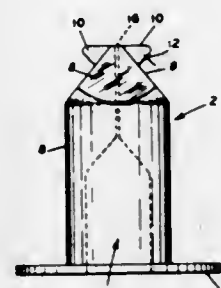
William H. Adams, Lancaster, and Charles D. Painter, Holtwood, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Mar. 2, 1970, Ser. No. 15,557

Int. Cl. B05c 5/02

U.S. Cl. 222-566

1 Claim



A dispensing head or nozzle structure is mounted on a container of adhesive. The adhesive is especially adapted to adhere together edges of a flooring material. The nozzle structure is provided with an appropriate configuration and a guide structure so that a bead of adhesive is properly positioned between the edges of two pieces of sheet flooring and the adhesive will be distributed in a manner to properly adhere the edges together.

3,653,561

CONSTRUCTION FOR REMOVING MOISTURE

Rhea V. Shields, 2032 West 110th Place, Chicago, Ill.

Filed May 27, 1970, Ser. No. 40,963

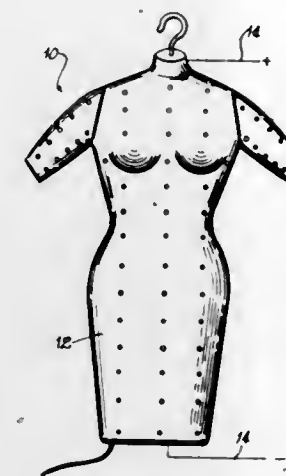
Int. Cl. A41h 5/00; D06f 59/00

U.S. Cl. 223-70

4 Claims

A construction for removing moisture from clothes and the like comprising a form which includes at least one sheet of electrically conductive material. Electrical terminals are attached to the sheet whereby current can be passed through the sheet for purposes of raising the surface temperature of the form. The form is dimensioned so that an article of

clothing can be fit around the form for contact with the heated surface. This will provide for removal of moisture is positioned in the vertically extending tube. A plunger, heated surface. This will provide for removal of moisture is slidable in the horizontal tube, engaging and locking the



which may be water or other liquid such as a dry cleaning fluid or mixtures of various fluids.

3,653,562

STOCKING PROCESSING APPARATUS

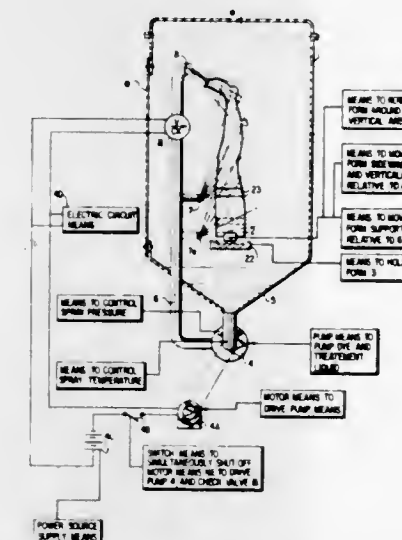
Curt H. Kronsbein, Hagen-Boelerheide, Germany, assignor to Eugen Bellmann GmbH

Filed Oct. 23, 1969, Ser. No. 868,737

Int. Cl. D06c 5/00

U.S. Cl. 223-76

8 Claims



Stretch hosiery articles and the like are mounted on a support form, and dyeing liquid is sprayed against the form through a plurality of spray means. The spray jets are oriented to minimize shifting of the hosiery articles on the form, spraying liquid in opposing directions to the portions most likely to shift. Special spray drums are provided.

3,653,563

WIG HOLDER WITH ADJUSTABLE CLAMP

John E. Russ, R.R. 10, Bloomington, Ind.

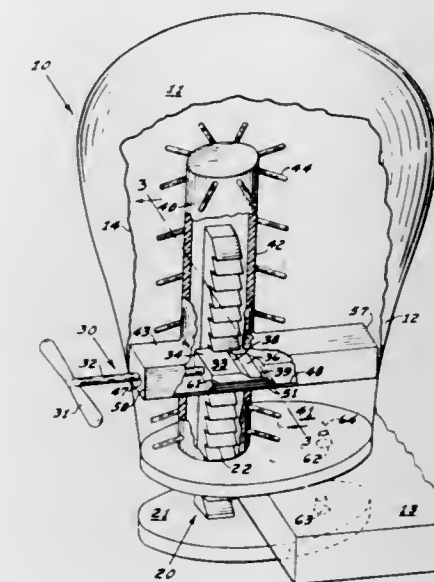
Filed Oct. 22, 1970, Ser. No. 83,122

Int. Cl. D06c 15/00; D06f 59/00; A41h 5/00

U.S. Cl. 223-66

5 Claims

A wig holder for mounting on a table and in a wig box. The holder simulates a head and neck and has a plastic housing assembly secured to it which slidably receives a rack assembly and a plunger assembly. The housing assembly has a vertically extending tube integrally joined to a horizontally extending tube. A top plate is secured to the bottom of the vertical tube. A rack is mounted on top of a bottom plate,



rack in position. A handled rod is mounted to the plunger. A hole is provided through the top and bottom plates for mounting the holder in a wig box.

3,653,564

GUN SLING AND METHOD OF USE

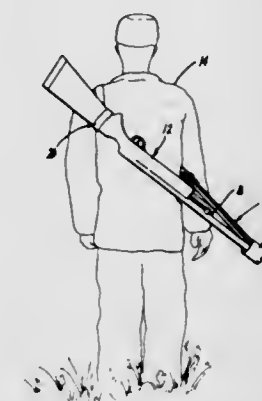
Sidney Albert Carter, 28 Club House Road, Santa Cruz, Calif.

Filed Nov. 14, 1969, Ser. No. 876,785

Int. Cl. F41c 33/00

U.S. Cl. 224-1 A

9 Claims



A gun sling for firearms of the rifle or shotgun type. The firearm is supported in muzzle-down position by a sling passing around the body of the shooter and attached at its lower end to a cup supporting the muzzle and at its upper end to a portion of the stock. A gun worn in this position is easily and comfortably carried, protects the muzzle against damage and entry of foreign matter, and the supporting cup quickly drops away by gravity upon slackening of the sling to allow the gun to be rapidly brought into firing position.

3,653,565

ROOT HOLDER

Robert R. McAusland, Seattle, Wash., assignor to Anderson & Thompson Ski Co., Inc., Seattle, Wash.

Filed Nov. 5, 1970, Ser. No. 87,231

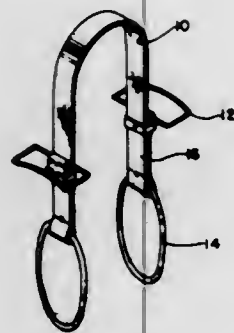
Int. Cl. B65d 63/00

U.S. Cl. 224-5 R

5 Claims

Rigid hoops are secured inboard of the ends of an elongated strap and elastic loops are secured at the ends. A relatively stiff portion of the strap separates each rigid hoop from the corresponding loop. The toe of a boot is placed in each

rigid hoop, the relatively stiff portion of the strap is placed against the sole of the boot and the loop stretched over the heel of the boot so that a pair of boots may be held securely on the strap.



heel of the boot so that a pair of boots may be held securely on the strap.

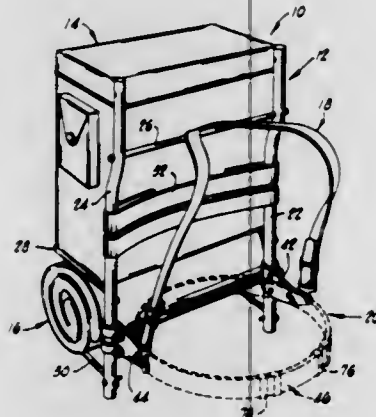
3,653,566

PACK FRAME ASSEMBLY

Jimmie L. Owens, 4426 Kaller Drive, Wichita, Kans.
Continuation-in-part of application Ser. No. 811,974, Apr. 1, 1969, now Patent No. 3,581,961, dated June 1, 1971. This application June 15, 1970, Ser. No. 46,110
Int. Cl. A45f 3/08

U.S. Cl. 224-25 A

2 Claims



This invention is an improved pack frame assembly adapted for mounting on a person's body to carry objects thereon. More particularly, this invention has an adjustable hip engaging means mounted with the normally upright support members of the pack frame and operable to transfer a substantial portion of the load to the wearer's hips, and a shoulder strap means connected with the pack frame and adjustably connectable with the hip engaging means.

3,653,567

PORTABLE KIT

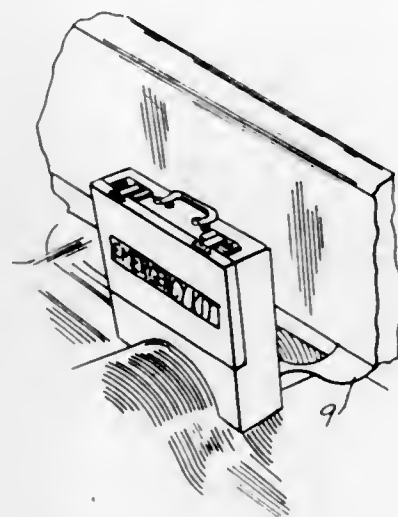
Peter M. Selvaggio, 3965 Robertann Drive, Kettering, Ohio
Filed Feb. 11, 1970, Ser. No. 10,355
Int. Cl. B60m 1/00

U.S. Cl. 224-42.42 R

1 Claim

The present invention relates to a portable kit having an outer shell shaped for mounting on the drive shaft hump of the floor of a motor vehicle. A concave section is formed

within the outer shell of said portable kit. A side lid is provided on the side of the kit, above the concave section of the



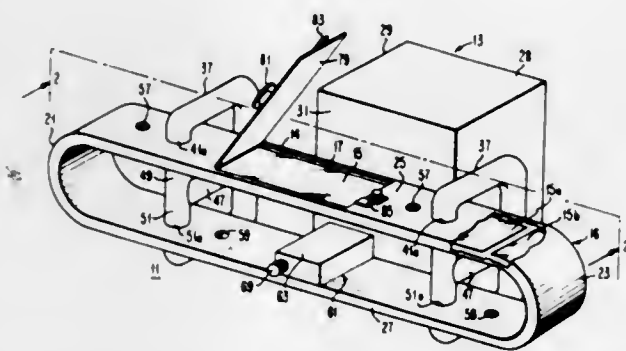
3,653,568

TAPE TRANSPORT MECHANISM

Donald H. Cronquist, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed July 2, 1970, Ser. No. 51,926
Int. Cl. B65h 17/32

U.S. Cl. 226-97

4 Claims



A transport mechanism for a strip of flexible recording tape. The mechanism includes a support having a loop-shaped passageway formed therein. The passageway has a predetermined length and is structured to receive an elongated discontinuous strip of flexible tape having a length slightly less than the median length of the passageway. When the strip of tape is placed in the passageway, the free ends of the strip are closely adjacent to each other. A pneumatic driving force is applied to this tape strip to operate it within the passageway. The tape strip moves through the passageway in a manner very similar to a continuous tape loop.

3,653,569

ADJUSTABLE ROLL FEED

Robert H. Homstead, Greenville; Carl G. Peterson, Esmond, and Anthony Gomez, Warwick, all of R.I., assignors to Carl G. Peterson Co., Smithfield, R.I.

Filed Feb. 9, 1970, Ser. No. 9,676

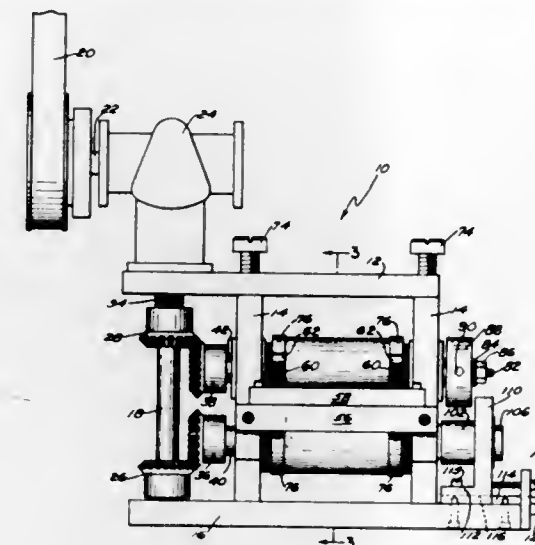
Int. Cl. B65h 17/26

U.S. Cl. 226-140

6 Claims

An adjustable roll feed for stamping presses and the like for imparting intermittent linear feed to strip stock, said feed having first adjustment means for permitting the length of feed per revolution of the rolls to be adjusted between zero

and a maximum length based on the diameter of the rolls and having a second adjustment means permitting a fine adjust-



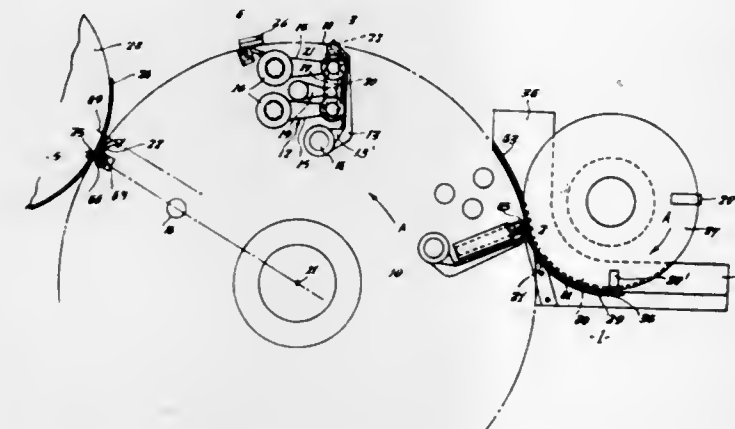
3,653,570

STITCHING MACHINE

Arthur Graham Alsop, Bristol, England, assignor to Strachan and Henshaw Limited, Bristol, England
Continuation-in-part of application Ser. No. 729,588, May 16, 1968. This application May 15, 1970, Ser. No. 37,765
Int. Cl. B27l 7/12

U.S. Cl. 227-81

7 Claims



An axial feed rotary staple stitching machine has a rotating stitching cylinder with stitching heads, each of which includes means for shaping and holding a blank from which a staple is formed, and means for applying the staple against a clinching block, all of which means rotate with the stitching cylinder. The blank is fed tangentially to the stitching cylinder but with its axis parallel to that of the stitching cylinder, by pushers on a delivery cylinder. The machine can exercise a collection function if one or more of the pushers are prevented from acting, without change in the number of stapling heads or collecting stations.

3,653,571

FINE WIRE BUTT WELDER

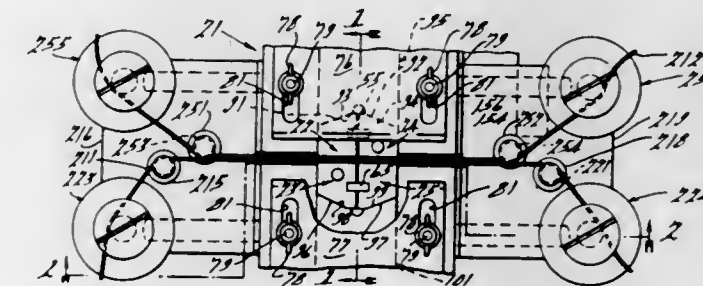
Walter J. Rozmus, Hubbardsville, and Matt T. Rozmus, Barneveld, both of N.Y., assignors to Kelsey-Hayes Company
Continuation-in-part of application Ser. No. 766,813, Oct. 11, 1968. This application June 19, 1969, Ser. No. 834,781
Int. Cl. B23k 21/00

U.S. Cl. 228-3

10 Claims

A fine wire welding machine for cold butt welding small diameter wires through a multiple upset technique. The

machine includes a loading mechanism for accurately positioning the fine wire strands for subsequent engagement with the welding dies and the welding dies are movable in a plane parallel to their abutting faces for shearing the wires and aligning the end of the wire from one spool with the end of the wire from another spool for the subsequent welding



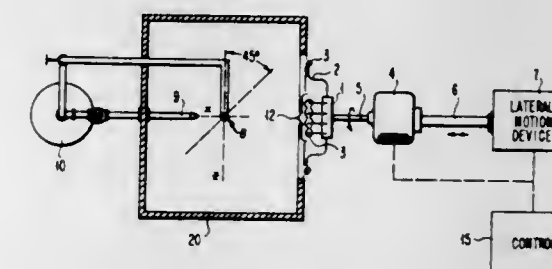
3,653,572

HOT GAS SOLDER REMOVAL

Sherman Z. Dushkes, Redwood City, Calif., and Conrad Trollmann, Sindelfingen, Germany, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Sept. 5, 1969, Ser. No. 855,519
Int. Cl. B23k 1/20

U.S. Cl. 228-20

4 Claims



Disclosed is a device for preparing solder coated leads for the final soldering operation. Excess solder is stripped from the solder coated leads by immersing these leads into streams of hot, dry gas. This stream of gas melts and flows away excess solder. A thin coating of solder is retained on the leads. The gas is preferably inert and the process takes place in a chamber which is substantially free of oxygen. This retained solder is ultimately used in the final bonding operation of the lead to a circuit board.

3,653,573

CASING CENTRALIZER AND MANDREL FOR USE IN WELDING LARGE DIAMETER CASING

Cleora C. Brown, c/o Brown Oil Tools, Inc. P. O. Box 19236, Houston, Tex.

Filed Oct. 3, 1968, Ser. No. 764,787

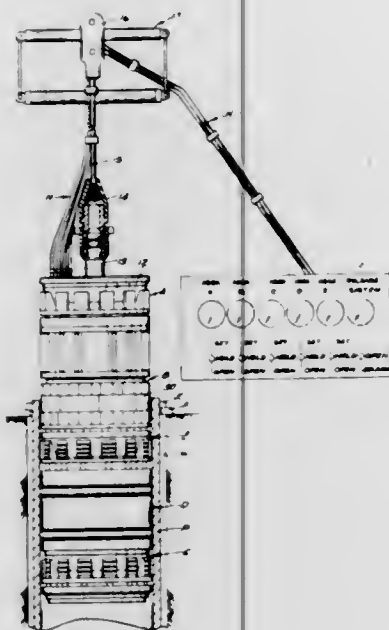
Int. Cl. B23k 1/20

U.S. Cl. 228-5

10 Claims

A tool for use in welding together large diameter casing sections, particularly in forming liners for deep earth bores. The tool includes fluid pressure actuated expander assemblies operative to align the casing sections, assure concentricity of the sections at the weld joint, and to position an ex-

pansible chill ring opposite the weld joint. The tool also includes elements enabling pressure testing the welds, and



hydraulic jacking means for moving the tool longitudinally of the casing.

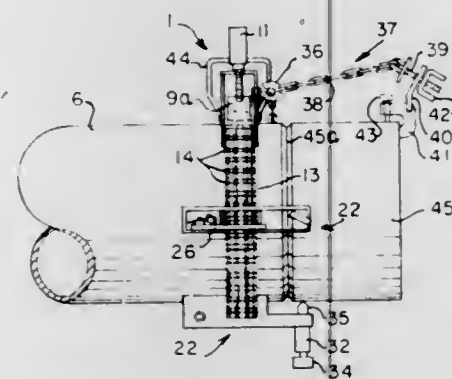
3,653,574 PIPE CLAMPING APPARATUS

Timothy C. Dearman, 4191 East Stanley Road, Mt. Morris, Mich.

Filed Dec. 11, 1969, Ser. No. 884,140
Int. Cl. B23k 1/14

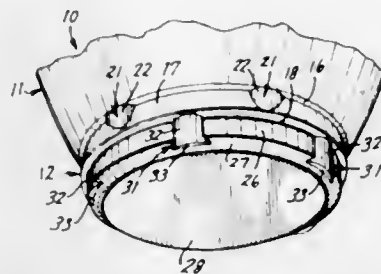
U.S. Cl. 228-49

15 Claims



Clamping apparatus for use in joining two lengths of pipe to one another comprises a carrier or body adapted to be seated at one end of one pipe and to which is anchored one end of a flexible, elongate clamping chain which may be secured at any selected position along its length to the body so as to form with the latter a loop encircling the one pipe. Mounted on that portion of the clamping chain between the points of its connection to the body is a plurality of support members each of which is adjustable longitudinally of the chain. Each support member extends laterally of the chain to a position beyond the end of the one pipe section and is provided with adjustable supporting fingers that are adapted to engage and support the end of the pipe to be joined to the one pipe. An auxiliary, adjustable support may be connected to the body for assisting in the aligning and supporting of the two pipe lengths.

3,653,575
HOLDER AND CUP
Gerald A. Schrepper, Kalamazoo, Mich., assignor to Fabrikal Corporation, Kalamazoo, Mich.
Filed July 13, 1970, Ser. No. 54,361
Int. Cl. A47b 19/23; B65d 21/02
U.S. Cl. 229-1.5 H 10 Claims



A nestable, thin wall, integral, thermoplastic insert drinking cup for use with a cup holder. The cup has a side wall with a container zone and a spacing and anchoring zone. The side wall of the container zone diverges upwardly and outwardly from the bottom of the upper section to an upper circumferential margin defining an open upper end. The spacing and anchoring zone has a first wall portion connected to the bottom of the upper section, an inwardly extending flange connected at the bottom of the first wall, a second wall portion connected to the inner edge of the inwardly extending flange and a third wall portion connected at the bottom of the second wall and tapering downwardly therefrom convergently to a bottom wall joined to the bottom of the third wall. A plurality of circumferentially spaced radial holding protuberances are provided on the second wall with each radial holding protuberance have a first section located immediately adjacent the inwardly extending flange and which extends axially downwardly therefrom generally parallel to the central axis of the cup and a second section connected to the bottom of the first section and extending in an inclined relation terminating intermediate the upper and lower ends of the third wall. The inclined second section defines a location of rigidity in comparison to the relatively flexible characteristic of the first section so that the holding flange on a cup holder will slide over the inclined second section without any material deformation thereof and slide over the first section with a relatively substantial deformation thereof to thereby constitute a "snap-in" fit between the cup and a holding flange on the cup holder.

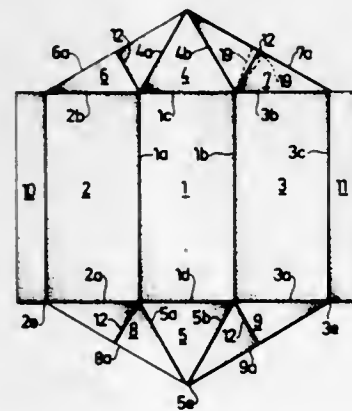
3,653,576 FOLDING CONTAINER HAVING TRIANGULAR CROSS SECTION

Stranicky, Fedor, Solna, Sweden, assignor to AB Svensk Industrier Konstruktions-och Beraknings-Kontor SIKOB, Solna, Sweden

Filed Jan. 13, 1970, Ser. No. 2,530
Claims priority, application Sweden, Jan. 13, 1969, 380/69
Int. Cl. B65d 5/00

U.S. Cl. 229-22

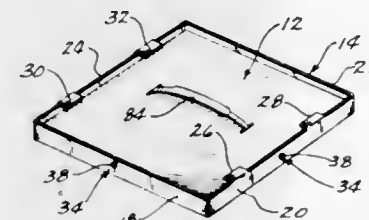
14 Claims



A folding container having a base wall, two side walls and two triangular end walls, at least one of which being adapted

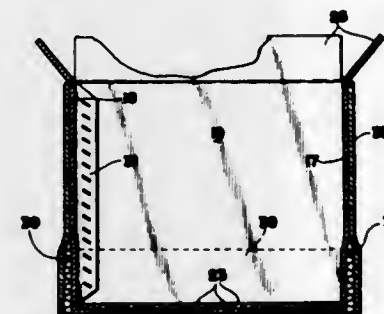
to be opened against the action of resilient means consisting of folded corner portions connecting two edges of said end wall to be opened and adjacent edges of said side walls, each of said corner portions in unfolded position being defined by a substantially straight edge and in folded position being directed into the interior of the container and forming an angle with the end wall.

3,653,577
CAKE COVER
Bernice Irene Wyner, 1624 44th Street, Des Moines, Iowa
Filed June 15, 1970, Ser. No. 46,175
Int. Cl. B65d 13/00
U.S. Cl. 229-23 R 3 Claims



A cake cover comprising a bottom portion and a foldable top portion. The top portion comprises a central quadrilateral portion having first, second, third and fourth flaps extending from the periphery thereof. The flaps are foldable to a flat condition adjacent the underside of the central portion. The top portion may be unfolded from its flat condition to an assembled condition and is maintained in its assembled condition by a plurality of snap-tab fastener elements. The bottom portion comprises a quadrilateral base portion having upstanding wall members at the periphery thereof. The top portion, when in its folded condition, may be received between the wall members adjacent the base portion for storage purposes. The top portion, when in its assembled condition, may be detachable secured to the wall members to provide a cover means for a cake. The assembled cover is provided with a handle to permit carrying of a cake housed therein.

3,653,578
CONTAINER AND METHOD OF MAKING SAME
Robert N. Wood, Indianapolis, Ind., assignor to Inland Container Corporation, Indianapolis, Ind.
Filed Dec. 29, 1969, Ser. No. 888,570
Int. Cl. B65d 13/04
U.S. Cl. 229-23 22 Claims

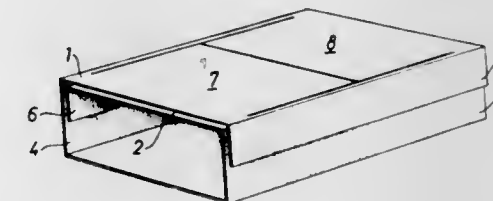


A reinforced fiberboard container having a plurality of reinforcing pads adhesively attached to its vertical sidewalls. Each reinforcing pad has a height substantially less than the height of the attached sidewall, and the method of adhesive attachment is such that sidewalls of the container are bowed inward in a region vertically adjacent the reinforcing pads. When the container is made of outer and inner units, the pads are preferably disposed between the sidewalls of the units but may also be located on the inner surface of the inner unit. When the reinforcing pads are to be located adjacent the upper and/or lower edges of the sidewalls, sidewall extensions may be provided which can be folded upward or downward to create the pads.

3,653,579 FOLDING CARTON CONSISTING OF A STRIP OF SHEET MATERIAL FOLDED TO FORM A TUBE AND PROVIDED WITH END WALLS

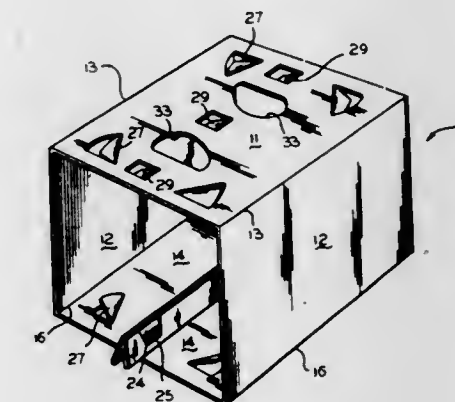
Fedor Stranicky, Solna, Sweden, assignor to AB Svensk Industrier Konstruktions-och Berakningskontor SIKOB, Solna, Sweden

Filed June 12, 1970, Ser. No. 45,776
Claims priority, application Sweden, June 12, 1969, 8396/69
Int. Cl. B65d 5/02
U.S. Cl. 229-37 R 10 Claims



A folding carton comprising a blank of sheet material folded to form a tube having at least one plane side wall and at least at one end of the tube an end wall. The end wall consists of a flap cut out in the plane side wall of the tube and folded an angle of 180° along a first fold line towards and beyond the end of the tube and then is folded along a second fold line to cover the end of the tube.

3,653,580
WRAPAROUND CARRIER WITH CHIME LOCKING STRUCTURE
John V. Mahon, Lansdale, Pa., assignor to Container Corporation, Chicago, Ill.
Filed Feb. 9, 1970, Ser. No. 9,646
Int. Cl. B65d 65/24
U.S. Cl. 229-40 4 Claims



A chime locking structure for a wraparound carrier for chimed containers of the type wherein the chimed ends are adjacent an annular groove formed in the container body. The chime locking structure is formed from confronting tabs having distal free ends folded upon themselves so as to engage the annular groove adjacent the chimed ends, and also to engage the chimed ends of the containers. An opening is provided in the folded distal free ends and spaced therefrom to provide a locking element engageable with the annular groove of the container adjacent the chime.

3,653,581

HERMETIC PACKAGING WITH PLASTIC CONTAINER
Louis R. Ptak, Western Springs, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Apr. 10, 1968, Ser. No. 720,176
Int. Cl. B65d 5/69, 43/10

U.S. Cl. 229-43

7 Claims



A hermetic package for processed food products. The container and lid are made of plastic materials. The lid snaps on the container lip, or may be heat-sealed thereto. A shrink band embracing the container and the lid rim reinforces the grip and supplements the seal of the lid to the container. For large, elongated packages, the container and lid may be formed with relatively thin, uniform walls, reinforced to afford a homogenous flexural characteristic in the completed package which ensures integrity of the closure, while minimizing failure due to stresses imposed under vacuum or handling loads on the package.

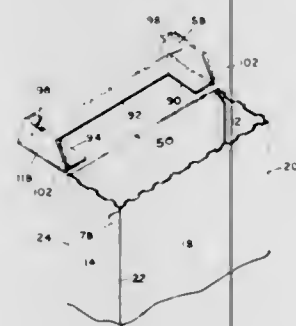
3,653,582

CARTON HAVING A HINGED END CLOSURE
John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed Sept. 2, 1970, Ser. No. 68,864
Int. Cl. B65d 5/54

U.S. Cl. 229-51 TC

5 Claims



A rectangular carton having a hinged top closure connected to the body portion by weakened lines along the upper edges of the front and end wall panels and adapted to be opened by tearing along the weakened lines, the carton having provision for automatically locking the hinged top closure to the body portion upon reclosing the same whereby to prevent inadvertent opening thereof.

3,653,583

DRAWCORD BAG

Gaylord L. Meyer, Terre Haute, Ind., assignor to Bemis Company, Inc., Minneapolis, Minn.

Filed Sept. 14, 1970, Ser. No. 71,885
Int. Cl. B65d 33/12, 33/28

U.S. Cl. 229-54 C

5 Claims



A drawcord bag made of plastic in which drawcords extend through hems at the mouth end of the bag with a special feature for preventing the drawcords from splitting the hems when they are used for carrying the bag.

3,653,584

BAG STRUCTURE WITH INTEGRAL CLOSURE ARRANGEMENT

Connie Lake, Pittsford, N.Y., assignor to Mobil Oil Corporation

Filed Dec. 12, 1969, Ser. No. 884,534
Int. Cl. B65d 33/16

U.S. Cl. 229-62

18 Claims



To provide a closure for bags of flexible material such as polyethylene, light fabric, or the like, a restricted opening is formed near the top of the bag, for example by a seam partitioning off a portion of the mouth of the bag, a pair of seams extending towards a side with the side being slit open between the seams, or a pair of seams between which a slit is cut; the size of the opening is just large enough to enable a user to gather together the remainder of the mouth of the bag and push it through the opening, the released gathered material then flaring out by its own elasticity to provide a closure which will securely hold contents within the bag.

3,653,585

CONTAINER WITH TEAR-TYPE OPENER

Richard H. Kazaros, 5501 West Colonial Drive, Orlando, Fla.

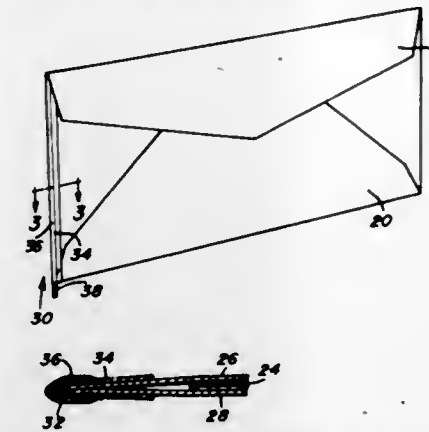
Filed Apr. 15, 1970, Ser. No. 28,824
Int. Cl. B43m 7/00

U.S. Cl. 229-85

5 Claims

An opener for a container such as but not limited to an envelope incorporating a flexible tear strip in the form of a

tape, string or other flexible member incorporated into the envelope so that removal of the tear member will open the



envelope or other container in which the opener is incorporated.

3,653,586

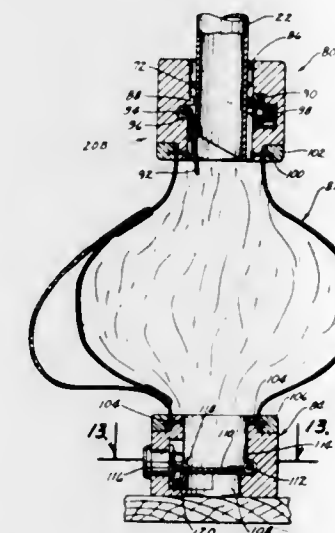
MEANS FOR COLLECTING COINS FROM A COIN OPERATED MACHINE

Gail G. Bonneson, Route 1, Cedar Falls, Iowa

Filed Jan. 20, 1970, Ser. No. 4,433
Int. Cl. A47g 29/00

U.S. Cl. 232-43.2

5 Claims



A means for collecting coins from a coin operated machine such as a slot machine or the like comprising, a collector head having a collection bag secured thereto and extending downwardly therefrom. The collector head means includes a first opening extending downwardly therethrough which is in communication with the interior of the collection bag and which is adapted to be detachably secured to a coin discharge tube extending downwardly from the coin operated machine. A pivotal trap door is provided in the support means and is movable from a horizontal position wherein the first opening is closed to a substantially vertical position wherein the first opening is open. A key operated lock means is mounted on the collector head and has a movable bolt extending inwardly into the first opening in the pivotal path of the trap door to selectively prevent the trap door from pivoting to its vertical position. The first opening is also adapted to removably receive an emptying tube which is placed therein to maintain the trap door in its open or vertical position to permit the coins to be emptied from the bag. When the collector head is placed on the discharge tube, the discharge tube pivots the door open. The discharge tube maintains the trap door in its vertical or open position while coins are being deposited in the collection bag from the machine. When the collector head is removed from the discharge tube, the trap door moves to its locked and closed position to prevent the pilfering of the coins in the collection bag. A modification of the device is also disclosed wherein a key operated emptying head assembly is provided on the bottom of the collection bag for dumping the coins therefrom. A

further modification is also disclosed and involves the use of a removable retainer bracket which is inserted in the collector head to maintain the trap door in an open position after the collection bag has been emptied. A still further modification is disclosed and involves the use of a pivotal retainer pin in the collector head which maintains the pivotal trap door in an unlocked position after the coins have been emptied from the collection bag.

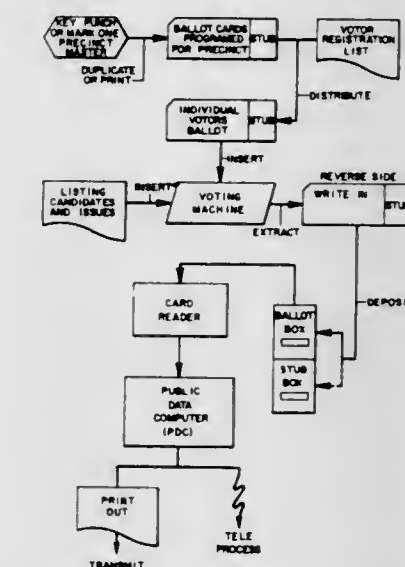
3,653,587

BALLOTING SYSTEM AND APPARATUS THEREFOR
Seymour B. Hammond, 1381 Wilton Way, Salt Lake City, Utah, and Kenneth M. Larsen, 4473 Abinadi Road, Salt Lake City, Utah

Filed Jan. 26, 1970, Ser. No. 5,634
Int. Cl. G07c 13/00

U.S. Cl. 235-50 R

9 Claims



A balloting system, including a special voting machine; ballots, in the form of a data-recording medium for recording data in response to selections of an individual voter and carrying stored program information pertinent to that voter's election district; and data-processing means for tabulating the voting data in accordance with the stored program carried by the ballot. The voting machine is compact; it is adapted to display candidates and issues in conventional, paper ballot format and to receive a ballot of the aforescribed type and position it in recording relationship with a voter's selections from the display. Data-marking means associated with the voting machine records each voter's selections on his individual ballot in a form susceptible to electronic data processing.

3,653,588

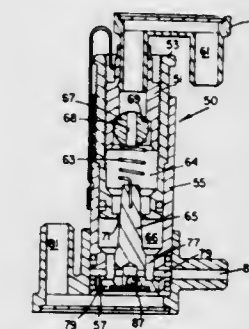
AIR DISTRIBUTION UNIT

Richard C. Drebelbis, Fair Lawn, N.J., assignor to Carrier Corporation, Syracuse, N.Y.

Filed May 1, 1970, Ser. No. 33,573
Int. Cl. G05b 11/44; F24f 11/04

U.S. Cl. 236-49

7 Claims



An air distribution unit for discharging conditioned air into an area to be treated, including a variable volume control

chamber regulating the volume of conditioned air supplied to the area. A control valve is operable to regulate the variable volume control chamber to maintain a substantially constant discharge of conditioned air into the area, irrespective of changes in supply air pressure. The control valve includes a first orifice for passage of a minimum quantity of control air through said valve to the control chamber. A bleed thermostat associated with the control valve regulated the quantity of control air supplied to the variable volume control chamber through the valve in response to area temperature.

3,653,589

AIR CONDITIONING SYSTEM

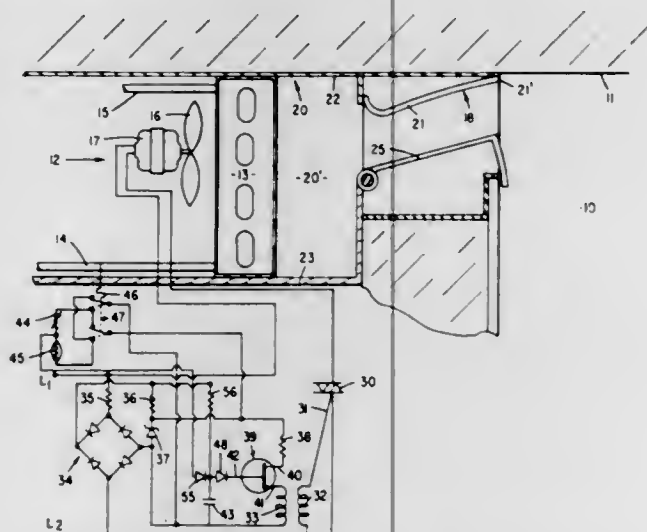
William L. McGrath, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed July 27, 1970, Ser. No. 58,312

Int. Cl. F24f 7/06

U.S. Cl. 236-49

2 Claims



A system for supplying treated air to an enclosure including a heat exchanger through which a heat exchange medium flows and a fan arranged to route air to be treated over the heat exchanger in heat transfer relation with the medium. A control operates to vary the speed of the fan in response to changes in room temperature. At least one outlet is provided for discharging the treated air from the system, the outlet being positioned so that the treated air is discharged with minimal turbulence substantially adjacent and parallel to the ceiling of the enclosure.

3,653,590

AIR CONDITIONING APPARATUS

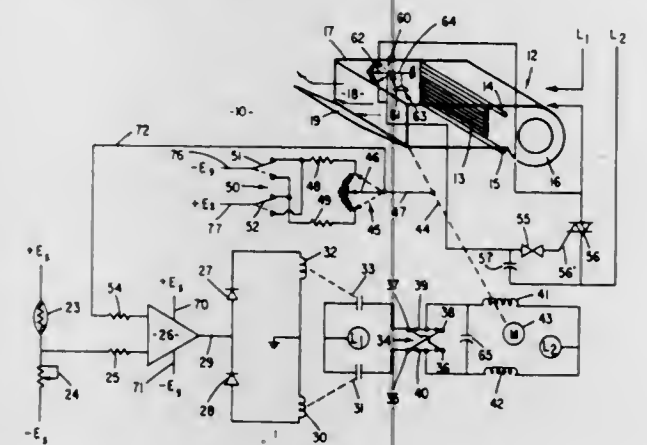
Ralph Elsea, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed July 27, 1970, Ser. No. 58,313

Int. Cl. F24f 7/00

U.S. Cl. 236-49

1 Claim



Apparatus for supplying treated air to an enclosure including a heat exchanger through which a heat exchange medium

flows and a fan arranged to route air to be treated over the heat exchanger in heat transfer relation with the medium. A supply duct, including one or more damper assemblies provided to regulate the discharge of treated air from the system, delivers the treated air to the enclosure. The position of the damper assemblies is modulated in response to the temperature of the air in the enclosure. A pressure responsive element operates to sense the variations in pressure in the supply duct produced by the modulation of the damper assemblies and creates a control signal which operates to vary the speed of the fan in response to the changes in pressure to maintain the pressure in the duct substantially constant.

3,653,591

RAIL ANCHORAGES

Otto Herman Varga, Bradford-on-Avon, and Leonard Taylor, Wells, both of England, assignors to Resilient Grip Limited, Bristol, England

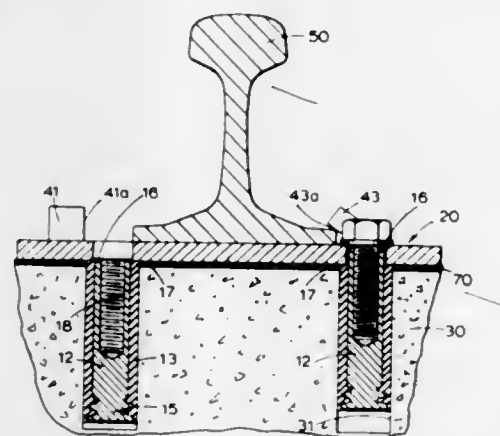
Filed July 23, 1970, Ser. No. 57,703

Claims priority, application Great Britain, July 1, 1969, 38,197/69; Aug. 2, 1969, 38,852/69

Int. Cl. E01b 9/14, 9/00

U.S. Cl. 238-308

11 Claims



The invention provides an anchorage for securing a flat bottom rail to a solid foundation having at least two circular cylindrical holes preformed therein. The anchorage according to the invention comprises essentially two components, the first component being a metal baseplate having non-circular through holes therein located to register with the preformed holes in the foundation. The second component according to the invention comprises foundation bolt means passing through the holes in the baseplate and in the foundation. The foundation bolt means which comprise a bolt adapted to be passed through the baseplate to engage a nut member located in a hole in the foundation, the nut member being an elongate metal member surrounded at least in part by a sleeve of elastomeric material which can be deformed on axial movement of the nut into engagement with the walls of the foundation hole, said nut member having one end so shaped that it can enter and key with one of the non-circular through holes of the baseplate so that the nut is prevented from rotation relative to the baseplate. The baseplate may be formed with lugs which assist in anchoring the rail and wedge shaped clamping block means may be provided cooperating with the foundation bolt means and the baseplate abutments to secure the rail on the baseplate.

3,653,592

ELECTROSTATIC SPRAY GUN CONSTRUCTION

Philip L. Cowan, Basking Ridge, N.J., assignor to Electrogas Dynamics, Inc., Hanover, N.J.

Filed May 7, 1970, Ser. No. 35,428

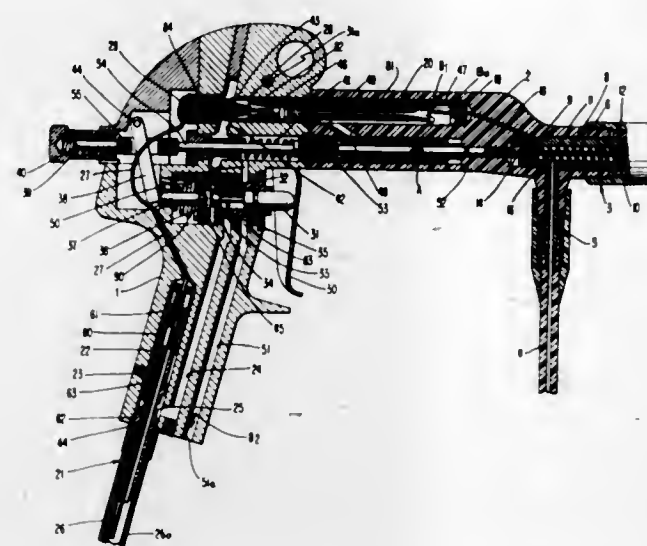
Int. Cl. B05b 5/02

U.S. Cl. 239-15

6 Claims

An improved construction for a hand operated electrostatic spray coating device of the so-called airless type in

which atomization is effected by the interaction of a high speed fluid stream with air, including a self-contained electrostatic generator as a power source for charging the



spray and maintaining an electrostatic depositing field and a pneumatically assisted fluid valve mechanism operatively responsive to at least a portion of the air flowing through the electrostatic generator.

3,653,593

APPARATUS FOR GENERATING A HIGH VOLTAGE

Tamotsu Watanabe, Tokyo, Japan, assignor to Nippon Kogei Kogyo Co., Ltd.

Filed Nov. 10, 1969, Ser. No. 875,114

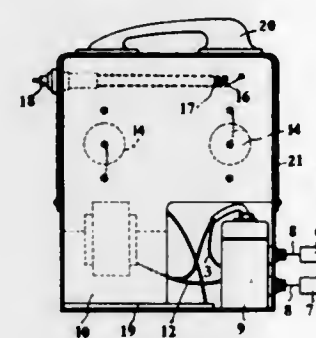
Claims priority, application Japan, Apr. 16, 1969, 44/28979;

Apr. 15, 1969, 44/28764

Int. Cl. B05b 5/00; F23d 11/28

U.S. Cl. 239-15

6 Claims



An apparatus for generating a high voltage which includes a transformer, a rectifying circuit connected to the transformer, a high voltage output terminal connected to the rectifying circuit, a foamed insulator molded into the space between the transformer and the components of the rectifying circuit with the exception of the high voltage output terminal, and a container insulated by the foamed insulator from the high voltage components and electrically grounded.

3,653,594

PRECISION COATINGS SPRAY GUN

Hendrik F. Bok, Fairhaven, and David A. Garcia, New Bedford, both of Mass., assignors to Epec Industries, Inc., New Bedford, Mass.

Filed Nov. 17, 1970, Ser. No. 90,292

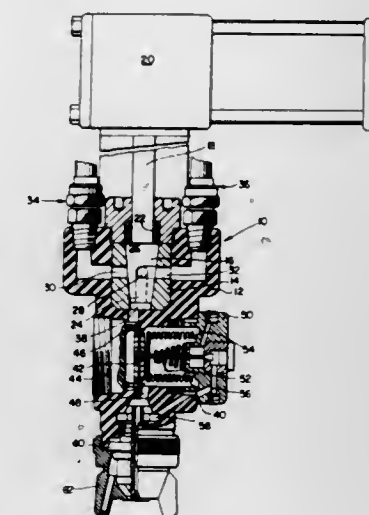
Int. Cl. B05b 7/12

U.S. Cl. 239-70

10 Claims

An automatic spray gun used for precision spray applications where coating thicknesses are required with extremely close tolerances and with a very high degree of repeatability. A valve rotor is placed in the upper portion of the spray gun construction and selectively controls the flow of solvent or

coating materials through the spray gun. The valve rotates to selected positions to connect either cleaning solvent or coating material to a filter and nozzle. Provision is made for repeated coatings by selective valve rotation. Control means are included for activating the spray gun for a burst of solvent to allow pre-wetting of a filter area and other internal walls of the spray gun. The control means subsequently



rotates the valve rotor to a coating material position to replace the solvent and the coating spraying operation ensues. Selective solvent and/or coating material cycles flushes the spray gun and eliminates the filter and nozzle orifice from being restricted. Flushing of the gun subsequent to a spray coating operational phase permits a high degree of repeatability in coating output.

3,653,595

AUTOMATIC TURF WATERING SYSTEMS

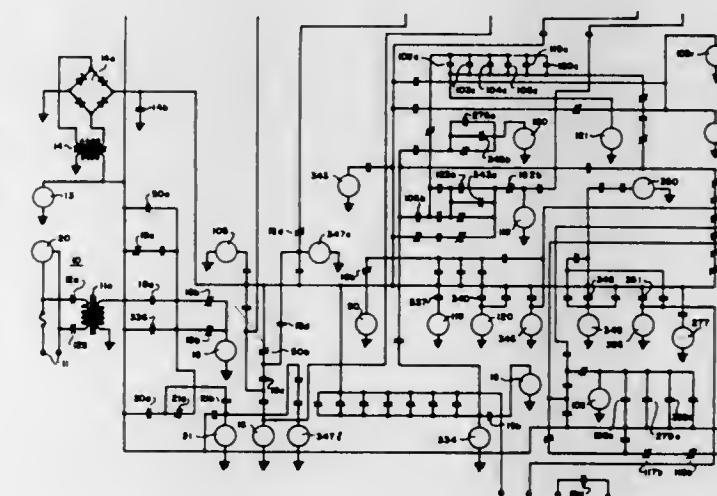
Julius Edward Greengard, Jr., and Thomas J. Scannell, both of c/o Cyclomation Systems, Inc. 235 Bay Road, Voorheesville, N.Y.

Filed Dec. 7, 1970, Ser. No. 95,738

Int. Cl. A01g 27/00

U.S. Cl. 239-70

10 Claims



A turf watering control system is provided for automatically watering selected areas of turf according to a preselected plan, which system includes a master control station and a plurality of spaced slave stations each connected to the master station by a power line, a source of operating electric power applied to said master control station, a plurality of sprinkler valves spaced from each slave station, connections between said valves and each said slave station

whereby said valves are selectively opened and closed, an encoder source of radio frequency in said master control station applied to said power lines, decoder means at each of said slave stations, means at said slave stations actuated by said decoder means to energize the connections to said sprinkler valves and means at the master station selectively energizing the encoder means whereby a selected signal is transmitted to selected decoder means through said power lines.

3,653,596 MARKING DEVICE

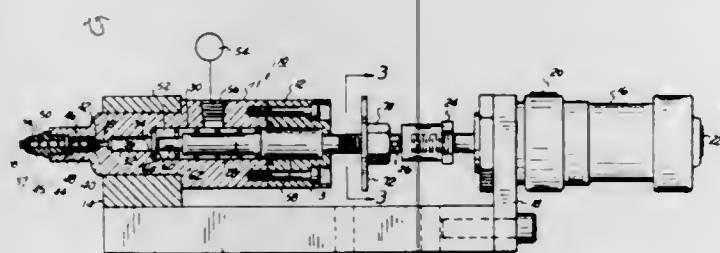
Paul S. Abrams, Huntington Woods, and Rudolph G. Peterson, Detroit, both of Mich., assignors to Carco, Inc., Detroit, Mich.

Continuation-in-part of application Ser. No. 817,371, Apr. 18, 1969, now Patent No. 3,614,940. This application Jan. 13, 1970, Ser. No. 2,469

Int. Cl. G01d 15/18

U.S. Cl. 239-93

8 Claims



A marking device having a nozzle orifice through which a fluid marking agent is forcibly ejected under pressure for marking an article spaced a distance therefrom. The orifice nozzle is carried on a housing and connected to a reservoir of the fluid marking agent contained therein. The housing includes a pumping element shiftably mounted within the reservoir for separating a portion of the fluid marking agent from the reservoir and pressurizing the separated fluid to forcibly eject a selected amount thereof through the orifice nozzle to mark the article.

3,653,597 ROTARY WATER SPRINKLERS

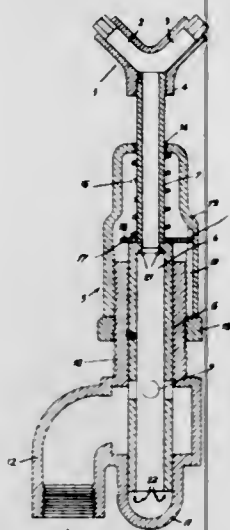
Ischajahu Blass, 26 Rehov Manneh, Tel Aviv, Israel

Filed Mar. 9, 1970, Ser. No. 17,823

Int. Cl. B05b 15/10

U.S. Cl. 239-204

4 Claims



A rotary water sprinkler having a plurality of spray nozzles disposed at the ends of a plurality of conduit arms radiating from a common feed duct and being adapted to rotate about an axis passing through the feed duct under the influence of

feed water flowing through the feed duct into the arms, the water sprinkler being provided with a pressure stabilizing device.

3,653,598 VIBRATING SPRAY APPARATUS AND METHOD OF SPRAYING

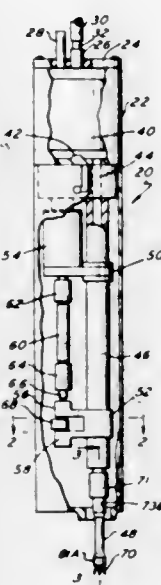
John E. Waldrum, Ambler, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Filed May 28, 1970, Ser. No. 41,484

Int. Cl. B05b 3/00

U.S. Cl. 239-229

9 Claims



A vibrating spray apparatus and method of spraying which produces a spray pattern of substantial uniform density, the spray apparatus including a spray tube that is free at one of its ends, means to supply liquid to the spray tube from the other end thereof, a motion transmitting device associated with the spray tube to impart vibrations of sufficient magnitude to the spray tube to cause the free end of the tube to move in an orbital path. The method of the present invention involves the movement of a stream of liquid in an orbital path wherein the liquid is discharged while moving in the orbital path to produce a pattern of uniform density.

3,653,599 FLUID SPRAY APPARATUS

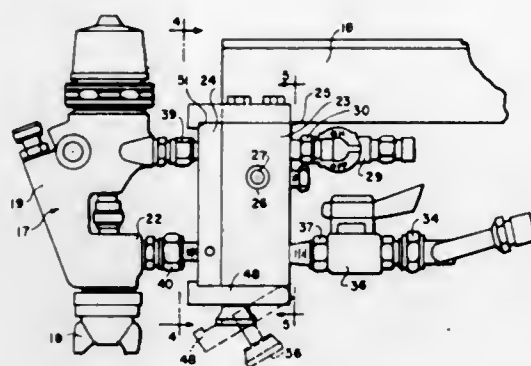
Clifford L. Mussehl, Wildwood, Ill., assignor to SPECO, Inc., Beverly, Mass.

Filed May 19, 1970, Ser. No. 38,714

Int. Cl. B05b 15/06

U.S. Cl. 239-273

19 Claims



A fluid spray apparatus having means for releasably mounting a spray gun on a support. The mounting means includes means for carrying shutoff valve means for shutting off the fluid supply at the mounting means. A rubber seal is provided for sealing the connection between the spray gun

and the mounting means fluid supply passage. Mounting plates for the different types of spray guns, such as air-type spray guns and airless-type spray guns, are provided with different arrangements of the air passages for permitting use of a single fixed means on the support for delivering air to the pneumatic controls of the spray guns notwithstanding different locations of the pneumatic control inlet means on the spray guns.

3,653,600 APPARATUS FOR DISPERSING FINELY DIVIDED SOLID PARTICLES IN A LIQUID VEHICLE

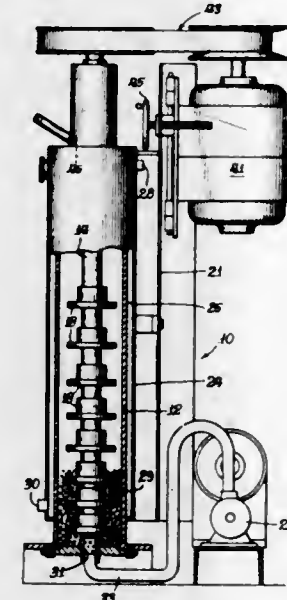
George R. Schold, Hickory Hills, Ill.

Filed July 28, 1969, Ser. No. 845,223

Int. Cl. B02c 17/04; B01d 33/06, 35/06

U.S. Cl. 241-74

24 Claims



A continuous duty, fully enclosed apparatus for deagglomerating solid, insoluble particles such as pigments and for uniformly distributing and dispersing the particles in a liquid vehicle which involves the utilization of a dispersing media such as steel shot which is retained in a vertically disposed generally cylindrical mixing vessel and agitated by rotating impellers or agitator discs connected to a drive shaft. The apparatus utilizes a rotor separator device connected to and driven by the drive shaft near the vessel outlet to separate media from the finished product just prior to discharging the latter from the mill apparatus.

3,653,601 ENDLESS TAPE MAGAZINE

Carl Wrona, deceased, late of Walddorf/Nagold, Germany (by Casper Antonius Henricus Mulkens, executor), and Wilhelmus Franciscus Aloysius Heylands, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, N.Y., N.Y.

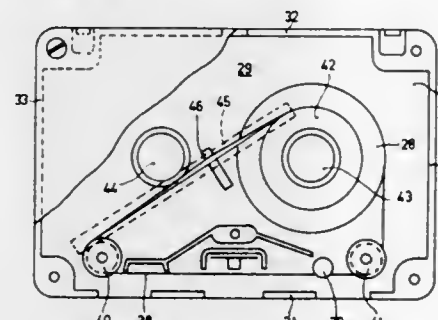
Original application June 23, 1967, Ser. No. 648,505. Divided and this application Aug. 15, 1969, Ser. No. 871,100

Claims priority, application Germany, June 25, 1966, W 41869; Nov. 9, 1966, N 29467

Int. Cl. B65h 17/48

U.S. Cl. 242-55.19 A

4 Claims



An endless magnetic tape magazine constructed as an oblong box for use on a conventional recording/playback ap-

paratus having a pair of winding spindles. Two pair of aligned apertures are provided through the bottom and top cover of the box. The apertures are spaced apart so as to accommodate the winding spindles of the apparatus. The magazine is provided with a rotatably mounted core about one of the apertures for accommodating a roll of endless tape, and arranged so as to rotate about the spindle passing through the aperture. Guide rollers are provided for guiding the tape along the inside of the magazine and back onto the roll and an additional pair of aligned apertures is also provided for accommodating a drive capstan and insuring correct positioning of the magazine within the recording/playback apparatus.

3,653,602 ELECTRIC ANKLE WRAPPING APPARATUS

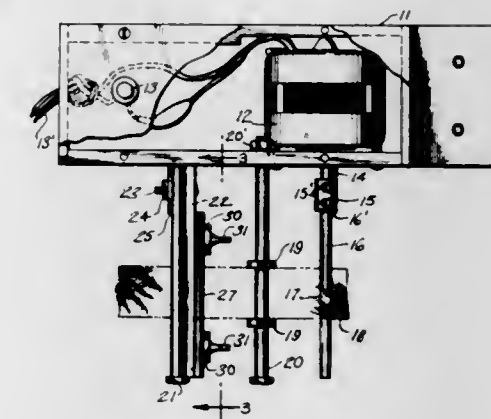
Charles M. Harrington, 1107 W. Rine Street, Hattiesburg, Miss.

Filed Apr. 21, 1970, Ser. No. 30,475

Int. Cl. B65h 75/02

U.S. Cl. 242-60

2 Claims



An electric ankle wrapping device including an electric motor secured within a housing that is pushbutton operated. When the pushbutton is pushed it starts the motor to rotate which will cause a notched and removable shaft to roll up the wrap. The device also includes a rod which is fixed and parallel with the rotatable shaft members, the rod having spaced apart guides which will cause the ankle wrap to roll evenly at the edges. The device has a fixed and slotted plate member to which is attached a slideable and adjustable second plate in order to prevent twisting of the wrap.

3,653,603 TAPE REEL CLAMP

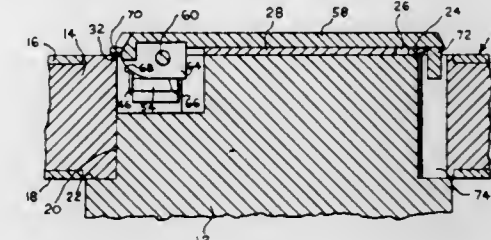
Gordon R. Schulz, Tujunga, Calif., assignor to Odetics, Inc., Anaheim, Calif.

Filed Nov. 3, 1970, Ser. No. 86,534

Int. Cl. B65h 17/02

U.S. Cl. 242-68.3

9 Claims



The tape reel clamp provides rotative, radial and axial mounting security. The hub of the tape reel mounts on a rotatable spindle for radial security. A radially expandable ring extends outward from the spindle and engages over the top of the reel hub for axial security. A raisable handle cams the ring into its retracted, non-engagement position wherein the hub can be removed from the post. A pin on the handle

engages a slot in the hub to provide rotative locking of the hub.

3,653,604

PHOTOGRAPHIC FILM CASSETTE

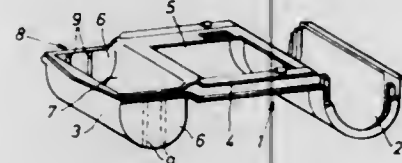
Max Wiesner, Leverkusen; Herbert Sonne, Leichlingen, and Hans-Robert Schmidt, Cologne, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany
Filed Dec. 2, 1969, Ser. No. 881,540

Claims priority, application Germany, Jan. 8, 1969, G 69 00 514

Int. Cl. G03b 17/26

U.S. Cl. 242-71.2

4 Claims



An improvement of a photographic film cassette, which is of the type having a takeup section and supply section, and brake elements which act on the lateral surface of the film coil arranged at the supply chamber. The brake elements are formed of ribs which are in one piece with the housing and bear under tension against the side surfaces of the film roll. The ribs are arranged perpendicular to the separation plane of the cassette.

3,653,605

SPOOLS FOR BUSINESS MACHINES

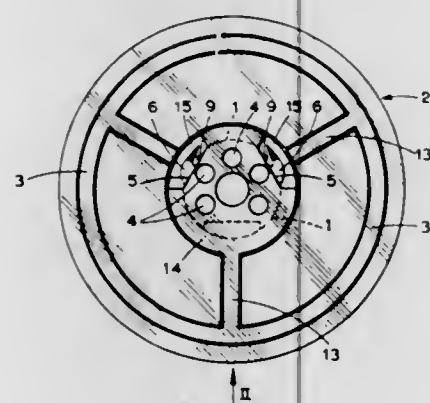
Derek G. Payne, Sevenoaks, England, assignor to Walter Grafton & Son Limited, London, England
Filed June 1, 1970, Ser. No. 42,046

Claims priority, application Great Britain, June 13, 1969, 30,042/69

Int. Cl. B65h 75/28

U.S. Cl. 242-74

6 Claims



A spool for a business machine is provided on the hub with a prong for the attachment of a ribbon, such as an inked ribbon, to be wound on the spool, and with a projection, preferably on the hub itself, which prevents the prong from cracking, breaking or becoming permanently deformed under the hoop stress due to the wound ribbon. The prong also serves to reduce the risk of the prong being broken by the use, as is the habit of some operators, of a nail file or penknife or the like to facilitate the attachment of the ribbon to the prong.

3,653,606

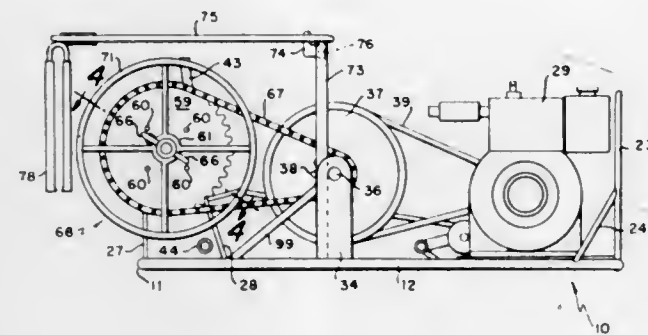
WIRE REELING MACHINE

Claude Sheets, Jr., 610 E. Kenneth Ave., Spearman, Tex.
Filed Nov. 19, 1970, Ser. No. 90,983

Int. Cl. B65h 75/40

U.S. Cl. 242-86.8

7 Claims



A wire reeling and unreeling machine particularly adapted for reeling fence wire including barbed wire. The machine includes an internal combustion engine mounted on a frame and driving through a jack shaft system including a belt clutch, a horizontally extending shaft. A reel is detachably mounted on the shaft. An idler sheave is hand controlled to tighten the belt on the engine to serve as a clutch. A horizontally swinging hand actuated level wind guide is mounted on the frame with the wire extending therethrough to permit the wire to be swung from side to side as it is being wound so as to wind levelly on the reel.

In a modified form of the invention the reel can be disassembled after the wire is wound thereon to permit the coil of wire to be removed therefrom so that the reel can be reused to form additional coils of wire.

3,653,607

MEANS FOR CAUSING REVERSAL OR SWITCHING-OFF MOVEMENT OF A RECORD CARRIER IN A RECORDING AND/OR PLAYBACK APPARATUS

Adriaan Jan Jurriaan Lambeck; Friedrich Laa, and Karl Rupp, all of Vienna, Austria, assignors to U.S. Phillips Corporation, New York, N.Y.

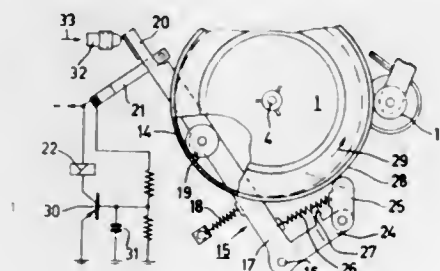
Filed Mar. 10, 1969, Ser. No. 805,515

Claims priority, application Austria, Mar. 11, 1968, A 2369/68; June 18, 1968, A 5834/68

Int. Cl. G11b 15/46; B65h 25/32

U.S. Cl. 242-191

13 Claims



Control mechanism for a tape recording and/or playback apparatus which senses when the winding disc has stopped and will switch off or reverse the movement of the tape. A cam operated member has one end which periodically contacts a control switch, the other end has a feeler in contact with the winding disc such that when the winding disc has stopped the cam operated member will be held in one switching position and will thereby initiate the switching off or reversing operation.

3,653,608

WEB CARTRIDGE

Bernard L. Dickens; Bruno F. Melchionni, both of Cherry Hill, N.J., and Raymond R. Werner, Northboro, Mass., assignors to RCA Corporation

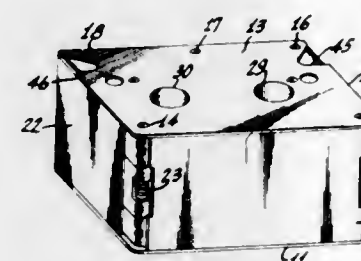
Filed Dec. 23, 1969, Ser. No. 887,616

Claims priority, application Great Britain, Mar. 14, 1969, 13,443/69

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-199

10 Claims



A six-sided web storage device having three fixed sides and three movable sides. The movable sides are mounted to the fixed sides of the device by spring biased hinges. The movable sides are releasably held in enclosing relation by the cooperative action of latching means on the fixed sides. A pair of web reels are captively mounted for rotation between fixed sides of the device. Resilient means are included in the mounting of the reels to provide rotational drag when the reels are disengaged from a driving means, the device being properly apertured to permit operation of the reels by the driving means. Release of the enclosing movable sides exposes a web which may be wound between the reels and provides access through apertures in the fixed sides for withdrawing the web from the device.

3,653,609

LIFT STRUCTURE

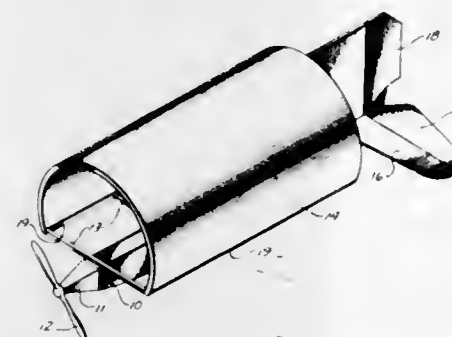
Paul F. Bruning, Altadena, Calif., assignor to Electronic Machining Company, Pasadena, Calif.

Filed Jan. 22, 1970, Ser. No. 4,796

Int. Cl. B64c 3/10

U.S. Cl. 244-13

11 Claims



A lifting body in the general form of approximately a semi-cylinder is connected to the fuselage of an aircraft for providing lift during flight. The lifting surface is substantially free of camber and is concave on its lower face in a direction transverse to the flight direction so that with a small angle of attack a large volume of air is effectively trapped beneath the lifting body, and the side edges minimize loss of air laterally thereby providing lift over substantially all of the lifting surface. The lifting body has a length along the direction of flight greater than the width transverse to the direction of flight for providing a low aspect ratio. Conventional elevators and a rudder are provided for control. In another embodiment the lifting body is formed in a helical shape for acting in the manner of a propeller and in another embodiment a fuselage is integrally connected with the lifting body in an arrangement where the lifting body also has capacity for helium for lighter than air flight.

3,653,610

CONTAINER CARRIER

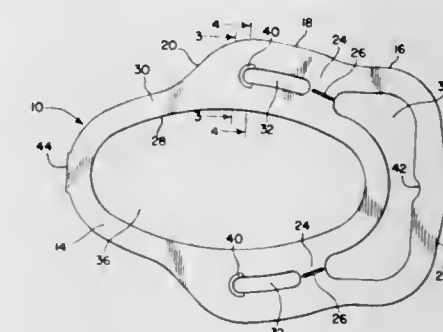
Ronald Charles Owen, Harwood Heights, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Dec. 17, 1969, Ser. No. 885,792

Int. Cl. A47j 45/00

U.S. Cl. 294-31.2

5 Claims



A plastic carrier of a unitary structure for holding bottles in which the carrier includes an integral endless band and bail operating to hold a bottle in substantially vertical position by positioning the carrier about a complementary bottle and pivoting the bail portion about the center line of the complementary bottle.

3,653,611

SLOTTED DELTA WING AIRCRAFT

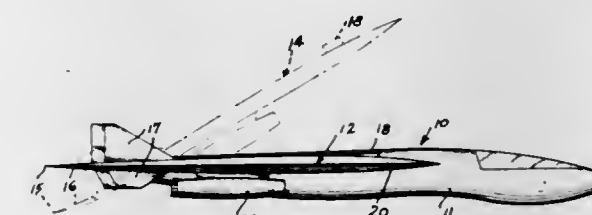
Mason Trupp, and Granbyne Garrison Trupp, both of 310 Blanca Lane, Tampa, Fla.

Filed Mar. 24, 1970, Ser. No. 22,214

Int. Cl. B64c 3/38

U.S. Cl. 244-48

3 Claims



A slotted delta wing aircraft wherein there is provided a delta wing air frame member that is attached axially by its trailing edge to the rear of the fuselage of the aircraft, and wherein this construction permits vertical and short take-offs as well as increased acrobatic maneuverability, and wherein ingestion of hot gases by propulsion units is prevented.

3,653,612

CONTROL WHEEL FORCE SENSOR DEVICE

Raymond D. Palfreyman, Clifton, N.J., assignor to The Bendix Corporation

Filed Sept. 21, 1970, Ser. No. 73,940

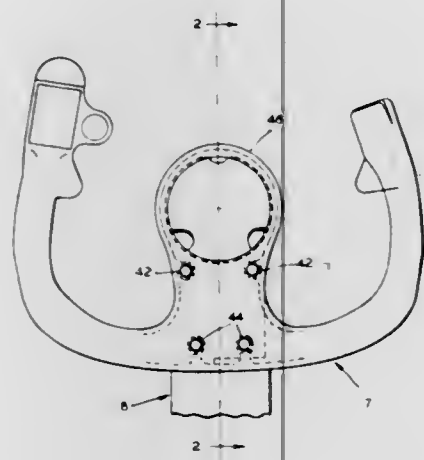
Int. Cl. B64c 13/04

U.S. Cl. 244-83 E

16 Claims

A control wheel force sensor device including a control element having spring members orthogonal to one another and each spring member mounting semiconductor strain gauges to provide signals corresponding to the flexure of the associated spring member. The control element has an end portion affixed interiorly to a base member carried by the control wheel, while an opposite free end portion of the control element provides an inner bearing surface operably positioned in a nutational bearing mounted in an inner hub portion on which the control wheel may be angularly and linearly positioned. In the nutational bearing, supporting means carrying a single ball or row of bearing balls is so arranged as to permit linear motion of the free end inner bearing surface portion of the control element in relation to the single ball or the bearing balls and a nutating motion of such

free end inner bearing portion of the control element in relation to the ball or balls carried by the supporting means. Such linear and rotating motion of the free end inner bearing portion of the control element upon operation of the control wheel permits a corresponding flexure of the associated spring member of the control element by the control wheel in



effecting control of an aircraft in pitch and roll sense. The strain gages on such orthogonal spring member may be connected in an electrical bridge circuit so as to differentially unbalance the bridge and provide an electrical output corresponding to the forces applied to the spring member in said pitch and roll senses to modify an automatic pilot control system.

3,653,613

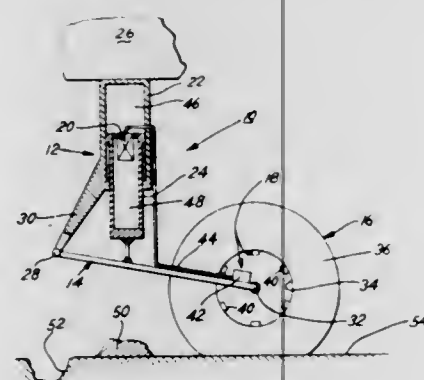
ENERGY ABSORBING DEVICE

Roy M. Palmer, South Bend, Ind., and Robert J. Schoenhals, Tempe, Ariz., assignors to The Bendix Corporation
Filed May 8, 1970, Ser. No. 35,721

Int. Cl. B64c 25/58

U.S. Cl. 244—103 R

7 Claims



An energy absorbing device comprising: an energy absorber, including relatively fixed and telescoping portions; a lever operatively connected to said energy absorber; a wheel, including a pressurized tire rotatably carried on said lever; pressure sensors carried on said wheel for monitoring the pressure in said tire; and means for modifying the energy absorbing characteristics of said energy absorber means in response to signals transmitted from said pressure sensors to minimize the effect of vertical deflections on said energy absorber.

3,653,614

BOMBLOAD HANDLING APPARATUS

Joseph P. Ruggeri, 214 Third Ave., Cherry Hill, N.J.
Filed Jan. 14, 1971, Ser. No. 106,520

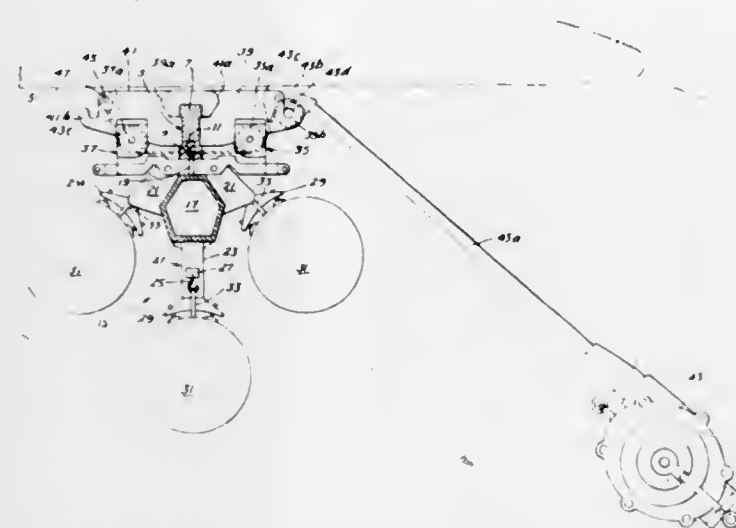
Int. Cl. B64c 1/22

U.S. Cl. 244—137 R

7 Claims

Subject disclosure relates to novel and improved apparatus for loading and unloading a bombload ejection subassembly

on an aircraft bombcrack. When an asymmetric bombload is to be handled, the apparatus includes a sheave assembly which is secured to the bombload assembly such that its axis of rotation is positioned vertically above the center of gravity of the bombload assembly, a single cantilever element which hooks or locks on the aircraft bombcrack frame and extends outwardly over the sheave assembly and a hoist mechanism



which is cradled on the end of the cantilever element and controls a lifting cable which is reeved about the sheave assembly. When a symmetric bombload is to be handled, the apparatus includes a pair of sheave assemblies which extend outwardly from opposite sides of the bombload assembly, a pair of cantilever elements which are secured to the bombcrack frame above the sheave assemblies, and a hoist mechanism.

3,653,615

AIRCRAFT NOSE OPENING MECHANISM

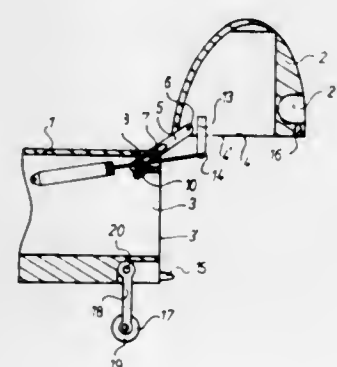
William G. Spence, 2372 Wilson Ave., Montreal, Quebec, Canada

Filed June 3, 1969, Ser. No. 829,908

Int. Cl. B64d 9/00

U.S. Cl. 244—137

3 Claims



An airplane preferably for carrying cargo, having a nose portion openable by a simple mechanism to fully uncover a front loading and unloading opening. The landing gear serves also to lock the nose portion in closed position.

3,653,616

CUTTING MECHANISM

Manuel Weinstock; Osyp Nimyłowycz, both of Philadelphia, Pa.; Edward J. Wiggett, Cinnaminson, N.J., and Obie Palmer, Philadelphia, Pa., assignors to The United States of America as represented by the Secretary of the Army

Filed June 24, 1970, Ser. No. 49,357

Int. Cl. B64d 17/58

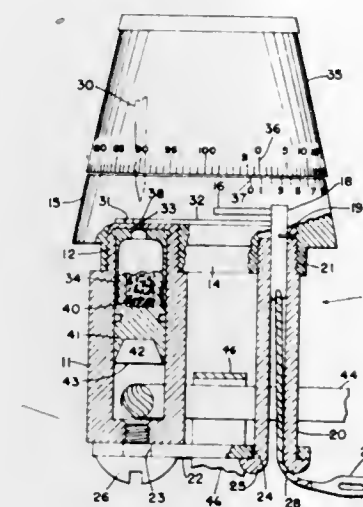
U.S. Cl. 244—150

7 Claims

A parachute arrangement for pin point soft landing air cargo that includes a hand settable time delay cutting

mechanism for cutting the reefing line of a cargo attached parachute after a predetermined drag force has been exerted upon a release pin cable. The mechanism includes a ballistic cutting blade carrying a powder charge in alignment with a

Various means have been devised for protecting pipe insulation at the areas where it is engaged by hangers which support the pipe and the insulation. The insulation is generally of relatively soft, light material designed to insulate against the



timer controlled firing pin. A release pin actuates the timer when the cable drag force removes the release pin from its normal position extending in the path of a timer lock member.

3,653,617

MULTI-POSITION, MULTI-MOUNT I. V. ROD AND HOLDER

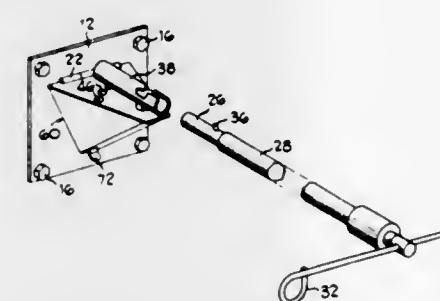
Joseph P. Saternus, Midlothian, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 24, 1970, Ser. No. 22,285

Int. Cl. A47f 7/28

U.S. Cl. 248—42

1 Claim



A multi-position holder, especially for an I. V. rod is constructed of a base member and a bracket hinged and angularly adjustable relative thereto and a rod holder member angularly adjustable relative to the bracket.

3,653,618

INSULATION PROTECTOR FOR PIPE HANGERS

Robert D. Kindorf, 448 Scenic Ave., Piedmont, and David O. Kindorf, 6257 Glavin Drive, Oakland, both of Calif.

Filed Jan. 12, 1970, Ser. No. 2,128

Int. Cl. F16l 3/02

U.S. Cl. 248—58

2 Claims

A member of sheet material curved to conform to the external surface of pipe insulating material to protect the insulating material by distributing the weight of the pipe over a large area as compared to the relatively small area of narrow pipe hanger. The protector is designed to fit within a pipe hanger and to have means of very simple and inexpensive construction to secure it to the pipe hanger during the time between its installation in the hanger and the installation of the insulation material.



flow of heat either to or from the pipe and its contents. It has very little strength particularly in compression to which it is subjected when it is disposed between a hanger and the pipe supported by a hanger.

3,653,619

GARBAGE BAG HOLDER WITH APPURTENANT GARBAGE BAG

Paul Ejler Plum, Klampenborgvej 8 A, 2800 Klampenborg, Denmark

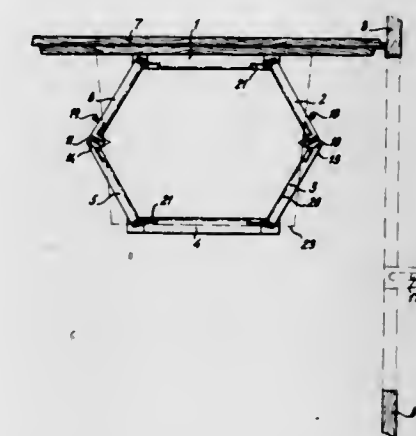
Filed Apr. 23, 1970, Ser. No. 31,224

Claims priority, application Japan, May 2, 1969, 44/34263

Int. Cl. B65b 67/12; A47f 7/00

U.S. Cl. 248—99

6 Claims



A garbage bag holder comprising a polygonal rod system consisting of mutually articulated rods, one element of the rod system being connected to one part of a cupboard, e.g. a cupboard door, and another element being connected to another cupboard part, e.g. a frame to which the door is hinged, so that the rod system is transferred from an open position to a closed position and vice versa when the two cupboard parts are moved in relation to one another.

3,653,620

BAG HOLDER

Hubert J. O. H. Benoit, 8530 25th Ave. Apt. #6, Montreal, Quebec, Canada

Filed Dec. 22, 1970, Ser. No. 100,657

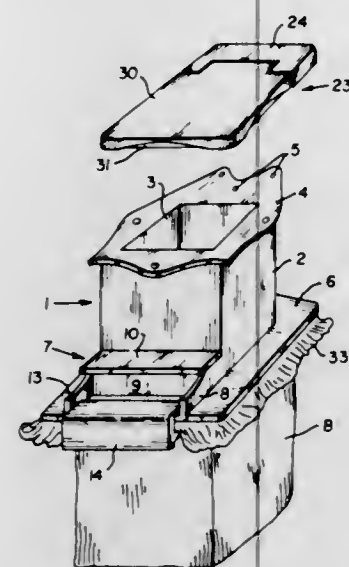
Int. Cl. B65b 67/12

U.S. Cl. 248—101

7 Claims

A bag holder for use in a kitchen counter includes a cover for mounting over an opening in the counter, a frame with a vertical garbage receiving passage for mounting beneath the counter, and a bag-supporting plate, which can be secured beneath the frame to fix the upper open end of a plastic garbage bag between the frame and the plate. The frame and

plate have complementary cowl-shaped flanges on one side. The connection between the frame and plate is completed by



a pivotable latch on a side of the frame remote from the cowl-shaped flanges for engaging the plate.

3,653,621

SNUBBING ARRANGEMENT FOR COLLAPSIBLE TRAILER HITCH

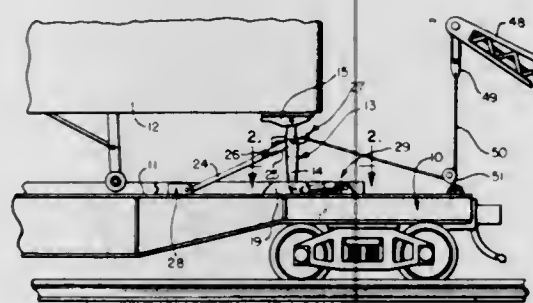
Ray L. Ferris, Thornton, Ill., and Walter J. Marulic, Gary, Ind., assignors to Pullman Incorporated, Chicago, Ill.

Filed Oct. 6, 1969, Ser. No. 864,059

Int. Cl. B60p 7/00

U.S. Cl. 248—119 S

3 Claims



A trailer hitch for securing highway trailers on the flat deck of a railway car is provided with an improved snubbing device for cushioning the hitch when it collapses from an operative to an inoperative position. The snubbing device comprises a hydraulic unit which is connected to the upright strut and which is operative only during the collapse of the strut to a horizontal position on the deck. The hydraulic snubbing device and connection to the strut is so arranged as to provide an initial free fall of the strut to a certain point after which the snubbing device acts to retard the speed of falling movement of the strut, up to a point prior to full collapse whereupon the snubbing device again becomes inoperative and permits the free fall of the strut to its collapsed position.

3,653,622

NONLINEAR CROSSARM FOR BRACKETING ELECTRICAL DEVICES

Marion R. Farmer, Memphis, Tenn., assignor to Alumal-Form, Inc.

Filed Apr. 20, 1970, Ser. No. 29,852

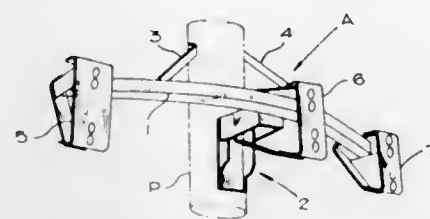
Int. Cl. H02g 7/20

U.S. Cl. 248—221

32 Claims

A nonlinear or arcuate crossarm, preferably formed from extruded material such as an aluminum alloy, is anchored to

a utility pole, and a series of brackets connecting proximate each end and at the midpoint of said crossarm support electrical devices such as arresters, switches, potheads, or the like; the spatially disposed brackets undertake various forms and modifications, but in general each bracket is constructed having a mounting surface which is held by support means comprising an angle or a plate to the crossarm, with a brace



securing the downward portion of said mounting surface to said supporting or anchor means. Other spatially arranged brackets include a combination of one or more angles, including multi-flanged angles or structural tees, that are secured to the crossarm, and have exposed mounting surfaces to which either the electrical devices, or various pads and hangers for holding such devices may be connected.

3,653,623

MUSIC HOLDING LYRE FOR A MUSICAL INSTRUMENT

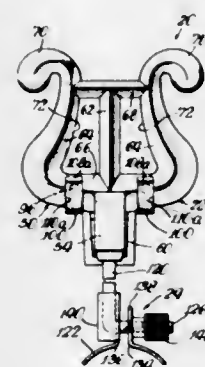
Herbert L. Johnston, Columbia City, Ind., assignor to Plasti-Music Company, Inc., Evansville, Ind.

Original application Feb. 2, 1968, Ser. No. 702,633, now Patent No. 3,539,143. Divided and this application Jan. 19, 1970, Ser. No. 8,154

Int. Cl. G10g 5/00

U.S. Cl. 248—231

3 Claims



A music holding lyre for a musical instrument comprising a clamping mechanism especially constructed for holding either one or more paper sheets of music or a music holder of the type including a generally flat rigid supporting member for hingedly supporting sheets of music and having projecting means projecting from opposite surfaces thereof, and novel mounting means for mounting the lyre to a musical instrument.

3,653,624

SUPPORT DEVICE FOR FLUID RECEPTACLES

Allen J. Abel, 3110 Ridgewood Road, St. Paul, Minn.

Continuation-in-part of application Ser. No. 741,673, July 1, 1968, now Patent No. 3,548,827. This application Aug. 7, 1970, Ser. No. 62,025

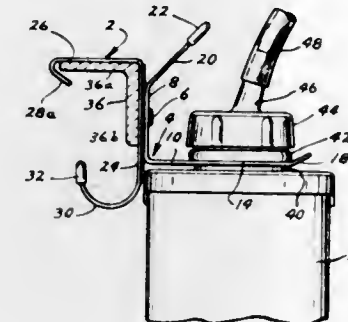
Int. Cl. A61m 27/00

U.S. Cl. 248—312

5 Claims

A support device for fluid receptacles, particularly for holding body fluid collecting receptacles at the edge of a hospital bed, comprised of a right angle bracket including means for engaging and holding a liquid receptacle in an upright position, and a mounting plate to which the receptacle holding bracket is pivotally connected. The mounting plate includes flange means at one end thereof for removably

attaching the support device to a bed frame member having flat or planar wall elements, and an arcuate hanger at the opposite end thereof for suspending said support device on a round frame member of a wheeled stretcher or wheel chair. The mounting plate may be rotatably adjusted with respect to the receptacle holding bracket to bring either the flange attachment means or the arcuate hanger into position to en-



gage a frame member, the pivotal connection between the receptacle holder bracket and the mounting plate further permitting the mounting plate to pivot to various angular positions with the frame member to which it is attached while the receptacle holding bracket remains in its normal position of use to thereby continuously support a liquid receptacle in an upright position so that its contents will not be spilled.

3,653,625

MICROPHONE SHOCK-MOUNTING APPARATUS

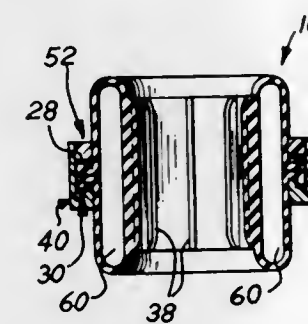
Gerald W. Plice, Morton Grove, Ill., assignor to Shure Brothers, Inc.

Filed Nov. 3, 1969, Ser. No. 873,530

Int. Cl. F16f 15/04

U.S. Cl. 248—358 R

2 Claims



Apparatus for shock-mounting a microphone comprising a compact, resilient mounting member defining a socket adapted to receive a microphone body and means for supporting the mounting member in a desired position. The mounting member defines an enclosed space encircling the socket that is preferably filled with a fluid, such as a liquid or pressurized gas. The action of the shock mount can be modified by the selection of different viscosity gases or liquids, or by the addition of foam to affect viscous damping and thereby permit tuning of the apparatus for a particular application.

3,653,626

ADJUSTABLE TRESTLE

James I. Tucker, Manhattan Beach, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Nov. 2, 1970, Ser. No. 86,210

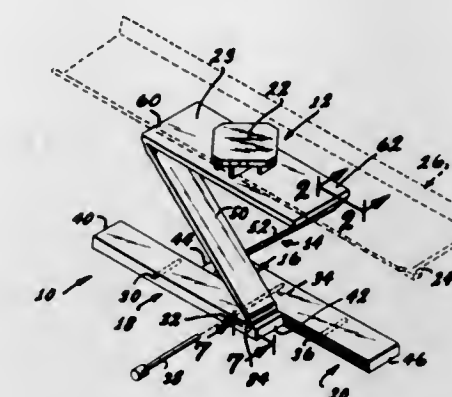
Int. Cl. F16m 11/06

U.S. Cl. 248—371

10 Claims

An adjustable trestle for a toy track system having movable crossed arms and slideable base elements for varying the vertical height of the trestle and the degree of slope of a connected track section. The trestle comprises an upper support

element which is connectable to a track section, two slideable base elements and the two arms each of which pivotally connect at one end to the upper support element and at the



opposite end to one of the base elements. Each pivotal connection is achieved with a thin gauge readily flexible region which is inexpensively formed but highly reliable in operation.

3,653,627

MIRROR MOUNTING MEANS

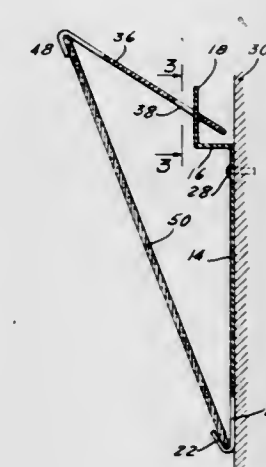
Homer C. Holloway, 16332 E. Candlelight Drive, Whittier, Calif.

Filed Jan. 29, 1970, Ser. No. 6,721

Int. Cl. A47g 1/16

U.S. Cl. 248—488

4 Claims



A mirror mounting device having a support member attachable to a wall and a second member removably attached to an upper end part of the part attachable to a wall, the free ends of said members having transverse flanges turned toward each other for engagement with upper and lower edge portions of a mirror, thereby retaining the mirror in an angular position.

3,653,628

TIE-ROD AND CONE ASSEMBLY FOR A CONCRETE WALL FORM

James C. Shoemaker, Hampshire, Ill., assignor to Symons Corporation, Des Plaines, Ill.

Filed Sept. 22, 1970, Ser. No. 74,397

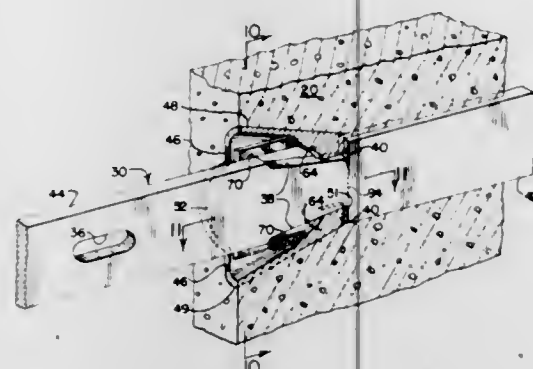
Int. Cl. E04g 17/10

U.S. Cl. 249—214

10 Claims

Two unitary one-piece plastic concrete-sealing cones for telescopic reception over the end regions of a flat tie rod which extends across the opposed spaced apart sides of a concrete wall form. The cones serve as washers to prevent concrete from passing through the tie rod openings in the form sides, and they also serve as spreader members, in which case they become interlocked with the tie rod against longitudinal shifting therealong. The cones establish voids in

the side surfaces of the hardened concrete wall in the vicinity of breakbacks in the tie rod and a hammer blow on each air gap of the valve also acts as an anti-residual magnetism



3,653,629

BUILDING CORNER FORM STRUCTURE

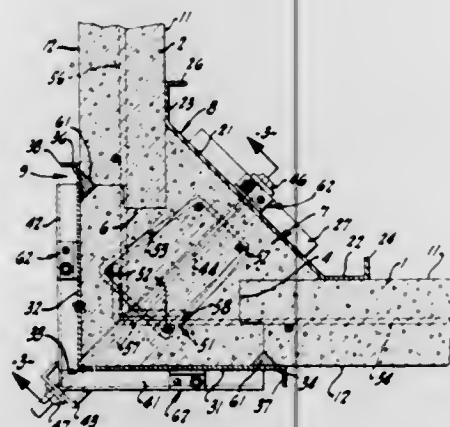
David H. Keyston, Burlingame, Calif., assignor to Anza Pacific Corporation, Burlingame, Calif.

Filed Mar. 14, 1969, Ser. No. 807,337

Int. Cl. E04g 11/00

U.S. Cl. 249-19

13 Claims



A reusable building form structure defined by opposed, rigid, preformed, self-supporting form members, and a method of utilizing the same with previously erected building wall panels, to produce a corner column defined by settable construction material introduced into the space delimited by the wall panels and the corner form structure. Improved alignment means are provided on adjacent form members to insure proper interengagement of abutting form members vertically arranged end-to-end to permit formation of corner columns of varying heights.

3,653,630

SOLENOID VALVE WITH PLURAL SPRINGS

Irving R. Ritsma, South Bend, Ind., assignor to The Bendix Corporation

Filed July 15, 1970, Ser. No. 54,965

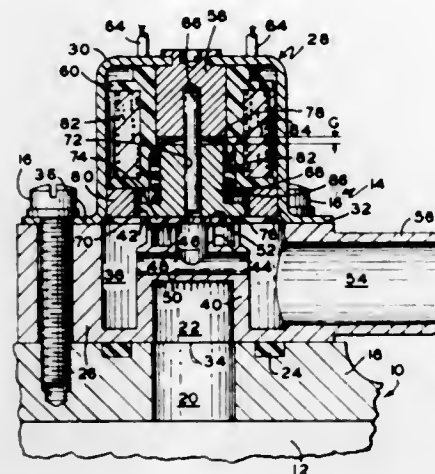
Int. Cl. F16k 31/06

U.S. Cl. 251-129

2 Claims

A solenoid valve having particular utility in adaptive braking systems on automotive vehicles, in which the armature is provided with a conventional coil spring urging it toward its released position. A supplementary spring in the form of a

bowed or wave washer whose free height is less than the total air gap of the valve also acts as an anti-residual magnetism



3,653,631

BALL VALVE CONSTRUCTION

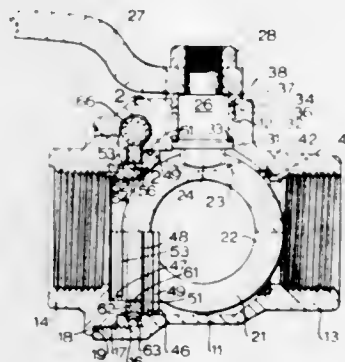
Gordon F. Hurst, 540 Callan Ave., San Leandro, Calif.

Filed Oct. 23, 1969, Ser. No. 868,754

Int. Cl. F16k 5/20

U.S. Cl. 251-159

3 Claims



A downstream seat for a ball valve has a collar or piston which slides longitudinally in the valve body and is forced against the ball to move the ball into sealing engagement with a stationary upstream sealing element. The piston is externally actuated, either mechanically or hydraulically.

3,653,632

FLUID DYNAMIC PROFILE

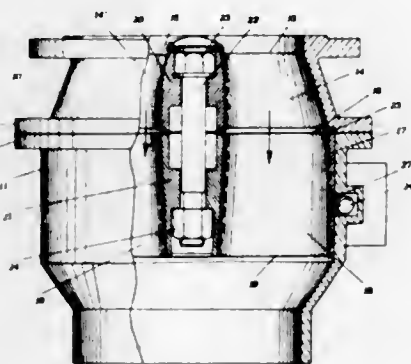
Livio Meloni, Via Assisi, n. 29, Rome, Italy

Filed June 15, 1970, Ser. No. 46,194

Int. Cl. F16k 1/22

U.S. Cl. 251-304

4 Claims



Profiles of surfaces of bodies subject to relative motion in a fluid are designed on the ground of particular relationships

between the elements involved when the optimum performance in the interaction between body and fluid is desired. A profile is disclosed for a rotary valve which coaxially connects two sections of a water pipeline, for closing, opening and regulating the water flow from upstream to downstream, the inner surface of suitable passageways which are evenly distributed about the axis of the rotary valve being suitably shaped.

3,653,633

VALVE

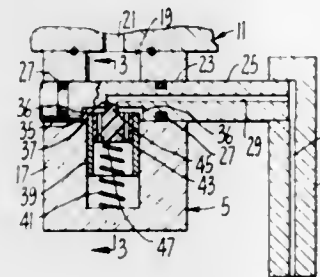
Charles D. Striplin, Box 515, Benica, Calif.

Filed July 14, 1970, Ser. No. 54,744

Int. Cl. F16k 31/524

U.S. Cl. 251-354

1 Claim



A spring mounted valve having a dispensing arm is provided wherein the arm is hollow and serves both as an outlet for the valve and as a control arm for the valve. A spring actuated plunger serves both as a shut off mechanism for the valve and as a spring to return the valve to the closed position. The valve is particularly adapted for dispensing glue in a box making operation.

3,653,634

STEPWISE-OPERATING POWER APPARATUS

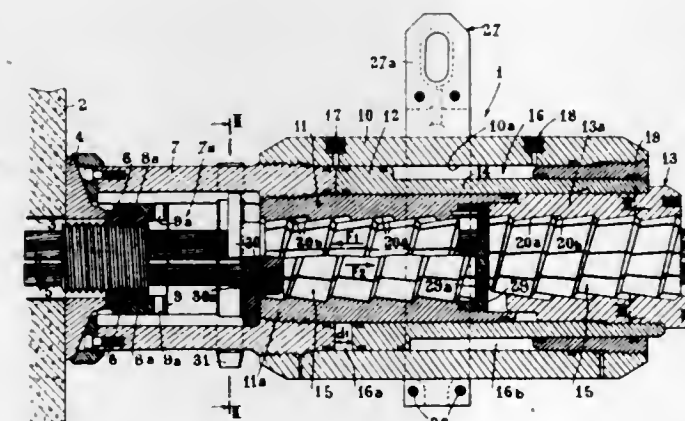
Rene Bechi, Bois Colombes, France, assignor to Societe des Grands Travaux de Marseille, France

Filed Oct. 23, 1970, Ser. No. 83,534

Int. Cl. E21b 19/00

U.S. Cl. 254-29 A

9 Claims



Hydraulic power apparatus operating stepwise and comprising essentially a body having arranged therein a fixed retaining device, an annular piston and a movable traction device connected to the tubular rod of said piston, said fixed retaining device and said movable traction device comprising clamping members adapted to grip and release by turn cables, rods or the like, the clamping members of one device gripping the cables when the clamping members of the other device release said cables, and vice-versa. The invention may be used either as a traction ram when it is held in a fixed position for exerting a tractive effort, for example on a cable for prestressing a concrete mass, or as a "re-advancing"

device for displacing step-by-step a mass or load to which it is connected along a rail-forming cable or rod.

3,653,635

WAVE MOTION COMPENSATING APPARATUS FOR USE WITH FLOATING HOISTING SYSTEMS

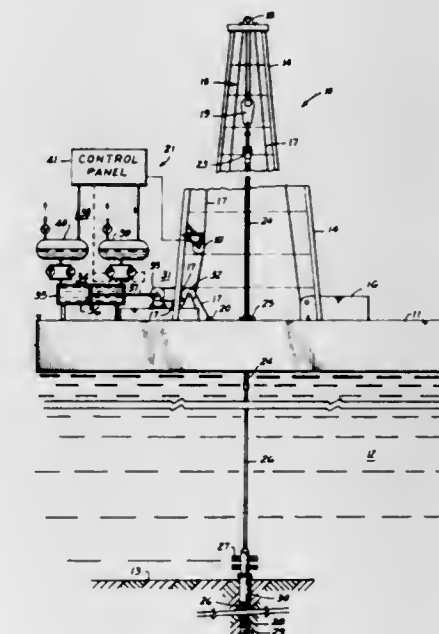
Howard J. Bates, Jr., Houston, Tex., and Ado Vujasinovic, Fullerton, Calif., assignors to Joe Stine Inc., Houston, Tex.

Filed Nov. 17, 1969, Ser. No. 877,096

Int. Cl. B66d 1/48

U.S. Cl. 254-172

4 Claims



The dead end of the drilling line of the hoisting system of a floating drilling rig makes multiple passes between a stationary sheave assembly and a movable sheave assembly and then runs to a dead line anchor to which it is tied. A piston mechanism including a cylinder, piston, and piston rod is located on the floating rig structure and is coupled to the movable sheave assembly for controlling the spacing between the stationary and movable sheave assemblies. Fluid control apparatus communicates with the piston mechanism for controlling the fluid pressure therein for minimizing variations in the drilling line tension as the floating drilling rig or other type of floating structure rises and falls with the sea waves. The piston rod is subject to a pure tension load at all times, thereby enabling the rod to be of any suitable length to accommodate any wave height encountered.

3,653,636

WAVE MOTION COMPENSATION SYSTEM FOR SUSPENDING WELL EQUIPMENT FROM A FLOATING VESSEL

George R. Burrell, Houston, Tex., assignor to Esso Production Research Company

Filed Feb. 9, 1970, Ser. No. 9,764

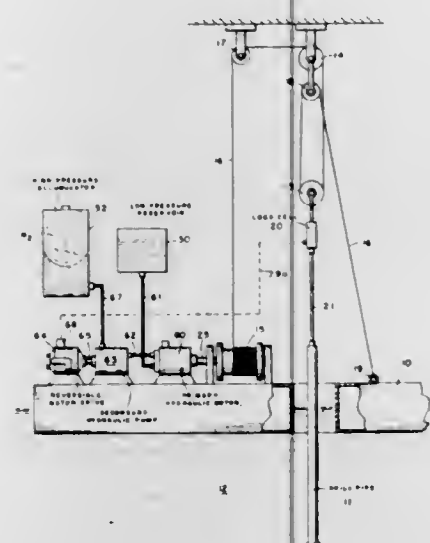
Int. Cl. B66d 1/48

U.S. Cl. 254-173

4 Claims

A reversible hydraulic motor and a high pressure-low pressure hydraulic reservoir system are used to counterbalance the weight of a drill string or other well equipment suspended from a line wound on a draw works positioned on a floating vessel. A load cell controls the torque output and the direction of the output drive of the hydraulic motor and in turn torque on and the direction of rotation of the draw works. On downward movement of the floating vessel high pressure hydraulic fluid from an accumulator moves through the hydraulic motor into a low pressure hydraulic fluid reservoir to provide increased torque to the draw works as the draw works spools up line and upward movement of the floating vessel the hydraulic motor reverses and becomes a

pump and moves low pressure fluid from the low pressure reservoir to the high pressure accumulator to provide



decreased torque and reverse direction to the draw works as the draw works spools off line.

3,653,637

APPARATUS FOR PROCESSING PLASTIC MATERIALS

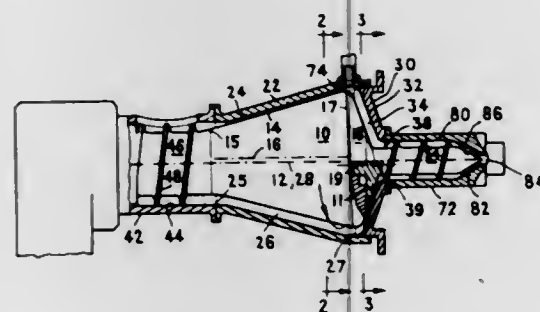
Hans A. Eckhardt, 55 Crescent Road, Allendale, N.J.

Filed Nov. 29, 1968, Ser. No. 779,805

Int. Cl. B01f 7/08

U.S. Cl. 259-4

22 Claims



An apparatus and method of extruding, injection molding, blow molding and transfer molding plastic materials comprise a feed screw rotating in a barrel and feeding plastic material over a revolving member surrounded by an increasing and a decreasing housing with a discharge opening at its center. The revolving member has an increasing surface with a center line which has a radial distance to the axis of revolution of that member. The revolving member has a subsequent decreasing surface with a center line which has a radial distance to the member's axis of revolution diametral to the radial distance from the center line of the increasing surface to that axis of revolution, so that the forces developed in an area of decreasing surface are compensated by forces in a diametral area of increasing surfaces. The increasing surfaces diverge from each other as do the decreasing surfaces. The increasing housing, the decreasing housing and the revolving member are axially movable relatively to each other to vary the spaced relationship between their surfaces. For extrusion, an extrusion barrel is attached to the decreasing housing, and an extrusion screw to the revolving member. For molding operations, an injection screw or an injection piston extends through a bore in the revolving member coaxial with the member's axis of revolution.

3,653,638 METHOD AND APPARATUS FOR DISPERSING A SOLID MATERIAL IN A LIQUID

William E. Showalter, Seal Beach, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed June 18, 1970, Ser. No. 47,361

Int. Cl. B01f 15/02

U.S. Cl. 259-4

19 Claims



A method and apparatus for dispersing particles of solid material in a liquid in which the particulate solid material is placed in a reservoir of the liquid in a closed vessel having a bottom outlet provided with an internal vertical standpipe through which the contents of the vessel are withdrawn and wherein the liquid is introduced into the vessel at an angle normal to and adjacent the open terminus of the standpipe. The concentration of solid particles in the withdrawn liquid is controlled by adjusting the velocity of the liquid introduced into the vessel, an increase in inlet velocity causing a decrease in the particle concentration. Where the particles are buoyant, the standpipe extends to the top of the vessel and the liquid is introduced at that point. In the case of non-buoyant particles, a short standpipe is employed that terminates near the bottom of the vessel and the liquid is introduced adjacent thereto.

3,653,639 HIGH PRESSURE AIR AND LIQUID BLENDING METHOD AND APPARATUS FOR DISCRETE MATERIALS

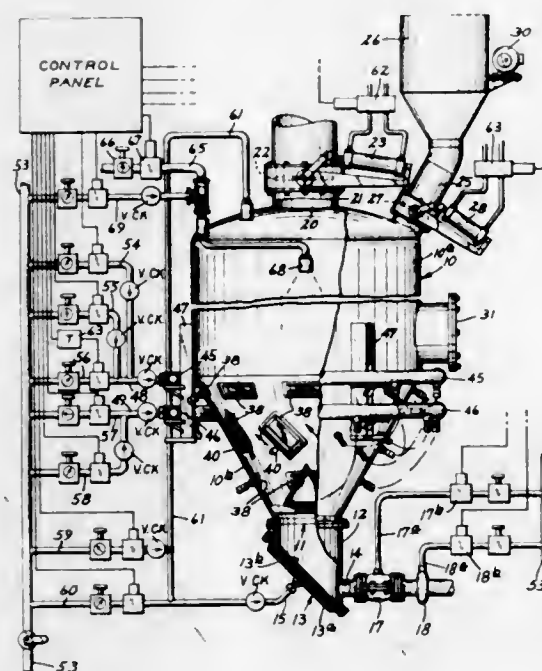
Marvin C. Mueller, Lesueur, Minn., assignor to Whirl-Air-Flow Corporation, Minneapolis, Minn.

Filed Feb. 4, 1971, Ser. No. 112,568

Int. Cl. B01f 15/02

U.S. Cl. 259-4

7 Claims



A closable vessel is shown having a funnel-shaped lower portion with an outlet opening at the bottom end. Aerator pads and air jet fittings are mounted on the inner wall of the

lower portion to fluidize and blend discrete materials in the vessel. A water spray nozzle is mounted within the vessel near the center thereof to spray a predetermined amount of water into the discrete materials during the blending cycle. A diffuser pad is mounted at the outlet opening to aid in fluidizing the materials during blending and to aid in causing the blended materials to flow from the vessel into an outlet conduit for transporting to a remote location.

3,653,640

APPARATUS FOR PREPARING AND DISPENSING A MIXTURE OF AT LEAST TWO LIQUIDS

Hendrik Antoon Lorentz deHaas, Loenersloot, Netherlands, assignor to Berg & Burg N.V., Breukelen, Netherlands

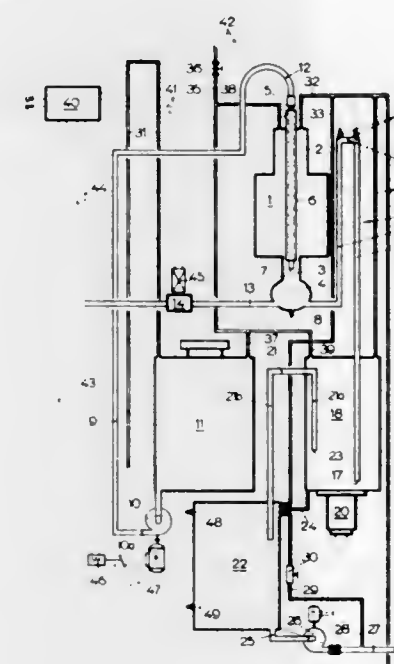
Filed May 29, 1969, Ser. No. 829,050

Claims priority, application Netherlands, June 6, 1968, 6807971

Int. Cl. B01f 15/00; B01d 13/00; C02b 1/82

U.S. Cl. 259-4

16 Claims



An apparatus for preparing and dispensing a dialysate for an artificial kidney by mixing a concentrated salt solution with softened water in the required mixing ratio, having a mixing tank, a pump for periodically feeding a measured quantity of concentrate from a storage tank to the mixing tank, an inlet conduit comprising a shut-off type valve for feeding water to the mixing tank after the concentrate has been pumped into this tank and a loop-shaped syphon discharge tube for discharging the mixed liquid from the mixing tank. The upper loop portion of the syphon tube is arranged adjacent the upper portion of the mixing tank and contains two electrodes of a liquid responsive control circuit which controls the shut-off valve to close this valve at the moment the liquid reaches the level of said loop portion and thereby starts to flow out of the mixing tank through the syphon discharge tube.

3,653,641

AERATOR AND WATER TREATMENT DEVICE

Robert E. Eron, 3375 34th N., St. Petersburg, Fla.

Filed Oct. 16, 1970, Ser. No. 81,209

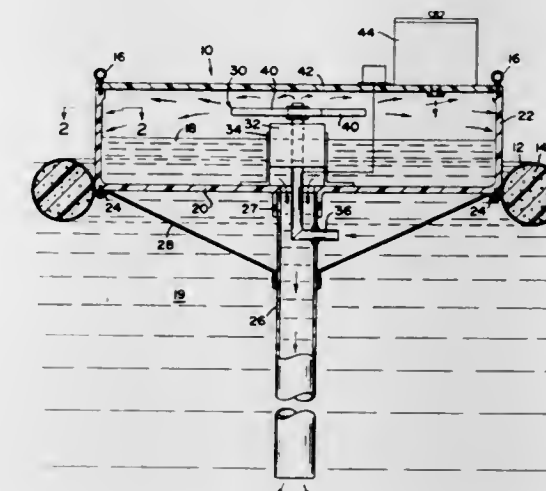
Int. Cl. B01f 3/04

U.S. Cl. 261-18

14 Claims

A floating liquid aerator and water treatment device adapted for use in aerating and chemical treatment of polluted water. The device includes an axial flow impeller rotated by motor means disposed above a centrally located tube. The motor and impeller, pump water upwardly through the tube and sling it outwardly for interface contact with the

particular surrounding atmosphere. The impeller slings the water into the atmosphere with considerable turbulence thereby exposing more of the water surface to the atmosphere, resulting in a higher transfer of oxygen or other gas to the water. The base of the floating aerator includes an extended tube which communicates between the interior of the floating liquid aerator and a point beneath the float near



or just above the floor of the body of water. As the aerated or treated water head builds up within the float, the aerated or treated water is forced down the tube thereby causing a gentle flow of aerated or treated water outward and upward near the bottom of the body of water. In addition, means are provided to chemically treat the aerated water whereby the chemicals will be thoroughly dispersed and diluted before being exposed to the environment.

3,653,642

CARBURETTORS

Geoffrey Lloyd Lawrence, Potters Bar, England, assignor to The Zenith Carburettor Company Limited, Stanmore, Middlesex, England

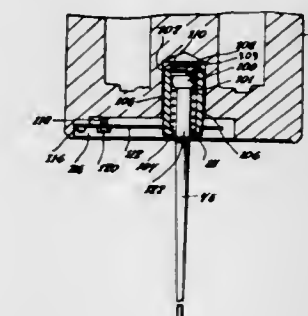
Filed Oct. 16, 1969, Ser. No. 866,939

Claims priority, application Great Britain, Oct. 22, 1968, 50,104/68

Int. Cl. F02m 1/10

U.S. Cl. 261-39 B

4 Claims



The invention provides an air valve carburettor wherein the contoured needle is mounted for axial movement relative to the suction operated member and temperature sensitive control means are provided and associated between said contoured needle and said suction operated member whereby the cross sectional area of the jet orifice is determined by the temperature sensed by the temperature sensitive control means which temperature will be influenced inter alia by the temperature of the incoming fuel, the temperature of the air passing beneath the air valve and the temperature of the engine.

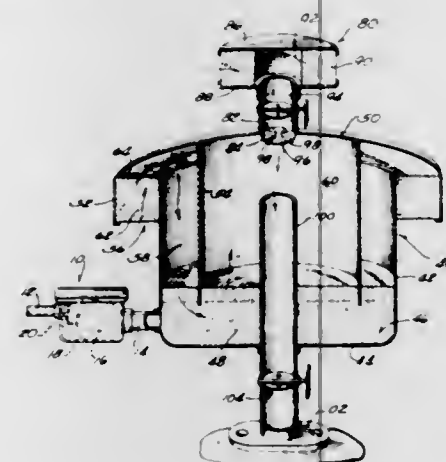
3,653,643 CARBURETOR

Oliver M. Tucker, 1613 East Blackthorne Pl., Milwaukee, Wis.

Filed Apr. 3, 1970, Ser. No. 25,362
Int. Cl. F02m 17/34

U.S. Cl. 261—56

6 Claims



A carburetor including a housing having a fluid fuel reservoir in the bottom, an air inlet at the top of the housing, a delivery pipe coaxially mounted within the housing and terminating short of the top of the housing, and a porous vaporizing filter substantially filling the reservoir. A baffle is concentrically mounted within said housing and extends partially into the vaporizing filter in the reservoir to deflect the incoming air through the vaporizing filter. The level of liquid fuel in the reservoir is kept above the bottom of the baffle, so that air entering the carburetor through the inlet must pass through the liquid fuel and vaporizing filter in the reservoir before discharge through the outlet. A secondary air inlet is provided in the top of the housing for controlling the fuel air ratio of the vaporized fuel passing into the delivery pipe.

3,653,644

APPARATUS FOR PREHEATING FINE GRANULAR MATERIAL

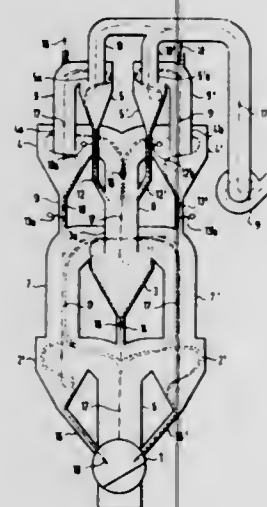
Jochen Polysius, and Horst Ritzmann, both of Neubeckum, Germany, assignors to Polysius AG, Neubeckum, Germany
Filed May 28, 1970, Ser. No. 41,199

Claims priority, application Germany, Aug. 12, 1969, P 19 41 045.8

Int. Cl. F27b 15/00

U.S. Cl. 263—21 A

7 Claims



A plurality of eddy chambers of the cyclone separator type are arranged in superimposed levels through which the material passes downward in series and through which the hot gases travel upward in series. Each eddy chamber is provided with a duct for discharging material separated in the chamber. The material discharge duct of each eddy chamber in at least the uppermost level is provided with a shutoff valve, and the material discharge duct of each eddy chamber in at least the lowermost level is constructed without any shutoff valve.

vided with a duct for discharging material separated in the chamber. The material discharge duct of each eddy chamber in at least the uppermost level is provided with a shutoff valve, and the material discharge duct of each eddy chamber in at least the lowermost level is constructed without any shutoff valve.

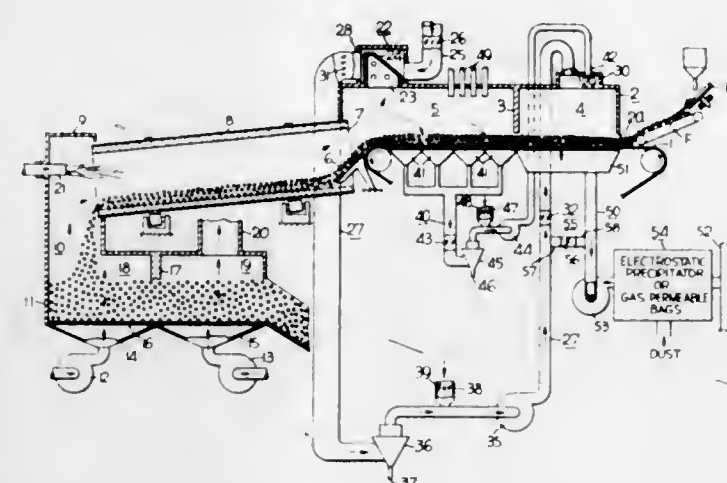
3,653,645 METHOD AND FURNACE FOR HEAT TREATING MATERIALS

Glenn A. Helan, Franklin, Wis., assignor to Allis-Chalmers Manufacturing, Milwaukee, Wis.

Filed Dec. 10, 1970, Ser. No. 96,775
Int. Cl. F27b 7/02

U.S. Cl. 263—32 R

12 Claims



A method and apparatus for reducing the alkali content of cement clinker is disclosed as improvements to a system according to U.S. Pat. No. 3,313,534. The improved system includes a mixing box mounted on top of a furnace structure that defines a preconditioning chamber and a preburning chamber over a traveling grate, with the preburn chamber adjacent a material inlet opening end of a rotary kiln. A portion of the hot gases coming from the kiln and passing into the preburn chamber are drawn into the mixing box where such gases are mixed with atmospheric air and bypassed away from the material in the preburn chamber while the remainder of the hot gas coming from the kiln is permitted to pass through the material in the preburn chamber. Withdrawing some of the gases from the preburn chamber unloads most of the dust and some of the volatilized alkalis from the system. This hot dust laden gas is mixed with atmospheric air in the mixing box to drop the temperature from about 2,000° Fahrenheit to below the freezing temperature of the alkalis, which for NaOH and KOH would be below 600° Fahrenheit. This immediate quenching of the gas in the mixing box freezes alkali to very small particles, most of which are smaller than 10 to 20 microns, that do not then deposit on inner surfaces of a bypass conduit or on material in the preconditioning chamber. The other gas flow, passing through the material in the preburn zone, transfers heat to the material therein and this gas drops in temperature to an average temperature of about 500° to 750° Fahrenheit. This gas that has passed through the material in the preburn chamber after tempering with atmospheric air if necessary to lower the temperature to 500–600° Fahrenheit and the gas that has bypassed the preburn chamber may then be directed through one or more cyclone dust collectors to remove the dust particles larger than 10 to 20 microns and a minor portion of the frozen alkalis and then delivered to a preconditioning chamber in which the material is treated (i.e., dried) before passing into the preburn chamber. One or more auxiliary burners are mounted in the top of the furnace structure between the mixing box and the preconditioning chamber, to make up any heat deficit in preburn gases. Bypassed gases

and preburn gases with entrained dust and alkali particles smaller than 10 to 20 microns are delivered to the preconditioning chamber and drawn through the material and into exhaust conduit means connected to the preconditioning chamber between the preburn chamber and the material inlet end of the preconditioning chamber. Provision is made for withdrawing controlled amounts of the bypassed gas directly to the exhaust conduit means, without such amounts passing through the material in the preconditioning chamber. A fine dust collector, which may be an electrostatic precipitator or gas permeable bags, is connected to the exhaust conduit means. The fine dust collector collects dust smaller than 10 to 20 microns, including a major portion of the alkalis.

3,653,646

FLAME SCARFING TORCH

Albert Jager, Rommelhausen, Germany, assignor to Messer Griesheim GmbH, Frankfurt am Main, Germany

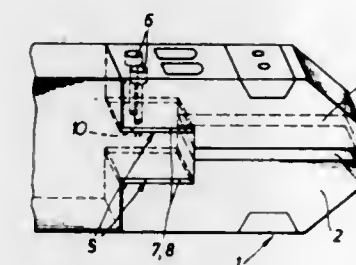
Filed Nov. 12, 1969, Ser. No. 876,010

Claims priority, application Germany, Dec. 23, 1968, G 68 12 833.6

Int. Cl. B23k 7/00

U.S. Cl. 266—23 T

7 Claims



A flame scarfing nozzle for a flame scarfing torch includes a stratified plate between the nozzle halves to control the size of the flame scarfing slot.

3,653,647

BLAST FURNACE TOP CONE AND STEAM CONTROL NOZZLE ASSEMBLY

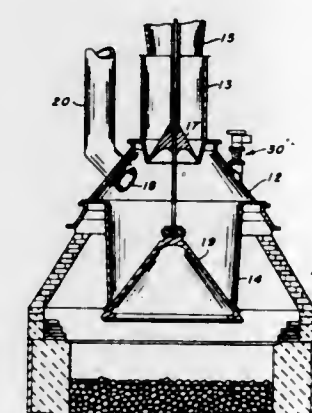
Hugh B. Carr, McMurray, and Norman F. Bradel, Scott Township, Carnegie, Pa., assignors to S. P. Kinney Engineers, Inc., Carnegie, Pa.

Filed Aug. 5, 1970, Ser. No. 61,104

Int. Cl. C21b 7/00

U.S. Cl. 266—31

10 Claims



A blast furnace top cone and steam control nozzle assembly including a housing mounted on the cone and having an end opened to the confines of the top cone. A nozzle member is supported by the housing at the open end thereof. A stop member is disposed in the housing and is engageable with the nozzle member for selectively opening and closing the nozzle. The steam is shut off at its point of injection into the blast furnace thereby preventing the hot blast furnace

gases from entering the housing to cause damage therein. Also, shutting off the steam at the nozzle eliminates a need for a separate steam shutoff valve upstream of the nozzle.

3,653,648

SUPPORT ASSEMBLY FOR A TILTABLE HOT METAL PROCESSING VESSEL

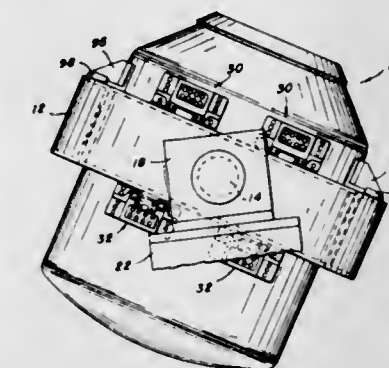
Ernst A. Mevissen, Robinson Township, Allegheny County, and Stanley M. Coulter, Wexford, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1970, Ser. No. 65,649

Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

9 Claims



A support assembly for a tiltable hot metal processing vessel, including a trunnion ring encircling the vessel, and upper and lower support brackets fixed to the vessel. The upper support brackets are arranged to engage bearing surfaces on the upper portion of the trunnion ring. The lower brackets are provided with inclined bearing surfaces sloped downwardly and outwardly from the upright vessel. The lower surface of the trunnion ring is provided with inclined support surfaces which confront the bearing surfaces of the lower brackets, and which slope downwardly and outwardly but diverge outwardly with respect to the bearing surfaces of the lower brackets. Wedge pieces are disposed between and engage the lower support surfaces of the trunnion ring and the bearing surfaces of the lower brackets.

3,653,649

SUPPORT ASSEMBLY FOR A TILTABLE HOT METAL PROCESSING VESSEL

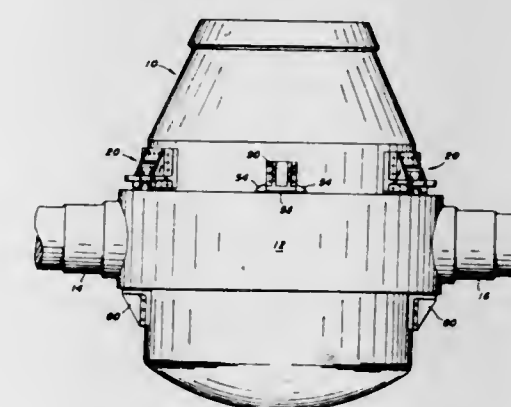
Ernst A. Mevissen, Robinson Township, Allegheny County, and Stanley M. Coulter, Wexford, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Aug. 20, 1970, Ser. No. 65,650

Int. Cl. C21c 5/50

U.S. Cl. 266—36 P

10 Claims



A support assembly for use with a hot metal processing vessel, including a plurality of upper primary brackets fixed to the vessel at spaced intervals thereabout, each of the brackets having laterally extending trunnion-ring engaging surfaces.

bottom portions. A trunnion ring is provided in spaced relationship to an intermediate section of the vessel, and is arranged to have sliding contact with the ring-engaging portions of the primary brackets. The primary brackets have T-shaped pockets at the lower ends thereof, which pockets are sized to receive similarly shaped lugs fixed to the upper surface of the trunnion ring. Wear strips are detachably fixed to the lugs and disposed between the sides of the lugs and the confronting surfaces of the pockets of the brackets.

3,653,650

METHOD OF CONTROLLING THE EXHAUST GAS FLOW VOLUME IN AN OXYGEN TOP-BLOWING CONVERTER

Norito Iwao; Akira Ito; Minoru Maeda; Tadashi Kawaguchi, and Nakano Nobukuni, all of Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., Tokyo, Japan
Filed Dec. 22, 1969, Ser. No. 886,823

Claims priority, application Japan, Dec. 27, 1968, 43/96013
Int. Cl. C21c 5/40

U.S. Cl. 266—35

2 Claims



A method for correctly judging the carbon value of a steel bath by controlling an exhaust gas flow produced from an oxygen top-blowing converter, wherein the exhaust gas flow is controlled so that the momentary flow volume of the exhaust gas flowing through an exhaust gas conduit may coincide with the variation with the lapse of time of a dry gas flow volume in a standard state predetermined in response to blowing conditions and a decarburizing velocity is calculated from the said exhaust gas flow volume and the analysis value of the exhaust gas.

3,653,651

SUSPENSION SYSTEMS FOR VEHICLES

Fernand Michel Allinquant, and Jacques Gabriel Allinquant, both of 53, Avenue Le Notre, 92 Sceaux, France
Filed Mar. 27, 1970, Ser. No. 23,186

Claims priority, application France, Mar. 31, 1969, 6909643;
Oct. 2, 1969, 6933701

Int. Cl. F16f 5/00, 9/04

U.S. Cl. 267—64 B

15 Claims



A suspension device for a vehicle wherein a telescopic damper, having a cylinder and a piston carried by a piston

rod emerging through a seal at one end of the cylinder, is laterally surrounded by a deformable enclosure which can be supplied with fluid at an adjustable pressure, whereby at least partly to support the weight of the vehicle, the wall of the deformable enclosure being arranged to isolate the supplied fluid from the seal through which the piston rod emerges from the cylinder.

3,653,652

POOL COVER

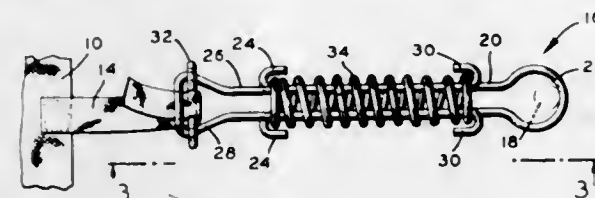
Albert W. Lindberg, Jr., 179 W. 5th St., Bayonne, N.J.

Filed June 25, 1969, Ser. No. 836,257

Int. Cl. F16f 1/12

U.S. Cl. 267—71

2 Claims



A tension bar for securing an article to an abutment and including a coiled tension spring and two oppositely facing U-shaped members enclosed by the spring. A loop or one member at a first end of the bar secures the bar to a fixed abutment and wedge-like attaching member at a second end of the bar securing the article to a second member. The opposite ends of the members are secured at the ends of the spring which is put under tension when the members are pulled in opposite direction.

3,653,653

PRING OF STACKED DISHED PLATES

Otto Muhlhauser, Berhausen, Germany, assignor to Gesellschaft Fur Kernforschung MBH, Karlsruhe, Weberstasse, Germany

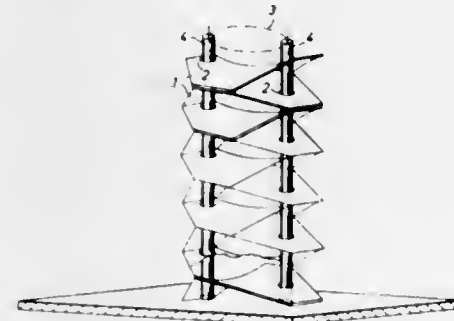
Filed July 17, 1970, Ser. No. 55,932

Claims priority, application Germany, Aug. 6, 1969, P 19 40 012.5

Int. Cl. F16f 1/34

U.S. Cl. 267—165

5 Claims



Improvements in a spring made up of a multiplicity of stacked, curved plates attached to each other and supporting each other along opposite edges whereby the turning potential of the spring is decreased, which improvement comprises providing a bolt through a bore in each of the plate of the spring located between the center and an edge of each plate.

3,653,654

ARRANGEMENT IN AND RELATING TO MACHINES FOR MANUFACTURING CARTON BLANKS

Stig Martin Carlsson, Orebro, Sweden, assignor to Sunds Aktiebolag, Sundsvall, Sweden

Filed June 18, 1970, Ser. No. 47,329

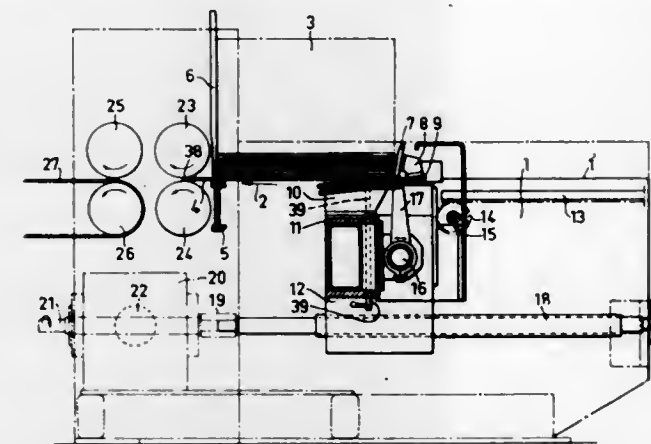
Claims priority, application Sweden, June 27, 1969, 9175/69
Int. Cl. B65h 1/06

U.S. Cl. 271—44

4 Claims

An arrangement in machines for manufacturing carton blanks, said machines being of the type in which the carton

sheets are fed intermittently therethrough and are passed from a magazine to a conveying means by means of a reciprocating feed means, wherein the feed means are individually journaled on a support surface and constructed in



the form of a feed stand and provided with means by which the feed means can be quickly and reliably adjusted to the different sizes of carton sheet material passing through the machine.

3,653,655

SUPPORT CARRIAGE

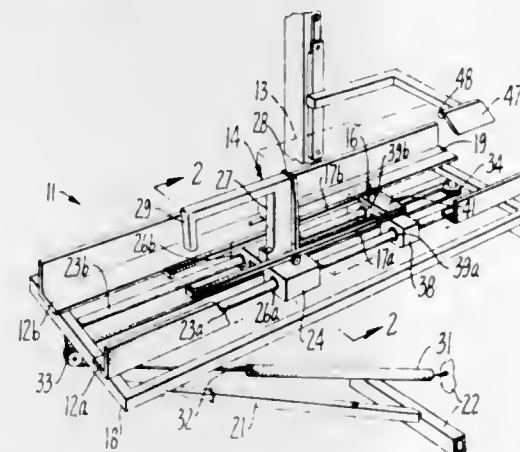
Charles D. Striplin, Box 515, Benica, Calif.

Filed June 24, 1970, Ser. No. 49,292

Int. Cl. B65h 1/00

U.S. Cl. 271—62 B

3 Claims



A support carriage for use in a magazine for supporting and advancing upstanding panels in a column to a processing station and providing reduced drag on the supporting surfaces. The magazine includes a pair of guide rails and a pushing member, spring biased to push the panels along the rails. The pushing member is journaled with low friction bearings on geared guide shafts. An intermediate support carriage is similarly journaled on said guide shafts forward of the pusher and has elevated support rails extending rearward thereof to lateral bearing supports on the pusher member. The panels are loaded in the magazine with a portion supported on the guide rails and a portion on the support rails of the carriage such that the pusher has to overcome the drag between only one set of rails and one portion of panels at a time.

3,653,656

METHOD AND MEANS OF SHEET IMBRICATING AND STACKING

Anton R. Stobb, Pittstown, N.J., assignor to Stobb, Inc., Mountainside, N.J.

Filed Apr. 10, 1970, Ser. No. 27,325

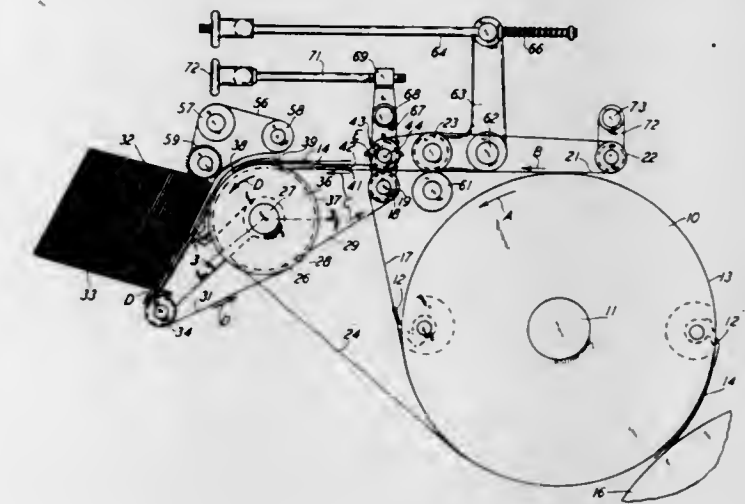
Int. Cl. B65h 29/18

U.S. Cl. 271—68

8 Claims

A method and means of sheet imbricating and stacking of flexible sheets, such as signatures processed and delivered by

a folder. A conveyor receives the sheets from the folder and delivers the sheets to another conveyor which moves at a speed less than the speed of the first conveyor. The slow moving conveyor deposits the sheets on a bed where the sheets are aligned in a stack. The first conveyor supports the sheets from underneath, and the first conveyor has a projection which holds the sheets upwardly relative to the remainder of the conveyor so that clearance is provided between the sheets and the remainder of the conveyor. Also, a brush is disposed adjacent the conveyor for brushing the



trailing edge of the sheets upwardly. The projection and the brush are for the purpose of providing a space between the sheets and the remainder of the conveyor so that the oncoming sheets can be disposed underneath the sheets already on the first conveyor, and the sheets can therefore be taken from a spaced-apart relationship as they approach the first conveyor and then placed in an imbricated relationship on the first conveyor. The first conveyor then passes the imbricated related sheets to the second conveyor, and the sheets can then be stripped directly off the second conveyor and formed into a stack.

3,653,657

SELF-CONTAINED AMUSEMENT RIDE

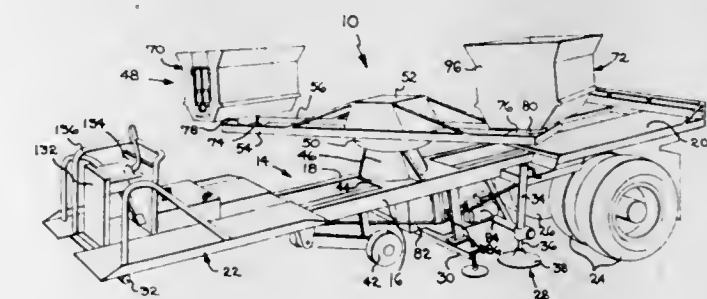
Richard W. Bishop, 4563 Lewis Ave., Toledo, Ohio

Filed Feb. 4, 1971, Ser. No. 112,707

Int. Cl. A63g 1/08

U.S. Cl. 272—29

10 Claims



An amusement ride is provided which is self-contained. All of the components and elements of the ride are mounted on or are a part of a single trailer. The trailer can be readily towed to a given location and the ride readied for operation by one operator in a matter of a few minutes. As such, the ride is particularly adaptable for smaller fairs and carnivals of short duration. Further, the one-man operation results in substantial labor savings, such costs otherwise rendering many rides unprofitable. The trailer is complete with a loading and unloading platform and entrance and exit ramps adjacent an operator's station.

3,653,658

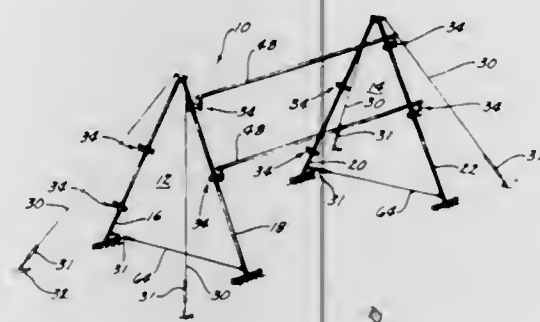
ADJUSTABLE GYMNASIAC BAR SUPPORTED BY A-FRAMES

William E. Robertson, 7211 Bryn Mawr Drive, Des Moines, Iowa

Filed Feb. 12, 1970, Ser. No. 10,813
Int. Cl. A63b 3/00

U.S. Cl. 272-63

6 Claims



A device including oppositely disposed upstanding A-frames having corresponding legs on one side at least interconnected by a gymnastic bar. The connection between the bar and the legs is by a mounting bracket having a first sleeve slidably and adjustably movable on the leg and a second sleeve vertically oriented for receiving a downwardly extending pin on the gymnastic bar. The two A-frames and mounting brackets may be appropriately used with different types of gymnastic devices.

3,653,659

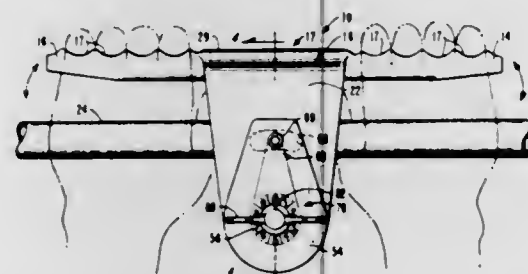
WRIST EXERCISER DEVICE

Harold Zinkin, Fresno, Calif., assignor to Whittaker Corporation

Filed Aug. 20, 1970, Ser. No. 65,369
Int. Cl. A63b 21/30

U.S. Cl. 272-68

8 Claims



An improved wrist exerciser device with a pair of pivotally mounted hand grips which are rigidly held together along a unitary axis. Each hand of a user alternately squeezes a hand grip against a shaft which automatically repositions the other hand grip outward from the shaft for the user subsequently to squeeze with his other hand. The device can be readily adjusted with respect to the resistance necessary to squeeze the hand grips and includes the aforementioned hand grips, a connector which secures the device to a shaft extending therethrough in the same plane as the hand grips, and a tightening mechanism, including a first and second plate, the latter bearing a resistance indicator dial, friction imparting disc, and pivot mounting.

3,653,660

METHOD OF LEARNING OR IMPROVING THE TENNIS SERVE

Farouk S. Malhas, Washington, D.C., assignor to Tennis Promotion, Inc., Washington, D.C.

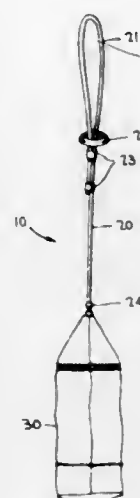
Filed Mar. 17, 1970, Ser. No. 20,332
Int. Cl. A63b 69/38

U.S. Cl. 273-29 A

3 Claims

A device for use in learning, practising, and perfecting a tennis serve comprising a flexible, substantially non-elastic

tether and a weighted end portion is described. The tether is grasped at one end and swung forward using the motion as-



sociated with the exaggerated throwing of a baseball. The weighted end of the device forces the smooth, continuous follow-through motion required in a tennis serve.

3,653,661

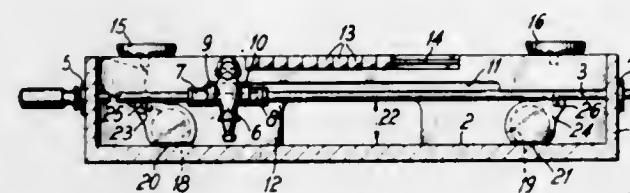
PENALTY OPENINGS WITH PIVOTED COVERS IN SOCCER TABLES

Xaver Leonhart, 8381 Harburg, Harburg near Landau/Isar, Germany

Filed Feb. 4, 1970, Ser. No. 8,576
Claims priority, application Germany, Feb. 4, 1969, G 69 05 046.0

U.S. Cl. 273-85 D

5 Claims



A generally rectangular table soccer game having raised side walls and end walls with goal openings or areas centrally located in the opposite end walls, and penalty openings in the end walls on opposite sides of the goal openings adapted to receive a misdirected or foul ball and deposit it in a cup exterior of the table by means of a passageway connecting the penalty opening and the cup. Each goal opening is provided with a cover member pivotally connected to the end wall.

3,653,662

MAGNETICALLY ACTUATABLE PROJECTILE AND TARGET GAME

Dale K. Welbourn, Neola, Iowa

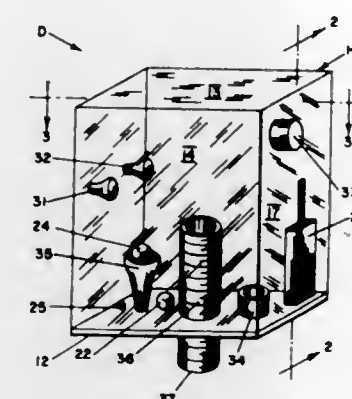
Filed May 28, 1970, Ser. No. 41,274
Int. Cl. A63b 63/00

U.S. Cl. 273-95 R

5 Claims

An amusement device comprising a hollow shell-like housing and having selected wall portions of magnetically-impermeable and of transparent structural material, at least one magnetically-permeable pellet loosely disposed within the housing and droppably releasable with a permanent magnet from a magnetically-impermeable housing wall into open-ended receptacle-like targets disposed within the housing. The targets may be of different shapes and sizes and may be

disposed on more than one wall of the housing. One target is adjustable to vary its distance from the opposite wall. There

**3,653,663
SPHERICAL SHELL GAME APPARATUS HAVING INTERNAL CUPS AND A FREELY MOVEABLE BALL**

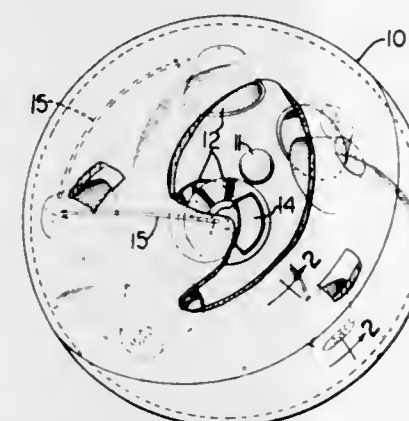
Benjamin Klinberg, 425 Riverside Drive, New York, N.Y., and Richard J. Mayer, Bloomfield, N.J.

Filed July 31, 1969, Ser. No. 846,329

Int. Cl. A63f 9/06

U.S. Cl. 273-96 R

8 Claims



A game including a hollow transparent spherical shell having a loose ball confined therein and a plurality of consecutively numbered cups within the shell. The object of the game is to transfer the ball from one cup to another in consecutively numbered order.

3,653,664

BROAD HEAD ARROWHEAD

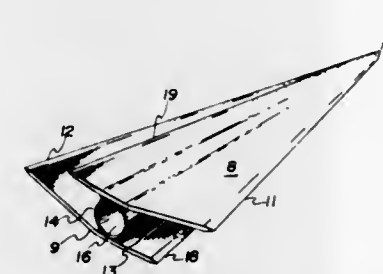
Gerald F. Gentellalli, 8817 La Mesa Blvd., La Mesa, Calif.

Filed May 11, 1970, Ser. No. 36,075

Int. Cl. F41b 5/02

U.S. Cl. 273-106.5 B

1 Claim



A broad head arrowhead having two substantially flat, opposite surfaces converging toward a point; the surfaces being separated by a tapered cylinder in the center of the ar-

rowhead for the reception of a shaft; a first side of the one flat surface extending beyond a first side of the second flat surface and a second side of the second flat surface extending beyond the second side of the first flat surface providing air pressures for causing rotation and stability.

3,653,665

SURFACE PROJECTILE GAME APPARATUS

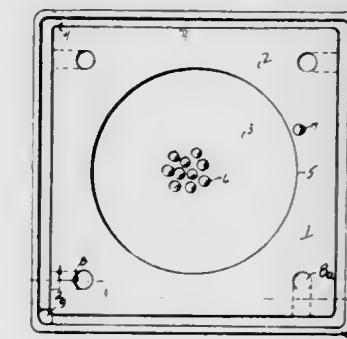
Eric C. Wahlberg, 32 Eighth St., Stamford, Conn.

Filed Mar. 26, 1970, Ser. No. 22,980

Int. Cl. A63f 7/00

U.S. Cl. 273-125 R

6 Claims



A game wherein a plurality of first bodies such as balls or discs are positioned within a first area having a limiting boundary and surrounded by a second area from which a second body is propelled into contact with the first bodies to drive the first bodies from the first area. Holes in the surface of the second area may be provided to receive the bodies driven in their direction. A trough type receptacle surrounding the outside of the second area may be used to receive balls from the first and second areas. Scoring may be in accordance with the number of bodies driven from the first and second areas, the number which enter the holes and accordance with corresponding color coded bodies and holes. The bodies generally include spheres, balls and discs.

3,653,666

POOL TYPE GAME

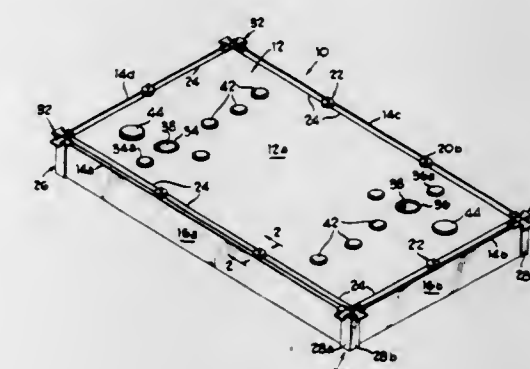
Gordon A. Barlow, Evanston, and Jeffrey D. Breslow, Chicago, both of Ill., assignors to Marvin Glass & Associates

Filed Apr. 13, 1970, Ser. No. 27,951

Int. Cl. A63f 3/00

U.S. Cl. 273-126 R

8 Claims



A game apparatus including a game board with removable surface portions and cup portions insertable therein from the underside of the board. The game further includes playing pieces which are to be shot into the cups and an element for shooting the playing pieces for travel across the playing board towards the cups. In addition, members are provided to be assembled about the periphery of the board to provide a confining structure therefor.

3,653,667

GAME APPARATUS FOR FAMILIARIZING THE USER WITH THE FORMATION OF COMPUTER FLOW CHARTS

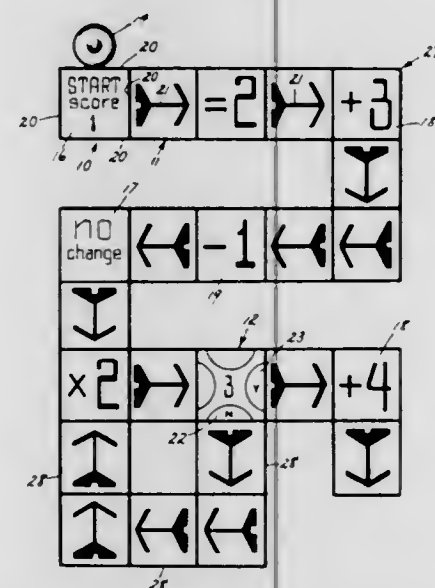
Eugene H. Primoff, New Rochelle, N.Y., assignor to World-wide Computer Services Inc., Hartsdale, N.Y.

Filed June 29, 1970, Ser. No. 50,600

Int. Cl. A63f 3/02

U.S. Cl. 273-134 D

1 Claim



A game apparatus useful for familiarizing the user with the formation of computer flow charts, said apparatus comprising a first plurality of playing pieces having positive or negative scoring values, a second plurality of playing pieces having directional indicia thereon, a third plurality of playing pieces having different indicia thereon positioned to indicate different directions, and a random selection die having on each face one of said different indicia. The pieces are assembled by the user in flow chart orientation, and his score is then computed as he advances a scoring piece over the chart, said score depending upon the user's skill in arrangement of the chart, and the function of the random selection die.

3,653,668

BOARD GAME APPARATUS

Blaise F. Santianni, 807 Glenview St., Philadelphia, Pa.

Filed Feb. 2, 1970, Ser. No. 7,563

Int. Cl. A63f 3/00

U.S. Cl. 273-135 AE

11 Claims



Indicia on a playing surface represent a geographic area divided into a plurality of similarly shaped units. Correspondingly shaped pieces are provided for each unit having thereon indicia relating said pieces to said area by a place, event or the like having historical, geographical or like interest in a precise manner so that each of said pieces has a predetermined position on said surface. Preferably some of

said pieces have geographical indicia thereon which coast with the indicia of adjacent pieces to define geographic boundaries, at least one group of adjoining pieces having portions of a continuous line thereon, said line serving to check the accuracy of the positioning of said last mentioned pieces.

3,653,669

PAUSE CONTROL MECHANISM FOR A CASSETTE CHANGER

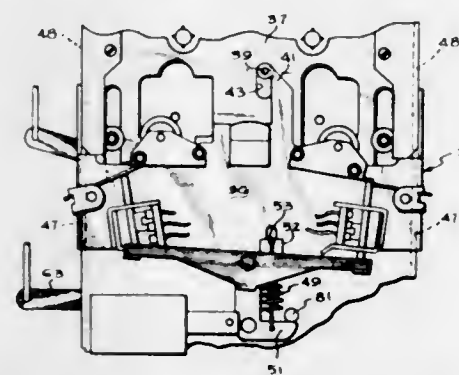
Glenn E. Sterly, Carol Stream, Ill., assignor to Ampex Corporation, Redwood City, Calif.

Filed Nov. 10, 1969, Ser. No. 875,307

Int. Cl. G11b 23/12, 15/24, 15/29

U.S. Cl. 274-4 F

3 Claims



A manually operable play/record selector and pause selector operate a control mechanism in a manner which interrupts a playback or recording operation merely by operation of the pause selector to an operated position and which resumes playback or recording merely by return of the pause selector from the operated position. Preferably, the pause and play/record selectors are push buttons and cause the control mechanism to shift the cassette changer to a pause position, on the one hand, with depression of the pause push button and, on the other hand, with release of a depressed play/record push button to its upper unoperated position. Thus, the cassette changer is in and has a pause position for its normal position.

3,653,670

SPRING-LOADED SEAL WITH SYMMETRICAL CROSS SECTION

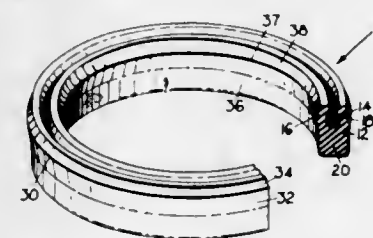
Elle C. Sifri, and Steve W. H. Wu, both of Portland, Oreg., assignors to Cascade Corporation, Portland, Oreg.

Filed May 11, 1970, Ser. No. 36,292

Int. Cl. F16j 15/32

U.S. Cl. 277-164

2 Claims



A sealing assembly forming a fluid tight seal between a first member having a cylindrical bore therein and a second member having a portion of circular cross section disposed within the bore and movable axially relative to the first member. The assembly includes an elastomeric annular body with inner and outer sealing edges in sealing contact with the cylindrical bore and with the portion of circular cross section. An annular helical spring is disposed within said body, and such spring is under stress in a direction extending circumferentially on the sealing assembly. This stress of the spring operates continuously to force on of the sealing edges into firm contact with the member that the edge contacts. This one sealing edge forms a dynamic seal in the construction, and the other sealing edge forms a static seal in the construction.

3,653,671

SELF-ENERGIZING WELL PACKOFF

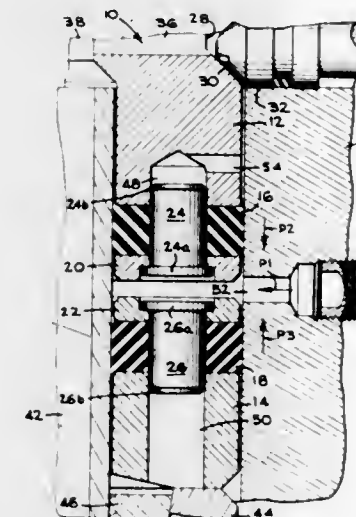
Kelly V. Shipes, Houston, Tex., assignor to FMC Corporation, San Jose, Calif.

Filed Oct. 23, 1968, Ser. No. 769,776

Int. Cl. E21b 33/02; F16j 15/02

U.S. Cl. 277-103

13 Claims



A well packoff for installing in the annulus between a well casing head and an inner concentric pipe to establish and maintain a fluid-tight seal therebetween, regardless of the well pressures to which the tool is subjected. The packoff includes a pair of resiliently deformable seal rings arranged to receive an axially directed pressure, significantly increase it to a predetermined degree, and then exert that increased pressure against the casing head and pipe.

3,653,672

SEAL RING

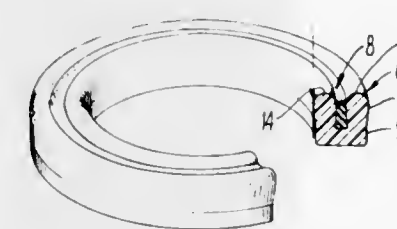
Maurice D. Felt, Carson City, Nev., assignor to Sacomo Sierra Inc.

Filed July 13, 1970, Ser. No. 54,464

Int. Cl. F16j 15/24

U.S. Cl. 277-205

4 Claims



A seal ring is provided having rounded lips wherein the top point of sealing is below the top of the ring and the ring has a large area in contact with the sealing surface. The seal ring may have a hollow center portion or a filler strip may be employed in the center of the ring. The filler strip, if used, is of rectangular configuration.

3,653,673

GASKETS

Dermot Green, Cheltenham, England, assignor to Dowty Seals Limited, Ashchurch, Tewkesbury, Gloucestershire, England

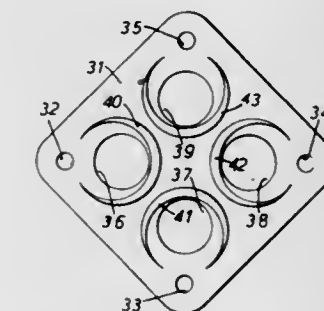
Filed Nov. 2, 1970, Ser. No. 85,979

Claims priority, application Great Britain, Nov. 19, 1969, 56,613/69

Int. Cl. F16j 15/10

U.S. Cl. 277-227

12 Claims



A gasket suitable for use with a gasketed joint assembly having a strip of a sealant material extending from part of an area subjected in use to high loading to another part of that area or to a part of another area subjected in use to high loading.

3,653,674

JACKETED GASKET

Gerd Von Bennigsen, Geisenbrunn Post Gilching, Germany, assignor to Reinz Dichtungs-Gesellschaft m.b.H., Neu-Ulm Donau, Germany

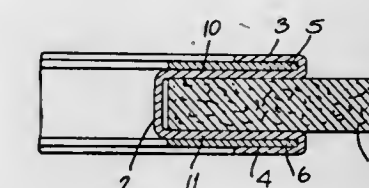
Original application Sept. 28, 1967, Ser. No. 671,442, now Patent No. 3,549,157. Divided and this application Dec. 21, 1970, Ser. No. 99,851

Claims priority, application Germany, Sept. 13, 1966, R 44250

Int. Cl. F16j 15/02

U.S. Cl. 277-231

18 Claims



Jacketed gasket with at least one of its legs folded over for at the most half of its width, the fold being at a distance from the bend of the jacket which is at least equal to the thickness of the gasket in the non-compressed state.

Inserts, such as annular disks, washers, wires of metal and synthetic resin, or other plastic material may be inserted into the fold.

The gasket, after compression of its jacketed part has the advantage that no flowing out or squeezing out of the gasket material on compression or tightening of the gasket between the surfaces to be sealed can take place. Thus satisfactory sealing is guaranteed.

3,653,675

LUBRICANT-SEALER RIBBON

William L. Schaefer, Palatine, Ill., assignor to Felt Products Mfg. Co.

Filed Nov. 24, 1969, Ser. No. 879,307

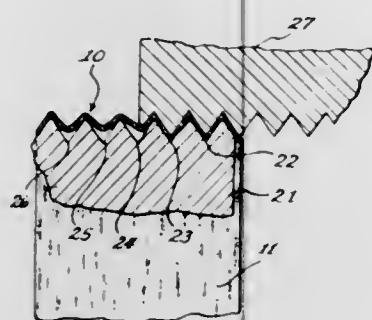
Int. Cl. F16j 15/14

U.S. Cl. 277-235

11 Claims

A lubricating and sealing ribbon is provided for forming a sealed joint between male and female threaded members. The ribbon comprises a matrix of a soft thermoplastic polymer oriented in the longitudinal direction of the ribbon and filled with lubricant particles.

In use, the ribbon is wrapped around the threads of the male joint for at least one turn, the ribbon is stretched transversely to conform to the contour of the male threads and



then the wrapped male member is inserted into the female member and threaded into tight connection. During the threading, the ribbon is distorted and compressed to fill the space between the male and female threads.

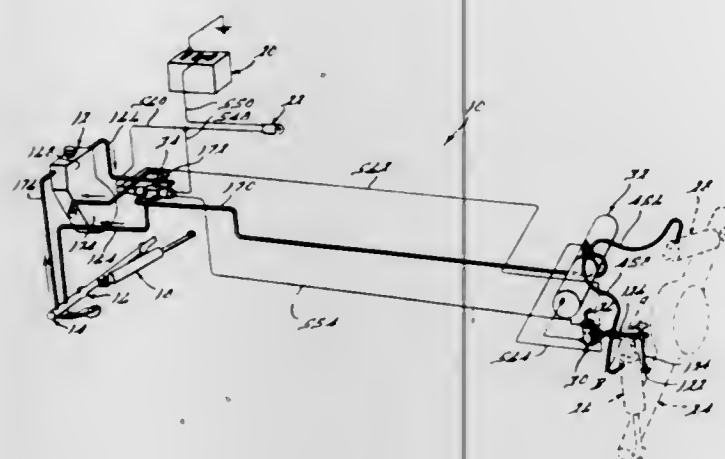
3,653,676

VEHICLE LEVELING SYSTEM

William W. Higginbotham, Monroe, Mich., assignor to Monroe Auto Equipment Co., Monroe, Mich.
Continuation of Ser. No. 722,506, Jan. 8, 1968, now Patent No. 3,539,744. This application Mar. 23, 1970, Ser. No. 21,714
Int. Cl. B60g 17/04

U.S. Cl. 280-6 P

23 Claims



A leveling system for a vehicle comprising sprung and unsprung portions, a fluid operated leveling device for selectively varying the attitude between said vehicle portions, a source of actuating fluid, pump means for pumping fluid from said source thereof to said leveling device, a fluid accumulator including means defining first and second variable volume chambers at least in part defining therebetween a third chamber communicable with said fluid source and said leveling device, and means for controlling operation of said pump means in response to volume changes in at least one of said chambers.

3,653,677

TRAILER SNOW SLED

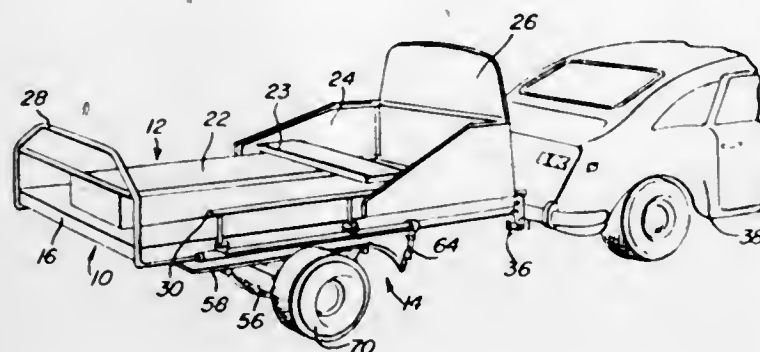
Emmett John Feser, P.O. Box 115, Rockyford, Alberta, Canada
Filed Oct. 14, 1969, Ser. No. 866,246
Claims priority, application Canada, Aug. 18, 1969, 059,762
Int. Cl. B62b 13/18

U.S. Cl. 280-8

5 Claims

A trailer type vehicle having an undercarriage longitudinally adjustably attached to a load carrying body and con-

vertible to provide sled runner supporting assemblies or wheeled supporting assemblies to enable the vehicle to be



used under various conditions behind a towing vehicle such as a "snowmobile," automobile or the like.

3,653,678

ROLLER SKATE CONSTRUCTION

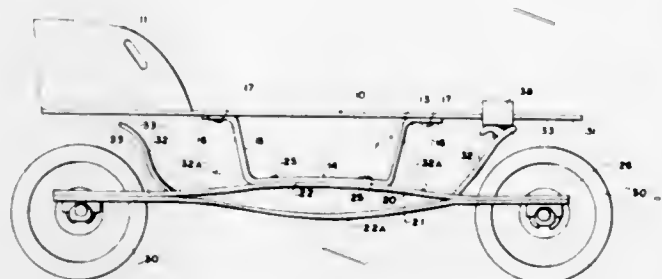
Ralph Collett, 356 Regent Ave. W., Winnipeg 25, Manitoba, Canada

Filed May 27, 1970, Ser. No. 40,916

Int. Cl. A63c 17/06

U.S. Cl. 280-11.23

11 Claims



A sole plate has a leaf spring construction underneath to which the wheels are mounted. Check means are provided to prevent the sole plate from rubbing on the wheel rims and an easily operated positive toe catch is incorporated in the sole plate.

3,653,679

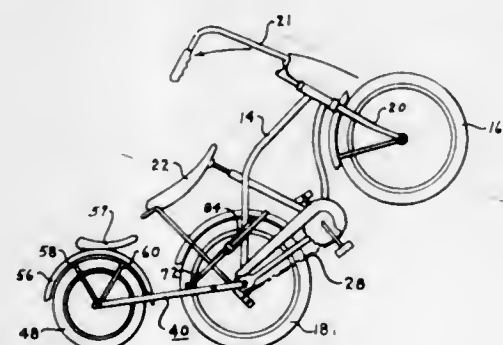
BICYCLE ATTACHMENT AND COMBINATION

James N. Howard, 12361 E. Colby Drive, Mishawaka, Ind.
Filed Nov. 21, 1969, Ser. No. 878,660

Int. Cl. B62d 63/00

U.S. Cl. 280-32.7

8 Claims



An attachment for a bicycle having a wheel positioned rearwardly on the bicycle and a frame connecting the wheel to the rear axle of the bicycle for pivotal movement of the bicycle relative to the attachment. The attachment includes a fixture and an abutment means which limits the angular movement between the bicycle and the attachment when the forward end of the bicycle is reared upwardly. A seat and fender may be mounted on the attachment above the wheel

and two closely spaced wheels may be used in place of a single wheel in the attachment.

3,653,680

TOW TRAILER WITH FOLDING CARRIER PLATFORM

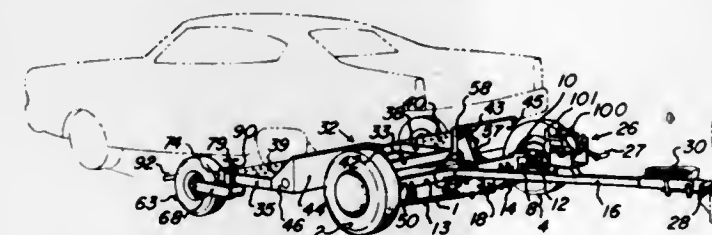
Donald I. Denny, La Crosse, Wis., assignor to Toter, Inc., La Crescent, Minn.

Filed Sept. 18, 1970, Ser. No. 73,392

Int. Cl. B60p 3/06; B62d 53/04

U.S. Cl. 280-34 A

10 Claims



A vehicle tow trailer is provided with a vehicle carrier platform supported at its outer end by swivel wheels and having its inner end pivotally supported from the trailer axle for swinging movement about a horizontal axis, whereby said platform may be folded over from a rearwardly extending position of use to a forwardly disposed position wherein an elevated rest on the trailer draw bar supports the platform in overlying relation to the draw bar. The carrier platform is wider than the space between the wheels on opposite ends of the trailer axle, and a pair of laterally spaced support arm structures extending rearwardly from the trailer axle pivotally support the platform at such a location rearwardly of the trailer wheels that the platform clears the trailer wheels when in its rearwardly extending position of use or in its forwardly collapsed storage position.

3,653,681

BABY STROLLER

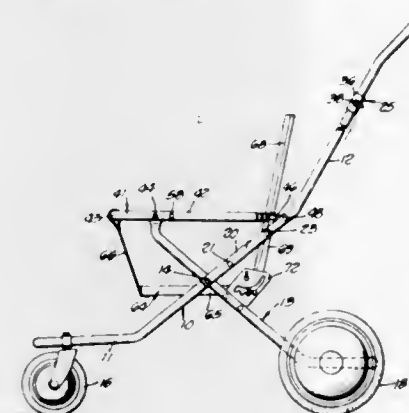
Julian A. Virtue, 2 Bowle Road, Rolling Hills, Calif.

Filed May 19, 1970, Ser. No. 38,837

Int. Cl. B62b 11/00

U.S. Cl. 280-36 B

8 Claims



A baby stroller having as an integral part of its structural framework a shock absorbing mechanism to cushion the ride of the infant passenger, and having a foldable frame for ease of storage or transport which includes an improved safety latching system to prevent accidental folding.

3,653,682

ENERGY ABSORBING DEVICE

Roy M. Palmer, and Francis M. Kobayashi, both of South Bend, Ind., assignors to The Bendix Corporation

Filed Apr. 17, 1970, Ser. No. 29,571

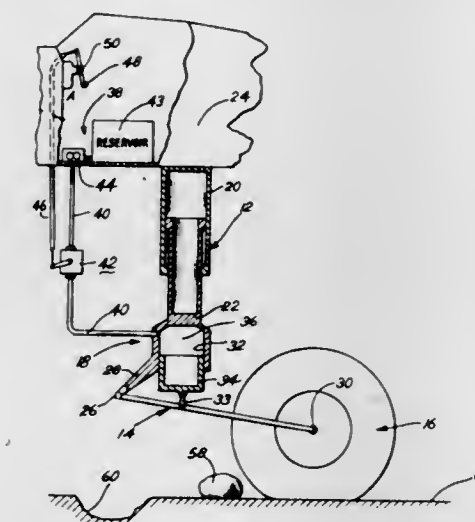
Int. Cl. B60g 11/26

U.S. Cl. 280-124 F

10 Claims

An energy absorbing device comprising: a primary energy absorber, lever means operatively connected to the primary

energy absorber, a wheel rotatably carried by the lever means, and a secondary energy absorber operatively interposed between the primary energy absorber and the lever means. The secondary energy absorber includes a variable



volume fluid chamber and a valve for communicating the chamber with a fluid pressure source. The secondary energy absorber is responsive to relatively large vertical deflections of said wheel to minimize the effect thereof on said primary energy absorber means.

3,653,683

VEHICLE SUSPENSION SYSTEM

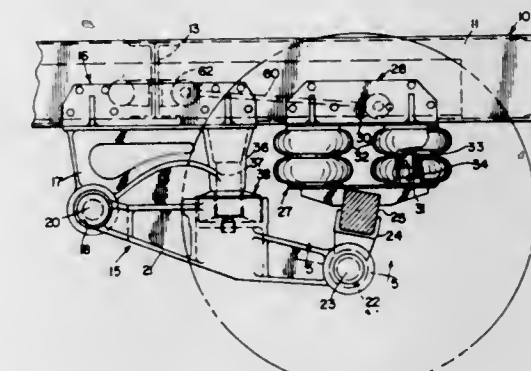
Robert T. Hendrickson, Lyons, Ill., assignor to Hendrickson Mfg. Co., Lyons, Ill.

Filed May 18, 1970, Ser. No. 38,385

Int. Cl. B60g 11/26

U.S. Cl. 280-124 F

9 Claims



A vehicle axle suspension which may be employed in a single or multiple axle arrangement and which is characterized by a rigid elongate mounting arm disposed at each side of the vehicle frame with its forward end pivoted to a bracket depending from the frame and its trailing end connected to the wheel axle beneath an air cushion which is interposed between the axle and the frame and a snubber-like force absorbing device connecting an intermediate portion of the mounting arm with the frame at a point spaced rearwardly of the pivoted end of the mounting arm.

3,653,684

PRESSURE VESSEL VALVE ASSEMBLY

Roy D. Plumer, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich.

Filed June 18, 1970, Ser. No. 47,200

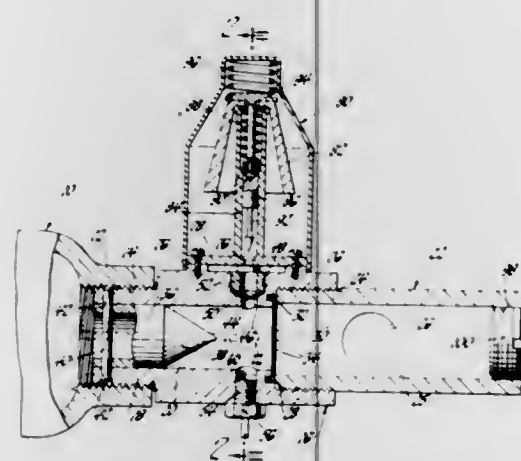
Int. Cl. B60r 21/10

U.S. Cl. 280-150 AB

5 Claims

A pressure vessel for an inflatable restraint cushion contains superatmospheric fluid. The vessel opens to an annular

passageway which in turn opens radially for communication with the cushion adjacent a closed end thereof. The passageway is sealed intermediate its ends by a rupturable main diaphragm. A slidable piston is located within the passageway adjacent the pressure vessel and is normally held against movement by a shearable pin carried by the piston and fitting within openings in the wall of the passageway. The piston is not sealed to the passageway so that both faces of the piston are thus subjected to the pressure of the fluid. A rupturable auxiliary diaphragm closes an opening which communicates the one portion of the passageway between the



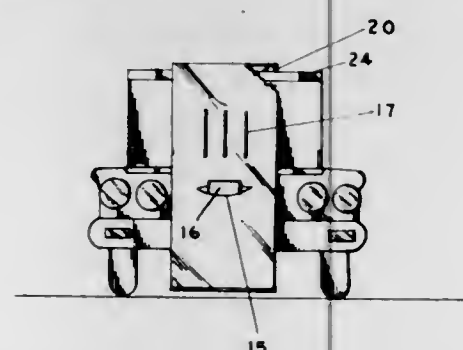
piston and main diaphragm with the atmosphere. An acceleration responsive sensor is mounted on the passageway and, upon receiving an acceleration pulse of predetermined amplitude and time, releases an operator to rupture the auxiliary diaphragm and vent the one portion of the passageway to atmosphere. The differential pressure drives the piston along the passageway and through the main diaphragm to rupture this diaphragm and communicate the cushion with the pressure fluid for inflation thereof. A metal plug at the closed end of the passageway is engaged by the piston to arrest its movement.

3,653,685 SCALD SHIELD

Thomas Albert Friend, 7934 E. 4th Ave., Mesa, Ariz.
Filed Sept. 23, 1970, Ser. No. 74,646
Int. Cl. B60r 27/00

U.S. Cl. 280—150 R

1 Claim



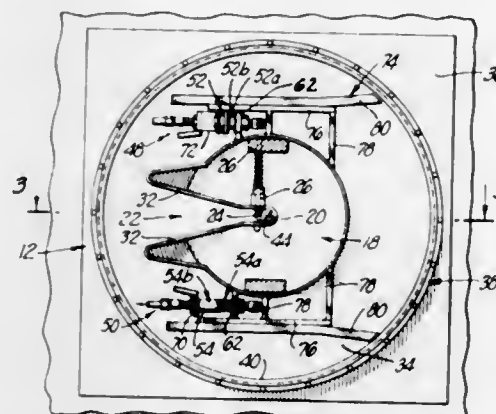
A device designed to prevent scalding of the hands of a person servicing an overheated automobile radiator or the like, said device having substantially the form of an apron being made of steam resisting sheet material, and comprising suction cups to fasten it to the top of the radiator hood, gravity means at the bottom of the sheet to hold it in place against the force of the wind, a pouch to hold a towel or asbestos glove and to surround and protect the hand of the user, and one or more vertical slots in said sheet to permit the insertion of the hand of the user to release the safety latch of the hood. The pouch is so constructed that it permits the hand of the user to reach for the radiator cap and to unscrew the same while the pouch surrounds his hand.

3,653,686 FIFTH WHEEL COUPLING FOR TRACTOR-TRAILER VEHICLE

David J. Roesies, 16127 Francisquito Ave., La Puente, Calif.
Filed Apr. 17, 1970, Ser. No. 29,546
Int. Cl. B62d 53/08

U.S. Cl. 280—421

8 Claims



A fifth wheel coupling for a tractor-trailer vehicle including a fifth wheel plate to be rockably mounted on the tractor, a turntable plate to be rotatably mounted on the trailer, means releasably joining the plates in coupled relation, wherein the table plate rests on and is coupled to the wheel plate, and mating conduit coupling parts mounted on the plates for relative movement into and from mating engagement upon relative movement of the plates into and from coupled relation. The mating conduit coupling parts may constitute an electrical coupling for transmitting electrical power between the tractor and trailer and a hose coupling for transmitting pressure fluid, such as braking air, between the tractor and trailer.

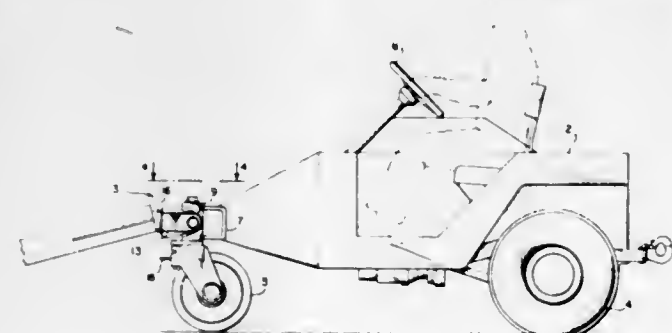
3,653,687 ARTICULATED VEHICLE COUPLING

John P. Forsyth, and Robert W. Forsyth, both of Upland, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Sept. 24, 1970, Ser. No. 75,119
Int. Cl. B62d 13/00

U.S. Cl. 280—476 R

6 Claims



An articulated vehicle coupling having axes of yaw, pitch and roll, and wherein a caster spindle and caster wheel are mounted on the yaw axis.

3,653,688 PIPE COUPLING DEVICE

Akira Sakakibara, 861 Horiuchi, Hayamamachi, Miura-gun, Kanagawa-ken, Japan

Filed Apr. 22, 1970, Ser. No. 30,708

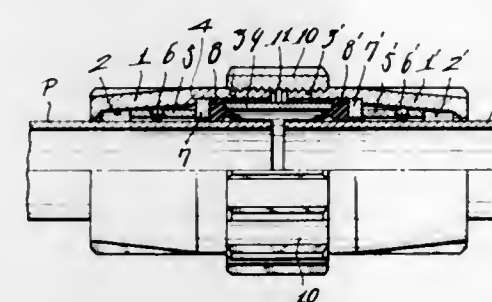
Claims priority, application Japan, Feb. 28, 1970, 45/20181
Int. Cl. F16l 17/00

U.S. Cl. 285—105

4 Claims

A device for coupling or decoupling pipe sections including two hollow cylindrical members each having a tapered

inner surface portion and adapted to receive a pipe section. Several metallic balls are disposed between the tapered inner surface portion and a portion of the outer surface of the pipe section for acting as wedge means to prevent separation of the cylindrical member and the pipe section. Sealing means are located between the cylindrical member and its as-



sociated pipe section for providing an air-tight seal between the two. Fastening means are disposed between the hollow cylindrical members for moving the hollow members toward each other and for urging the sealing means against the inner surface of the hollow cylindrical members and the outer surface of the pipe sections to be joined.

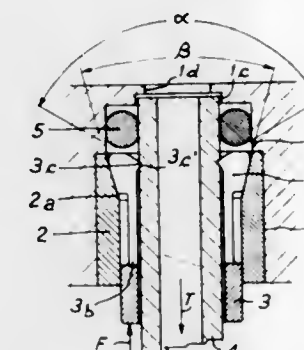
3,653,689 RELEASABLE COUPLING FOR FLUID CARRYING TUBES

Jacques Sapy, Valence, and Andre Legris, St-Maur, both of France, assignors to Ste. Legris, Ozoir-la-Ferriere, France
Filed May 6, 1970, Ser. No. 35,215

Claims priority, application France, May 3, 1969, 6917467
Int. Cl. F16l 17/00

U.S. Cl. 285—113

10 Claims



A releasable coupling for a fluid-carrying tube comprises a socket having four stepped concentric bores, a collar having a conical surface being retained in the first bore. Mounted for axial movement within the collar is a clamping member having a plurality of flexible jaws. The clamping member has an inclined surface co-operating with the conical surface on the collar to force the jaws inwardly to clamp a tube received in the socket. A packing ring is retained in the second bore, and the third and fourth bores serve to locate the tube.

3,653,690 SAFETY GARMENT JOINT AND METHOD OF MAKING SAME

Antoine Robert Treveiler, and Elroy E. Wilke, both of Palatine, Ill., assignors to Standard Safety Equipment Co.
Filed Sept. 14, 1970, Ser. No. 71,827

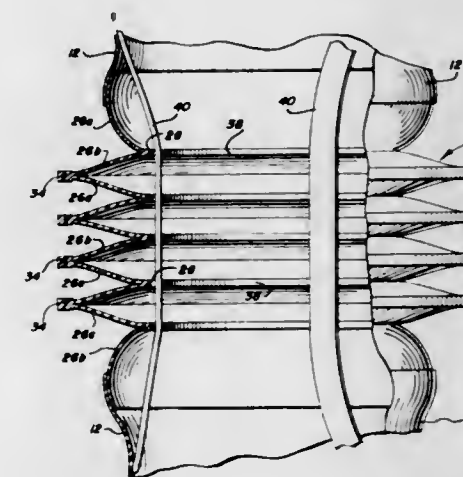
Int. Cl. F16l 21/00

U.S. Cl. 285—226

18 Claims

A complete enclosure garment for use in areas containing hazardous liquid or gaseous medium, the garment protecting a workman while conforming to the workman's size so as to provide maximum mobility commensurate with total protection against ambient liquid and gas environment. The garment has novel expansible portions built into appendage

covering portions of the garment, and including a novel method of fabricating such portions. The expansible portions are of the accordion type and are fabricated by providing pairs of flat disc shaped sections of relatively thin plastic material. The two sections of each pair thereof are placed in juxtaposition and joined by a circular sewn seam about a central aperture locating position and spaced inwardly of the periphery of the sections. The two sections of each pair thereof then are heat sealed together along the seam. The



pairs of joined and sealed sections then are placed in juxtaposition and adjacent sections of adjacent pairs thereof are joined by second circular sewn seams spaced outwardly from the first seams. A reinforcing strip of thin plastic material is placed over the outer seams on the outside of each of the joined sections and the strips and sections are heat sealed together to provide gas and liquid impervious seams. A central aperture is cut out of the pairs of joined sections and the pleated expansible portion formed thereby is joined and sealed in the garment.

3,653,691 CONNECTING DEVICE FOR PIPES AND APPLICATIONS THEREOF

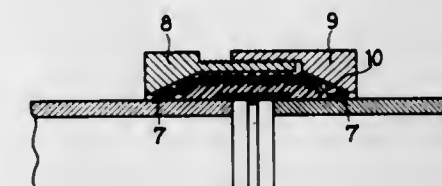
Georges Eugene Bram, Pont-A-Mousson, France, assignor to Centre de Recherches de Pont-A-Mousson, Pont-A-Mousson, France

Filed Dec. 8, 1969, Ser. No. 883,188

Claims priority, application France, Dec. 17, 1968, 178593
Int. Cl. F16l 19/00

U.S. Cl. 285—236

15 Claims



Connecting device for interconnecting two tubular elements of piping at least one of which has a tubular smooth end portion. The device comprises a flexible and resiliently yieldable sealing sleeve which overlaps the smooth end portion. A withdrawable ring of hard material is interposed between the sleeve and outer axially movable means having an inner tapered clamping face. The outer means radially clamps the sealing sleeve on the smooth end portion through the withdrawable ring which binds the sleeve and has an end embedded in the smooth end portion.

3,653,692

HOSE COUPLING METHOD AND MEANS

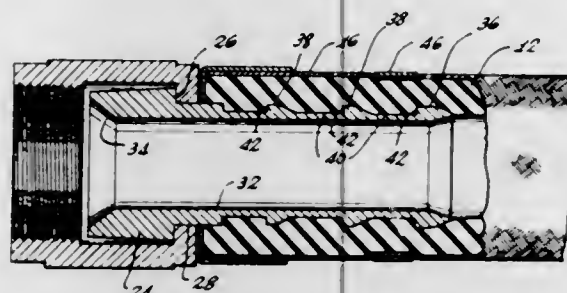
John W. Henson, 57 East Providencia, Burbank, Calif.

Filed Feb. 9, 1970, Ser. No. 9,893

Int. Cl. F16l 33/00

U.S. Cl. 285-242

18 Claims



An integrally formed clamping band is initially offset from an end of an elastomeric hose, with a close fit on the relaxed normal outer diameter of the hose. A nipple, adapted for an interference fit with the bore of the hose, is inserted into the hose end to effect radial expansion of the hose bore. Upon axially opposed forces being applied to the nipple and hose, the outer diameter of the hose is sufficiently contracted for the cylindrical band to be freely movable along the contracted hose into a final clamping position over and around the nipple. Upon relaxation of the tension, the clamping band maintains clamping compression of the embraced section of the hose end of the nipple. In the case of braid reinforced hose, the braided reinforcement radially contracts the elastomeric hose wall material into tighter engagement with the nipple, upon the hose being subjected to tension. As an alternative to inducing tension in the hose, and after the nipple has been inserted into the hose end, the nipple and clamping band may be relatively oppositely moved to effect relative translation of the clamping band into final clamping position.

3,653,693

TUBULAR CONNECTOR HAVING SPRING BIASED COUPLING MEANS

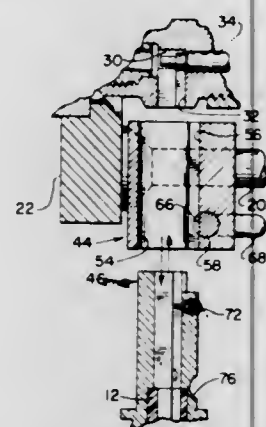
Howard N. Wieland, Amherst, and Don E. Ehrlich, Huron, both of Ohio, assignors to TRW Inc., Cleveland, Ohio

Original application Sept. 10, 1965, Ser. No. 486,296, now Patent No. 3,418,441. Divided and this application Dec. 20, 1968, Ser. No. 851,766

Int. Cl. F16l 37/14

U.S. Cl. 285-317

3 Claims



A quick release coupling for use with a welding apparatus including a body member for receiving a male fitting. The fitting has a longitudinally extending spline which fits into a longitudinally extending groove formed in a passage of the body member. A spring biased locking pin is carried by the body member and is positioned transversely of the passage to engage a shoulder on the fitting to couple the fitting to the body member.

3,653,694

TUBE COUPLING ASSEMBLY

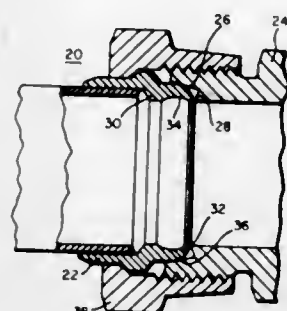
John Nicol, Palos Verdes Peninsula, Calif., assignor to Teledyne, Inc., Los Angeles, Calif.

Filed June 24, 1970, Ser. No. 49,452

Int. Cl. F16l 19/00

U.S. Cl. 285-334.4

7 Claims



A tube coupling assembly is disclosed which includes a tubular male coupling member having a sealing lip and including a nose at the end of the sealing lip, an outer sealing surface and an inner concave surface. A female coupling member is provided which includes an inner inwardly tapering seating surface adapted to receive the sealing surface of the male member and which also includes a shoulder portion extending inwardly from the tapered seating surface. The male member is placed in the female member and secured thereto by a conventional nut and thread arrangement. The nut is tightened until an adequate seal is obtained between the sealing surface of the male member and the seating surface of the female member, in a conventional manner. However, if the nut is over-torqued, thereby attempting to force the male member to penetrate too far into the female member, the nose of the sealing lip bottoms against the shoulder member, and the combination of the resultant forces and the concave surface create a moment in the sealing lip which attempts to cause it to buckle outwardly, thereby increasing the seal between the mating surfaces of the male and female members.

3,653,695

HIGH TEMPERATURE PIPE COUPLING

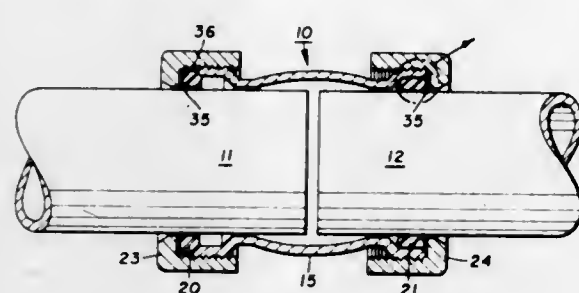
John T. Dunton, and Richard G. Van Houtte, both of Bradford, Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 19, 1970, Ser. No. 64,956

Int. Cl. F16l 19/08

U.S. Cl. 285-340

6 Claims



A coupling member for joining plain end pipe and adapted for maintaining sealing pressure throughout a swing range of temperatures between about normal room temperature to on the order of 300° F. and above. A cylindrical sleeve is provided for overlying opposite pipe ends and is outwardly flared at its ends to define annular cavities in which to receive annular gaskets. Thimble-nuts screw threaded to the exterior of each sleeve end compress the gasket thereat radially and axially inward of the cavity to effect a required gasket sealing pressure. By a predetermined space relation of cavity and gasket the latter when fully compressed, will consume less than the available axial extent of the cavity. The

unused axial cavity extent at room temperature permits unstressed gasket expansion as temperatures increase.

3,653,696

LAMINATED PIPE EXHAUST CONDUIT WITH LOW PRESSURE SEAL JOINT

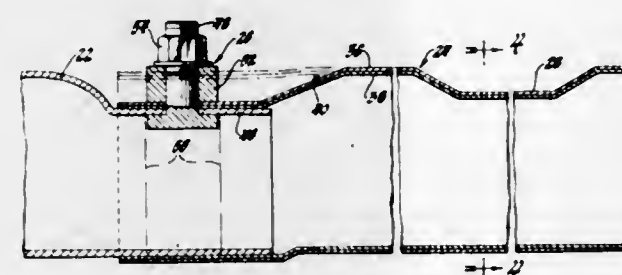
Thomas R. Cassel, Birmingham, Mich., assignor to Kenneth W. Cassel, Jr., Cincinnati, Ohio; R. Nelson Cooksey, Indianapolis, Ind.; Keelyn J. Cassel, Union Lake, Mich. and William E. Neighbors, Petersburg, Fla., part interest to each

Filed Nov. 18, 1969, Ser. No. 877,742. The portion of the term of the patent subsequent to Mar. 30, 1988, has been disclaimed.

Int. Cl. F16l 39/00

U.S. Cl. 285-403

9 Claims



An exhaust conduit for automotive internal combustion engines is disclosed wherein a low-pressure seal joint between pipe sections is used with a laminated pipe to avoid failures of the laminated pipe which have been experienced with prior art joints. The laminated pipe includes at the interface of the laminations a residual quantity of oil-like material which is used in the manufacturing process. When used in an exhaust system with a high-pressure seal joint the material vaporizes under the influence of the hot exhaust gases and the vapor pressure thereof causes separation of the laminations, collapse of the inner lamination or other failure of the pipe. A low-pressure seal over a band of engagement in the joint is effective to prevent leakage of the exhaust gases and at the same time to allow vaporized material between the laminations to escape through the end of the laminated pipe.

3,653,697

PREFABRICATED JOINT

Herbert Ernst, Wartbergsteige 109, 71 Heilbronn, Germany

Filed Aug. 12, 1969, Ser. No. 849,416

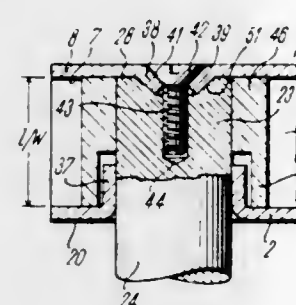
Claims priority, application Germany, Aug. 16, 1968, P 17 84

553.9

Int. Cl. F16b 7/00

U.S. Cl. 287-56

11 Claims



A joint for connecting two or more structural elements at an angle to each other. At least a first of these elements is of a tubular shape, preferably of a rectangular cross section, and provided with an aperture in its wall through which the end of a second element is inserted so as to abut directly or indirectly against the inside of the wall of the first element at a point opposite the aperture where the inserted end of the second element is additionally secured either directly or indirectly to the wall of the first element. The two elements

may either be welded directly to each other or be interconnected by an additional supporting member which may be inserted into and welded to the first element and then braces the opposite wall portions of the latter against each other. This supporting member forms a socket into which the end of the second element may be inserted.

3,653,698

CONNECTOR STRUCTURE FOR MODULAR BUILDING ASSEMBLIES

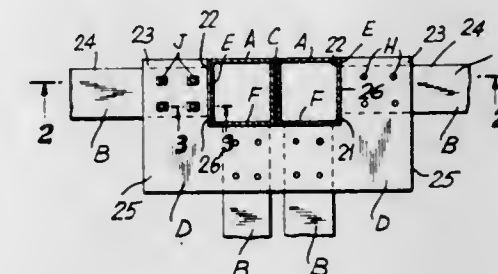
Myron Jenner, c/o Jen Products, Inc., Bethel, Vt.

Filed Feb. 11, 1970, Ser. No. 10,367

Int. Cl. E04c 3/30; F16b 2/18

U.S. Cl. 287-189.36C

4 Claims



The disclosure sets forth a connector useful in assembly and erection of multistory modular buildings from modules including hollow corner columns of rectangular cross section interconnected by horizontal beams.

The connector comprises a flat U-shaped yoke member which brackets two single columns of adjacent modules and has one leg of the U fixedly mounted on the top or bottom surface of an adjacent beam while the other leg is connected to the corresponding flange of an adjacent beam with the aid of bolts and conical or wedge-shaped camming members exerting a clamping effect upon a tightening of the bolts so as to draw the columns close together and to rigidify the structure.

3,653,699

AUTOMATIC ENGINE STARTER SYSTEM INCLUDING MEANS FOR RELEASING THE FAST IDLE CAM

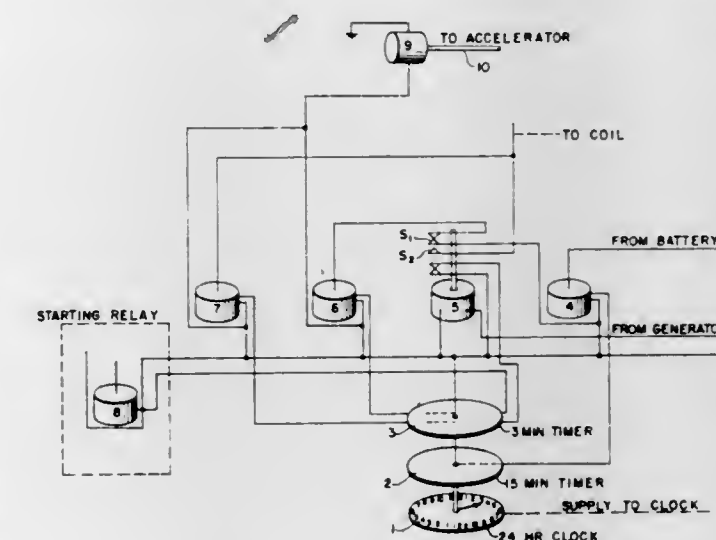
William L. Podesta, Bon Air Farms, R.R. 3, and Charles R. Miles, Jr., 804 S. 16th St., both of Mattoon, Ill.

Filed July 22, 1970, Ser. No. 57,082

Int. Cl. F02n 11/00

U.S. Cl. 290-37

14 Claims



An automatic engine starter including a plurality of timer means operable to selectively energize electrical relays in a predetermined sequence to affect sequential operation of the engine accelerator and starting relay to start the engine at a

predetermined time. The timer means includes means for repeating a cranking cycle of the engine a predetermined number of times if the engine fails to start on the first attempt.

3,653,700

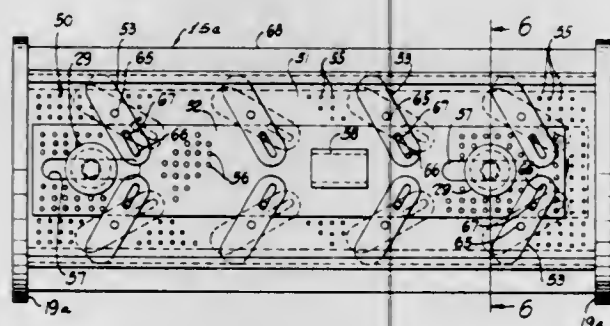
COVERS FOR PLATING BARRELS AND THE LIKE
Thomas R. Gill, Cleveland, Ohio, assignor to G S Equipment Company

Original application Feb. 23, 1967, Ser. No. 618,070, now Patent No. 3,507,529, dated Apr. 21, 1970. Divided and this application Oct. 29, 1969, Ser. No. 872,338. The portion of the term of this patent subsequent to Apr. 21, 1987, has been disclaimed.

Int. Cl. E05c 3/02

U.S. Cl. 292-49

10 Claims



A cover for plating barrels having a closure panel which carries locking structure for engaging the barrel in more than one location along the sides of the panel. The locking structure along at least one side of the closure panel is operated by movement of a single member carried by the panel.

3,653,701

GATE LATCH LOCKING DEVICE

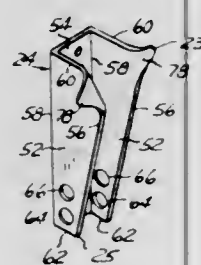
Louis A. Harvey, 15107 Ilene, Detroit, Mich.

Filed Nov. 4, 1970, Ser. No. 86,741

Int. Cl. E05c 19/06

U.S. Cl. 292-87

9 Claims



A wedge-shaped channel member with tapered flanges has aligned holes near the smaller ends of the flanges for the reception of the hasp of a conventional padlock. The web of the channel member also has a central hole near the smaller end of the channel member for the same purpose. The holes near the smaller end of the channel member are preferably duplicated at a different distance from the smaller end for the same purpose of receiving the padlock hasp in order to adapt the device to gate latches of different dimensions. Outwardly projecting wings are preferably provided at the larger end corners where they serve not only as handles facilitating withdrawal of the device but also as stops for widening the device when installed in the gate.

3,653,702

SAFETY LOCK DEVICE

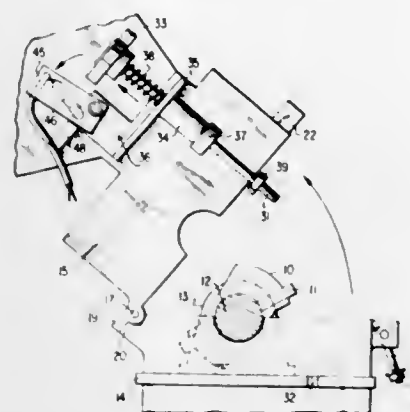
Herbert H. Frimberger, Middlefield, Conn., assignor to Polymer Machinery Corp., Berlin, Conn.

Filed Nov. 12, 1970, Ser. No. 88,647

Int. Cl. E05c 5/04

U.S. Cl. 292-251

10 Claims



A safety interlock arrangement for the protective cover of an electrical motor driven grinder or the like whereby the power to the motor is cut off when the protective cover is not in its normally closed position and fastened to the base of the grinder. The interlocking arrangement includes a screw which is mounted on the side of the protective cover and which engages the base or support for the grinder to lock the protective cover in its closed position. A bearing block, containing a mercury switch which controls the power input into the electric motor, is pivotally mounted on the side of the protective cover so that it normally rests against the free end of the screw. In order to disengage the screw from the base, the bearing block must be pivoted to a position wherein the mercury switch is open, thus disconnecting the power from the electric motor.

3,653,703

SAFETY HOOK LATCH

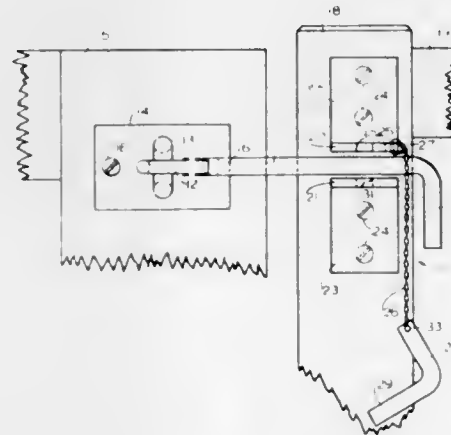
Clarence J. Lochner, R.R. 1, Box 18, Peosta, Iowa

Filed Dec. 3, 1970, Ser. No. 94,840

Int. Cl. E05c 19/10

U.S. Cl. 292-106

10 Claims



A safety hook latch with a hook member mounted on a gate positionable between spaced parallel plates mounted on a gate post for a latched state with a safety latch lock pin inserted through the spaced parallel plates maintaining the hook member in a latch captured state. The safety latch lock pin is suspended by a mounting chain from the upper plate mounted on the gate post with the mounting chain located to present a positive reminder by being an obstacle to positioning of the hook member to the latched state to insure safety latch lock insertion of the pin.

3,653,704

FASTENING MEANS FOR THE DOORS OF FREIGHT CONTAINERS, TRANSPORT VEHICLES AND THE LIKE
John Charles Hawkins, North Walsall, England, assignor to Rubery, Owen & Co., Limited, Darlaston, Wednesbury, Staffordshire, England

Filed July 24, 1970, Ser. No. 58,092

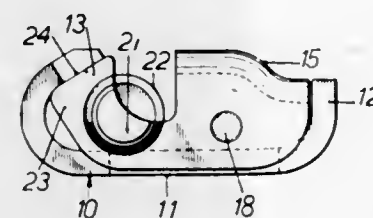
Claims priority, application Great Britain, July 26, 1969,

37,656/69

Int. Cl. E05c 3/04

U.S. Cl. 292-218

4 Claims



In fastening mechanism for the door of a freight container or transport vehicle in which an operating bar mounted on the door for angular movement about its axis carries on its ends cams co-operating with keepers on the door frame the cams and keepers are formed by sheet metal pressings.

3,653,705

CONSTRUCTION FOR FLUID TIGHT JOINTS

Charles Harold Warman, Castlecrag, Australia, assignor to Warman Equipment (International) Ltd., Belmont, Australia

Filed Oct. 21, 1970, Ser. No. 82,695

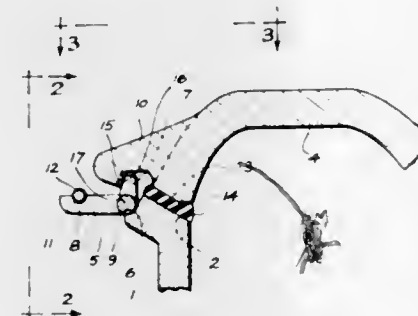
Claims priority, application Australia, Oct. 23, 1969,

62721/69

Int. Cl. B65d 45/32; E05c 7/00

U.S. Cl. 292-256.65

5 Claims



A fluid-tight joint formed between at least two adjoining members wherein matching tapered annular joint faces are provided on the members to be jointed, a plurality of bell-crank levers is provided each arranged with one arm thereof adapted to engage a segmental lug on one of the adjoining members, and a tension ring circumscribes the other arms of the bell-crank levers with contraction of the tension ring serving to bring the adjoining members into sealing engagement.

3,653,706

LIFTING MAGNET FOR HANDLING CARGOS

Shinichi Kashiwagi, Takasago; Morio Amano, and Koichi Nakasawa, both of Himeji, all of Japan, assignors to Nishishiba Electric Co., Ltd., Himeji, Japan

Filed July 14, 1970, Ser. No. 54,786

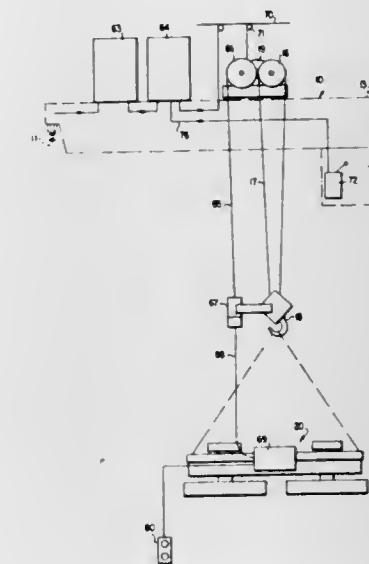
Int. Cl. B66c 1/04

U.S. Cl. 294-65.5

7 Claims

A lifting magnet for handling cargoes which includes an elongated pole piece rotatably attached to a framework suspended from a suspension device such as the hook of a

cargo crane. The elongated pole piece is rotatably mounted on the framework for being rotated in a plane relative thereto. Thus, when the elongated pole piece is positioned on a plurality of elongated cargoes such as I-beams with the longitudinal axis of the pole piece crossing the longitudinal axes



3,653,707

FLAT GLASS SHIPPING CASE

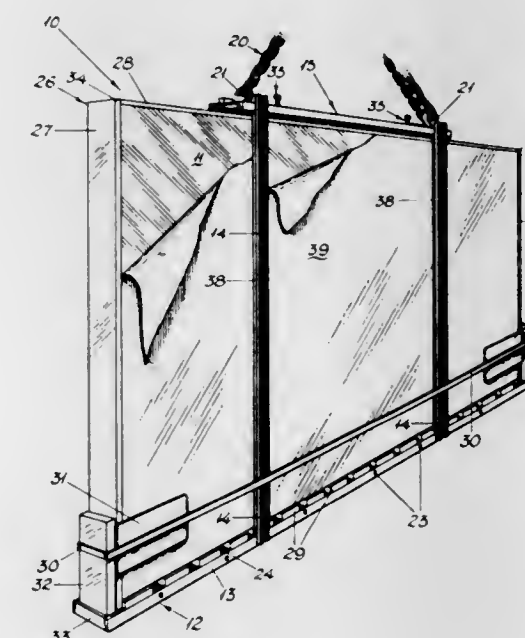
Frank L. Pile, Manteca, and Earl J. Olson, Lathrop, both of Calif., assignors to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Oct. 3, 1969, Ser. No. 863,441

Int. Cl. B66c 1/16

U.S. Cl. 294-67 D

9 Claims



A reusable case for shipping and storing frangible sheets. The case is formed from stock components which can be assembled in various ways so as to accommodate different numbers of sheets of various dimensions, and can be readily dismantled to form a compact unit for return shipment.

3,653,708

GRIPPING DEVICE

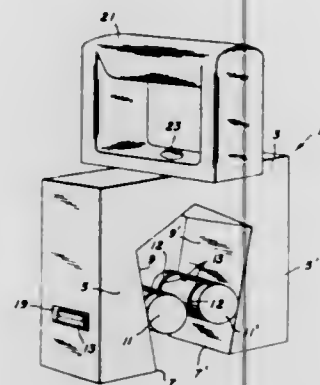
Anthony Merola, Pittsburgh, Pa., assignor to Amerota Products Corporation, Pittsburgh, Pa.

Filed May 16, 1969, Ser. No. 825,369

Int. Cl. B25b 3/00

U.S. Cl. 294—102 R

8 Claims



A gripping device is provided that has a pair of roller support members attached to a support means, the support members having confronting converging roller surfaces, with a resiliently secured roller on each surface in confronting relationship to the other roller. Motion of a member frictionally secured between the rollers in a direction away from the direction of convergence of the surfaces is easily achieved while any movement of the member in the direction of convergence of the surfaces causes a secure gripping of the member restraining it from such movement.

3,653,709

AIR DEFLECTOR

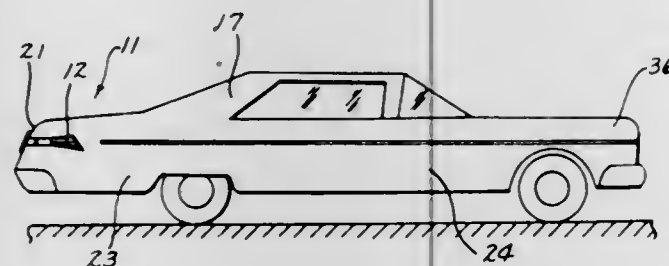
Darrell E. Gravett, 700 Penn, Carlisle, Iowa

Filed Nov. 19, 1969, Ser. No. 878,144

Int. Cl. B62d 35/00

U.S. Cl. 296—1 S

4 Claims



An air deflector for use with a vehicle having rear lights affixed to the rear end thereof is provided herein. The air deflector comprises an air scoop secured to the vehicle, a conduit leading from the air scoop to the rear of the vehicle and an arcuate shield secured to the outlet end of the conduit. A continuous passageway is provided through the air deflector and, when the vehicle is moving forwardly, the shield directs a continuous current of air across the exterior of the rear lights to prevent accumulation of foreign materials on the rear lights.

3,653,710

STORAGE COMPARTMENT LINER WITH INFLATABLE SUPPORT RIBS

Delbert J. Barnard, 4845 N.E. 42nd, Seattle, Wash.

Filed Apr. 29, 1970, Ser. No. 32,976

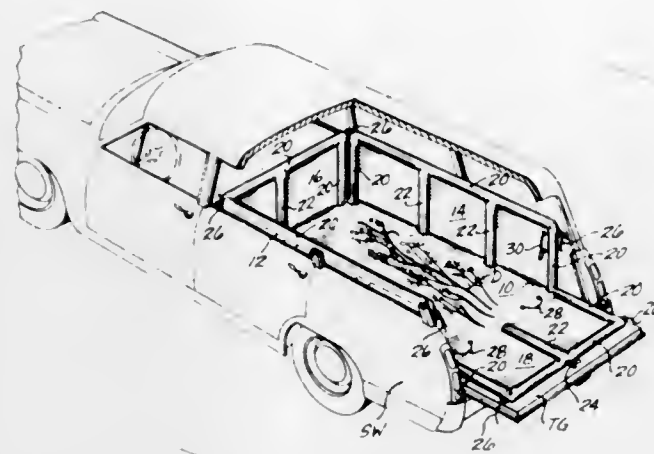
Int. Cl. B62d 33/04

U.S. Cl. 296—39 R

10 Claims

The liner is of sheet fabric construction. It includes a bottom that is approximately the same size as the compartment

floor. A side wall is provided on at least the sides and forward end. At least some of the walls include inflatable ribs for giving the side walls standup rigidity.



3,653,711

DRIP MOLDING FOR A CONVERTIBLE TOP

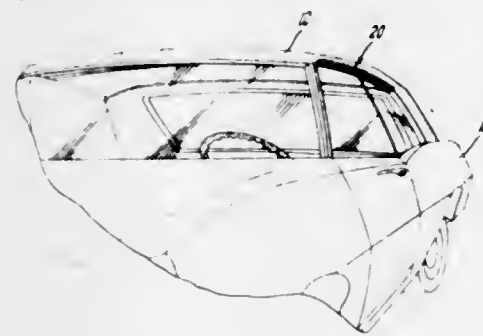
James H. De Claire, Mt. Clemens; Floyd I. Dully, Detroit, and Neil A. Hull, Birmingham, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 4, 1970, Ser. No. 34,446

Int. Cl. B60j 7/00

U.S. Cl. 296—107

3 Claims



A side drip molding for attachment to the side rail of a frame that supports a convertible top on a vehicle body. The drip molding has a gutter portion and two retaining flange portions molded from a flexible material. The drip molding includes a clip portion formed as part of one of the two retaining flanges. The clip portion has a lip portion and rib portion to mount and hold the drip molding on the side rail.

3,653,712

FURNITURE UNIT

Maynard C. Sarvas, 4773 Dogwood, Seal Beach, Calif.

Filed May 18, 1970, Ser. No. 38,352

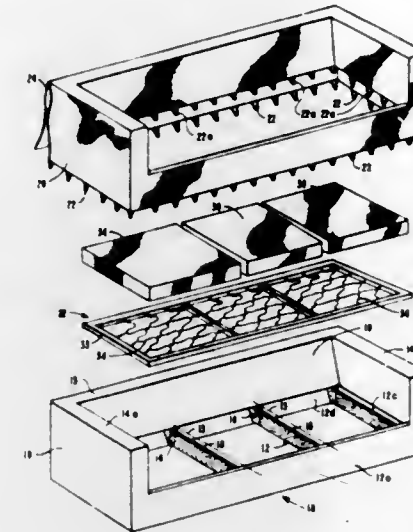
Int. Cl. A47c 31/10

U.S. Cl. 297—218

9 Claims

Furniture units are disclosed including an integral frame having upper and lower portions, the upper portion defining cushioned sidearms and backrest, and the lower portion defining a rectangular box with upper and lower peripheral areas including anchor hooks disposed therealong. A unitary fabric covering covers the entire backrest and sidearms and is held in place under tension by resilient straps coupling the anchor hooks and marginal portions of the covering adjacent the hooks. A removable, resilient seat cushion platform is

supported by slats fixed within the rectangular box portion of the frame. that they may be retracted out of position when not in use, yet, when projected by their motor units energized through



In one embodiment, the seat support structure has an extendible mattress frame.

3,653,713

SEATING STRUCTURE

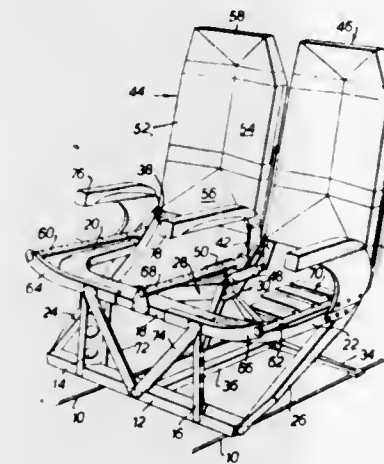
Dennis Joseph Reason, and Leslie James Green, both of Ampthill, England, assignors to Hunting Engineering Limited

Filed July 23, 1970, Ser. No. 57,496

Int. Cl. B60n 1/00

U.S. Cl. 297—232

6 Claims



A seating structure comprises a wrap around cross bar at seat level supported on pillars which are secured to a floor-level cross-beam fixed to rails on the floor of an aircraft. Side struts extend diagonally upwards connecting the sides of the cross bar with the rear ends of the wrap-around beam. A rear leg secured to the rails by a foot is connected to a rigid bifurcated lever at seat level, the lever being secured to the wrap-around beam. The spaces on either side of the leg such as might be caused by vertical rear side legs. In use, the upholstery is supported on webbing above the structure and back rests and arms are provided. The structure is designed to withstand loads in all three dimensions with minimum weight and minimum obstruction to the feet of passengers seated behind.

3,653,714

AUTOMATIC SAFETY SEAT BELTS

Michael Gentile, Route 4, Box 7, St. Charles, Ill.

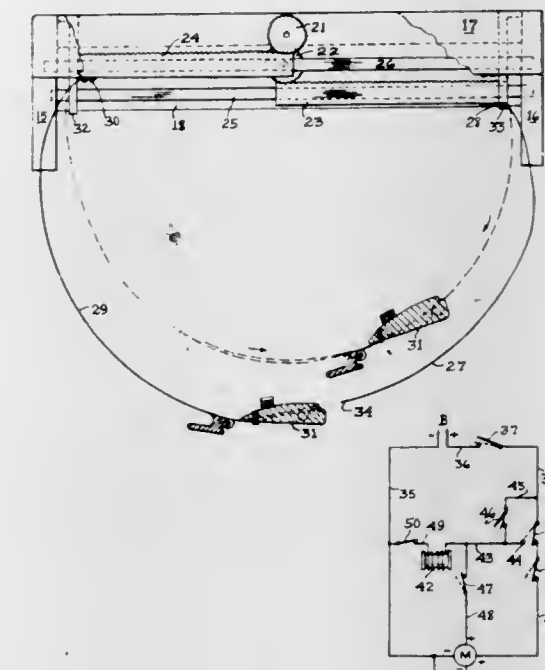
Filed Feb. 24, 1970, Ser. No. 13,338

Int. Cl. A62b 35/60

U.S. Cl. 297—385

4 Claims

Electrically controlled motor-driven safety seat belts that include complementary belt sections yieldably preshaped so



3,653,715

ADJUSTABLE FOOT RESTS

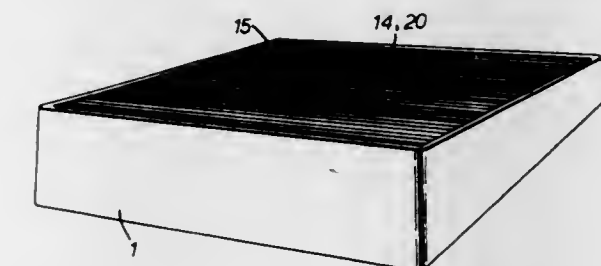
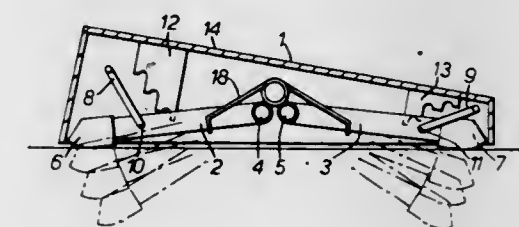
Fritz Drabert, and Klaus Geffers, both of Minden, Germany, assignors to Dravert Sohne, Minden/Westfalia, Germany

Filed Aug. 11, 1970, Ser. No. 62,903

Claims priority, application Germany, Oct. 4, 1969, P 19 50 162.3

U.S. Cl. 297—439

3 Claims



A foot rest includes a platform for receiving a person's feet and the platform has legs which are adjustable to vary the height and inclination of the platform. The legs can be fixed in any selected position by U-shaped pivotal members which engage in one of a selected number of grooves.

3,653,716

ROLLER BUTTER ROCK BORING APPARATUS AND METHOD

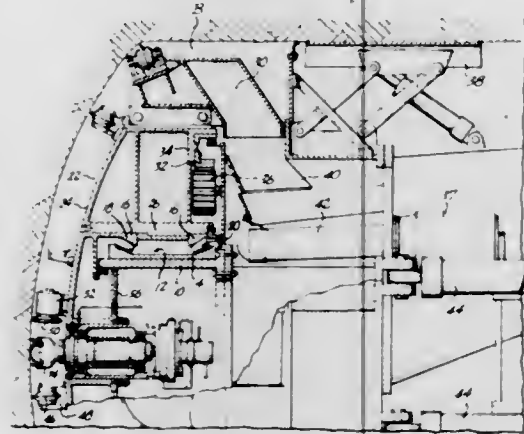
John S. Hattrup, Seattle, Wash., assignor to James S. Robbins and Associates, Inc., Seattle, Wash.

Filed Oct. 10, 1969, Ser. No. 865,362

Int. Cl. E01q 3/04

U.S. Cl. 299-1

28 Claims



Kerf forming disc cutters are closely grouped on a cutter carrier. Where space permits a plural and equal number of cutter wheels are placed on each cutter path. A faster turning center cutter assembly is provided in the form of (1) a single abrasion type tri-cone cutter driven by either a stationary frame mounted on the carrier, or (2) an inner cutter carrier occupying the center region immediately radially inwardly of the location of the last cutter path involving plural cutter wheels, with a single kerf forming disc cutter wheel located on each circular cutter path of the inner cutter carrier.

3,653,717

ARTIFICIAL LIFT SYSTEM

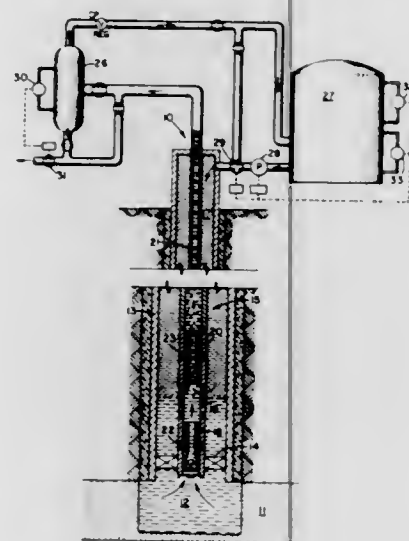
Elvis Rich, and Edgar L. Von Rosenberg, both of Houston, Tex., assignors to Esso Production Research Company, Houston, Tex.

Filed Sept. 29, 1969, Ser. No. 861,958

Int. Cl. E21b 43/28

U.S. Cl. 299-5

9 Claims



A method and system for artificially lifting enriched solvents in solution mining wells are disclosed. A liquid immiscible with and lighter in gravity than the solvent is injected in the well annulus while the solvent enriched with minerals is produced through the well tubing. The system can selectively be placed in continuous or intermittent operation.

3,653,718

MULTIPLE SECTION PNEUMATIC TIRE

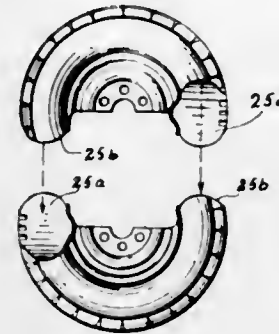
Carl Gellender, 2885 West 12th, Brooklyn, N.Y.

Filed Aug. 17, 1970, Ser. No. 64,290

Int. Cl. B60b 19/00, 25/02

U.S. Cl. 301-38 R

3 Claims



A tire and wheel combination made with a plurality of independent tire and wheel sections for individual mounting on and demounting from a vehicle. Each tire section has its own air chamber and each wheel section is independently mountable on the vehicle. Each tire section is joined to its wheel section. Adjoining sections butt smoothly to each other. Wheels may have a larger radius at the places where sections join and a smaller radius intermediate such places. Angles of intersection may be either perpendicular to the plane of the tire or, preferably, at opposed angles with respect thereto.

3,653,719

WHEEL CAP FIXING DEVICE

Shigeru Osawa, Tokyo, and Michio Kanazawa, Sagami-hara, both of Japan, assignors to Topy Industries, Limited, Tokyo, Japan

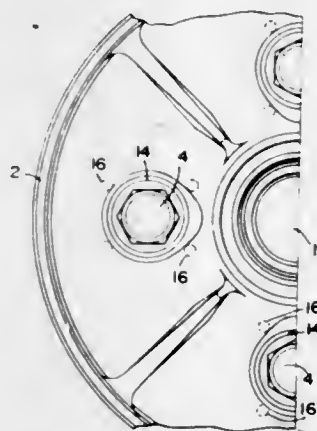
Filed Nov. 26, 1969, Ser. No. 880,170

Claims priority, application Japan, Dec. 17, 1968, 43/92,030

Int. Cl. B60b 7/06

U.S. Cl. 301-37 S

2 Claims



This device uses a cap nut provided at its flank with a flange which is urged through an elastic washer of a rubber substance and a wheel cap against a wheel disc when the cap nut is threadedly engaged with a stud bolt firmly secured to a vehicle hub.

3,653,720

HYDRAULIC TRANSPORTATION SYSTEM

Sam N. Craig, Devon, Pa., assignor to Wascon Systems, Inc., Hatboro, Pa.

Filed Mar. 4, 1970, Ser. No. 16,501

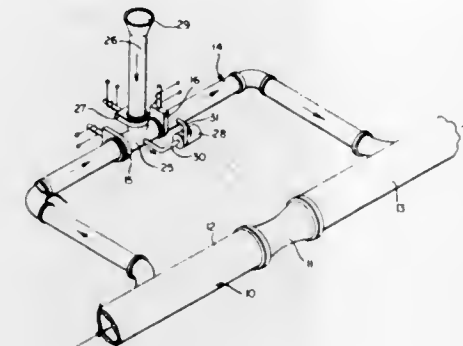
Int. Cl. B65g 53/30

U.S. Cl. 302-15

17 Claims

A system is provided for hydraulic transportation of waste solids, whereby the solids may be introduced into a by-pass

line off a main duct, whereby the solids are introduced into a chamber after discontinuing the flow of water through the by-pass line, with the solids either being introduced into a chamber directly in the by-pass line, or into a chamber connected thereto for subsequent introduction into the by-pass line. In the latter situation, a pusher of the piston type may be utilized. Valves are used to discontinue the flow to the chamber, and to open a solids inlet to the chamber, with the



valves then being actuated to close the solids inlet and to open the chamber to the flow of water. In those instances wherein the chamber forms a part of the by-pass line, the water may then carry off the waste. In those instances wherein the chamber does not form a part of the by-pass line but communicates therewith, the pusher is then utilized to push the solids into the by-pass line. This procedure is then followed by the extraction of water from the chamber.

3,653,721

VARIABLE FRONT AXLE VALVE

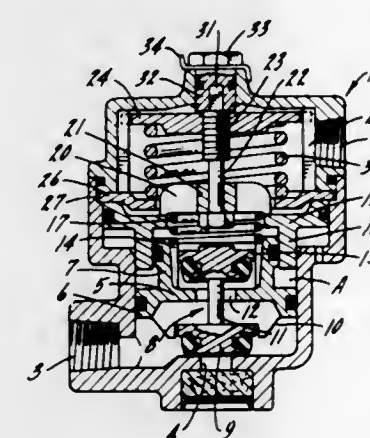
Boleslaw Klimek, Des Plaines, Ill., assignor to Berg Mfg. & Sales Co., Des Plaines, Ill.

Filed July 27, 1970, Ser. No. 58,551

Int. Cl. B60t 15/36; G05d 11/03

U.S. Cl. 303-6 C

5 Claims



A front axle valve automatically effective to vary the pressures supplied from a fluid pressure brake system to the front axle brakes and having means for varying the relationship of system to brake pressure.

3,653,722

FRONT BRAKE VALVE

Boleslaw Klimek, Des Plaines, Ill., assignor to Berg Mfg. & Sales Co., Des Plaines, Ill.

Filed July 27, 1970, Ser. No. 58,552

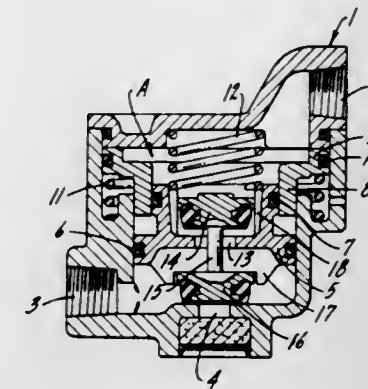
Int. Cl. B60t 15/36; G05d 11/03

U.S. Cl. 303-6 C

4 Claims

A valve assembly for varying brake pressures applied to

front vehicle wheels including a differential piston, a second



piston effective against said differential piston and positive exhaust closing means.

3,653,723

BRAKE APPARATUS

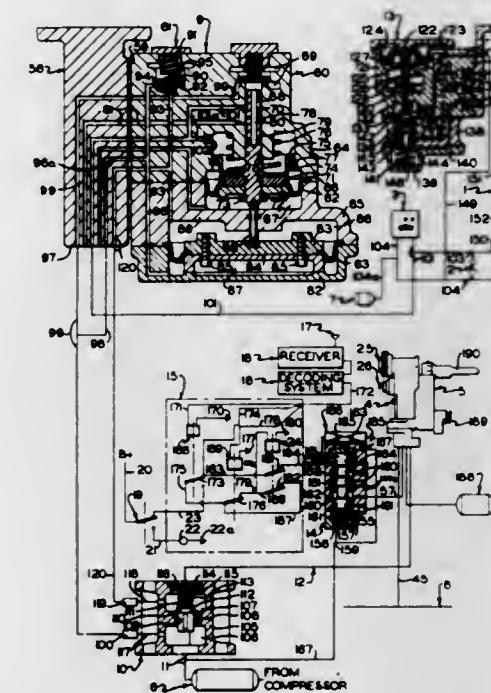
Robert J. Worbois, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed May 21, 1970, Ser. No. 39,288

Int. Cl. B60t 15/18

U.S. Cl. 303-20

7 Claims



This invention relates to brake control apparatus for a slave locomotive of a remote multiple unit locomotive control system wherein a brake control console on the lead locomotive is manually operable to control the brakes on the forward portion of the train, and also to effect corresponding control (via radio-transmitted signals initiated by manual operation of this brake control console) of the brakes on the remaining portion of the train by the brake apparatus on a slave locomotive remotely located in the train. This control apparatus on the slave locomotive is operable, upon loss of radio control thereof from the lead locomotive, in response to a reduction of pressure in the train brake pipe effected by manual operation of the brake control console on the lead locomotive, to cause the brake pipe cut-off valve of the brake valve on the slave locomotive to operate to cut-off or terminate charging of the train pipe by the brake valve on the slave locomotive irrespective of the degree of train brake pipe leakage.

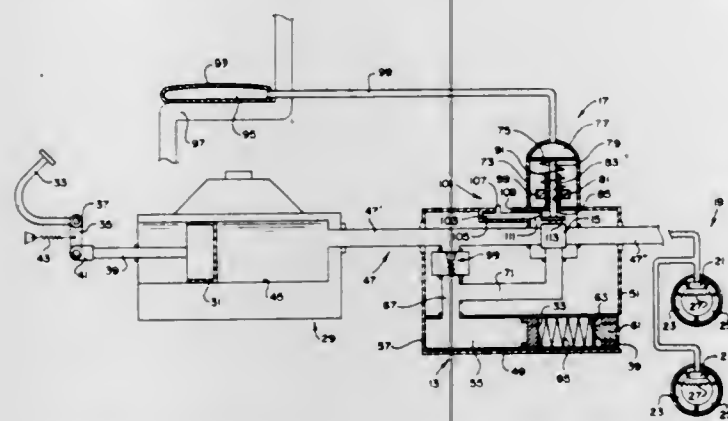
3,653,724

SAFETY BRAKE SYSTEM

William Van Smith, 1617 Duke Road, Memphis, Tenn.
Continuation-in-part of application Ser. No. 17,812, June 23, 1969. This application Dec. 18, 1970, Ser. No. 99,532
Int. Cl. B60t 7/14

U.S. Cl. 303-19

7 Claims



A safety brake system for a vehicle, which automatically applies the brakes when the driver of the vehicle leaves his seat. The system includes an accumulator for accumulating a quantity of fluid under pressure from the master cylinder assembly of the vehicle when the brake pedal of the vehicle is applied. A valve is actuated when the driver leaves his seat to cause the accumulated fluid to flow to the brakes and apply same.

3,653,725

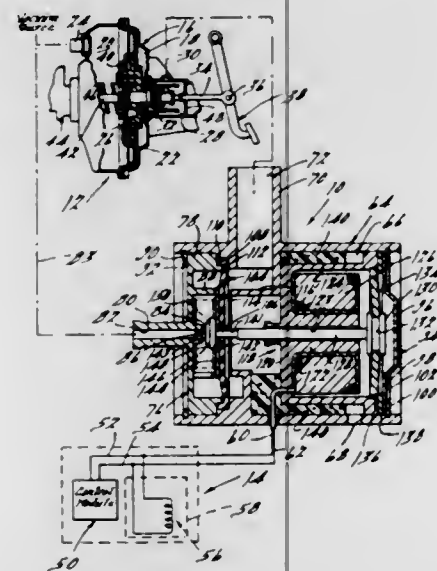
AUXILIARY VALVE FOR CONTROLLING MASTER CYLINDER BRAKE PRESSURE IN A VEHICLE BRAKING AND SKID CONTROL SYSTEM

Edward J. Hayes, Ann Arbor, and William Stetzer, Milford, both of Mich., assignors to Kelsey-Hayes Company, Romulus, Mich.

Filed May 5, 1969, Ser. No. 821,909
Int. Cl. B60t 8/02

U.S. Cl. 303-21 F

1 Claim



An auxiliary valve adapted for operative association with a vehicle braking system having a vacuum operated power brake unit and a skid control mechanism incorporated therein, the valve having an inlet and outlet sections, a valve member movable between positions permitting and preventing the flow of air from the inlet to the outlet section, and an actuating means including an electrically energized solenoid operable in response to a control signal from the skid control system to selectively bias the valve member toward one of the aforesaid positions so as to control the flow of air to the power brake unit and thereby limit the output pressure from the master cylinder of the brake system during a skid control cycle.

3,653,726

ANTI-SKID DEVICE FOR VEHICLES

Hisato Wakamatsu; Noriyoshi Ando, and Kazu Majima, all of Kariya-shi, Japan, assignors to Nippon Denso Company Limited, Kariya-shi, Japan

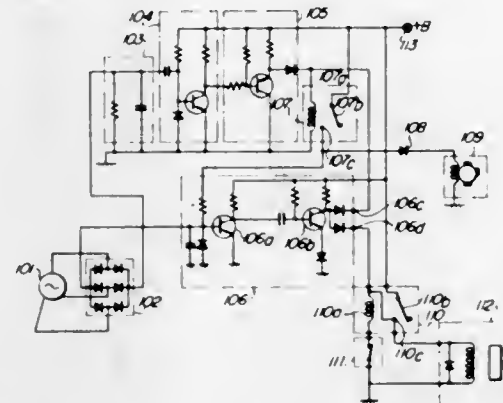
Filed June 3, 1969, Ser. No. 829,901

Claims priority, application Japan, June 3, 1968, 43/37904; June 6, 1968, 43/38879; Oct. 31, 1968, 43/79445; Jan. 11, 1969, 44/2177

Int. Cl. B60t 8/12

U.S. Cl. 303-21 CG

2 Claims



An anti-skid control device for a vehicle having wheel angular deceleration detecting apparatus for detecting the angular deceleration of the wheel, a switch element actuated by the output from the detecting apparatus so as to supply current to brake force releasing apparatus, and wheel rotation detecting apparatus, which, when the rotation of the wheel is stopped in the closed state of the switch element, is operative by detecting the stoppage of rotation of the wheel to maintain the supply of current to the brake force releasing apparatus until the rotation of the wheel is started again.

3,653,727

BRAKE CONTROL SYSTEM FOR WHEELED VEHICLES

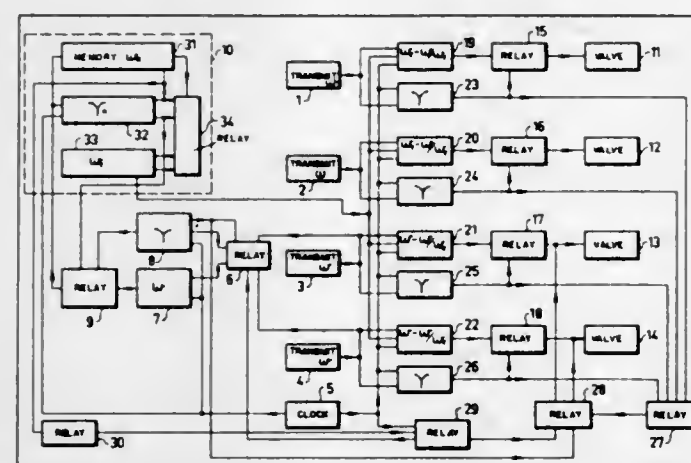
Otto Gosta Kullberg, Smedsbacksgatan 11, Stockholm, and Olle Nordstrom, Enbacksvagen 13, Vallentuna, both of Sweden

Filed Sept. 22, 1969, Ser. No. 859,734

Claims priority, application Sweden, Oct. 22, 1968, 14286/68
Int. Cl. B60t 8/10, 8/12

U.S. Cl. 303-21 P

4 Claims



A brake control system for wheeled vehicles which includes transmitters located at each braked wheel of the vehicle, each of the transmitters generating an electrical signal corresponding to the rotary speed of the respective wheel. A reference speed generator is provided to produce a reference speed signal which is actuated by the output from at least one of the transmitters. Apparatus are provided to neutralize or reduce the braking power, temporarily supplied to the wheel, which provides an input for the reference speed generator,

during the period it provides such an input. Associated with each of the wheels are calculating devices to determine the slip, defined as the quotient of the difference between the actual speed of the wheel and the reference speed divided by the reference speed. In addition, for each wheel apparatus are provided to determine the deceleration of that wheel. A control device compares the slip and deceleration for each of the wheels and, if necessary reduces the braking power supplied to that wheel. In the disclosed embodiment the reference speed is determined alternately from one of the two rear wheels. The wheel from which the reference speed signal is derived is, during the time the reference speed signal is derived, unbraked.

3,653,728

BRAKE CONTROL SYSTEM UTILIZING FLUIDIC LOGIC ELEMENTS

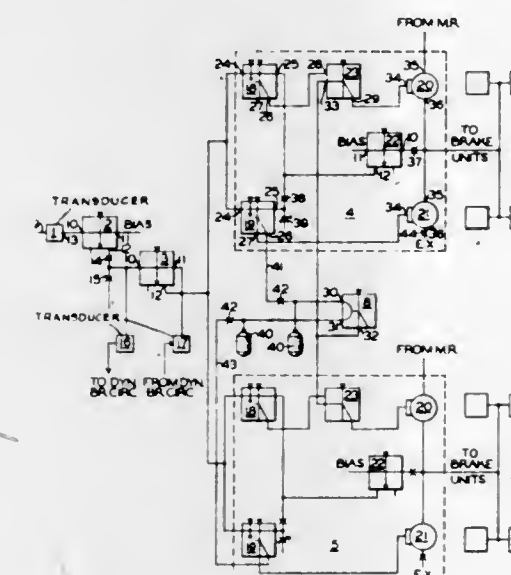
Ronald A. Sarbach, Columbus, Ohio, assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Apr. 28, 1970, Ser. No. 32,646

Int. Cl. B60t 8/22

U.S. Cl. 303-22 R

8 Claims



A pure fluid type brake control system for railway vehicles in which an input control signal representative of the desired brake effort is modified in accordance with the vehicle load for controlling the dynamic brakes. The difference between the load weighed brake control signal and a feedback signal corresponding to the variable effectiveness of the dynamic brake establishes an error signal for control of the friction brake which is regulated through a separate feedback loop to continuously blend with the dynamic brake and thereby satisfy the load weighed brake control signal. Provision is made to obtain full friction brake in response to a malfunction occurring in the digital application and release network comprising the friction brake control independently thereof.

3,653,729

ELECTRICALLY CONTROLLED HYDRAULIC VALVE OF SELF-LAPPING TYPE

George K. Newell, Punta Gorda, Fla., and Glenn T. McClure, McKeesport, Pa., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Dec. 19, 1969, Ser. No. 886,475

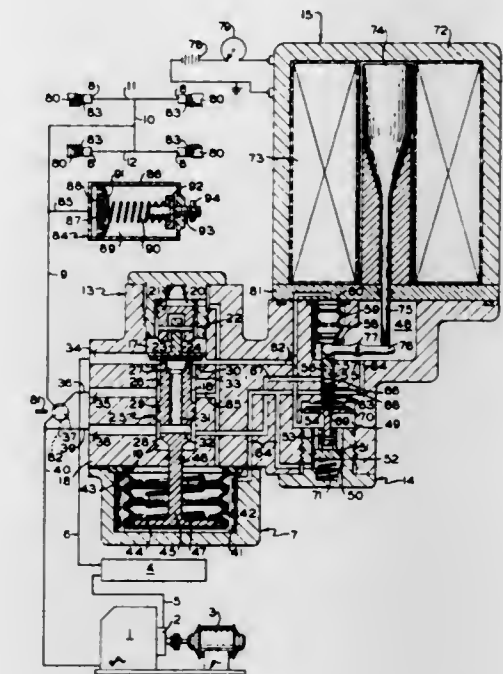
Int. Cl. B60t 15/02

U.S. Cl. 303-50

5 Claims

An electrically controlled hydraulic valve device of the self-lapping type including a self-lapping supply valve for supplying hydraulic operating pressure to vehicle brake apparatus at a degree controlled by a pilot valve, which, in turn, is mechanically operated by a solenoid for causing the supply valve to supply at maximum operating pressure when the

solenoid is completely deenergized, and to effect zero operating pressure and complete release thereof when the solenoid is fully energized, the degree of said operating pressure



between said zero and maximum pressures being infinitely variable inversely to the degree of energization of the solenoid.

3,653,730

WHEEL LOCK FOR A VEHICLE

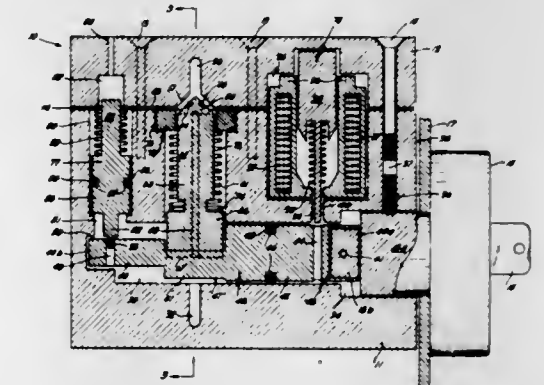
Dejan O. Cvetkovich, 212 S. Jensen Way, Fullerton, Calif.

Filed Jan. 27, 1970, Ser. No. 6,246

Int. Cl. B60t 17/16

U.S. Cl. 303-89

3 Claims



A wheel lock designed for vehicle theft prevention and comprising a valve interposed in the brake fluid line to at least one wheel brake of the vehicle. By closing the valve while the vehicle brake pedal is depressed, fluid under pressure is trapped between the valve and the brake, locking the wheels. Preferably, the valve comprises a camshaft operatively connected to a key operated rotary lock, a valve piston disposed within a housing and displaced by the camshaft, and a valve seat counterbored in a cover attached to the housing. A separate locking piston actuated by brake fluid under pressure and a solenoid respectively insure that the valve can be closed only when the brakes are applied and when the vehicle ignition system is off.

3,653,731

ROLLER BEARING

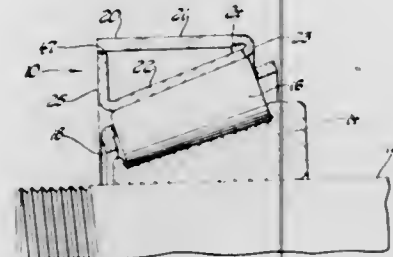
John C. Rau, 21880 Daisy Lane, Southfield, Mich.

Filed Aug. 14, 1970, Ser. No. 63,742

Int. Cl. F16c 19/04, 33/64

U.S. Cl. 308—184

16 Claims



A roller bearing having a cantilevered outer race design to relieve Hertzian stress. The outer annulus of the outer race may also be slotted to control resilience.

3,653,732

MULTI-BALL PIVOT ASSEMBLY

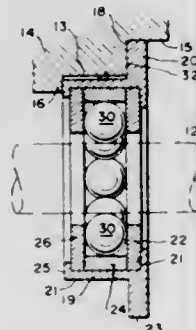
Winthrop H. Fairbank, Sudbury, Mass., assignor to Northrop Corporation, Palos Verdes, Calif.

Filed Aug. 21, 1969, Ser. No. 851,958

Int. Cl. F16c 33/00, 19/04

U.S. Cl. 308—193

2 Claims



A multi-ball pivot assembly for use in precision bearing applications such as gyroscope suspension systems. No inner raceways are utilized, the balls being directly in contact with the surface of the rotatable shaft. No conventional outer raceways, as such, are used either, a right cylinder of hard material being positioned to serve as the outer ring against which the balls bear. A pair of flat washers of sapphire or other similarly hard material serve to retain the balls in position axially of the shaft. The entire pivot assembly is preferably enclosed by a flanged holder designed to be firmly and accurately retained in the body of the unit in which the shaft turns.

3,653,733

ROLL SUPPORT BRACKET FOR WEB DISPENSERS

Gerald W. Wyant, 4343 Mayfair Ave., Montreal, Quebec, Canada

Filed Oct. 13, 1970, Ser. No. 80,356

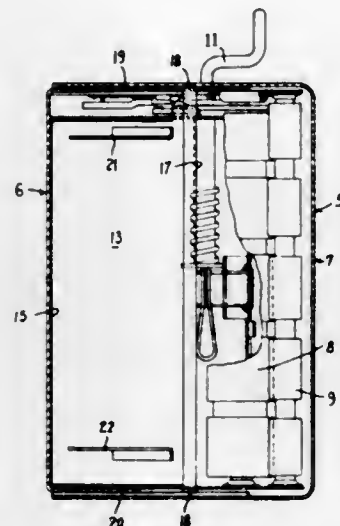
Int. Cl. B65h 19/00

U.S. Cl. 312—39

7 Claims

A web dispenser for feeding a web of material from a roll within a cabinet, the web being fed through the nip between a driving roll and a pressure applying roll, and a support plate for the roll of material mounted within the cabinet adjacent to and tangent to the top portion of the web driving roll, the support plate being projected at an angle downwardly and

rearwardly of the web driving roll and brackets on the support plate to position the roll of material in axial parallel



alignment with the nip between the driving and pressure applying rolls.

3,653,734

MODULAR FURNITURE

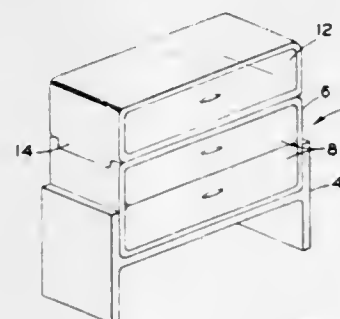
Nicholas A. Ungaro, Louisville, Ky., assignor to Armstrong Cork Company, Lancaster, Pa.

Continuation-in-part of application Ser. No. 804,499, Mar. 5, 1969, now Patent No. 3,606,506. This application June 29, 1970, Ser. No. 50,793

Int. Cl. A47b 87/00

U.S. Cl. 312—107

6 Claims



Modular furniture is assembled in a number of different designs from certain standard components. An H-shaped support frame is adapted to hold canister elements into which there are placed drawers or onto which is positioned doors. A lip structure on the canister locks the canister to the support frame. It is possible to lock together a plurality of canister structures without the support frame and with just the lip structure being used to hold together the plurality of canisters. The H-shaped frame could be utilized alone and, when provided with a number of legs of different lengths, the support frame may be utilized to form a plurality of book shelves of different heights.

3,653,735

MOLDED DRAWER GUIDES

Hans-Werner Duepree, Avenwedde, Germany, assignor to Elco Kunststoffe A. Elges & Co., Avenwedde, Germany

Filed Sept. 26, 1969, Ser. No. 861,414

Claims priority, application Germany, Oct. 3, 1968, G 68 00 639

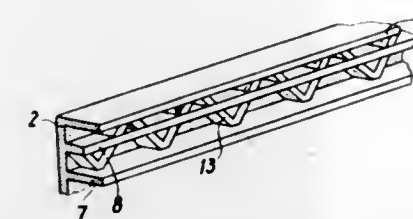
Int. Cl. A47b 88/00

U.S. Cl. 312—330

4 Claims

Furniture drawers produced by injection molding are pro-

vided with various edge guides and combinations thereof for



greater rigidity and smoother operation.

3,653,736

HOLOGRAPHIC MULTIPLE IMAGE FORMATION WITH ASTIGMATISM CORRECTION

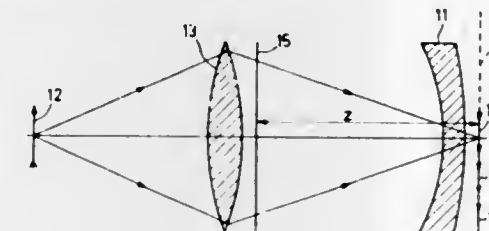
Christiaan Hendrix Frans Velzel, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed June 24, 1970, Ser. No. 49,280

Claims priority, application Netherlands, June 25, 1969, 6909695

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5



An apparatus for imaging an illuminated or light-emitting object is discussed by which the image is simultaneously formed at many predetermined locations in space, whilst a hologram of a point array which corresponds to the desired spatial distribution is used as an image forming means and during the reconstruction of the point array from the hologram the usual reference source is replaced by the article or a corresponding image.

It is stated that at least one correcting lens is provided between the image plane and the hologram both during the recording of the hologram and during the reconstruction of the point array.

3,653,737

OPTICAL SCANNING SEEKER

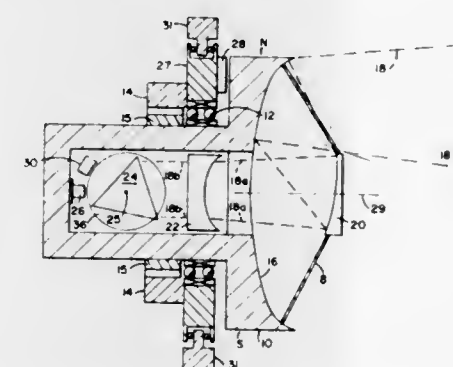
William W. Stripling, and Lester M. Ross, both of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army

Filed Aug. 24, 1970, Ser. No. 66,203

Int. Cl. G02b 17/00

U.S. Cl. 350—7

2 Claims



In an optical scanning target seeker, optical elements carried within a spinning gyroscopic mass scan the seeker field

of view. The seeker spin axis is defined by the gyroscopic mass spin axis. The optical elements are positioned along the gyroscopic mass spin axis, or seeker spin axis, and include a parabolic reflector cut in a face of the gyroscopic mass, a slanted mirror mounted facing the parabolic reflector, and a focusing lens for focusing images reflected from the slanted mirror onto a detector. As the gyroscopic mass spins, energy beams from the seeker field of view are reflected off the slanted mirror and through the focusing lens in a circular sweep pattern. The novelty of this invention is in rotating a prism between the focusing lens and detector on an axis that is orthogonal to the seeker spin axis. The rotating prism changes the circular sweep pattern to curved radial beams and sweeps the beams over the detector. A target image is displayed on one of the beams when a target is present in the seeker field of view. Magnetic sensors react with magnets on the rotating gyroscopic mass and on the prism to indicate where a target is located in the seeker field of view when an image from the target is displayed on the detector.

3,653,738

OPTICAL WAVEGUIDE WITH UNEQUALLY SPACED LENSES

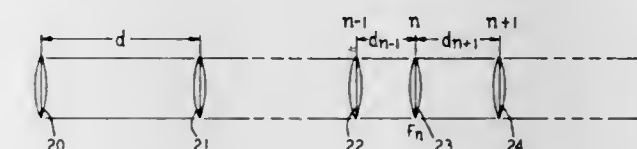
Detlef Christoph Gloge, Red Bank, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 29, 1970, Ser. No. 50,569

Int. Cl. G02b 27/00; H01p 3/00

U.S. Cl. 350—96 WG

5 Claims



A beam waveguide for guiding optical wave energy over extended distances by means of lenses of variable spacing whose focal lengths are a function of the separation from adjacent lenses and the maximum lens-to-lens spacing in the system.

3,653,739

LEACHABLE BUNDLE OF OPTICAL FIBERS

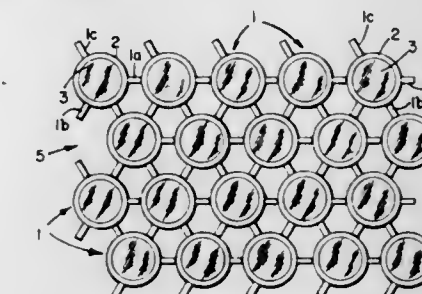
Richard R. Strack, Sturbridge, Mass., assignor to American Optical Corporation, Southbridge, Mass.

Filed July 2, 1970, Ser. No. 51,784

Int. Cl. G02b 5/14

U.S. Cl. 350—96 B

4 Claims



A plurality of optical fibers each having a core of high refractive index light-transmitting material, a cladding of lower refractive index material and a number of longitudinal acid-soluble rods fused to the exterior of the cladding are formed into a bundle with the rods spacing the fibers apart and leaving voids between them. The bundle is elongated by drawing and the drawn bundle having voids between its fibers is potted at each end with an acid resistant material whereupon it is leached to remove lengths of the rods between the end coatings for producing a flexible image-transmitting conduit.

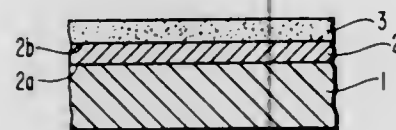
3,653,740

PROJECTION SCREEN

Shuichi Ogura, and Katsuhisa Ueda, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
 Filed Aug. 14, 1969, Ser. No. 850,090
 Claims priority, application Japan, Aug. 14, 1968, 43/57754
 Int. Cl. G03b 27/56

U.S. Cl. 350—117

10 Claims



There is provided a projection screen comprising a support, a layer of double rolled aluminum foil having one smooth surface and one coarse surface, the smooth surface thereof being in contact with the support, and a brushed resin film on the coarse surface of said aluminum foil.

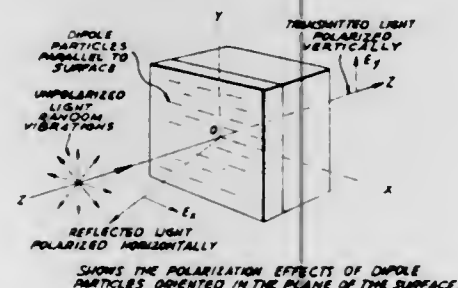
3,653,741

ELECTRO-OPTICAL DIPOLAR MATERIAL

Alvin M. Marks, 166-25 Ninth Avenue, Whitestone, N.Y.
 Continuation-in-part of application Ser. No. 378,836, June 29, 1964, now Patent No. 3,512,876. This application Feb. 16, 1970, Ser. No. 11,696
 Int. Cl. G02b 5/30

U.S. Cl. 350—147

26 Claims



An article of manufacture is provided as a matrix having dispersed substantially uniformly therethrough a plurality of electro-optically responsive dipole particles selected from the group consisting of electrically conductive and semi-conductive material and dichroic crystals, the matrix being a transparent medium capable of being in the fluid state during the initial orientation of the dipoles, whereby the dipoles are capable of rotation to a desired preferred orientation upon the application of a force field, the medium being thereafter solidified. A method of applying the force field is disclosed.

3,653,742

ELECTRO-OPTIC VARIABLE FRESNEL ZONE PLATE

William R. Buchan, Lincoln, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed June 24, 1970, Ser. No. 53,768

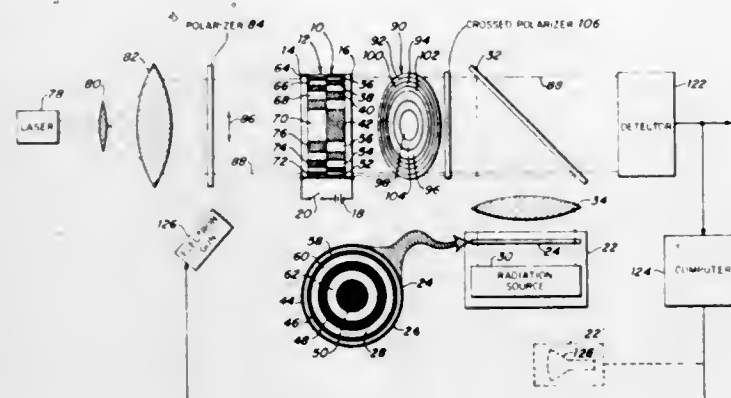
Int. Cl. G02f 1/20

U.S. Cl. 350—150

10 Claims

Apparatus is disclosed including a variable electro-optic Fresnel zone plate having an electro-optic medium with a characteristic that varies as a function of an applied electric field, means for applying to that medium an electric field

whose intensity varies in a pattern of alternate high intensity and low intensity bands, and means for demodulating radiation



tion modulated by that characteristic of the medium to produce a Fresnel zone plate pattern of radiation.

3,653,743

ELECTRO-OPTIC DEVICES WITH ACOUSTO-OPTIC EFFECT SUPPRESSION

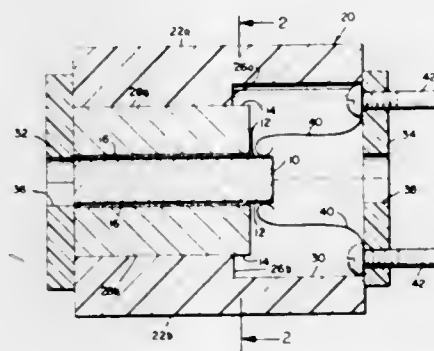
James E. Kiefer, Canoga Park, and Francis E. Goodwin, Malibu, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 23, 1970, Ser. No. 91,625

Int. Cl. G02f 1/26

U.S. Cl. 350—150

7 Claims



Acousto-optic resonances in a crystal of a material exhibiting the linear electro-optic effect may be suppressed by coupling to the respective lateral faces of the crystal a plurality of slabs of a material having high acoustic energy absorption properties and an acoustic impedance substantially matching the acoustic impedance of the crystal. Lead, lead glass or titanium are exemplary appropriate acoustic energy absorbing materials for gallium arsenide or cadmium telluride crystals. A layer of either a non-bonding acoustic energy coupling material (such as silicone grease or indium), or a coupling and bonding material (such as shellac) is disposed between each absorbing slab and the adjacent crystal face.

3,653,744

OPTICAL MODULATOR UTILIZING A SLOW WAVE CIRCUIT

Richard L. Comstock, San Jose; Kungta K. Chow, Sunnyvale, and William B. Leonard, Menlo Park, all of Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 22, 1970, Ser. No. 39,806

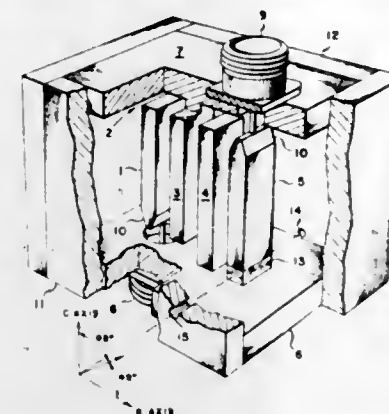
Int. Cl. G02f 1/18, 1/26

U.S. Cl. 350—160 R

4 Claims

A broadband microwave circuit is utilized to provide a microwave electric field to interact with an electro-optic crystal to attain wideband light modulation. The electro-optic crystal in the modulator device is positioned in the path of a

laser beam. The microwave electric field changes the ellipticity of polarization of the laser beam passing through the



electro-optic crystal. A polarization analyzer is used to convert the polarization modulation to intensity modulation.

3,653,745

CIRCUITS FOR DRIVING LOADS SUCH AS LIQUID CRYSTAL DISPLAYS

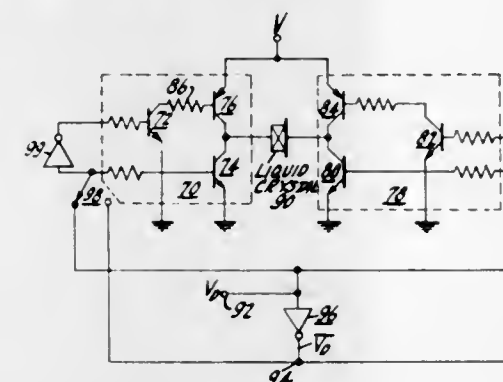
Roger Alain Mao, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed June 11, 1970, Ser. No. 45,508

Int. Cl. G02f 1/28

U.S. Cl. 350—160 R

15 Claims



A pair of amplifiers and a load such as a liquid crystal connected between the output electrodes of the amplifiers. In response to one relationship between the input signals to the amplifiers, an alternating turn-on voltage is applied via at least one of the amplifiers to the liquid crystal for causing it to scatter light. In response to another relationship between said input signals, the light scattering produced by the liquid crystal is reduced to a relatively low value.

3,653,746

ACOUSTO-OPTIC DEVICE

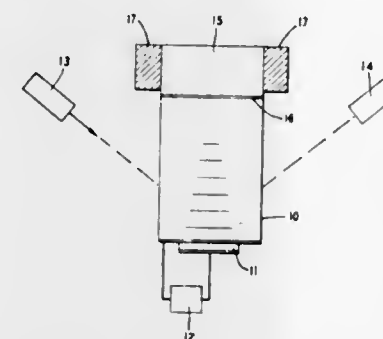
Arthur Woodward Warner, Jr., Whippany, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Oct. 19, 1970, Ser. No. 81,839

Int. Cl. G02f 1/34

U.S. Cl. 350—161

2 Claims



The specification describes an acousto-optic device comprising an acoustic medium of lead molybdate and an

acoustic-energy absorbing element of beryllium oxide. This combination of materials is optimized for several parameters including thermal expansion, thermal conductivity, mechanical impedance, and acoustic absorption.

3,653,747

FOCUSING DEVICE FOR COLOR TELEVISION CAMERAS

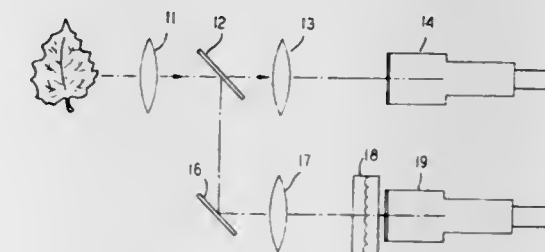
Herwig Werner Kogelnik, Fair Haven, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed Nov. 10, 1970, Ser. No. 88,277

Int. Cl. G02b 27/16

U.S. Cl. 350—171

4 Claims



A two camera Kell type color system has a lenticular array of cylindrical lenslets of material of refractive index n_2 overlaid by a material of refractive index n_1 , adjacent one camera where n_2 differs from n_1 in one region of the optical spectrum and is substantially equal to n_1 in another region of the spectrum.

3,653,748

COLOR DIVIDER FOR COLOR VIDEO CAMERAS

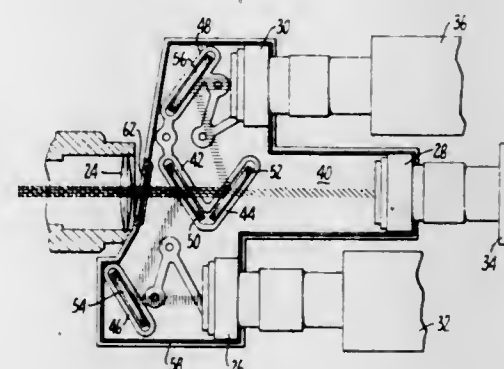
Skipwith W. Athey, Portola Valley, Calif., assignor to International Video Corporation, Mountainview, Calif.

Filed Dec. 26, 1968, Ser. No. 787,042

Int. Cl. G02b 27/14, 5/28

U.S. Cl. 350—171

4 Claims



A color divider for color video cameras in which color separation is obtained by interposing two dichroic mirrors in the optical path of the camera for reflecting two of the three primary colors out of the optical path. Two more mirrors reflect the initially reflected light along paths parallel to the optical path so that the three primary colors are directed along three parallel paths to three video detectors. The two additional mirrors are also dichroic mirrors which function to eliminate light of certain wave lengths from the light transmitted to two of the detectors so that ideal taking characteristics are obtained for the NTSC type color system without gelatin filters.

3,653,749

VARIABLE-MAGNIFICATION AFOCAL OPTICAL LENS SYSTEM

Motoaki Kawazu, Tokyo, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

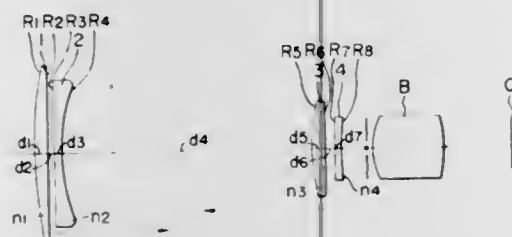
Filed Aug. 3, 1970, Ser. No. 60,699

Claims priority, application Japan, Aug. 2, 1969, 44/61217

Int. Cl. G02b 15/14

U.S. Cl. 350-184

2 Claims



A variable-magnification afocal optical lens system which may be used in combination with a photographic lens of a motion-picture camera using 8 mm film or a projection lens of a projector so that the compound focal length may be continuously varied with a zoom ratio of 2:1 and comprising two planoconvex lenses and two planoconcave lenses whose cost is comparatively low and arranged such that the image errors do not vary unacceptably in the shifting.

3,653,750

ROTATIONALLY SYMMETRIC OPTICAL COMPONENT COMPOSED OF AT LEAST TWO LENSES

Helmut Marx, Wetzlar, and Hermann Desch, Niederquembach, both of Germany, assignors to Ernst Lutz GmbH, Wetzlar, Germany

Filed Apr. 28, 1970, Ser. No. 32,588

Claims priority, application Germany, May 2, 1969, P 19 22 354.2

Int. Cl. G02b 3/04, 3/00, 11/00

U.S. Cl. 350-189

7 Claims



A rotationally symmetric component and method of producing it, for optical imaging systems having a quasi-spherical concave surface obtained as a result of cementing to a base lens a second lens, then grinding the combined lenses so that only an annular rim lens is left of the second lens, and optionally cementing thereto a third lens, and/or a fourth lens, while each time grinding and polishing the composite body to reduce the additional lenses to rim lenses, the radii and optical characteristics being of such a magnitude that the combined refractive characteristics resemble those of an aspherical surface.

3,653,751

OPTICAL SYSTEM HAVING FRESNEL SURFACES FOR IMAGING NEAR-AXIS POINTS WITHOUT MERIDIONAL COMA

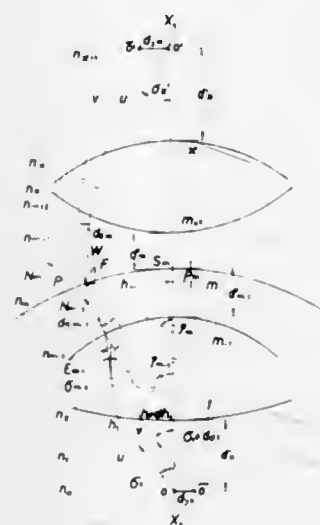
Christian Hofmann, and Jorg Neumann, both of Jena, Germany, assignors to Jenoptik Jena G.m.b.H., Jena, Germany

Filed Sept. 5, 1969, Ser. No. 869,987

Int. Cl. G02b 3/08

U.S. Cl. 350-211

11 Claims



An imaging optical system comprises at least one Fresnel face, which is such that the entire system images aplanatically.

ERRATUM

For Class 351-113 see: Patent No. 3,654,376

3,653,752

MOTION PICTURE CAMERA

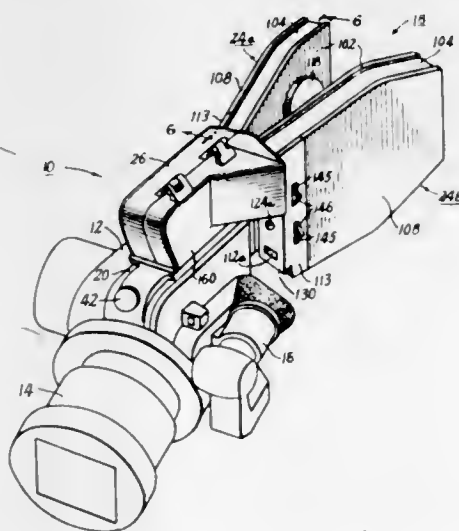
Anton Wilson, Yonkers, N.Y., assignor to Anton Bauer, Norwalk, Conn.

Filed Sept. 30, 1970, Ser. No. 76,960

Int. Cl. G03b 23/02

U.S. Cl. 352-72

33 Claims



A manually supported motion picture camera having a housing, a viewfinder eyepiece on one side of the housing and an access opening at its top surface through which film may pass along supply and takeup paths of travel has a hollow throat member whose base connector portion is seated in and operably connected to the camera access opening; the throat member includes a rear wall having angularly related wall portions which are located beyond the rear of the

3,653,754

OVERHEAD PROJECTOR

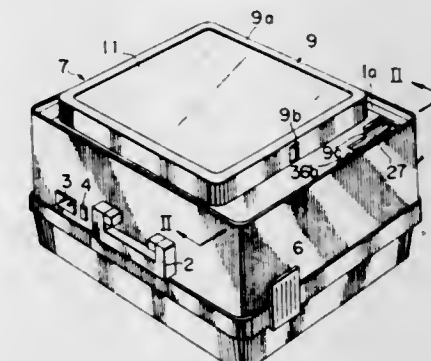
Elnemi Yamanaka, Kawaguchi-shi, Japan, assignor to Cabin Kogyo Kabushiki Kaisha, Japan

Filed Dec. 29, 1969, Ser. No. 888,313

Int. Cl. G03b 21/16

U.S. Cl. 353-61

5 Claims



camera, one of the wall portions extends generally perpendicularly to the longitudinal axis of the throat and the other wall portion is positioned at an acute angle to the first wall portion and extends toward the camera on the side of the eyepiece; a first magazine adapted to contain film to be supplied to and exposed in the camera is secured to one of the rear wall portions and a second magazine, adapted to takeup film from the camera as it is exposed, is secured to the other of the wall portions in an angular relation to the first film magazine; the magazines extend rearwardly from the camera and throat member to provide a counterbalance force to the weight of the camera when the camera is placed against the shoulder of a photographer during use and the throat member has a plurality of guide rollers rotatably mounted therein at predetermined angularly related positions for guiding the film from the supply magazine through the throat to the camera and for guiding the exposed film from the camera as it is returned through the throat to the takeup magazine.

3,653,753

OPTICAL SHUTTER SYSTEM AND METHODS RELATED THERETO

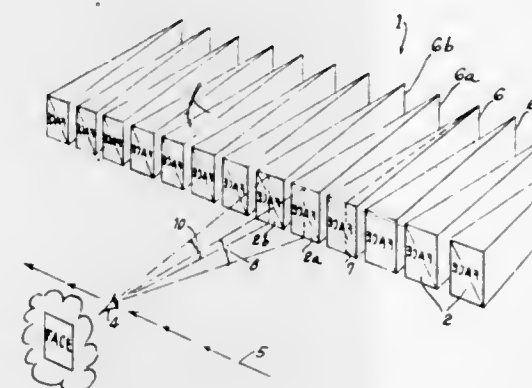
Robert W. Mitchell, St. Joseph, Mich., assignor to Seneca Plastic Limited, Toronto, Canada

Filed July 22, 1970, Ser. No. 57,086

Int. Cl. G03b 17/02

U.S. Cl. 352-100

25 Claims



An optical shutter system and methods of establishing the relative positions of the elements of the system are disclosed for use in simulated animated displays, in enabling viewing an image where the viewer and image are moving relative to one another at a rapid rate, and in related applications. A series of images which may be progressively varied and carried on transparencies are associated with the optical shutter system. The shutter system includes a linear light source and a pellucid sheet and may include one or more reflective surfaces selectively oriented with respect to the transparencies on the side of the transparency opposite the viewer. When there is effective relative movement between the viewer and the transparencies, the light appears to sweep across each transparency, progressively illuminating linear adjacent segments of each image; thus the viewer perceives a motion picture composed of the progressively illuminated image segments.

Methods are also disclosed for establishing the orientation of the elements of the optical shutter system relative to each other and to the transparency to be observed. The methods take into account the range of expected viewing distances and the dimensions of the transparency, as well as the space available in varying environments for mounting the system, the light intensity desired and the repetition rate required for optimum viewing.

3,653,755

COPY SHEET TRANSPORT APPARATUS

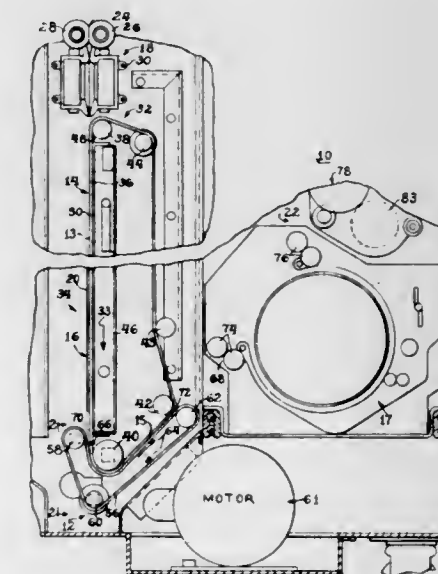
Arthur S. Serfahs, Elk Grove, and Robert C. Patzke, Prospect Heights, both of Ill., assignors to Addressograph-Multi-graph Corporation, Mount Prospect, Ill.

Filed Mar. 12, 1970, Ser. No. 18,869

Int. Cl. G03g 15/00

U.S. Cl. 355-3

15 Claims



Apparatus for transporting electrostatically charged and/or imaged copy sheet material in an electrostatic copier is disclosed. The apparatus includes an endless transport member having an exterior surface fabricated of a non-conductive, piled, moisture resistant material, preferably of nylon, orlon, or dacron. A copy sheet is transported with the charged and/or imaged surface thereof in contacting relation with the exterior surface of the transport member to minimize the dissipation of the charge from the copy sheet surface while in transit.

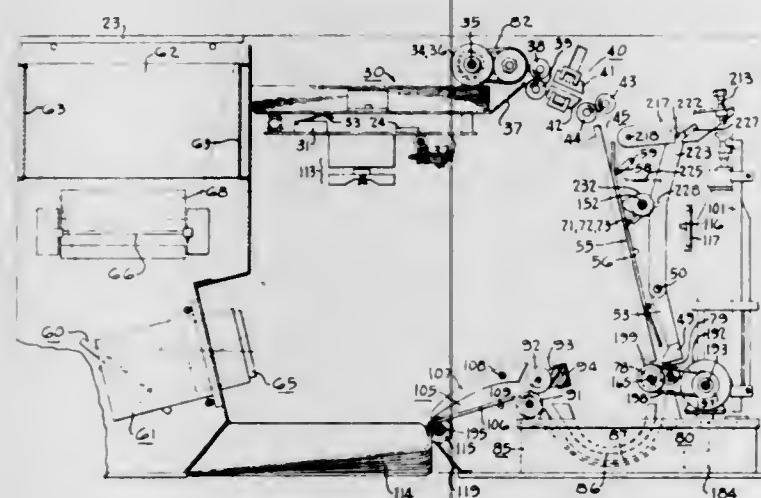
3,653,756

MECHANICALLY ACTUATED PHOTOCOPY MACHINE
Eugene F. Mielnikowski, Jr., Morristown; Frank L. Kratcoski, Dover, and Gerardo M. La Morte, Newark, all of N.J., assignors to Dynagraphic Systems, Inc., Cedar Knolls, N.J.

Filed July 15, 1968, Ser. No. 745,019
Int. Cl. G03g 15/00

U.S. Cl. 355—3

14 Claims



A photocopy machine having a plurality of stations performing a sequence of operations in a single copying cycle, the sequence of the operations being controlled by a series of cam mechanisms, all of which are actuated by a single drive means. A multiple station indexing means is provided for engaging the drive means from one to a finite number of times upon completion of each copy cycle.

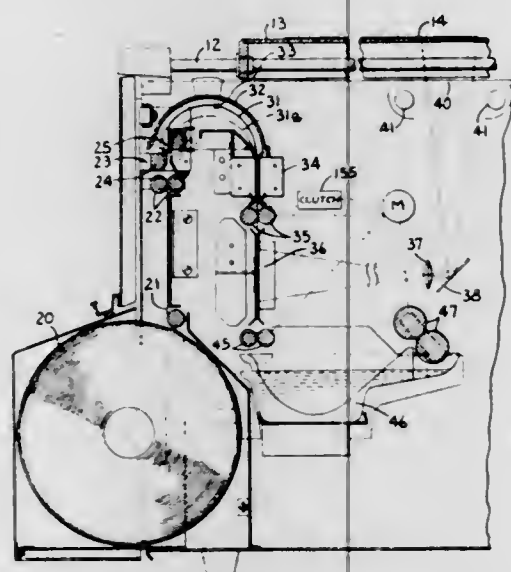
3,653,757

WEB FED PHOTOCOPY MACHINE HAVING IMPROVED LENGTH SETTING AND CUTTING MEANS
Harley M. Newcomb, Bensenville, Ill., assignor to APECO Corporation

Filed Feb. 5, 1970, Ser. No. 8,983
Int. Cl. G03g 15/00

U.S. Cl. 355—13

13 Claims



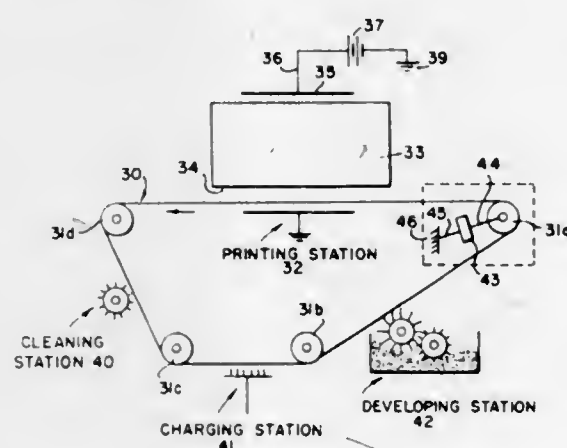
A photocopy machine in which a web of photocopy paper is fed from a supply roll and in which a length setting mechanism, manually settable to the length of the original document on a moving table, upon movement of the table, operates an oscillatory cutting mechanism to produce a copy sheet of the same length as the original document without affecting the speed of movement of the copy sheet through the machine.

3,653,758

PRESSURELESS NON-CONTACT ELECTROSTATIC PRINTING

Donald S. Trimmer, and Walter B. Bliener, both of Baltimore, Md., assignors to Frye Industries, Inc., New York, N.Y.

Filed July 10, 1970, Ser. No. 53,938
Int. Cl. G03g 15/00; B05b 5/00; B05c 11/00
U.S. Cl. 355—16 21 Claims



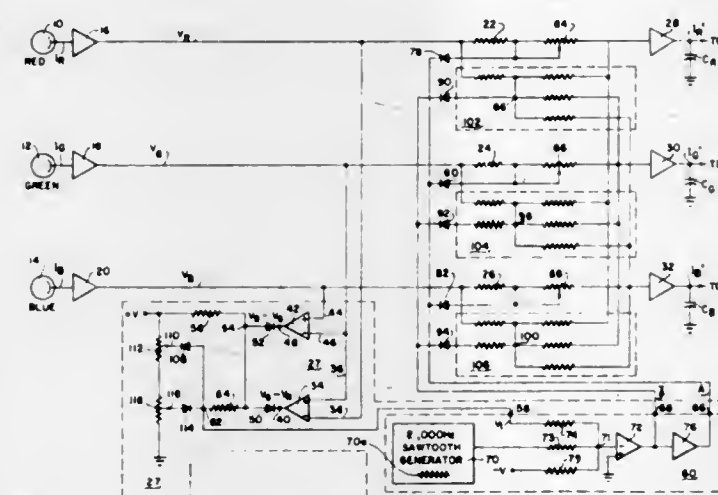
A pre-determined, non-random electrostatic image is formed and developed on a thin, flexible plate about 0.0005 to about 0.050 inch thick. A substrate to be printed is positioned facing but spaced apart from this pre-formed image of particles, and an electrostatic field is established therebetween. The field is of insufficient strength to dislodge the image of particles from the thin plate, but of sufficient strength to transfer the image to the substrate once it is dislodged from said thin plate. The additional force required to dislodge the particles is supplied by imparting ultrasonic flexural shock waves to the thin plates. The dislodging effect of the shock waves is enhanced by exciting the vibratory system at a resonance frequency of said system. The electrostatic attraction between the image of particles and the thin plate serves to minimize any tendency for relative lateral movement of the particles upon application of the ultrasonic shock waves, thereby causing the particles to be propelled directly outward from the thin plate in their desired image configuration and permitting the reproduction of the image with superior clarity and sharpness on the spaced-apart substrate. By sweeping the driving frequency through a range including a resonance frequency of the vibratory system, several distinct resonances of the thin plate will be effected, thereby superimposing several nodal patterns on said thin plate so as to minimize variations in the particle intensity of the reproduced image and further enhancing the quality of said image. For continuous operations, the thin plate is conveniently employed in the form of a rotatably mounted continuous belt, with a cleaning station, a charging station, a development station, and an image transfer station positioned along the path of rotation. A metallic belt may be employed with a non-conductive image formed thereon by coating the plate with a light sensitive photo-resist material, exposing the coating to light through a negative of the desired image and developing the thus exposed image by dissolving the unexposed, non-image areas with an organic solvent. The flexural waves may be generated in the thin plate by a piezoelectric crystal system. When the thin plate is used in the form of a continuous belt, the piezoelectric crystal system may conveniently be affixed or otherwise connected to one of the belt-supporting rollers. The piezoelectric crystals may also be incorporated as an integral part of such a roller for greater convenience and control in continuous printing operations. Excitation of the crystal system can occur nearly instantaneously when the printing gap is less than about one-eighth inch. At about three-sixteenth inch or more, the amplitude of the excitation signal may be increased slowly, and the driving frequency may be swept slowly to limit the instantaneous toner current in the gap and avoid mutual repulsion of particles and some distortion of the reproduced image.

3,653,759

AUTOMATIC CONTROL OF COLOR CORRECTION OF PHOTOGRAPHIC PRINTERS

William C. Klein, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 8, 1970, Ser. No. 96,039
Int. Cl. G03b 27/78
U.S. Cl. 355—38 14 Claims



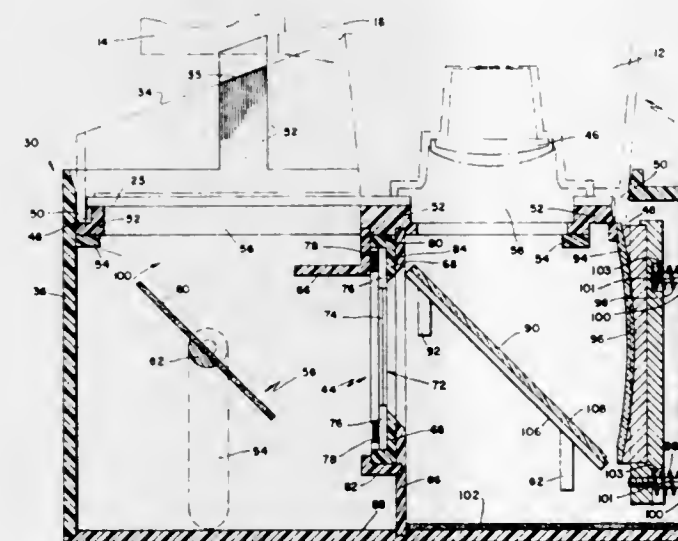
Apparatus for controlling and continuously varying the color correction level of the printing beam of a color printer from a low color correction level to a high color correction level in proportion to the detected red, green and blue LATD's of the negative. A color balanced negative is printed with low color correction. A higher degree of color correction is automatically applied in accordance with the degree of imbalance of the color composition of the negative; and a high color correction level is applied to alter the color composition of the printing beam when the negative exhibits an illuminant failure.

3,653,760

APPARATUS FOR COPYING PHOTOGRAPHIC TRANSPARENCIES

Bruce K. Johnson, Andover, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 18, 1970, Ser. No. 99,348
Int. Cl. G03b 27/62
U.S. Cl. 355—39 19 Claims



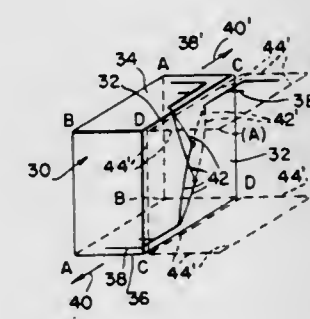
Photographic apparatus for copying the image of a scene recorded upon a photographic transparency used in conjunction with a camera of the self-developing variety having a mounted source of artificial illumination. The apparatus directs light from the source along a folded optical path and

into the camera lens. A concave mirror is positioned within the path optically coaxial with the camera lens and the transparency and serves to magnify the image thereof without aberration.

3,653,761

OPTICAL SYSTEM

John Wilbur Hicks, Jr., P.O. Box 246, Sturbridge, Mass.
Filed Mar. 10, 1970, Ser. No. 18,264
Int. Cl. G03b 27/32, 32/00
U.S. Cl. 355—51 11 Claims



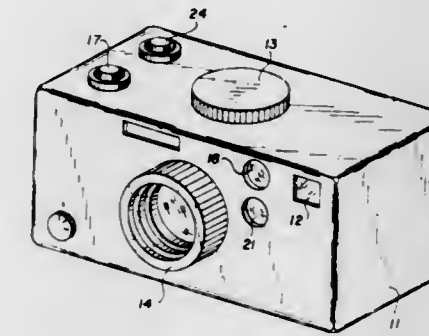
An optical system for use in a copy machine or the like is described as including an optical element for use with an image receiving medium and an image original medium such that an image from the image original medium is propagated through the element, lens inverted by the element, and mirror reversed by the element to impinge upon the image receiving medium.

3,653,762

AUTOMATIC RANGEFINDER

Donald M. Harvey, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 28, 1970, Ser. No. 76,081
Int. Cl. G01c 3/08
U.S. Cl. 356—4 12 Claims



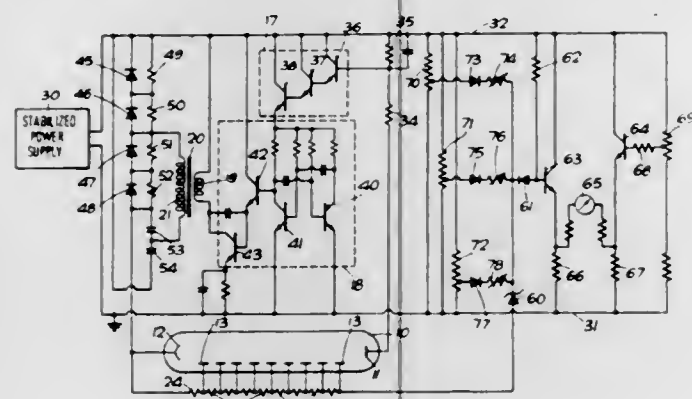
Apparatus is disclosed for positioning an objective lens to focus an image of an object in a film plane which includes means for projecting a contrast pattern on the object, and a second lens for receiving and transmitting light reflected from the object to form an image of the contrast pattern upon a photocell. The photocell has a particular discernable output when the image is focused on the photocell. The apparatus also includes a mechanism for varying the distance between the second lens and the photocell to focus the image formed by the second lens upon the photocell and means responsive to the particular discernable output to position the objective lens so that the image of the object formed by the objective lens is focused in the film plane.

3,653,763

APPARATUS FOR THE MEASUREMENT OF ULTRA-VIOLET, VISIBLE AND/OR INFRA-RED RADIATION
Arthur Gordon Davies, London, England, assignor to Medical and Electrical Instrumentation Company, London, England
Filed May 4, 1970, Ser. No. 34,344

Claims priority, application Great Britain, May 5, 1969, 22,882/69

Int. Cl. G01n 21/34; G01j 3/00; G01n 21/06
U.S. Cl. 356-51 11 Claims



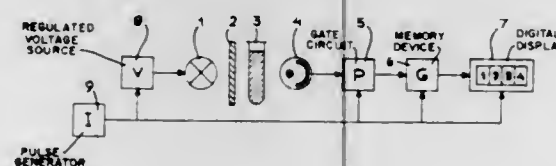
A radiation measuring device for ultra-violet, visible or infra-red radiation, particularly suitable for use in a color analyser for photographic printing has a photomultiplier tube with a current sensing resistor in the anode circuit. The voltage across this resistor is used to control the amplitude of oscillation of an oscillator which, via a step-up transformer and rectifier circuit, provides E.H.T. for the tube. The E.H.T. voltage is thus controlled to maintain the anode current sensibly constant. The controlled E.H.T. voltage also is applied to the bleeder resistor chain for the dynodes of the photomultiplier tube, which resistor chain, with a series measuring resistor, forms a potential divider; the voltage across the measuring resistor is proportional to the logarithm of the light intensity and a temperature compensated correction circuit is provided to improve the linearity of this relationship. The voltage across the measuring resistor is applied to one input of a differential voltage measuring circuit having, in the case of a color analyzer, a second input from potential sources switched in synchronism with the color filter selection.

3,653,764

COLORIMETER

Imre Schodl, Delft, Netherlands, assignor to Arie Hendrik Gerrit Van Leeuwen, Delft, Netherlands
Filed Jan. 22, 1970, Ser. No. 4,929

Int. Cl. G01n 21/00; G01j 3/46, 3/48
U.S. Cl. 356-72 3 Claims

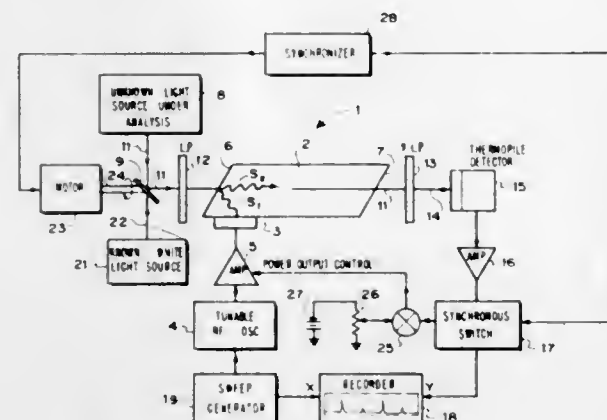


This invention relates to a colorimeter with a light source which through a sample to be investigated illuminates a photo-electric transducer, the output of which is connected to a measuring device for measuring the intensity of the transmitted light. The light source is operated from a supply source which is effective to intermittently energize and de-energize the light source, the de-energized periods of the light source being at least as long as the energized periods.

3,653,765

ACOUSTO-OPTIC LIGHT SPECTRUM ANALYSIS
John R. Hearn, Los Altos Hills, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed June 17, 1970, Ser. No. 47,044
Int. Cl. G01j 3/28, 3/32
U.S. Cl. 356-81 2 Claims



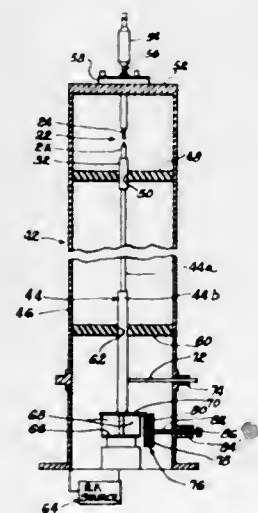
An acousto-optic light spectrum analysis method and apparatus is disclosed. A linearly polarized unknown light beam to be spectrum analyzed is collinearly diffracted on an acoustic wave in an optically anisotropic medium to diffract light of the first linear polarization and of a frequency related to the frequency of the acoustic wave into light of a second polarization. The diffracted unknown light beam is polarization analyzed to separate the light of the second polarization from the light of the first polarization. The frequency of the acoustic wave is swept and the light of the second polarization is detected as a function of the sweep to obtain a spectrum analysis of the unknown light beam. The output spectrum of the unknown light beam is calibrated by switching a known light source through the acousto-optic system for calibration of the output spectrum.

3,653,766

CURRENT-INJECTION SPARK SOURCE FOR EMISSION SPECTROSCOPY

John P. Walters, Madison, Ws., and Thomas V. Bruhns, Lacey, Wash., assignors to Wisconsin Alumni Research Foundation, Madison, Ws.

Filed Feb. 4, 1970, Ser. No. 8,462
Int. Cl. G01j 3/30
U.S. Cl. 356-86 24 Claims



An analytical spark gap is provided between the conductors of a resonant line at one end thereof. The other end of the line is connected to a radio frequency power source which can be electronically pulsed. The conductors of the

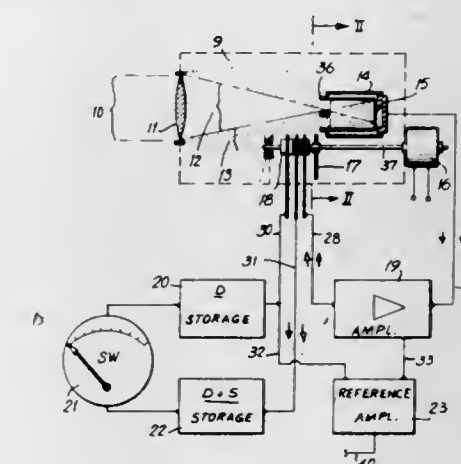
3,653,768

APPARATUS FOR MEASURING THE RANGE OF VISION BY COMPARING A DIRECT AND DISPERSED BEAM OF LIGHT

Franz Menke, Neckargemund, Germany, assignor to Eltro GmbH & Company, Heidelberg, Germany

Filed Feb. 16, 1971, Ser. No. 115,432
Claims priority, application Germany, Feb. 14, 1970, P 20 06 882.0

Int. Cl. G01n 21/00, 21/26, 21/22
U.S. Cl. 356-104 7 Claims



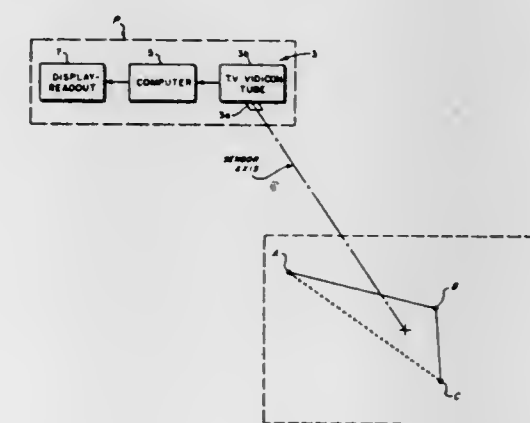
A method and apparatus is disclosed which is usable in measuring the range of vision and comprises emitting a light beam from a transmitter for reception by a distant photoelectric receiver and indication on an indicator. A diaphragm serves to alternately feed to the receiver the direct light beam from the transmitter, and the combination of the direct light beam and a dispersed beam and the intensities of the signals are compared and indicated by the indicator.

3,653,769

STADIAMETRIC RANGING SYSTEM

John D. Albright, Beltsville, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 6, 1970, Ser. No. 17,272
Int. Cl. G01b 11/26
U.S. Cl. 356-141 2 Claims



line are preferably in the form of inner and outer coaxial cylinders. The spark gap is preferably between a first electrode at one end of the inner conductor and a second axial electrode connected by means of an end wall to the outer electrode. A current injection input lead is connected to an intermediate point along the line, so as to provide an effective length of one-quarter wavelength between the injection point and the spark gap. In this way, a node is produced at the injection point. Around the spark gap, the outer conductor forms a cylindrical chamber, in which acoustical resonances are set up, with resulting stabilization of the spark in that the spark is held stationary in an axial position. Optical resonance can also be produced within the chamber by providing a cylindrical mirror on the inside of the outer cylindrical conductor around the spark gap.

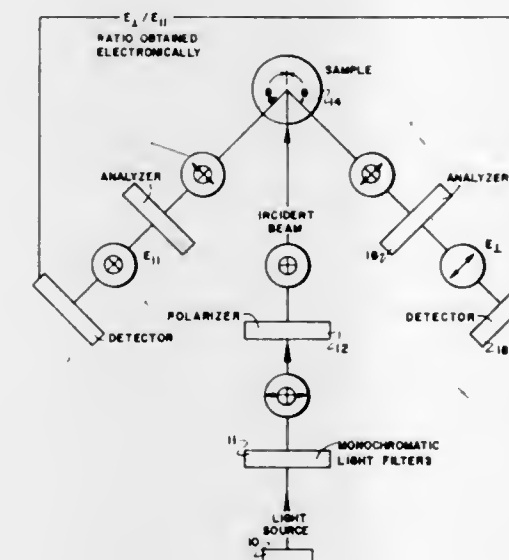
3,653,767

PARTICLE SIZE DISTRIBUTION MEASUREMENT USING POLARIZED LIGHT OF A PLURALITY OF WAVELENGTHS

John W. Liskowitz, Belle Meade, N.J., assignor to American Standard Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 629,568, Apr. 10, 1967, now abandoned. This application Nov. 12, 1968, Ser. No. 774,894

Int. Cl. G01n 15/02, 21/00, 21/40
U.S. Cl. 356-102 3 Claims



This invention relates to the determination of particle size distributions in fluid mediums; and more particularly, to the use of a system in which polarized light is scattered by the particles and therefore depolarized, and the degree of depolarization is related to the particle size and wave-length of the light. In one form of the invention, the intensity of light which has its optical axis normal to that of the polarized light and which has been scattered in a backward direction, is measured and compared with the intensity of light which has its optical axis parallel to that of the polarized light and which has been scattered in the aforesaid direction. The ratio of the intensity of the normal polarity light to the parallel polarity light represents the degree of depolarization of the scattered light. The wave-length of the polarized light is varied while the concentration of particles in the fluid is held in constant. The particle size distribution is determined from changes in the degree of depolarization.

Subject disclosure relates to a novel and improved system for determining the range and aspect of an aircraft or any other vehicle moving in three dimensions in relation to a fixed point. The system includes a fixed isosceles right triangular pattern laid out on the ground or on another suitable reference plane, an energy sensor detector on the aircraft that develops an image of triangular pattern, and determines the coordinates of the apices of the pattern, a computer on the aircraft that performs predetermined mathematical operations on the apex coordinate data from the sensor de-

detector and a readout device on the aircraft that continuously provides range and aspect data that defines the position of the aircraft.

3,653,770

APPARATUS FOR MEASURING THE DIMENSIONS OF OBJECTS

Hiroshi Yamamuro, Yokohama, Japan, assignor to Tokyo Shibaura Co., Ltd., Kawasaki-shi, Japan

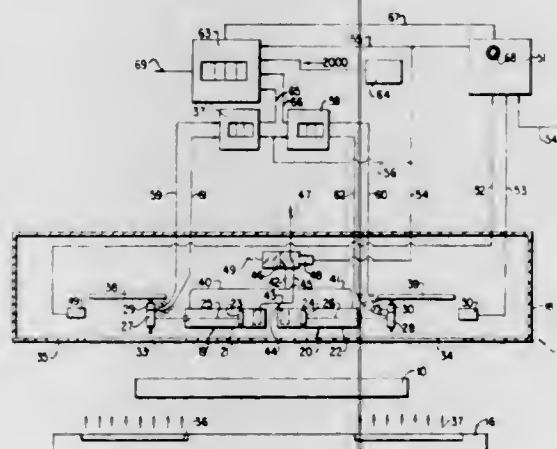
Filed June 2, 1970, Ser. No. 42,808

Claims priority, application Japan, May 12, 1969, 44/35993

Int. Cl. G01b 11/04; G01n 21/30

U.S. Cl. 356-160

7 Claims



Apparatus for measuring the dimensions of objects including elongated light sources within a measuring zone with the opposite ends of each of the light sources being arranged over each of the edge portions of a sheet of web material to be measured. The light sources are positioned adjacent one side of the web material in a non-contact relationship such that the lengthwise direction of the light sources is positioned so as to coincide with the widthwise direction of the web. A pair of photoelectric transducers are provided adjacent the opposite side of the web in a non-contact relationship therewith such that the transducers are permitted to move along the lengthwise direction of the light sources when measuring the width of the web. A pair of magnetic reproducing heads are provided to move simultaneously with the photoelectric transducers when the web is being measured. A pair of magnetic scale members are provided and extend for a distance which corresponds to the length of movement of the magnetic reproducing heads. A pair of first registers are provided for counting during the period of time that the light beams emanating from the light sources are interrupted by the web whose width is being measured. The registers, when in operation, will count a plurality of marks which are magnetically recorded on the magnetic scale members as the magnetic reproducing heads move therealong. A second register is provided for counting an algebraic sum of reference pulses representing a predetermined width of web material and both pulses emanated from the pair of first registers.

3,653,771

METHOD AND DEVICES FOR THE DETERMINATION OF COLORS AND COLOR TOLERANCES IN A VISUAL MANNER IN ANY KIND OF ARTIFICIAL LIGHT OR SUNLIGHT

Fritz Piringer, Stiege 10, 13 Graf Starhemberg-gasse, Vienna, Austria

Continuation of application Ser. No. 262,985, Mar. 5, 1963.

This application Oct. 29, 1969, Ser. No. 872,427

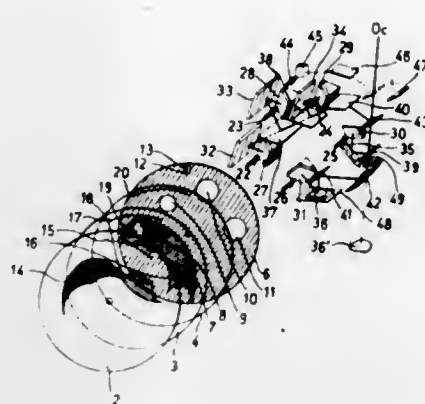
Int. Cl. G01j 3/46

U.S. Cl. 356-194

26 Claims

Color evaluation of a color sample is effected by producing in a simultaneous field of vision a plurality of separate color comparison regions each differing in color slightly from one

another and juxtaposed with a multiplicity of images of a single small area of a color sample. The color of the sample images can be compared simultaneously with the colors of



the comparison regions and a color attribute of the comparison regions varied until visual correspondence is obtained between the sample color and one of the comparison regions.

3,653,772

TWO LAMP LIGHT COMPARISON TYPE DENSITOMETER

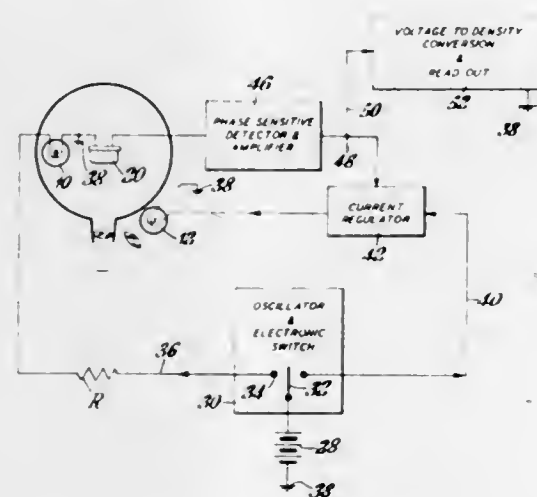
Ralph L. Berge, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.

Filed Aug. 19, 1969, Ser. No. 851,320

Int. Cl. G01n 21/22, 21/48

U.S. Cl. 356-205

2 Claims



Two lamps are lighted alternately at controlled intensities, both lamps illuminate a common sensor and the light path from one lamp includes the density to be measured. When a minimum differential is detected, the ratio of the currents in the lamps is a function of the density being measured and current in either one or both lamp is servo-controlled to minimize the differential. The current or voltage ratios are converted and read out as density values.

3,653,773

ANALYTICAL APPARATUS AND METHOD FOR SMOKE AND GASES

Elbert B. Childs, Hastings-On-Hudson, N.Y., assignor to Mobil Oil Corporation

Filed Mar. 16, 1970, Ser. No. 19,584

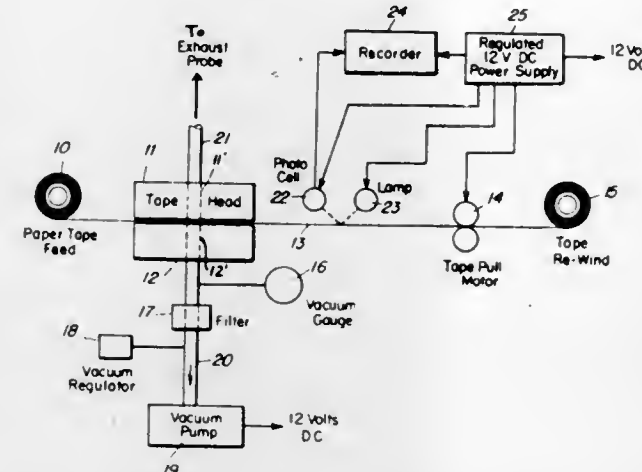
Int. Cl. G01n 21/28

U.S. Cl. 356-207

8 Claims

Smoke is passed through a moving filter tape, and the darkness of the filtered trace due to solid, non-white con-

taminants is readout by photo-electric means. At least one resettable counter is provided to register the number of times



the smoke exceeds a smoke level for a predetermined period of time.

3,653,774

IMPROVEMENT OF OBSERVATION-AND-MEASURING THEODOLITE COMBINED WITH A PLURALITY OF STATIONARY EVALUATION DEVICES

Ulrich La Roche, Zurich, Switzerland, assignor to Contraves AG, Zurich, Switzerland

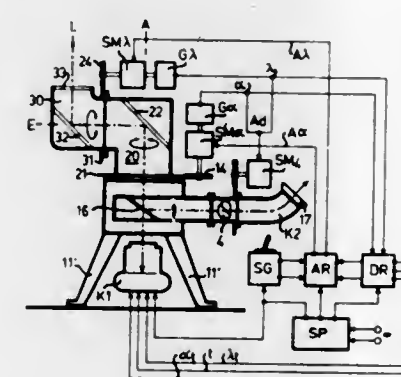
Filed Apr. 27, 1970, Ser. No. 32,122

Claims priority, application Switzerland, Apr. 30, 1969, 6574/69

Int. Cl. G01j 1/20; G02b 27/32

U.S. Cl. 356-254

7 Claims



An observation-and-measuring theodolite for moving objects which is of the type having at least one image evaluation device which can be directed at each section of a spherical segment surrounding the theodolite. There is provided servomotor means for rotating a housing about a stationary substantially vertical axis of rotation, with a first reflector surface being mounted in said housing at an inclination of 45° with respect to said axis of rotation. Further, an attachment housing is rotatably mounted at the aforesaid housing, this attachment housing possessing a light entry or passage window, and a second reflector surface is mounted in the attachment housing behind said light passage window. This second reflector surface is arranged at an inclination of 45° with respect to a horizontal axis passing through the center of said first reflector surface, with said first reflector surface being situated opposite said second reflector surface. Servomotor means serve to rotate the attachment housing about the horizontal axis connecting the centers of both reflector surfaces, and there is also provided at least one stationary evaluation device. The system is arranged such that light from each spherical segment section, towards which there is momentarily directed the light passage window in front of the

second reflector surface, is reflected in the direction of the horizontal connection axis of the centers of both reflector surfaces and at said first reflector surface this light is reflected in the direction of its vertical axis of rotation and then is delivered to said at least one stationary evaluation device.

3,653,775

INSTRUMENTS TO SUPPLEMENT AND TAKE THE PLACE OF HANDS

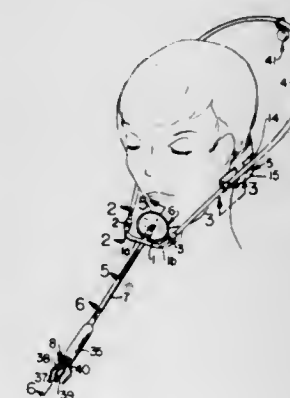
James W. Ross, 4698 Zion Road, Cleves, Ohio

Filed Sept. 8, 1970, Ser. No. 70,384

Int. Cl. B43k 31/00

U.S. Cl. 401-6

42 Claims



An instrument to supplement and take the place of hands. The instrument comprises a support means surrounding the operator's head with a first portion of the support means contacting the back of the operator's head and a second portion of the support means positioned ahead of the operator's chin. Tool holding means is affixed to the second portion of the support means and extends forwardly thereof. A tool is supported by the tool holding means. A tool actuator is affixed to the second portion of the support means and extends rearwardly thereof and in a position contactable by the operator's chin. The tool actuator is operatively connected to the tool whereby the tool may be manipulated by movement of the operator's head and through the interaction of the tool actuator and the operator's chin.

3,653,776

CARTRIDGE-TYPE LIPSTICK CONTAINER OR THE LIKE

Robert C. Geisel, Windsor, Conn., assignor to Eyelet Specialty Company, Wallingford, Conn.

Filed Jan. 7, 1970, Ser. No. 1,114

Int. Cl. A45d 40/06

U.S. Cl. 401-86

9 Claims



The invention contemplates an improved refill cartridge and insert construction for use in lipstick containers involving outer decorative casings, the insert being permanently assembled into the bore of the base of the outer decorative casing. The particular feature of the invention resides in locking

or detent action between a part of the base end of the refill cartridge and an inwardly projecting insert part which also has keyed rotary driving engagement with the base end of the cartridge. The nature of the action is such as to permit smooth insertion and removal of the cartridge with minimum transient distortion of the outer decorative casing. No residual stress is applied to the casing once the insertion or the removal of the cartridge has been completed.

3,653,777

CONTROL MECHANISM

Helmut Bross, Altenberg über Nuremberg, Germany, assignor to J. Firma Jacob-Ritter KG, Brenshach Odenwald, Germany

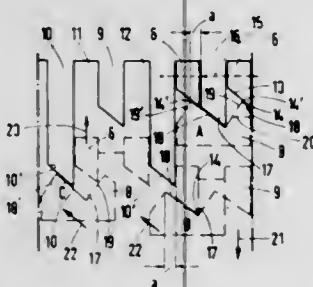
Filed Feb. 14, 1968, Ser. No. 705,328

Claims priority, application Germany, July 22, 1967, B 93619

Int. Cl. B43k 5/16

U.S. Cl. 401-110

16 Claims



The invention provides a control mechanism for the advancing and withdrawal of a functioning part displaceable in a housing against or under the influence of a spring and for locking the part alternately in an advanced and withdrawn position. The mechanism is of a construction which enables it to be made relatively small and of a few parts, e.g. of injection molded plastic, so as to take up little space and is particularly suitable for use in a writing implement for advancing and withdrawing a writing cartridge within the housing of the implement.

3,653,778

APPLICATOR DEVICE FOR TOOTHPASTE DISPENSERS OR THE LIKE

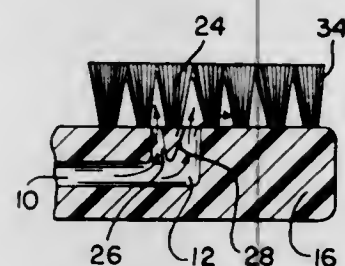
John Robert Freiling, 4623 Davis Road, Perry, Ohio

Filed Apr. 16, 1970, Ser. No. 29,023

Int. Cl. A46b 11/02; B43m 11/06

U.S. Cl. 401-183

7 Claims



A disposable applicator device for use with toothpaste dispensers or the like including an elongated body having a bristle portion at one end and adapted to be detachably connected at its other end to a dispenser. The body including a passageway communicating the dispenser with the bristle portion. Orifice means including a baffle-like construction disposed in said passageway for selectively controlling the distribution of fluid material delivered from the dispenser to the bristle portion. A cap-like closure is detachably mounted over the bristle portion adapted to provide a protective cover therefor.

3,653,779

DISC VALVE FOR APPLICATOR

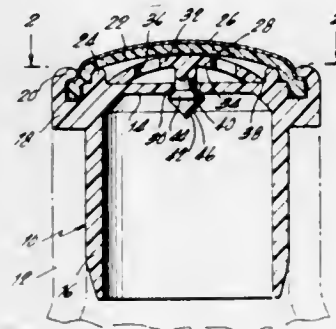
Gilbert Schwartzman, 20 Willmot Circle, Scarsdale, N.Y.

Filed Mar. 30, 1970, Ser. No. 23,910

Int. Cl. B43m 11/06

U.S. Cl. 401-206

3 Claims



A fluid applicator comprising a retainer ring adapted to be seated in a container and having a peripheral flange which not only serves to hold a cover in place, but also maintains a disc valve assembly in a bowed convex position. The disc valve assembly engages the cover to normally hold the cover in a dome-like shape and has a depending stem which extends through an opening in the retainer ring and a valve head below the retainer ring normally urged into engagement with the retainer ring for controlling fluid flow.

3,653,780

TAPPING TOOL

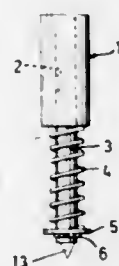
Salvatore Ammatuna, 2859 Regnart Way, Santa Clara, Calif.

Filed Dec. 10, 1969, Ser. No. 883,813

Int. Cl. B23g 1/00, 1/48; B23b 23/04

U.S. Cl. 408-241

1 Claim



A manually actuatable tapping tool for use with a conventional threading tap, polysided at one end for a common hand stock having the usual conical sided recess or point on the axially facing surface of said end, said tool having a tubular sleeve for clamping within a chuck on a milling machine, drill press, lathe, and the like. A spindle reciprocable within said sleeve has a projecting end complementarily formed relative to said recess or point for engagement therewith for holding and aligning said tap and spindle, and a compressible spring around said spindle reacts between a radial projection on said tap and said sleeve to yieldably maintain said alignment and the engagement between said tap and spindle, when said sleeve is clamped within said chuck and the cutting end of the tap is in a hole to be threaded and when said spring is compressed.

3,653,781

TURBOMACHINERY BLADE RETAINER

James Lee Cooper, Cincinnati, Ohio, assignor to General Electric Company

Filed Dec. 18, 1970, Ser. No. 99,391

Int. Cl. F01d 5/32

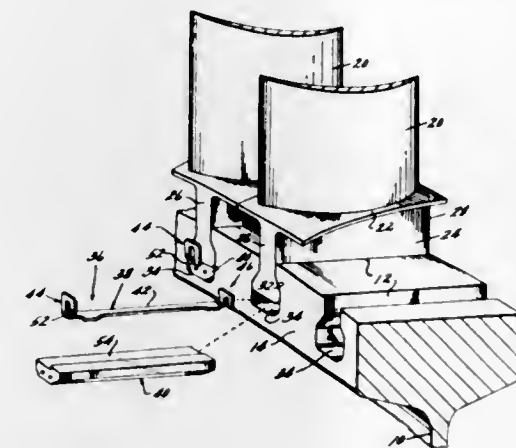
U.S. Cl. 416-221

4 Claims

Means for retaining a blade in a turbomachinery rotor includes a locking clip and a spacer. The clip includes

preformed legs at each end which are adapted to abut the opposite sides and ends of the disc and blade root. One leg includes a preformed tab for retaining the spacer and is sized

that passage thereby generates an output signal. The angular position of the second signal pickup is selectively varied to vary the time interval between signals and thus the time



to permit insertion of the clip under the blade. The other leg includes a tab which is formable from a position enabling insertion of the spacer under the blade to a position abutting and locking the spacer.

3,653,782

LOW OIL PRESSURE CONTROL SYSTEM FOR AIR COMPRESSORS

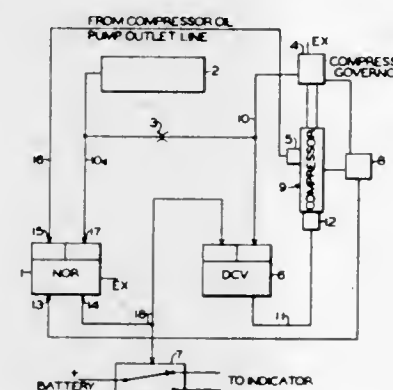
Ronald W. Colner, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed May 25, 1970, Ser. No. 40,145

Int. Cl. F04b 49/00

U.S. Cl. 417-12

2 Claims



A low oil pressure protection system for an air compressor control wherein a logic device is utilized to render said compressor inoperable when low oil pressure occurs, and timing means actuated during normal restarting cycles of the compressor after normal governor controlled stopping, to override protection control by said logic device.

3,653,783

COMPRESSOR OUTPUT CONTROL APPARATUS

Earl R. Sauder, Mt. Vernon, Ohio, assignor to Cooper Industries, Inc., Houston, Tex.

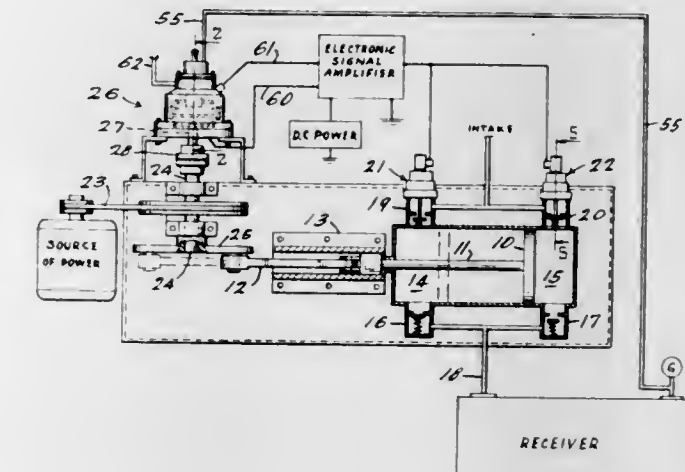
Filed Aug. 17, 1970, Ser. No. 64,398

Int. Cl. F04b 49/02

U.S. Cl. 417-298

11 Claims

A control apparatus for selectively varying the output of a reciprocating compressor by holding open its suction valves for variable periods during the piston cycle. The apparatus includes a signal generating means for applying successive signals to a transducer which holds open the suction valves for a period proportional to the interval between signals. The signal generator has a rotating bar driven in timed proportion to crankshaft speed and first and second signal generating pickups positioned adjacent the path of the rotating bar so



within the piston cycle that the compressor is unloaded. The angular position can be manually varied or automatically varied in response to changes in compressor output through a fluid pressure responsive actuator.

3,653,784

PROPORTIONATING FEED PUMP

Wulf Leiternann, and Gerhard Maurhoff, both of Neckarsulm, Germany, assignors to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm, Germany

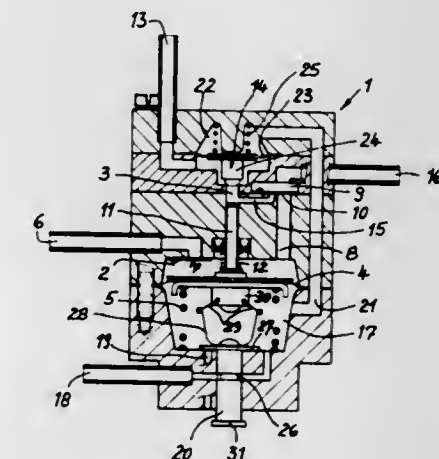
Filed June 16, 1970, Ser. No. 46,778

Claims priority, application Germany, June 18, 1969, P 19 30 811.3

Int. Cl. F04b 9/00

U.S. Cl. 417-317

2 Claims



The invention relates to a proportioning pump for feeding at least two different liquids in a definite flow proportion. The pump has two interconnected displacement members executing their suction strokes and their delivery strokes simultaneously, each of which members is arranged in its own working chamber communicating with a suction and a pressure line by oppositely acting check valves. In accordance, with a particular application, this pump is employed in internal combustion engines with mixed lubrication for proportioning the fuel and oil, with the fuel-oil mixture being supplied to the float chamber of a carburetor.

3,653,785 PUMP UNIT

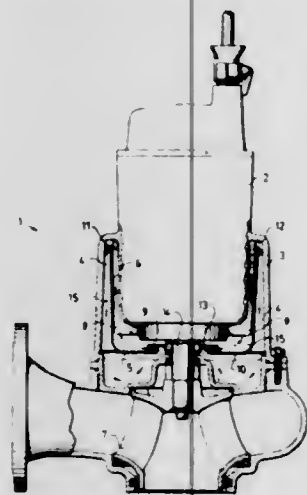
Jens Karl Adolf Dahlgren, Stockholm, and Bengt-Ake Rudolf Brandt, Mariehall, both of Sweden, assignors to Stenberg-Flygt AB, Solna, Sweden

Filed Apr. 7, 1970, Ser. No. 26,262

Claims priority, application Sweden, Apr. 18, 1969, 5556/69
Int. Cl. F04b 39/006; H02k 9/00; F24h 3/00

U.S. Cl. 417-367

5 Claims



Pump unit for pumping polluted liquid such as sewage water, comprising a motor housing, which at least partially is surrounded by a cooling jacket forming a cooling liquid compartment, which is closed and, by means of a partition surrounding the motor housing, divided into an outer and an inner part which parts at the ends of the partition, viewed in the axial direction of the motor housing communicate with one another to permit circulation of the cooling liquid, so that inside the partition the cooling liquid flows in one direction and outside the partition in the opposite direction.

3,653,786

FLUID OPERATED PUMP ASSEMBLY WITH TANDEM ENGINES

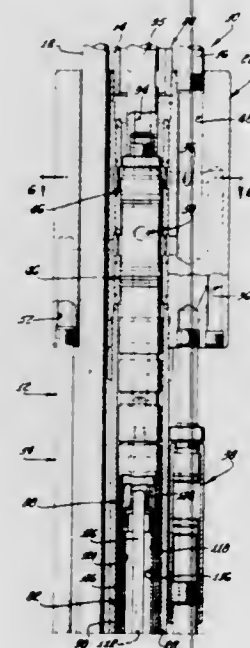
Ralph F. McArthur, Huntington Park, and Melle F. Geurts, Los Angeles, both of Calif., assignors to Kobe, Inc., Huntington Park, Calif.

Filed July 6, 1970, Ser. No. 52,382

Int. Cl. F04b 17/00, 35/00; F15b 11/00, 13/00

U.S. Cl. 417-404

3 Claims



A fluid operated, tandem engine, pump assembly for oil wells comprising upper and lower fluid operated, reciprocating

engines and a reciprocating pump arranged in tandem with the pump below the lower engine. Two passage means respectively interconnect the upper ends and the lower ends of the two engine cylinders. The two passage means include large-area vertical passages radially outwardly of the upper engine cylinder, but within the outside diameter of the pump assembly. An engine valve means incorporated in the upper engine alternately connects the two passage means to a source of operating fluid under pressure and a point of disposal for spent operating fluid.

3,653,787

VOLUMETRIC METERING PUMP

Roger Commarmot, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France

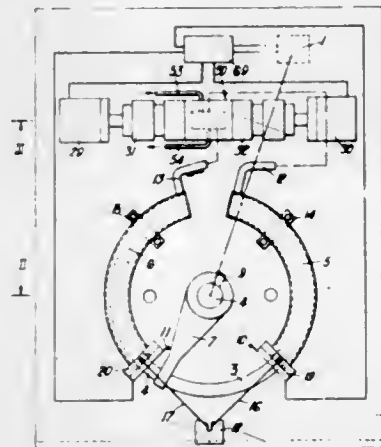
Filed Oct. 23, 1970, Ser. No. 83,525

Claims priority, application France, Oct. 23, 1969, 6936425

Int. Cl. F04b 35/04, 21/02, 39/10, 17/00

U.S. Cl. 417-415

8 Claims



A volumetric metering pump for accurately dosing small quantities of liquid, in which two interconnected identical part-toroidal pistons are arranged in separate cylinders. Small pulse jerks are simultaneously applied to each piston by a rockable member connected to a step-by-step electric motor, so that one piston draws liquid into its cylinder while the other piston expels liquid from its cylinder. This pistons are thus caused to move along arcuate strokes in the direction of their respective axes. A slide valve is provided firstly to direct liquid from an inlet duct to one cylinder and to an outlet duct from the other cylinder. At the end of each stroke this situation is reversed.

3,653,788

METERING PUMP

Edward I. Klein, Montreal, Quebec, Canada, assignor to V-Mark Automation Ltd., Montreal, Quebec, Canada

Filed Apr. 6, 1970, Ser. No. 25,890

Int. Cl. F04b 7/02, 39/08, 21/02, 39/10

U.S. Cl. 417-508

12 Claims

A metering pump having a passageway in the pump body, an inlet and outlet connected to the passageway and a valve member slidable between the inlet and outlet to alternatively open and close them. A chamber, the volume of which is changed by movement of a piston in the chamber, is con-

3,653,790

LIQUID PUMP OR MOTOR

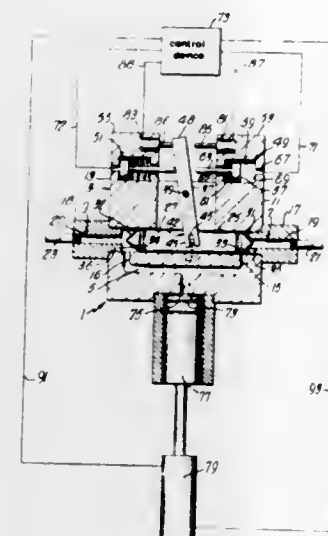
Richard Joseph Ifield, Beecroft, Australia, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed May 13, 1970, Ser. No. 36,804

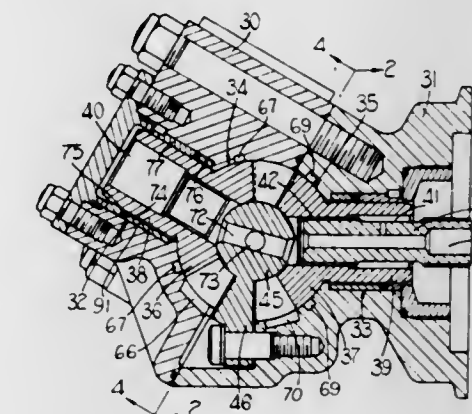
Int. Cl. F01c 1/08; F03c 3/00; F04c 1/04

U.S. Cl. 418-73

3 Claims



ected to the passageway intermediate the inlet and outlet. Movement of the piston causes pumping of predetermined



amounts of fluid through the passageway, the movement of the piston controlled by the position of the valve member.

3,653,789

POWERFUL POSITIVE DISPLACEMENT RECIPROCATING PRESSURIZING DEVICE AND METHOD AND MEANS FOR CONTINUOUSLY VARYING THE PRESSURIZING STROKE

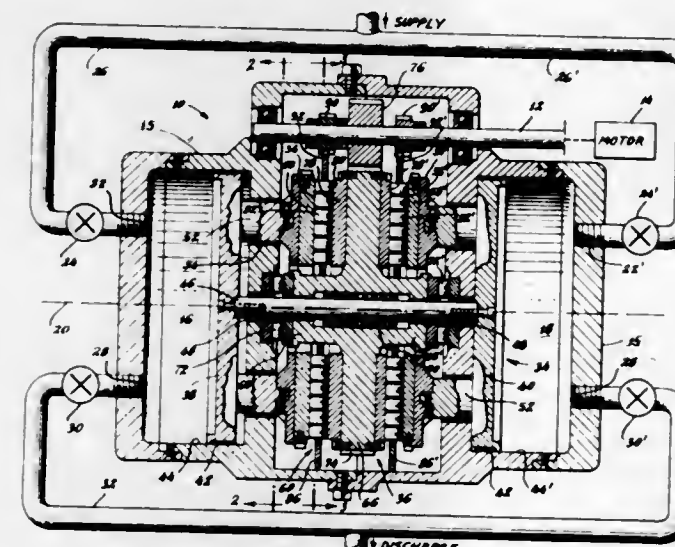
Arthur M. Maroth, 46 Grumman Hill Road, Wilton, Conn.

Filed Apr. 22, 1970, Ser. No. 30,663

Int. Cl. F04b 21/02

U.S. Cl. 417-534

14 Claims



A powerful positive displacement reciprocating pressurizing device is described for use as a liquid pump or gas compressor capable of generating immense fluid pressures with significant volume flow. A double piston pump is shown driven by a rotating input member with inclined planes operatively interposed between the rotating input member and the pistons. The inclined planes are located as undulations on cam surfaces with peaks and valleys. Antifriction elements driven by the rotating input member roll over the undulations to thereby actuate the pistons in a reciprocating manner. A powerful positive displacement reciprocating apparatus and method for pressurizing fluids with continuously variable strokes at any desired operating speed is disclosed.

A hydraulic pump or motor, of the type which operates by the meshing of gears, has a pair of meshed bevel gears. The housing of the pump or motor has ports on either side of the zone where the teeth are in mesh. Within the zone where the teeth are out of mesh there is an arrangement for closing off the spaces between the teeth. Fluid under pressure is admitted to the bearing surfaces of the gears so as to oppose loads applied to the gears by the operating hydraulic fluid pressure.

3,653,791

FLUID MOVING DEVICE

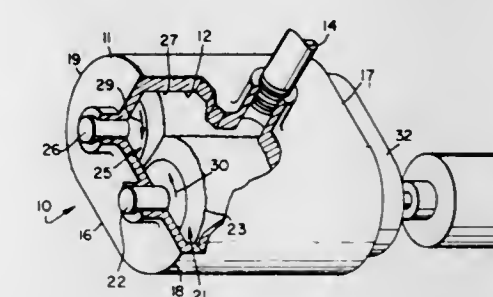
Lyle E. McCoy, 533 N. Whitehall Road, Norristown, Pa.

Filed Sept. 2, 1970, Ser. No. 69,033

Int. Cl. F01c 5/02

U.S. Cl. 418-153

6 Claims



A carrier movable about an endless path in one direction from an inlet to an outlet and in the other direction from an outlet to an inlet, at least a portion of the carrier being of resiliently compressible permeable material, and compressing means along said other direction of the path to compress the resilient carrier portion and expel therefrom fluid toward the outlet, the elastic carrier portion expanding in the direction from the inlet toward the outlet to absorb fluid and transfer the same.

ERRATA

For Classes 425-307, 425-133 and 425-394 see: Patent Nos. 3,653,335 thru 3,653,337

3,653,792

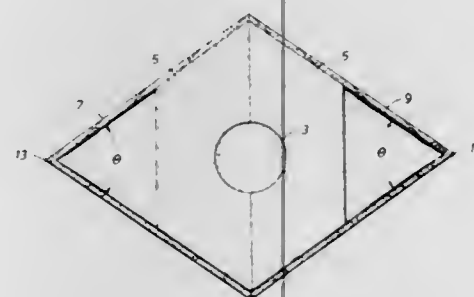
HIGH PRESSURE SHAPED CHARGED DEVICES

Donald R. Garrett, 314 Brookside, Bryan, Tex.
Continuation-in-part of application Ser. No. 870,323, which is a division of application Ser. No. 708,331, Feb. 26, 1968, now Patent No. 3,499,732. This application Aug. 20, 1970, Ser. No. 65,599

Int. Cl. B29c 23/00

U.S. Cl. 425-1

10 Claims



A high pressure shaped charge device having a predetermined external configuration for the explosive material, the configuration being calculated and shaped in such a manner as to optimize the force of an imploding pressure wave.

3,653,793

DEVICE FOR MAKING STRUDEL LEAF DOUGH SHEET

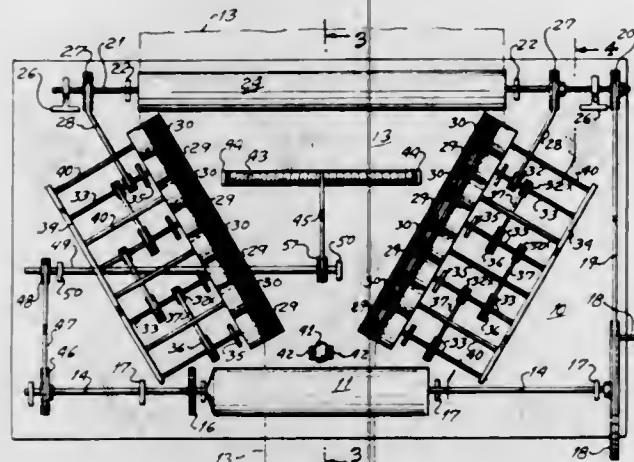
Leonhard Schafer, 2770 Briggs Avenue, New York, N.Y.

Filed July 27, 1970, Ser. No. 58,223

Int. Cl. A21c 3/00

U.S. Cl. 425-328

4 Claims



This device stretches pastry dough simultaneously both laterally and longitudinally to form a moving gradually thinning sheet of said dough. In this device the dough sheet of relatively large thickness is fed into a set of front rollers to be then seized by a plurality of seizure rollers disposed in two rows in a divergent or V-shaped manner and engaging the respective opposing longitudinal edges of the dough sheet. The seizure rollers of each divergent row are provided with top and bottom rollers having grooved portions of mating relationship and adapted to seize the edge of said dough sheet. The speed of the dough sheet is increased uniformly as it approaches the exit end of the device. This speed is attained by use of driven pulleys of suitable size connected to the grooved rollers. An idler and a driven roller is provided between the opposing rows of divergent rollers to support the center area of the gradually thinning dough sheet and thus prevent any tearing of it.

3,653,794

KEROSENE COMBUSTION BURNER

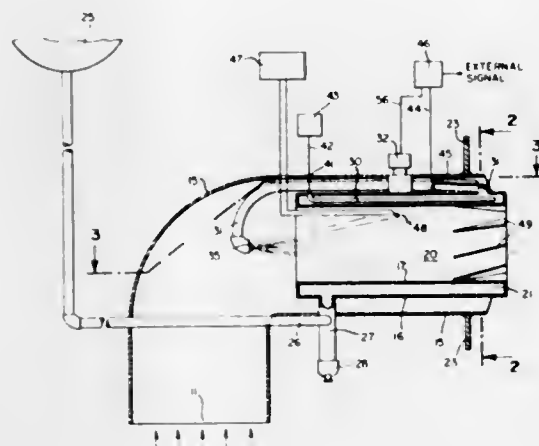
Hoseln M. Shakiba, 4527 Walnut Street, Philadelphia, Pa.

Filed Mar. 19, 1970, Ser. No. 21,036

Int. Cl. F23d 11/44

U.S. Cl. 431-208

5 Claims



A kerosene combustion burner for highly efficient fuel use is provided comprising an inner cylindrical combustion chamber surrounded concentrically by an outer cylinder, forming therebetween a fuel supply chamber wherein the fuel is heated and transformed to superheated vapor which is controllably fed through a nozzle and introduced into the combustion chamber where, in its vaporized form it burns efficiently. In operation, heating elements in the fuel supply chamber initially cause vaporization of the fuel, with temperature sensor means permitting passage of vapor to the nozzle when the temperature has acquired a predetermined value, and turning off said heating elements when the heat of combustion is sufficient to maintain vaporization and steady state operation.

3,653,795

SURFACE BURNER SYSTEMS

Gregorio Villini, Trieste, Italy, assignor to Italo Pellizzetti, Turin, Italy

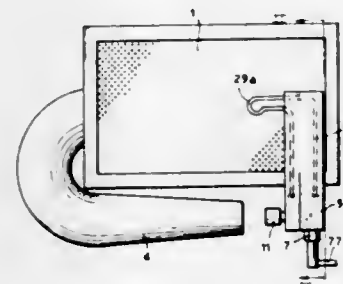
Filed Feb. 16, 1970, Ser. No. 11,603

Claims priority, application Italy, Feb. 18, 1969, 60306

Int. Cl. F23d 11/44

U.S. Cl. 431-247

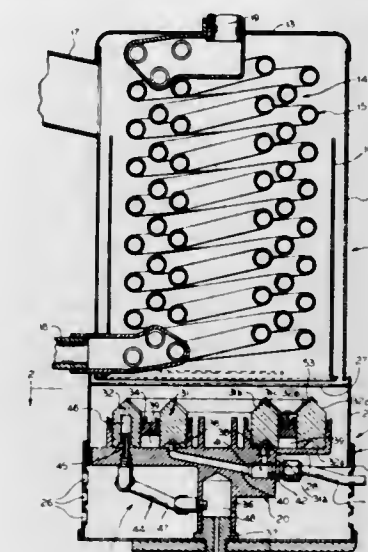
5 Claims



A surface burner system designed to be fed by fuel in liquid form. There are a conventional mixing chamber having a panel through which a fuel-air gas mixture may pass for

combustion at the panel surface, and a venturi into which air and gaseous fuel pass to enter the mixing chamber. The invention provides a vaporizer located near the panel and arranged to be heated by it. The vaporizer contains a chamber in which liquid fuel under pressure boils, the vapor passing through an injector nozzle to reach the venturi tube. The flow from the injector nozzle to the venturi can be controlled by manual control means. An electrical resistor preheats the vaporizer body for start-up.

of concentrically arranged porous ceramic wicks capable of



3,653,796

BURNER FOR A HEATER

Robert L. Kercher, Fabreville, Quebec, and Dugald J. Telfer, Chomedey, Quebec, both of Canada, assignors to Vapor Corporation, Chicago, Ill.

Filed July 24, 1970, Ser. No. 57,902

Int. Cl. F23d 13/12

U.S. Cl. 431-328

5 Claims

A heater for heating water including a burner having a pair

permitting proper combustion of fuels and not being adversely affected by water and foreign matter.

CHEMICAL

3,653,797

DYEING HAIR WITH AN AQUEOUS FILM-FORMING RESIN COMPOSITION

Carroll R. Reiss, Green Township, Hamilton County; Arthur W. Forbriger, Indian Hill Village, and Kanu I. Patel, Cincinnati, all of Ohio

Continuation-in-part of application Ser. No. 470,920, July 9, 1965, now abandoned, Continuation-in-part of application Ser. No. 264,747, Mar. 13, 1963, now abandoned. This application May 21, 1970, Ser. No. 39,540

Int. Cl. D06p 5/00

U.S. Cl. 8-10

2 Claims

Temporarily dyeing hair with a composition including an aqueous solution of a non-ionic water-soluble film-forming resin, benzyl alcohol, and an anionic dyestuff having an affinity for hair fibers dispersed therein, there being sufficient benzyl alcohol in the solution to render the dyestuff substantially equally adsorbed on more damaged and less damaged hair sections.

3,653,798

PROCESS FOR THE DYEINGS OF BLENDS OF SPANDEX FIBERS AND POLYAMIDE FIBERS

George Leslie Boardman, Manchester, England, assignor to J. R. Geigy A.G., Basel, Switzerland

Filed Jan. 3, 1968, Ser. No. 695,354

Claims priority, application Great Britain, Jan. 7, 1967, 1,034/67

Int. Cl. D06p 1/00, 3/82

U.S. Cl. 8-15

9 Claims

Process for dyeing blends of spandex and polyamide fiber materials in which the blended material is first pretreated with an agent for retarding drawing of the dyestuff on to the polyamide fiber portion in the blend; the thus pretreated material is then entered into another bath containing the dyestuff and an organic compound, which is a solvent for the dyestuff, or the dyestuff and the last-mentioned organic compound are added to the bath in which the pretreatment with retarder has taken place, whereupon the bath and goods therein are treated in a first stage to a temperature of from about 40° up to 70° C. for about 40 to 60 minutes and then at a temperature above 80° C., and preferably between 90° and

95° C., i.e., below the boiling point of the bath for approximately another 30 minutes to 2 hours.

3,653,799

PROCESS FOR COATING AND DYEING POLYOLEFIN FIBERS

Karl F. Schimmel, Verona, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 1, 1968, Ser. No. 749,264

Int. Cl. D06p 5/00

U.S. Cl. 8-18

10 Claims

Process of dyeing polyolefin textile fibers which comprises coating a polyolefin textile fiber or fabric with an adherent coating of an interpolymer comprising a non-rubbery interpolymer of a polyunsaturated hydrocarbon monomer and at least one monoolefin monomer having a single copolymerizable ethylenic group, said interpolymer having an essentially saturated carbon chain containing a substantial proportion of the total carbon atoms in the polymer molecule and containing sufficient ethylenically unsaturated groups in the polymer molecule to permit substantial curing of films thereof by oxidative mechanism, then contacting the coated fiber with an organic dye, preferably a dye selected from the group consisting of disperse dyes, cationic dyes, and premetallized dyes.

3,653,800

UNIFORMLY DYED RED TO GREEN WATER SWELLABLE CELLULOSIC FIBERS

John Blackwell, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 25, 1969, Ser. No. 879,900

Int. Cl. D06p 3/82, 1/20

U.S. Cl. 8-21 C

3 Claims

Water swellable cellulosic fibers, for example, cotton, or blends or mixtures thereof with synthetic fibers, for example, polyester fibers, uniformly dyed to red to green shades with essentially water insoluble, non-vattable, 1, (4,5 or 8)-di(N-substituted)aminoanthraquinone dyes, for example, 1,4-bis(N-hexylamino)anthraquinone, said dyed fibers being fast to washing, drycleaning, crocking and in many instances, sublimation, and having a reflectance color value (S') after scour of at least about 2.

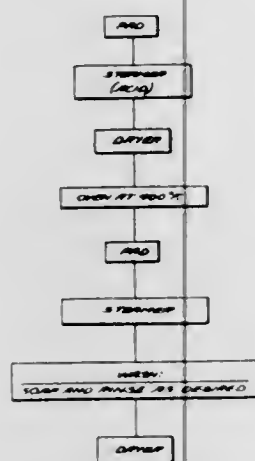
3,653,801

PAD-ACID STEAM NYLON-COTTON BLEND WITH ACID AND VAT DYES

Ibrahim Ahmed Aboul-Saad, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 29, 1967, Ser. No. 664,028
Int. Cl. D06p 3/82

U.S. Cl. 8-21 B

8 Claims



A process for dyeing nylon/cotton textile fabrics which comprises:

1. co-applying the vat and acid dyes at a pH of 4-8.
2. steaming the fabric in the presence of a volatile organic acid.
3. drying the fabric, and
4. fixating the vat dye in a conventional manner, has been found to give a union shade in a continuous manner with good utilization of the dye applied.

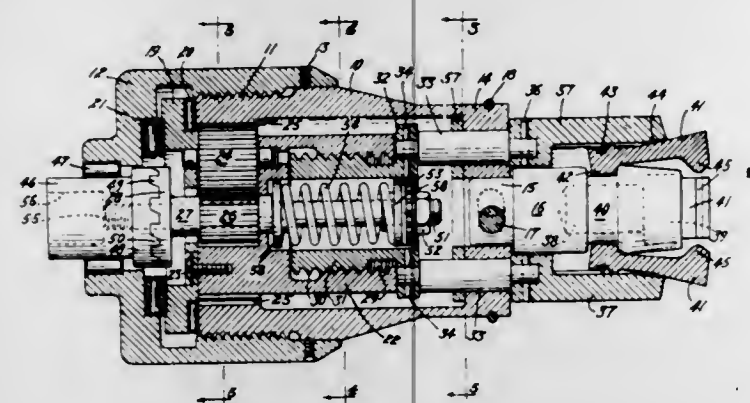
3,653,802

NUT CRIMPING TOOL

Lowell Warner Weiss, 274 Vine Street, Denver, Colo.
Filed Nov. 18, 1970, Ser. No. 90,566
Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29-200 B

8 Claims



A motor driven tool provided with a rotatable socket for threading a nut upon a bolt and having clamping jaws for crimping the nut in place on the bolt, the clamping jaws being actuated by axial movement of an encircling jaw cup to which axial movement is imparted by threads which are driven from a motor driven tool through the medium of planet gears so that the socket will first torque the nut on the bolt and the jaw cup will then move against the jaws to engage and radially clamp the nut upon the bolt.

3,653,803

POLYOLEFIN AND ETHYLENE-AMINO ACRYLATE COPOLYMER BLEND DILUTE ACID SCOURED AND DYED

Clarence Frederick Hammer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 11, 1969, Ser. No. 884,311
Int. Cl. D06p 3/00

U.S. Cl. 8-31

13 Claims

A process for acid dyeing polyolefin (isotactic polypropylene) shaped articles such as fibers is provided which gives full penetration of dye to heavy denier round fibers in relatively short periods of time as well as adequate penetration of very heavy tape and fibrillated film fibers. This process comprises (1) extruding a uniform blend of the polyolefin with about 2 to 15 percent by weight of a thermoplastic, essentially compatible nitrogen-containing polymer such as a copolymer of ethylene and dimethylaminoethyl methacrylate into fibers, (2) exposing the fibers to an aqueous prescour solution which contains about 3 to 200 percent, on weight of fiber, of various scour materials, preferably sodium bisulfate, and optionally a non-ionic surfactant, at a temperature of about 80° to 1290° C., and (3) exposing the fibers to an acid dye bath, containing an acid dye, a premetallized dye, a disperse dye or mixtures thereof.

3,653,804

BLEACHING OF WOOD PULP WITH DITHIONITE SOLUTION STABILIZED BY ZINC COMPOUND

Alfons Janson, Ludwigshafen, Rhine; Franz Poschmann, Limburgerhof/Pfalz, and Georg Wittmann, Ludwigshafen, Rhine, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany
Filed Dec. 26, 1967, Ser. No. 693,280
Claims priority, application Germany, Dec. 31, 1966, P 15 46 239.2

Int. Cl. D06l 3/10; D21c 9/10; C11d 7/54
U.S. Cl. 8-110

2 Claims

Use of sparingly soluble zinc compounds for prolonging the stability of wood pulp bleaching solutions containing dithionites.

3,653,805

DELAYED CURE PROCESS USING FORMALDEHYDE VAPOR TO CAUSE CREASEPROOFING

Jose P. Gamarra, La Palma; Ronald Swindler, Pasadena, and Katherine W. Wilson, South Pasadena, all of Calif., assignors to Cotton, Incorporated, Memphis, Tenn.
Filed Sept. 24, 1968, Ser. No. 762,119
Int. Cl. D06m 1/16, 13/14, 13/54

U.S. Cl. 8-116.4

12 Claims

Cellulosic materials such as cotton fabrics, preferably preimpregnated with an amide such as urea, are treated with formaldehyde vapor, formed into garments and cured in the presence of a catalyst to impart durable press and wrinkle recovery characteristics to such garments. The required curing catalyst may be furnished either by impregnating the fabrics with an aqueous solution of a weakly acid salt such as zinc chloride after exposure of the fabric to formaldehyde and before garment fabrication therefrom, or by furnishing a gaseous catalyst such as sulfur dioxide to the chamber in which the garments fabricated from the formaldehyde-treated fabric are cured.

3,653,806

TREATMENT OF POLYAMIDE FIBROUS MATERIAL WITH TITANIUM TRICHLORIDE

Shogo Matsuda, Toyonaka-shi, Osaka; Yutaka Shimodai, Suita-shi, Osaka; Takeo Oshima, Ibaragi-shi, Osaka, and Kazushi Ochi, Neyagawa-shi, Osaka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Dec. 12, 1967, Ser. No. 689,814
Claims priority, application Japan, Dec. 15, 1966, 41/82307
Int. Cl. D06m 3/30, 3/40

U.S. Cl. 8-130.1

22 Claims

3,653,811

METHOD OF REMOVING HYDROGEN HALIDES FROM SULPHUR DIOXIDE GAS

Maina Konstantinovna Zagorskaya; Alexandr Il'ich Volikh, both of ulitsa Khol'turiva, 5A, kv. 93, Ryazan; Lev Izrael'vich Mekler, ulitsa Proletarskaya, 5, kv. 42, Karagandinskaya, Obl., Balkhash, and Vladimir Ivanovich Ksenzenko, Naberezhnaya 40, kv. 46, Moscow, all of U.S.S.R.

Filed Mar. 6, 1969, Ser. No. 805,035
Int. Cl. C01b 17/60, 17/56

U.S. Cl. 23-2

2 Claims

A method of removing hydrogen halides from sulphur dioxide gas by absorbing said impurities with anion exchange resins in salt form.

3,653,812

PROCESS FOR REMOVAL OF SULFUR DIOXIDE FROM GAS STREAMS

Raymond T. Schneider; James A. Taylor, and William D. Willis, all of Lakeland, Fla., assignors to Wellman-Long, Inc.

Filed July 18, 1969, Ser. No. 843,163
Int. Cl. C01b 17/60; C01d 5/00

U.S. Cl. 23-2 SQ

23 Claims

The disclosure is of an improvement in a sulfur dioxide removal process wherein a sulfur dioxide-containing gas is contacted with an aqueous absorbing solution of a metal sulfite, e.g., sodium sulfite, to yield a spent absorbing solution of metal bisulfite, and the latter is subjected to conditions of temperature, pressure and residence time in a desorption zone sufficient to decompose the bisulfite to the sulfite, sulfur dioxide and water, with the water and sulfur dioxide being evaporated and the sulfite precipitated from solution. The precipitated sulfite is separated from its mother liquor and dissolved in water and the resultant solution is recycled as fresh absorbing solution. The improvement comprises recycling to the desorption zone the major portion, preferably substantially all, of the mother liquor from which the precipitated sulfite has been separated.

3,653,813

PROCESS FOR PREPARING RARE EARTH NORMAL TUNGSTATES

Vincent Chloia; George J. Kamin, and Clarence D. Vanderpool, all of Towanda, Pa., assignors to Sylvania Electric Products Inc.

Filed June 24, 1970, Ser. No. 49,570
Int. Cl. C22b 59/00

U.S. Cl. 23-15 W

12 Claims

Rare-earth normal tungstates are prepared by reacting soluble rare-earth salts and an aqueous solution of ammonium metatungstate under controlled pH conditions and agitation. After agitating for at least about 3 hours, the solid rare-earth normal tungstates are removed, washed with deionized water, and dried under controlled temperature conditions. Especially preferred as soluble rare-earth sources are oxides and carbonates.

3,653,814

TECHNIQUE FOR THE GROWTH OF SINGLE CRYSTAL LEAD MOLYBDATE

William Adam Bonner, Scotch Plains, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

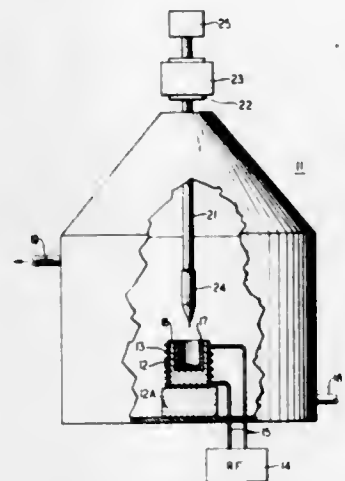
Filed Aug. 3, 1970, Ser. No. 60,332
Int. Cl. C22b 59/00; B01j 17/18

U.S. Cl. 23-15 W

5 Claims

Large single crystals of lead molybdate of high optical quality are grown by pulling from a melt under conditions of

low thermal gradient in a direction approximately 30° off the c-axis. Conventional growth technique on either the a- or c-



axis have not proven to yield satisfactory crystals from the standpoint of magnitude or yield.

3,653,815

RECOVERY OF MOLYBDENUM

Roald R. Skarbo, Lexington, Mass., assignor to Kennicott Copper Corporation, New York, N.Y.

Filed Sept. 3, 1969, Ser. No. 855,006
Int. Cl. C22b 59/00

U.S. Cl. 23-15 W

7 Claims

The specification describes a method of recovering molybdenum from molybdenum containing ore wherein the ore is subjected to the conventional process steps of concentrating, roasting, and ammonia leaching followed by novel procedures to remove the copper from the leach solution without the necessity of adding an agent to precipitate the contaminant copper. The copper contaminant in the leach solution is precipitated out of the solution by (1) partial evaporation of the leach solution followed by dilution back to about its original volume, and (2) stream stripping of the leach solution until precipitation of the copper complex is complete.

3,653,816

PRODUCTION OF AMMONIUM METAVANADATE

James E. Mathers, Ulster; Felix F. Mikus, Towanda, and Ramon L. Yale, Ulster, all of Pa., assignors to Sylvania Electric Products Inc.

Filed May 28, 1970, Ser. No. 41,562
Int. Cl. C22b 59/00

U.S. Cl. 23-19 V

7 Claims

A highly pure ammonium metavanadate with improved particle size and bulk density is produced from an impure ammonium metavanadate by dissolving the impure ammonium metavanadate in water, maintaining controlled temperature conditions for a period of time, filtering, maintaining the filtrate under controlled pH and temperature conditions for a specified period of time, crystallizing solid ammonium metavanadate, washing the crystals with water, vacuum drying under controlled temperature and heat treating under agitation and controlled temperature conditions.

3,653,817

METHOD FOR PREPARING A RARE EARTH PHOSPHOR

Israel A. Liberman, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed June 30, 1969, Ser. No. 837,867
Int. Cl. C22b 59/00

U.S. Cl. 23-21

3 Claims

A phosphor is prepared by conversion of a rare earth oxide, the rare earth element appearing in its normal trivalent

state in the oxide but in its bivalent state in the phosphor. The conversion is achieved by initially mixing, in their dry solid states, the oxide with a reducing agent and then heating the mixture in a vacuum. The composition of the agent is such that it is oxidized and forms part of the phosphor. An appropriate reducing agent, by way of example, is silicon monoxide, in which case the resulting phosphor constitutes a rare earth silicate.

3,653,818

PROCESS FOR THE SOLUBILIZATION OF CALCIUM BORATE PRESENT IN BORON MINERALS

Pierre Mathis, Dombasle-sur-Meurthe, France, assignor to Solvay & Cie, Brussels, Belgium

Filed July 8, 1970, Ser. No. 53,157

Claims priority, application Great Britain, July 10, 1969, 34,848/69
Int. Cl. C01b 25/00

U.S. Cl. 23-59

6 Claims

A calcium borate mineral is treated with an aqueous boric acid solution, whereby both the calcium components and boron components are dissolved.

3,653,819

PRODUCTION OF SODIUM CARBONATE

Hiroshi Shibata; Tomijiro Morita, and Satoshi Nakano, all of Iwaki-shi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Continuation-in-part of application Ser. No. 580,338, Sept. 19, 1966, now abandoned. This application Oct. 23, 1969, Ser. No. 871,420

Claims priority, application Japan, Sept. 27, 1965, 40/58863; Dec. 29, 1965, 40/81318

Int. Cl. C01d 7/00

U.S. Cl. 23-63

5 Claims

Process for producing sodium carbonate from the sodium amalgam of mercury-process salt electrolysis, wherein a caustic soda solution is reacted with carbon dioxide gas to produce sodium carbonate which is further subjected to crystallization and separation and a mother liquid resulted from the crystal separation is recirculated to a denuding device.

3,653,820

PROCESS FOR CONTROLLING THE PRODUCTION OF ALKALI CYANIDE SOLUTIONS

Hans-Dietrich Kobs, Surth; Klaus Schmidt, Bruhl; Theodor Zarfl, Wesseling, and Gunter Kuhn, Cologne-Zollstock, all of Germany, assignors to Deutsche Gold-und Silber, Scheideanstalt vormals Raessler, Frankfurt/Main, Germany

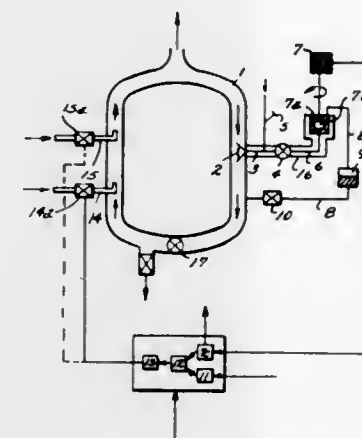
Filed Feb. 17, 1969, Ser. No. 799,570

Claims priority, application Germany, Feb. 24, 1968, P 16 67 785.3

Int. Cl. C01c 3/10; C01g 1/00; G01n 33/00

U.S. Cl. 23-79

6 Claims



The continuous production of aqueous alkali cyanide from hydrocyanic acid and aqueous alkali is controlled by measur-

ing the viscosity and adding alkali or hydrocyanic acid to keep the viscosity constant. An Apparatus for carrying out the method is also disclosed. The lines for adding hydrocyanic acid and alkali are controlled through the viscosity measuring mechanism.

3,653,821

PROCESS FOR THE MANUFACTURE OF AMMONIUM POLYPHOSPHATES

Gero Heymer; Wilfried Gerhardt, both of Knapsack near Cologne, and Heinz Harnisch, Lovenich near Cologne, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne and Benckiser-Knapsack GmbH, Ludwigshafen/Rhine, Germany

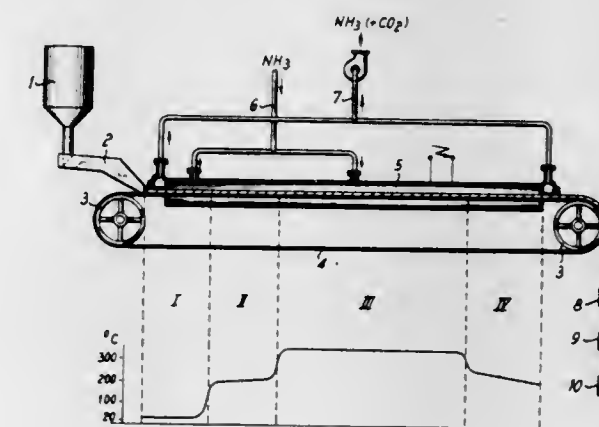
Filed Apr. 9, 1969, Ser. No. 814,635

Claims priority, application Germany, Apr. 11, 1968, P 17 67 205.8

Int. Cl. C01b 25/28

U.S. Cl. 23-106

8 Claims



Production of ammonium polyphosphates of the general formula $(\text{NH}_4\text{PO}_3)_n$, in which n is a number between 10 and 400, from ammonium orthophosphate, phosphorus pentoxide and, if desired, urea in contact with gaseous ammonia. A feed mixture produced from ammonium orthophosphate, phosphorus pentoxide and urea in the ratio of 1 mol ammonium orthophosphate: $(1-x)/2$ mol P_2O_5 : mol urea, wherein x is a number between 0 and 0.5, is subjected to annealing treatment at temperatures between 200° and 340° C., for a minimum of 10 minutes and a maximum of 60 minutes, in contact with ammonia. Mixtures in which x is smaller than 0.25 are pretreated at temperatures lower than 190° C. for a period of time between 5 and 10 minutes, in an ammonia atmosphere.

3,653,822

METHOD OF MANUFACTURING HYDROGEN SULFIDE AND/OR ALKALI METAL SULFATE FROM SMELTS

Akio Mita, Tokyo, Japan, assignor to Agency of Industrial Science and Technology, Tokyo, Japan

Continuation-in-part of application Ser. No. 694,038, Dec. 28, 1967, now abandoned. This application June 3, 1970, Ser. No. 43,240

Int. Cl. C01d 5/00; C01b 17/16

U.S. Cl. 23-121

1 Claim

An alkali metal sulfate and hydrogen sulfide of high purity are obtained by causticizing, treating with sulfuric acid, and neutralizing smelt which is obtained by concentrating and burning Na-base sulfite pulp spent liquor or neutral sulfite semi-chemical spent liquor.

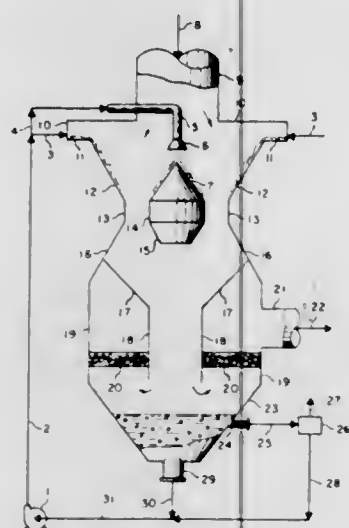
3,653,823

REMOVAL OF SULFUR DIOXIDE FROM GAS STREAMS
Indravadan S. Shah, 108-26 63rd Road, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.

Filed Feb. 27, 1970, Ser. No. 14,947
Int. Cl. C01f 5/42; C01b 17/48, 17/56

U.S. Cl. 23-129

6 Claims



A gas stream containing sulfur dioxide, such as a waste or flue gas, is scrubbed with a circulating aqueous slurry containing magnesium oxide and magnesium sulfite, to remove sulfur dioxide from the gas stream in the form of hydrated magnesium sulfite, under specific conditions such as relatively high pH which promote greater scrubbing efficiency.

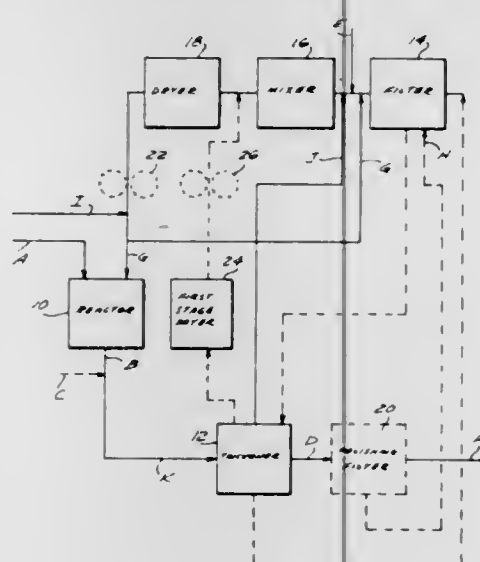
3,653,824

OXIDATIVE REGENERATION METHOD
Richard G. Barker, Princeton Junction, N.J., and James L. Ma, Los Angeles, Calif., assignors to Union Carbide Corporation, New York, N.Y.

Filed Oct. 16, 1969, Ser. No. 867,057
Int. Cl. C01g 45/02

U.S. Cl. 23-145

11 Claims



Process and apparatus for recovering and regenerating spent manganese oxidant in an aqueous stream by concentrating the spent oxidant to produce a thickened slurry, forming a charge of free-flowing granular particles from the slurry and oxidizing the charge. The stream may be thickened by employing a settling tank, formed into a charge in a solids mixer, and oxidized in a regeneration dryer.

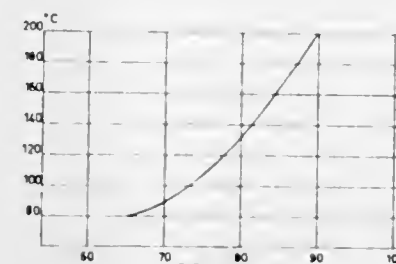
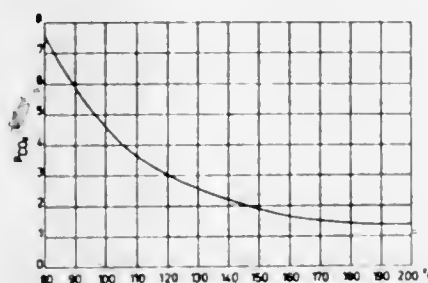
3,653,825

PROCESS FOR THE MANUFACTURE OF BORIC ACID
Pierre Mathis, Dombasle-sur-Meurthe, France, assignor to Solvay & Cie, Brussels, Belgium

Filed Apr. 30, 1970, Ser. No. 33,291
Claims priority, application France, Apr. 30, 1969, 6913966
Int. Cl. C01b 35/00

U.S. Cl. 23-149

8 Claims



Boric acid is produced by treating a mixture of water and crude or calcined borocalcic ore with CO_2 , the partial pressure of which is at least 1 bar, at a temperature above 80°C . and then separating the liquid phase from the solid phase under a pressure and temperature at least equal to those under which treatment with CO_2 was carried out. The pressure and temperature of the liquid phase are then decreased and the boric acid is crystallized from the liquid phase.

3,653,826

PROCESS FOR THE PRODUCTION OF PHOSPHORIC ACID AT A HIGH CONCENTRATION AND A GYPSUM BY-PRODUCT OF IMPROVED QUALITY

Toshio Ishihara; Takayoshi Okazaki; Tetsuzo Endo; Tanizawa Koichi, and Sataro Nakajima, all of Tokyo, Japan, assignors to Nissan Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 16, 1968, Ser. No. 762,210

Claims priority, application Japan, Sept. 21, 1967, 42/60253; Mar. 11, 1968, 43/15554

Int. Cl. C01b 25/22

U.S. Cl. 23-165

4 Claims

A process for the production of phosphoric acid at a high concentration and a gypsum by-product of improved quality which comprises the steps of mixing phosphate rock with phosphoric acid containing 36 to 44% P_2O_5 , digesting the mixture with sulphuric acid, precipitating 70 to 80% of the calcium oxide in the phosphate rock as calcium sulphate hemihydrate in a first digester and precipitating all of the calcium oxide in the phosphate rock as calcium sulphate hemihydrate in a second digester, then filtering a slurry of calcium sulphate hemihydrate and washing the cake with a dilute acid, thereby producing phosphoric acid with a P_2O_5 concentration greater than 45 percent and phosphoric acid for digestion, and recrystallizing the calcium sulphate hemihydrate into calcium sulphate dihydrate in a mixed acid containing from 10 to 15 percent P_2O_5 and from 10 to 15% H_2SO_4 at a temperature of 50° to 80°C . and at a solids concentration of 20 to 45 percent, and then filtering and washing it, thereby producing a gypsum by-product containing less than 0.2% P_2O_5 .

3,653,827

PRODUCTION OF WET PROCESS PHOSPHORIC ACID
Denis Hey, Mississauga, and Alfred Johannes Dieterman, Clarkson (Mississauga), both of Ontario, Canada, assignors to Emery Industries (Canada), Ltd., Toronto, Ontario, Canada

Filed Aug. 29, 1969, Ser. No. 854,317
Int. Cl. C01b 25/22

U.S. Cl. 23-165

4 Claims

The yield of phosphoric acid in the "wet process" synthesis of said acid is improved by adding to the phosphate rock-sulfuric acid reaction medium a small but effective amount of a "processing aid," which also serves as a defoaming agent, comprised of a mixture of (1) an amide of a lower alkanol amine and fatty acid and (2) fatty acid, in specifically defined proportions as determined by the specific components of the composition.

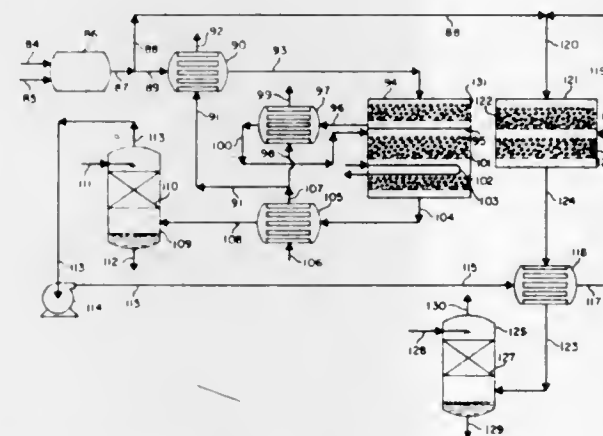
3,653,828

DUAL ABSORPTION SULFURIC ACID PROCESS
John M. Connor, New York, N.Y., and Krikor D. Gureghian, Teaneck, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Sept. 24, 1969, Ser. No. 860,519
Int. Cl. C01b 17/76

U.S. Cl. 23-168

6 Claims



A dual absorption sulfuric acid process is provided, with intermediate scrubbing of the process gas stream to remove sulfur trioxide, in which the residual gas stream after intermediate scrubbing is heated to a temperature which is about 10°C . to 50°C . higher than the temperature of the initial hot process gas passed into the first stage of catalysis. The sulfur dioxide content of the heated residual gas stream is thus catalytically oxidized to sulfur trioxide using reduced amounts of catalyst.

3,653,829

RECOVERY OF SULFUR VALUES FROM BRINE
Gideon P. Gelblum, Philadelphia, Pa., assignor to Catalytic Construction Company, Philadelphia, Pa.

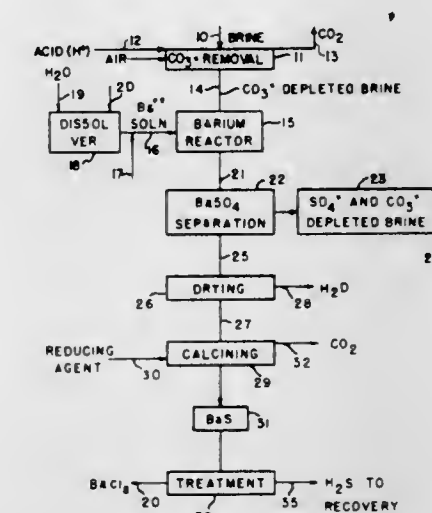
Filed Jan. 29, 1970, Ser. No. 6,760
Int. Cl. C01b 17/16, 5/22

U.S. Cl. 23-181

9 Claims

Sulfur values are recovered, from a brine comprising sulfate ion, by contacting the brine with a brine-soluble barium compound in a direct reaction. A BaSO_4 precipitate results and this precipitate is separated, dried and calcined in a reducing atmosphere to convert it to BaS . The depleted brine may be either discarded or subjected to further treatment with a brine-soluble barium compound for recovery of metals therefrom. The BaS obtained from the process may then be treated in a variety of ways all of which have as their objective displacement of the sulfur, as H_2S , which may be directly recovered or converted to products such as sulfur and sulfuric acid. The various treatments disclosed provide for recycle of the barium ion into the initial phases of the

process. Some of them, additionally, permit recovery of particular metal oxides or metal hydroxides from the brine as



well as conversion of alkali metals and alkali earth metal halides to their hydroxides or carbonates.

3,653,830

METHOD FOR MANUFACTURING ALUMINUM NITRIDE FIBERS

Katsutoshi Komeya, Kawasaki, and Hiroshi Inoue, Kawaguchi, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Apr. 27, 1970, Ser. No. 32,376
Claims priority, application Japan, May 8, 1969, 44/34812
Int. Cl. C01f 7/00; C01b 21/06

U.S. Cl. 23-192

5 Claims

A method for manufacturing aluminum nitride fibers which comprises heating a mixture of aluminum nitride powders and aluminum powders to a temperature of 580° to $1,000^\circ\text{C}$. in an atmosphere consisting of nitrogen or ammonia gas with addition of halogens which creates an exothermic nitridation of aluminum heating the charge to above $2,000^\circ\text{C}$. and forming aluminum nitride fibers in high yield.

3,653,831

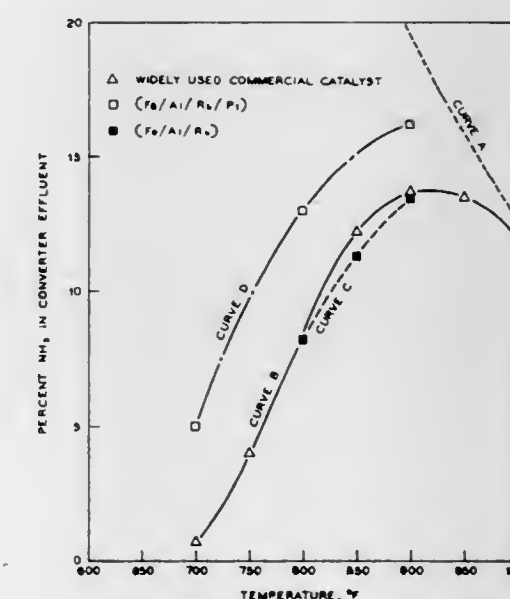
AMMONIA SYNTHESIS CATALYST

Robert L. Burnett, Pinole, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Oct. 4, 1968, Ser. No. 774,563
Int. Cl. C01c 1/04

U.S. Cl. 23-199

5 Claims



An improved ammonia synthesis catalyst containing platinum.

3,653,842

COMPUTER CONTROL SYSTEM FOR REFINING AND HYDROGENATION OF UNSATURATED HYDROCARBONS

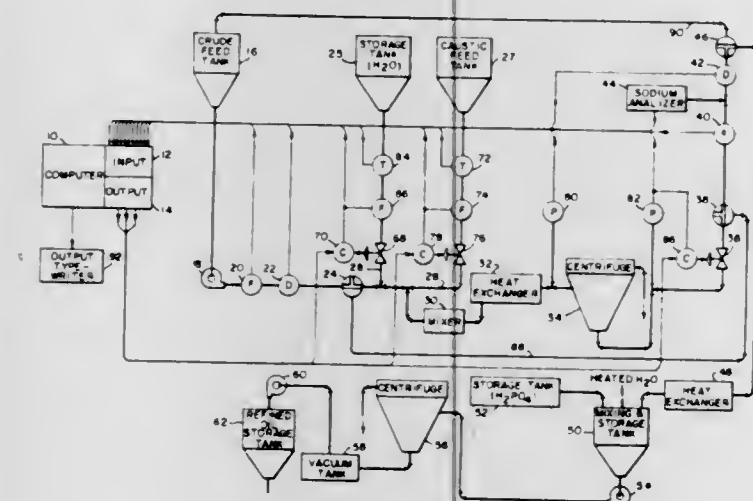
Richard E. Putman, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 16, 1969, Ser. No. 885,405

Int. Cl. B01j 1/00; C11b 3/06; G01n 27/00

U.S. Cl. 23-253 A

9 Claims



Described is a control system for a refining hydrogenation and deodorizing plant for edible oils and the like wherein various system variables are converted into signals which are fed to a computer which controls the system to optimize performance and reduce oil losses.

3,653,843

FLUIDIZED BED APPARATUS

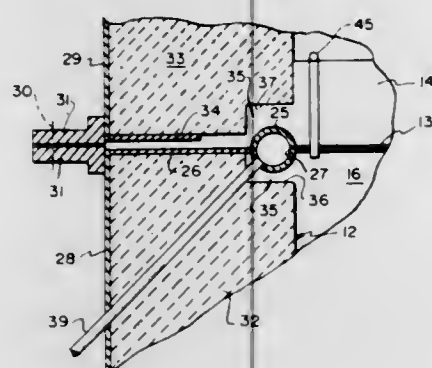
John Marshall Seelander, Downers Grove, Ill., assignor to Copeland Systems Incorporated

Filed Sept. 29, 1970, Ser. No. 76,565

Int. Cl. B01j 2/16

U.S. Cl. 23-284

8 Claims



A fluidized bed apparatus comprising a particle bed supported in a container on an orifice plate and subjected to varying temperatures causing thermal expansion and contraction of the plate in combination with an elongated transversely yieldable tube attached to the plate at its periphery and at areas spaced from the plate to the container so that expansion and contraction of the plate due to the varying temperatures results in transverse yielding of the tube without substantial permanent distortion of the plate itself.

3,653,844

GAS PURIFICATION APPARATUS

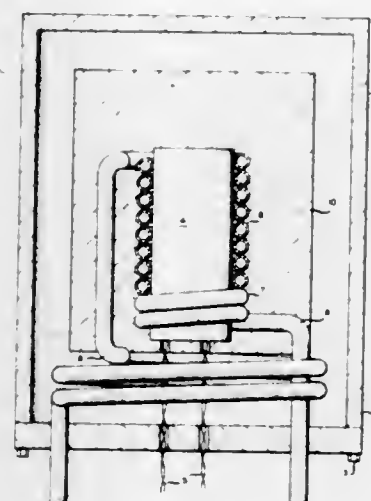
Edwin K. Clardy, and Wilbur G. Ragains, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Feb. 2, 1970, Ser. No. 7,664

Int. Cl. B01d 53/34; B01j 1/22, 9/04

U.S. Cl. 23-288 M

1 Claim



Apparatus is provided for purifying gaseous streams of contaminants, the apparatus being adapted to raise the gaseous stream to the necessary temperature and to pass the gas in contact with an active agent selected in view of the contaminant to be removed.

3,653,845

SELF-SUPPORTING SCREEN DECK

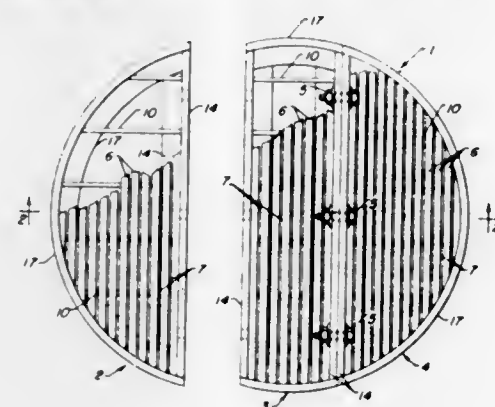
Terrence D. Moravec, White Bear Lake, Minn., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Oct. 6, 1969, Ser. No. 863,799

Int. Cl. B01d 23/18; B01j 9/04

U.S. Cl. 23-288 R

2 Claims



A self-supporting, segmented, slotted deck having at least two screen segments that can be attached to each other along a support beam. In its preferred form the screen segments are of slotted construction, with the slots increasing in cross-sectional area from the top side of the screen surface to the lower side.

3,653,846

CONVERTER FOR HIGH PRESSURE SYNTHESIS

Jiri Kubec, Kunstat Na Morave, and Vladimir Saroch, Brno, both of Czechoslovakia, assignors to Kralovopolska Strojirna, Zavody chemickych zarizeni, narodni podnik, Brno, Czechoslovakia

Filed Aug. 5, 1969, Ser. No. 847,665

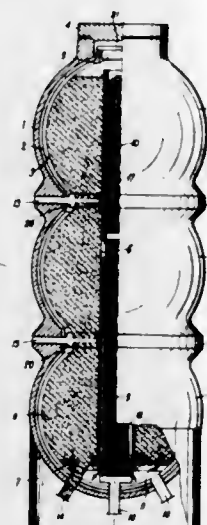
Int. Cl. B01j 9/04, 3/00

U.S. Cl. 23-289

4 Claims

A converter for high-pressure synthesis of ammonia or methanol having an upright outer pressure shell consisting of

three superimposed spherical segments and two interposed annular connectors, a thin-walled conforming liner in the shell, an upright conduit axially centered in the shell and extending from a grating in the lowermost segment close to a manhole atop the uppermost segment and barely big enough for insertion of the conduit therethrough. A body of particulate catalyst material fills the annular space between the liner



and the conduit from the grating almost to the top end of the conduit. A shell-and-tube heat exchanger is arranged in the conduit for preheating a portion of the gaseous reactants by means of the hot reaction gases. The remainder of the reactants is injected into the catalyst through perforated radial pipes extending from each connector toward the central conduit.

3,653,847

INHIBITION OF SODIUM BICARBONATE CRYSTALLIZATION DURING CRYSTALLIZATION OF OTHER MATERIALS USING POLYPHOSPHATES

Arthur E. Ableson, Los Angeles, Calif., assignor to American Potash & Chemical Corporation, Oklahoma City, Okla.

Continuation-in-part of application Ser. No. 727,709, May 8, 1968, now abandoned. This application Sept. 14, 1970, Ser. No. 72,136

Int. Cl. C01d 5/00

U.S. Cl. 23-296

10 Claims

A process of separating a material consisting of at least one salt selected from the group consisting of sodium tetraborate and sodium sulfate from aqueous solutions containing the same and sodium bicarbonate. An alkali metal polyphosphate, such as sodium hexametaphosphate, is contacted with the aqueous solution to prevent the nucleation and crystallization of sodium bicarbonate while the material is crystallized from the solution and recovered. The sodium bicarbonate subsequently also may be recovered from the solution.

3,653,848

CRYSTALLIZATION PROCESS

Eugene B. Port, Solvay, and Carlton J. Howard, Salina, both of N.Y., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Sept. 4, 1968, Ser. No. 757,511

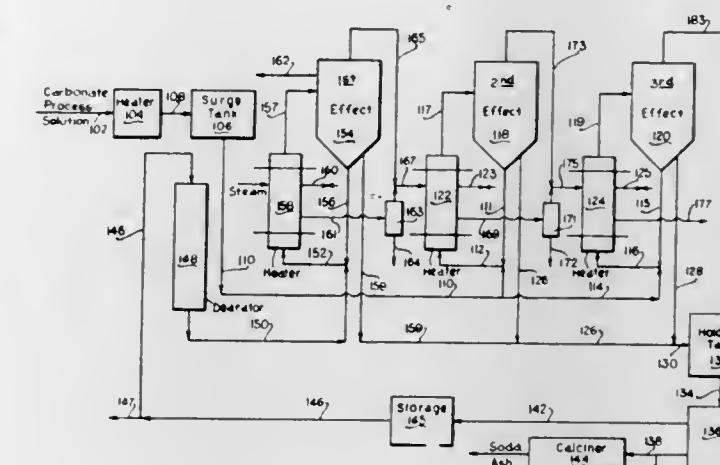
Int. Cl. C01d 7/00, 11/00

U.S. Cl. 23-302

15 Claims

Invention relates to the preparation of sodium carbonate precursor crystals, such as sodium bicarbonate, sodium sesquicarbonate, anhydrous sodium carbonate and sodium carbonate monohydrate by a crystallization process which involves forming a first crop of said precursor crystals from a substantially saturated carbonate process solution and subjecting the mother liquor separated from the first crop of

precursor crystals to crystallization, including a crystallization temperature higher than that employed to obtain the



first crop of said precursor crystals, to effect formation of a second crop of precursor crystals.

3,653,849

COMPOUND $\text{Pd}_3\text{P}_2\text{S}_4$

Tom Allen Bither, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 12, 1969, Ser. No. 857,561

Int. Cl. C01b 25/00, 17/00; C01g 55/00

U.S. Cl. 23-315

1 Claim

The compound $\text{Pd}_3\text{P}_2\text{S}_4$ in the form of crystals having trigonal symmetry can be made by heating together the appropriate elements of binary compounds thereof providing the atomic ratio of S to P is greater than unity. The compound is useful as a semiconductor and as a catalyst for the replacement of aromatic hydrogen with carbonyl chloride groups.

3,653,850

PROCESS FOR PURIFYING TANTALUM FLUORIDE SALTS

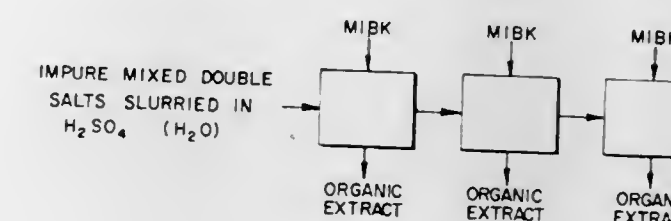
Robert E. Eberts, Framingham, Mass., assignor to Norton Company, Worcester, Mass.

Filed Apr. 14, 1969, Ser. No. 815,972

Int. Cl. B01d 11/02; C01d 3/18; C01g 35/00

U.S. Cl. 23-312 ME

5 Claims



Process for purifying tantalum fluoride double salts, e.g. K_2TaF_7 , of other metallic impurities. By proper adjustment of an aqueous acid phase, the tantalum values of such relatively insoluble salts can be directly transferred to an organic extractant phase. Pure tantalum compounds can be recovered from the extract.

3,653,851

HIGH-STRENGTH METAL-SILICON CARBIDE ARTICLE
Bernard A. Gruber, Boxford, Mass., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 80,402, Jan. 3, 1961, now Patent No. 3,246,950, Continuation-in-part of application Ser. No. 803,176, Mar. 31, 1959, now abandoned.

This application Apr. 4, 1966, Ser. No. 539,645

Int. Cl. B22f 5/00

U.S. Cl. 29-183

1 Claim

Fibrous silicon carbide, substantially free of silicon dioxide, in the form of fibrous beta crystals in intimate admixture with minor amounts of particles of silicon dioxide is disclosed as a composition of matter useful in fluid filtration, heat resistant fabrics, and acoustical insulation. Dispersion of this composition in continuous media such as metals, oxides, ceramics and polymerized organic monomers gives useful articles of manufacture with improved strength, low thermal conductivity and extreme resistance to corrosion.

3,653,852

COATED FERROUS SUBSTRATE

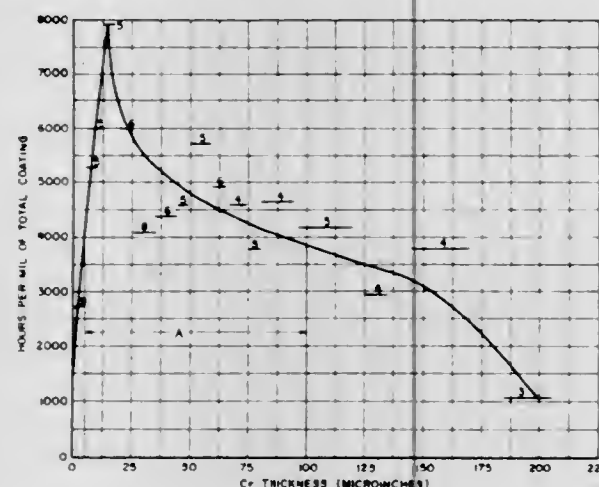
Bernard C. Seiler, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Filed Oct. 14, 1969, Ser. No. 866,290

Int. Cl. B32b 15/18, 15/20

U.S. Cl. 29-196.6

4 Claims



A steel sheet has a composite coating thereon comprising a layer of chromium 5 to 100 microinches thick contiguous to the steel and a layer of aluminum 100 to 1,500 microinches thick contiguous to the layer of chromium. The chromium is deposited on the sheet while the steel is at a temperature within the range of 1,200° to 1,700° F.

3,653,853

SYNERGISTIC ANTI-ICING COMPOSITION

Robert H. Rosenwald, Western Springs, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed Nov. 14, 1969, Ser. No. 877,011

Int. Cl. C10I 1/18, 1/22

U.S. Cl. 44-66

8 Claims

Synergistic anti-icing composition of (1) polyhydroxy alcohol and (2) C₈-C₂₀ amide of N-C₈-C₂₀-alkylene-diamine.

3,653,854

DIGITALLY CONTROLLED GRINDING MACHINES

Kiroaki Asano, Kariya, Japan, assignor to Toyoda Koki Kabushiki Kaisha, Aichi-ken, Japan

Filed Sept. 22, 1970, Ser. No. 74,315

Claims priority, application Japan, Sept. 29, 1969, 44/77652

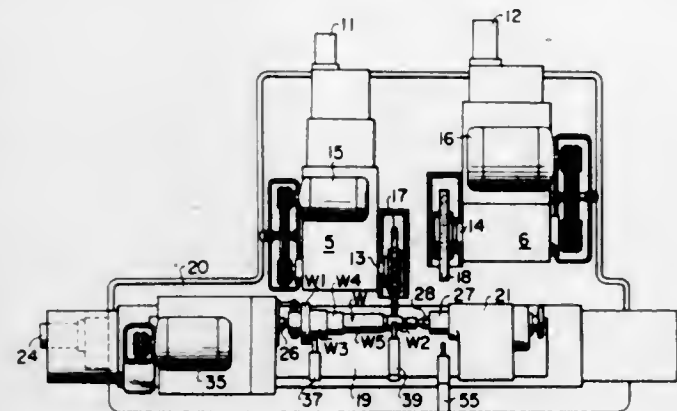
Int. Cl. B24b 51/00

U.S. Cl. 51-165 TP

7 Claims

In a digitally controlled grinding machine for working a workpiece including at least one cylindrical portion and at

least one tapered portion, there are provided a first grinding wheel supported on a first grinding wheel carriage for working the cylindrical portion and a second grinding wheel supported on a second grinding wheel carriage for working the tapered portion. When the tapered portion of the workpiece



is to be ground, a work table for supporting the workpiece and the second carriage are fed in directions perpendicular with each other. The work table and the first and second grinding wheel carriage, are operated by servo-motors responsive to digital command signals prepared by information stored in a memory.

3,653,855

GRINDING SYSTEM

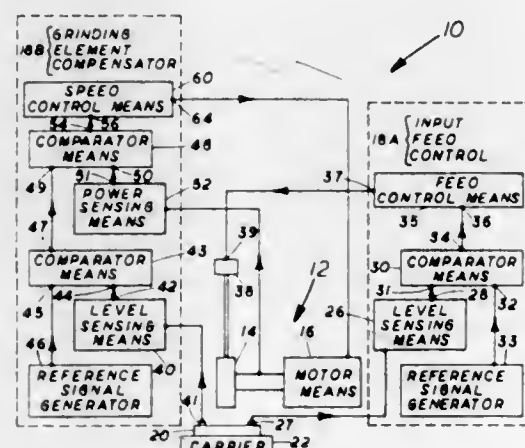
Roderick L. Smith, 3920 Broadway, Rockford, Ill.

Filed May 23, 1969, Ser. No. 834,928

Int. Cl. B24b 49/04

U.S. Cl. 51-165 TW

15 Claims



A grinding system comprising adjustable means for controlling the after grinding size of a work piece and production rate while maintaining surface integrity and finish of the work piece substantially constant.

3,653,856

ROTARY ABRASIVE TOOL

Albert Field, c/o Field Abrasive Manf. Co., Inc., 1303 Stanley Avenue, Dayton, Ohio

Filed Mar. 20, 1970, Ser. No. 21,386

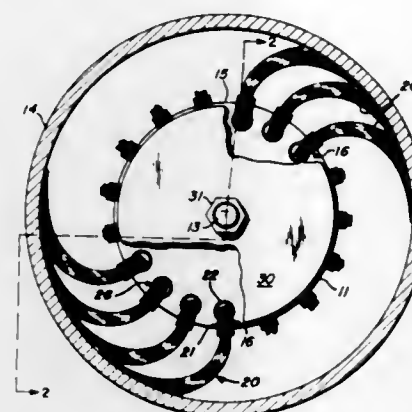
Int. Cl. B24d 13/04

U.S. Cl. 51-334

4 Claims

A plurality of pre-assembled abrasive units are removably mounted on the periphery of a cylindrical but, and each includes a pad of multiple abrasive-coated plies fastened together at their inner ends by an anchor clip formed for retention in slots in the hub. Each overlying ply is of successively shorter length, and the plies form at their outer ends multiple stepped abrading surfaces which define a self-dressing finishing surface for rotation against the work sur-

face. The plies are bowed into an arcuate shape and a with the working head to provide for positive head-to-disk predetermined flexibility to maximize the exposed finishing engagement solely between the face and the bottom ply of



surface and soften it for improved abrading and service life characteristics.

3,653,857

ABRADING IMPLEMENT

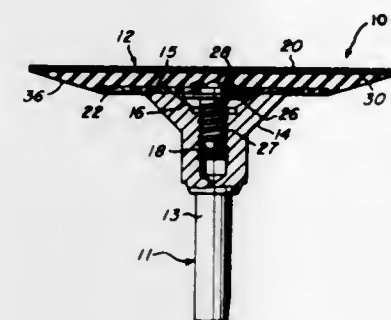
Albert Field, c/o Field Abrasive Manf. Co., Inc., 1303 Stanley Avenue, Dayton, Ohio

Filed Mar. 20, 1970, Ser. No. 21,358

Int. Cl. B24d 13/14

U.S. Cl. 51-358

7 Claims



A unique abrasive disk unit includes a piece of vulcanizable rubber sandwiched between a single abrasive coated ply and a backing disk of fiber material. A stud or fitting is installed centrally within the backing disc and is adapted to be removably secured to a mandrel. The components are assembled in a mold, and the rubber is vulcanized by the application of heat and pressure to form an integral unit having strong flexural properties and a high resistance to deterioration from frictional heat.

3,653,858

ABRADING IMPLEMENT

Albert Field, c/o Field Abrasive Manufacturing Co., Inc., 1303 Stanley Avenue, Dayton, Ohio

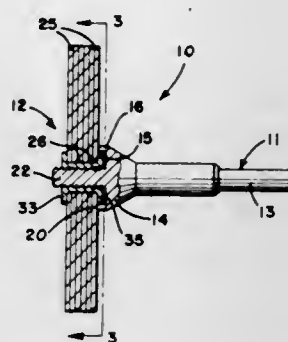
Filed Mar. 20, 1970, Ser. No. 21,387

Int. Cl. B24d 13/08, 13/14

U.S. Cl. 51-378

4 Claims

A mandrel includes a driving shank with an integral working head at one end which supports a disk assembly. The working head has a flat axially extending face on an annular lip which is formed by a generally circular axial recess in the head, and a threaded stud extends axially outwardly from the recess to receive the disk assembly. The disk assembly includes a disk of multiple abrasive coated plies held together by an internally threaded grommet disposed centrally within the disk. The grommet has a flange on one end and, on the other end, rivet tabs which are turned over on the disk to hold the plies in superposed relation, and the tabs are small enough to fit within the recess in non-contacting relation



the disk. The arrangement prevents slipping of the disk relative to the mandrel.

3,653,859

ABRASIVE FOAM LAMINATE

William F. Zimmer, Jr., Paxton, Mass., and Harvey L. Chew, Latham, N.Y., assignors to Norton Company, Troy, N.Y.

Filed Dec. 4, 1969, Ser. No. 882,110

Int. Cl. B24d 11/00

U.S. Cl. 51-401

3 Claims



A high density abrasive-containing foam product is made by impregnating a low density foam with a slurry of adhesive and abrasive, drying the same below the cure temperature of the adhesive and then laminating the dried and impregnated foam to a reinforcing backing by heat and pressure which both densifies the foam and effects the lamination using the abrasive binder adhesive to effect adhesion between the foam component and the backing component.

3,653,860

APPARATUS FOR PROCESSING A PLURALITY OF STRAND-LIKE MATERIALS

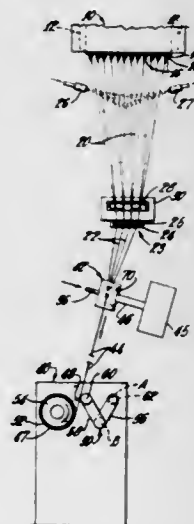
Roy E. Smith, Toledo, and John W. Dunn, Sylvania, both of Ohio, assignors to Owens-Corning Fiberglass Corporation

Filed May 25, 1970, Ser. No. 40,027

Int. Cl. C03b 37/02

U.S. Cl. 65-11 W

10 Claims



Apparatus for processing a plurality of strands including means for supplying a group of side-by-side strands along

given paths and a member having side-by-side extensions projecting in nonintersecting relationship with the group of strands where the extremities of the extensions have guide surfaces oriented in a direction oblique to the axes of the extensions and facing generally toward the group. The apparatus further including means for moving the member to engage and move the strands over the guide surfaces and into the spaces between the extensions.

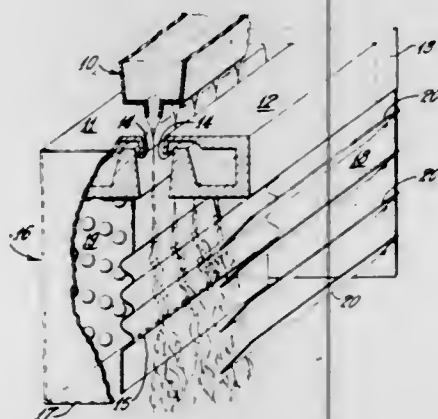
3,653,861

APPARATUS FOR PRODUCING CURLY GLASS FIBERS
Charles J. Stalego, and Robert E. Wyckoff, both of Newark, Ohio, assignors to Owens-Corning Fiberglass Corporation
Filed Aug. 27, 1970, Ser. No. 67,442

Int. Cl. C03b 37/06

U.S. Cl. 65-16

12 Claims



An apparatus for producing curly fibers from a molten stream which is pulled from a melt by high velocity attenuating fluid. The device includes a fiber forming feed, having orifices extending between a pair of elongate blowers which direct intersecting streams of high pressure fluid below the orifices to attenuate and cool the molten streams into fibers. Positioned below the orifices is a single skirt extending generally parallel to the direction of movement of the fibers and having a plurality of sinuous convolutions. High velocity air streams pulling the plastic fibers across the convolutions cause them to impinge against one or more skirt convolutions and to assume a curvilinear configuration prior to losing plasticity and leaving the skirt area. The skirt may be surrounded by a peripheral housing having air vents which permit the lateral entry of outside air pressure to further assure contact between the skirt and descending fibers.

3,653,862

GLASS CERAMIC BODIES, AND METHOD BY BORIC OXIDE TREATMENT

Charles S. Lynch, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Continuation of application Ser. No. 583,410, Sept. 30, 1966, now abandoned. This application Jan. 13, 1970, Ser. No. 1,990

Int. Cl. C03b 29/00; C03c 15/00

U.S. Cl. 65-30

4 Claims

A method of making a strong, high expansion ceramic body resulting from thermal crystallization of an alumino-silicate glass body wherein the body is contacted with boric oxide vapors at a temperature above 1400° F. for at least 10 minutes until the boric oxide vapors have reacted with the surface layer of the body to form an integral surface layer of borosilicate glass on the body. Upon cooling, a compressive stress forms in the vitreous layer. The lineal coefficient of thermal expansion of the ceramic body is at least $50 \times 10^{-7}/^{\circ}\text{C}$ over the range 0° to 300° C.

3,653,863 METHOD OF FORMING PHOTOCROMIC POLARIZING GLASSES

Roger J. Araujo, Corning, N.Y.; William H. Cramer, Yakima, Wash., and Stanley D. Stookey, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Original application July 3, 1968, Ser. No. 742,151, now Patent No. 3,540,793, dated Nov. 17, 1970. Divided and this application Feb. 17, 1970, Ser. No. 14,856

Int. Cl. C03c 15/00; C03b 21/00

U.S. Cl. 65-30

4 Claims

Light polarizing glasses capable of reversible changing from the clear unpolarized to the darkened polarized state upon exposure to actinic radiation said glasses comprised of a silicate glass body having elongated silver halide particles incorporated therein, and to the method of making such glasses.

3,653,864

DEALKALIZATION OF GLASS SURFACES

Daphne L. Rothmel, and Stanley D. Stookey, both of Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Mar. 17, 1969, Ser. No. 807,984

Int. Cl. C03c 15/00

U.S. Cl. 65-30

4 Claims

This invention relates to the improvement in surface durability of alkali metal oxide containing glasses through the removal of the alkali metal oxide by a treatment which comprises hydrating the alkali metal oxide containing glass in an autoclave, and thereafter dealkalinizing the glass surface by contacting it, at a moderate temperature, with a non-acidic non-aqueous solvent having a high dielectric constant. The resultant surface has substantially improved chemical surface durability.

3,653,865

NEPHELINE-FELDSPAR GLASS-CERAMICS

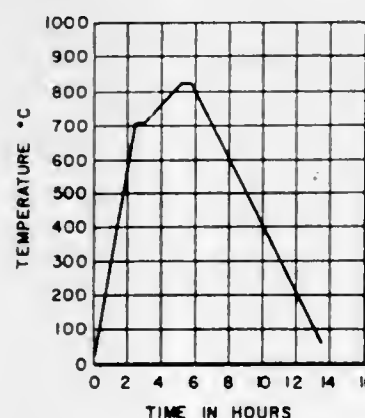
John E. Megles, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed June 2, 1970, Ser. No. 42,838

Int. Cl. C03b 29/00

U.S. Cl. 65-33

6 Claims



An improved method for the manufacture of fine-grained glass-ceramic articles wherein the crystal phase consists essentially of nepheline with, optionally, a minor amount of feldspar characterized by high mechanical strength and being useful for many consumer ware and technical applications.

3,653,866

METHOD OF PRODUCING TOUGHENED GLASS

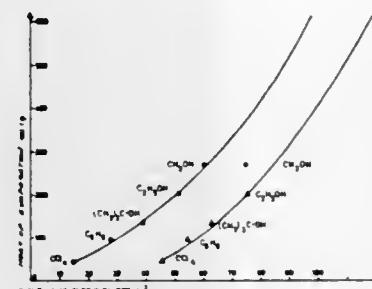
Erwin W. Wartenberg, Brunnwiesen 6, Stuttgart, Germany
Continuation-in-part of application Ser. No. 692,778, Dec. 12, 1967, now abandoned. This application Sept. 23, 1970, Ser. No. 74,897

Claims priority, application Germany, Dec. 28, 1966, W 43078

Int. Cl. C03b 27/00

U.S. Cl. 65-116

30 Claims



Glass is toughened by quenching the hot glass in a bath which consists essentially of a major proportion of a carrying liquid which is inert relative to the glass and has a boiling point below the temperature of the hot glass which is to be quenched and of a minor proportion of a liquid having a boiling point at least 100° C. below the boiling point of the above mentioned carrying liquid. Thereby the speed of quenching the glass is greatly increased.

3,653,867

DEVICE FOR UNITING THE EDGES OF A DOUBLE OR MULTIPLE GLASS PANE

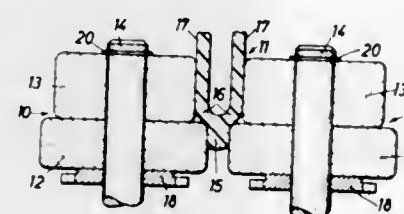
Eduard Bayer, Hugo-Wolf-Str. 12B, Salzburg, Gneis, Austria, and Willi Vogelbruch, In der Stufke 11, Sprockhovel, Germany

Filed June 1, 1970, Ser. No. 41,929

Int. Cl. C03b 23/24

U.S. Cl. 65-156

8 Claims



A device for uniting the edges of double or multiple glass panes in which the squeezing rollers engaging the edges of the glass panes comprise each two individual rollers which are independently rotatable. One pair of said individual rollers of the squeezing rollers engage opposite edges of said glass panes to be united and are spaced apart a distance equal to the thickness of the edge to be formed by the squeezing operation on the united glass panes. The other pair of said individual rollers of said squeezing rollers engage opposite faces of said two glass panes to be united adjacent said squeezed edges, and are spaced from each other a distance which is substantially equal to the thickness of the completed multiple glass pane.

3,653,868

WATER FENCE SUPPORT IN FLOAT GLASS APPARATUS

Francis L. Swillinger, Perrysburg, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Feb. 25, 1970, Ser. No. 14,001

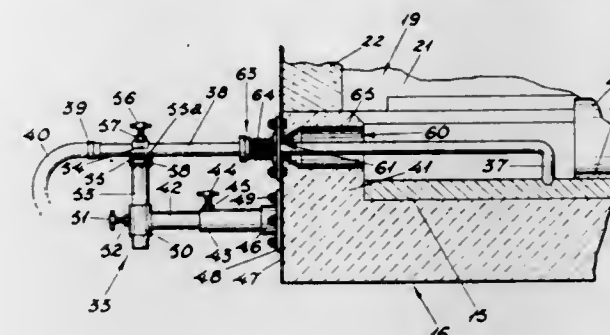
Int. Cl. C03b 18/02

U.S. Cl. 65-182 R

4 Claims

A device for externally supporting the outer end of a pivotally mounted water fence in a float glass apparatus so as

to provide three dimensional adjustment of the operating portion of the fence. An outwardly extending telescoping member is secured to the tank structure to provide support and axial or in and out adjustment. A vertical telescoping member secured to the outboard end thereof permits the



fence to pivot vertically about the entry point through the bath side wall. The outer end of the fence is clamped between spaced horizontal members atop the vertical telescoping member in a manner which provides for adjustment therealong to accomplish horizontal pivotal adjustment of the fence.

3,653,869

APPARATUS FOR SKIMMING THE SURFACE OF MOLTEN METAL BATHS IN THE MANUFACTURE OF GLASS

Silvano Biagini, Pisa, Italy, assignor to Compagnie de Saint-Gobain, Neuilly sur Seine, France

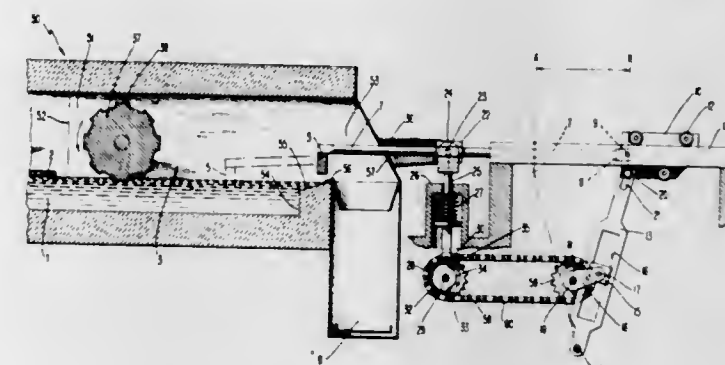
Filed Oct. 24, 1968, Ser. No. 770,360

Claims priority, application France, Oct. 24, 1967, 125643

Int. Cl. C03b 18/02

U.S. Cl. 65-182 R

3 Claims



Apparatus is provided for removing slag from the surface of a metal bath, for instance molten metal employed in the manufacture of glass by the flotation process, in which bays are provided in the wall of the tank along the course of the glass, the surface liquid, including floating slag, is drawn into the bays, is cleaned by skimming, and returned to the main tank. Novel mechanism if provided to control the motion of the skimmers.

3,653,870

HOLDING AND COOLING DEVICE FOR GLASSWARE MOLDS

Thomas V. Foster, Oberengstringen, and Herman H. Nebelung, Binz-Maur, both of Switzerland, assignors to Emhart Corporation, Bloomfield, Conn.

Filed Mar. 9, 1970, Ser. No. 17,562

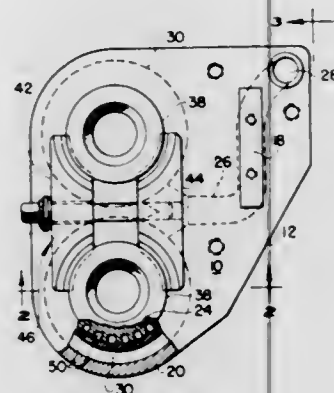
Int. Cl. C03b 9/38

U.S. Cl. 65-356

8 Claims

A holding and cooling device for glassware molds, particularly for one-piece inverted parison body molds for wide mouth ware. The holder has an internal passage for cooling air, a portion of which passage surrounds the associated mold

or molds, and ports from the passage are directed to the molds which have vertical ribs and interspersed flutes. The molds are rotatably adjustably positioned in vertical openings



in the holder, and such adjustment positions the ribs to close off selected ports while leaving the remaining ports open for the flow of cooling air into the flutes on the mold.

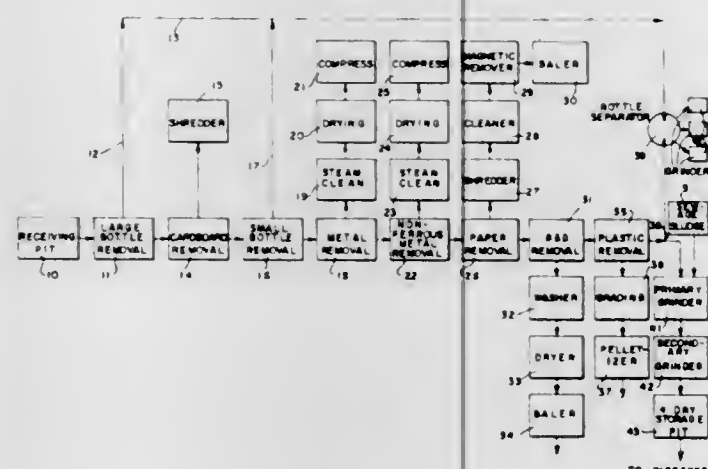
3,653,871

METHOD OF DISPOSING AND RECLAIMING SOLID REFUSE

Andre Tempe, P.O. Box 242, Budd Lake, N.J.
Filed Aug. 4, 1970, Ser. No. 60,856
Int. Cl. C05f 11/08, 9/00

U.S. Cl. 71-8

13 Claims



This specification discloses a method of disposing of solid refuse and converting it into usable end products. Two basic groups of method steps are involved. One is the sorting of the refuse to segregate metals, cardboard, cartons and papers; bottles and glass; cloth and rags; and plastics, together with attending steps of treating the sorted components to reclaim them for usage. The second group of steps is the processing of the organic materials which remain after the above solids have been removed to convert it into usable organic fertilizer.

3,653,872

PROCESS FOR THE PREPARATION OF A NITROPHOSPHATE FERTILIZER

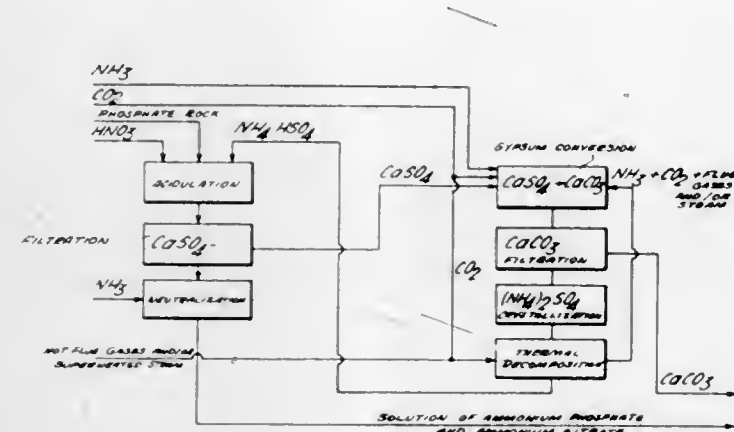
Arie Y. Guery, Rijswijk, Netherlands, assignor to Badger N.V., The Hague, Netherlands
Filed Dec. 5, 1969, Ser. No. 882,603
Claims priority, application Netherlands, Dec. 18, 1968, 68/18164
Int. Cl. C05b 11/06

U.S. Cl. 71-35

2 Claims

A process for the preparation of nitrophosphate fertilizer by acidulation of phosphate rock by means of a mixture of HNO_3 and NH_4HSO_4 , wherein the NH_4HSO_4 serves for the

acidulation as well as for the precipitation of the calcium present in the phosphate rock as $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. The latter is treated with a gas mixture containing NH_3 and CO_2 , forming



CaCO_3 and $(\text{NH}_4)_2\text{SO}_4$. The $(\text{NH}_4)_2\text{SO}_4$ is thermally decomposed to form NH_4HSO_4 , which is recycled to the acidulation reaction. The acidulated phosphate rock solution is neutralized with NH_3 to obtain the nitrophosphate fertilizer.

3,653,873

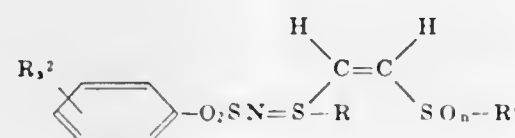
ETHYLENIC SULFILIMINE COMPOSITIONS FOR CONTROLLING FUNGI, BACTERIA AND ALGAE

Horst O. Bayer, Levittown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
Original application Feb. 16, 1968, Ser. No. 705,916, now Patent No. 3,542,865, dated Nov. 24, 1970. Divided and this application Feb. 17, 1970, Ser. No. 12,149
Int. Cl. A01n 9/16

U.S. Cl. 71-67

9 Claims

The use of selectively oxidized ethylenic sulfilimines of the formula



to protect agricultural, organic, and related articles from attack by noxious living organisms, such as fungi, bacteria and algae.

3,653,874

PRODUCTION OF METAL PELLETS FROM METALLIC OXIDES

Elwood V. Schulte, Pittsburgh, Pa., assignor to Koppers Company, Inc.

Filed Jan. 2, 1970, Ser. No. 246
Int. Cl. C21b 1/24

U.S. Cl. 75-3

10 Claims

A process and apparatus for producing pellets of iron from finely divided iron oxide materials is provided in which the process includes: (1) admixing the finely divided iron oxide materials with alkaline earth metal oxides or hydroxides; (2) forming pellets of the admixture; (3) simultaneously drying and carbonating the pellets; and, (4) reducing the iron oxide materials to iron. Moreover, to produce steel from the finely divided iron oxide materials, the reduced pellets are immediately charged into a conventional steelmaking furnace.

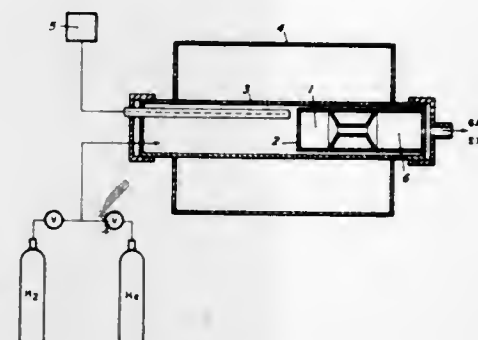
3,653,875

RECOVERY OF METALS AND PHOSPHATE FROM WASTE PHOSPHATE SLUDGE

Roy F. Waters; Howard E. Powell, and Lee N. Ballard, all of Rolla, Mo., assignors to The United States of America as represented by the Secretary of the Interior

Filed Mar. 2, 1971, Ser. No. 120,235
Int. Cl. C21b 15/00; C01b 25/00; C21b 1/00
U.S. Cl. 75-21

6 Claims



Waste phosphate sludge containing metals including iron and zinc are mixed with an alkali solution, and the mixture is dried and sintered at a temperature of about 500° to 1300° C. in the presence of a reductant, which may be either a reducing gas or a solid reductant. This results in conversion of the phosphate to a water-soluble salt, reduction of zinc to the metallic state and volatilization of the zinc from the reaction zone, and reduction of iron and other metallic elements to the metallic state. Leaching of the sinter cake with water recovers the soluble phosphate and frees the reduced metals for recovery in the form of fine-grained iron or iron alloy powder.

3,653,876

FERROUS PELLETS

Fritz O. Wienert, 394 Roosevelt Avenue, Niagara Falls, N.Y.
Continuation-in-part of application Ser. No. 464,545, June 16, 1965, now abandoned. This application July 11, 1968, Ser. No. 743,932
Int. Cl. C21b 1/08

U.S. Cl. 75-28

9 Claims

The production of ferrous metallurgical pellets containing sufficient reductant for complete reduction has been accompanied by problems, because the pellets tend to crumble at temperatures in the range of 300°-800° C. This loss of hot crushing strength is suggested herein to be due to the reduction of iron oxide from the trivalent to the divalent state. In accordance with this invention, the reductant is subjected to a controlled oxidation which removes the most active carbon, preventing significant reduction at temperatures below about 900° C. and which preserves the hot crushing strength. Oxidation of the reductant can be carried out before or after pellet formation.

3,653,877

METHOD OF MAKING MOLTEN METAL FOR CASTING

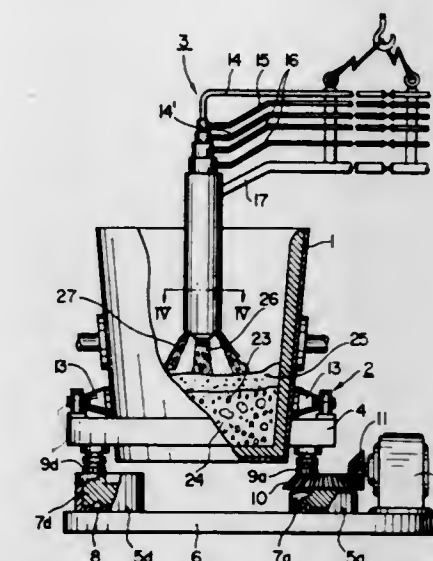
Ryosuke Enya, No. 3620 Shinichi, Murozumi-cho, Hikari, Japan
Filed Mar. 6, 1970, Ser. No. 17,151
Claims priority, application Japan, Sept. 11, 1969, 44/71624
Int. Cl. C21b 11/00; C21c 5/56; C22c 1/02

U.S. Cl. 75-43

14 Claims

A method for making molten metal for casting directly from cold starting material. Cold starting material is placed in a movable vessel, and a layer of particulate material selected from the group consisting of coke and flux is spread on the top of the starting material in the vessel. One or more flames of hydrocarbon fuel-oxygen mixture are directed to the particulate layer, while translating the vessel along a closed path, so as to heat the particulate to white-hot state

and to mix the cold starting material with the particulate thus heated, for melting the starting material. A composition-control agent is added in the material thus melted for producing



3,653,878

COLD AND HOT ROLLING PROCESS OF SCRAP CARS FOR PRODUCING A COMPACT STEEL MASS

Yo Jonghe, No. 18, 3-chome Nanyodori, Nagoya, Japan
Filed July 16, 1969, Ser. No. 842,153
Int. Cl. C21b 7/00; B21d 5/08

U.S. Cl. 75-63

6 Claims

A cold and hot rolling process of scrap cars for producing a compact steel briquet as a raw material for the steel-making industry, wherein scrap cars are forcibly cold and hot rolled by successive rollers into an elongated steel briquet which consists of a sheet of steel plate folded up into a number of upright pleats and molten together into a unit, while the width of said plate is maintained within the width of the rollers and materials other than iron and steel contained or attached to the cars are removed out of the process by melting them during the course of process.

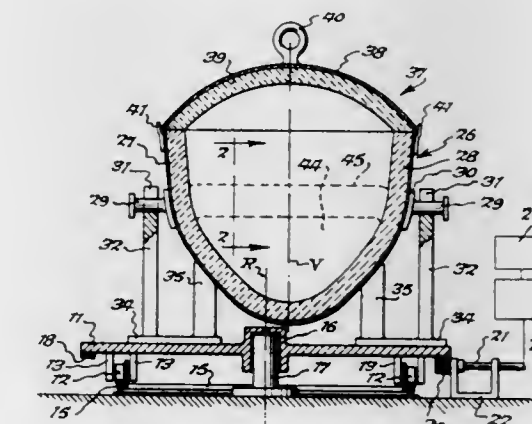
3,653,879

ROTARY REACTOR AND METHOD FOR TREATING MELTS

Fritz O. Wienert, 394 Roosevelt Avenue, Lewiston, N.Y.
Continuation-in-part of application Ser. No. 502,644, Oct. 22, 1965, now abandoned. This application Oct. 14, 1969, Ser. No. 866,354
Int. Cl. C22b 9/00; C21c 7/00

U.S. Cl. 75-93 R

18 Claims



Mixing of melts and one or more reagents is carried out in an upright rotary reactor mounted for rotation about an

upright axis that passes through the reactor but is not concentric with the vertical axis of the reactor. A major portion of the reaction is carried out while the reactor is rotated about the upright axis in one direction or the other at slowly changing speed whereby to maintain a difference in rotational speed between the melt and the reactor. The reactor has a lining, the inner wall of which is so shaped that at least a part thereof is adapted to divert the portion of a melt in the reactor which is adjacent the inner wall from a circular path when the reactor is rotated.

3,653,880

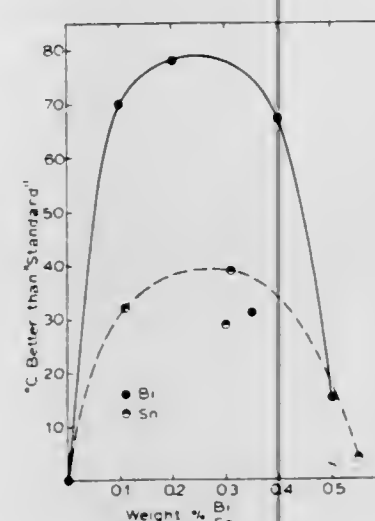
MAGNESIUM CAST ALLOYS WITH LITTLE TENDENCY TO HOT-CRACK

Gunnar Gtlesen, Porsgrunn, Norway, assignor to Norsk Hydro A/S, Oslo, Norway

Filed Jan. 8, 1970, Ser. No. 1,449

Int. Cl. C22c 23/00

U.S. Cl. 75-168 C



Magnesium cast alloys containing 3-10 percent aluminum, 0.3-2 percent zinc and 0.1-0.4 percent bismuth or tin, all by weight, showing little tendency to hot-crack.

3,653,881

ALLOY FOR USE IN SPARK PLUG ELECTRODES

David M. McCann, and John Hrincevich, Jr., both of Flint, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 3, 1970, Ser. No. 60,758

Int. Cl. C22c 19/00

U.S. Cl. 75-171

2 Claims

Alloys adapted for use in spark plug electrodes, the alloy being so constituted as to retain a low electrical resistivity while possessing a high degree of resistance to oxidation and corrosion. The alloy consists essentially of the following constituents on a weight percent basis, chromium 2.0-2.5, iron 3.0-3.5, manganese 1.75-2.25, silicon 1.75-2.25, titanium 0.2-0.4, the balance being nickel.

3,653,882

METHOD OF MAKING FIBER COMPOSITES

Donald W. Petrask, Rocky River; Robert A. Signorelli, Strongsville; John W. Weeton, Rocky River, and Gerald B. Beremand, Avon, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Original application Oct. 18, 1968, Ser. No. 768,907. Divided and this application Feb. 27, 1970, Ser. No. 15,222

Int. Cl. B22f 3/14

U.S. Cl. 75-208

8 Claims

A method of making a fiber composite having high strength at 2000° to 2200° F. by slip casting a nickel alloy

matrix slurry into an array of tungsten fibers. The slip is dried and sintered in dry hydrogen at 1500° F. for one hour. The resulting body is isostatically hot pressed at 20,000 p.s.i. and 1500° F. for one hour, followed by a second isostatic hot pressing at 2000° F. for 1 hour.

3,653,883

METHOD OF FABRICATING A POROUS TUNGSTEN BODY FOR A DISPENSER CATHODE

Alfred Month, and David Lawrence Thornburg, both of Lancaster, Pa., assignors to RCA Corporation

Filed Apr. 1, 1970, Ser. No. 24,830

Int. Cl. B22f 1/00

U.S. Cl. 75-212

6 Claims

A method comprising

A. dissolving tungsten trioxide or molybdenum trioxide in a solvent containing water and at least one of morpholine, ethylene diamine, tetraethylene pentamine, triethylene tetramine, triethanolamine, hexamethylene tetramine, and glycine to produce a solution.

B. mixing tungsten metal powder with a quantity of said solution to provide in addition about 0.25 to 4.00 weight percent tungsten or molybdenum as a compound thereof in said mixture.

C. pressing a quantity of said mixture into a pellet.

D. and then heating said pressed pellet above 2,000° C. to produce a porous tungsten body.

3,653,884

PROCESS FOR THE CONTINUOUS PRODUCTION OF A STRIP FROM POWDERED METAL

Idwal Davies, Killay, Swansea, and Alan G. Harris, Tycosh, Swansea, both of Wales, assignors to The British Iron and Steel Research Association, London, England

Filed Mar. 13, 1969, Ser. No. 807,101

Claims priority, application Great Britain, Mar. 14, 1968, 12,484/68

Int. Cl. B22f 1/00

U.S. Cl. 75-214

7 Claims

A process is provided for rolling metal strip, particularly iron or iron alloy strip, directly from powdered metal using a technique in which a self-supporting metal powder/binder strip is formed from a slurry containing the metal and binder composition, together with a hygroscopic substance on a support surface and the resultant strip is compacted by rolling and then sintered. Typical hygroscopic substances are polyhydroxy compounds such as glycerol and polyalkylene glycols and their use is found to improve the mechanical properties of the final strip.

3,653,885

PROCESS OF STABILIZING A MIGRATION IMAGE COMPRISING SELENIUM PARTICLES

Mortimer Levy, Rochester, and Peter P. Augustini, Webster, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 590,959, Oct. 31, 1966, now abandoned. This application Apr. 20, 1970, Ser. No. 29,932

Int. Cl. G03g 13/22

U.S. Cl. 96-1 R

12 Claims

An image comprising migration material residing on a metallic conductive substrate and formed in accordance with the migration imaging process is stabilized and fixed onto the substrate by heating the substrate and the migration material to produce a chemical reaction therebetween resulting in a permanent stable image having high density and resolution.

3,653,886

PREPARATION OF PRINTING FORMS BY THE IONIC POLYMERIZATION OF PHOTOCONDUCTORS

Erwin Lind, Auringen Uber Wiesbaden, and Wolfgang Wiedemann, Niederwalluf, Rhineland, both of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

Filed Apr. 10, 1968, Ser. No. 720,383

Claims priority, application Germany, Apr. 13, 1967, K 62004

Int. Cl. G03g; G03c 5/00

U.S. Cl. 96-1 R

6 Claims

This invention relates to an electrophotographic reproduction process for the preparation of printing plates from electrophotographic reproduction material in which a latent electrostatic image is produced on a layer containing at least one polymerizable organic photoconductor having olefinic double bonds therein, or capable of forming such bonds during heating, the image is made visible by means of a developer which comprises at least one finely-divided substance which acts as a catalyst for the ionic polymerization of olefins, the reproduction material with the developed image thereon is heated to a temperature between about 50° and 300° C., and the organic photoconductor layer then is removed in a conventional manner from the non-image areas by dissolving it away.

3,653,887

NOVEL α,α' -BIS(AMINO BENZYLIDENE) ARYL DIACETONITRILE PHOTOCONDUCTORS

Stewart H. Merrill, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 4, 1969, Ser. No. 874,016

Int. Cl. G03g 5/06

U.S. Cl. 96-1 PC

6 Claims

α,α' -bis(aminobenzylidene)aryldiacetonitriles are useful as organic photoconductors in electrophotographic elements. Elements containing these materials exhibit improved speeds.

3,653,888

THERMOPLASTIC RECORDING

Gerhard Lessman, Evanston, Ill., assignor to Bell & Howell Company, Chicago, Ill.

Filed May 19, 1960, Ser. No. 30,291

Int. Cl. G03g 13/22; B41m 5/20

U.S. Cl. 96-1.1

19 Claims

The disclosure relates to a process and apparatus for recording information on a dielectric thermoplastic material in the form of a ripple pattern. A layer of dielectric photoconductive material may be used to form an electrostatic latent image, which is transferred to the thermoplastic material to control the deformation of the thermoplastic material in image configuration.

3,653,889

METHOD OF FIXING MANIFOLD IMAGES

Ray H. Luebke, Jr., Rochester, N.Y., and John F. Byrne, Worthington, Ohio, assignors to Xerox Corporation, Rochester, N.Y.

Filed July 28, 1969, Ser. No. 845,343

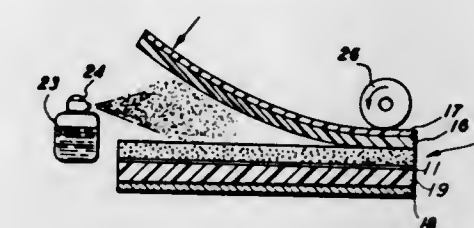
Int. Cl. G03g 13/22

U.S. Cl. 96-1

11 Claims

This invention pertains to an imaging system wherein there is employed a structure comprising a cohesively weak electrically photosensitive imaging layer sandwiched between a donor sheet and a receiver sheet. Images are produced by rendering the imaging layer cohesively weak by treatment with an activator and while subjecting the imaging layer to an electric field, it is exposed to electromagnetic radiation to which it is sensitive. With the field still applied, the sandwich is separated whereby the imaging layers fractures with the exposed portion of the imaging layer residing on one of the

sheets and the unexposed portion residing on the other sheet. Images of superior quality are provided by inserting between the donor sheet and the imaging layer a solvent softenable



3,653,890

SCREEN ELECTROPHOTOGRAPHIC CHARGE INDUCTION PROCESS

Ryubun Selmiya; Yuzo Ohmuro; Sigeru Hanaoka, and Masaru Nakamura, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd.

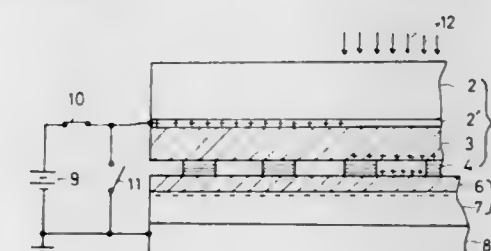
Filed Oct. 21, 1968, Ser. No. 769,255

Claims priority, application Japan, Oct. 25, 1967, 43/68413; June 26, 1968, 43/43866; July 3, 1968, 43/45875; July 24, 1968, 43/51821

Int. Cl. G03g 13/22

U.S. Cl. 96-1 R

11 Claims



3,653,891

FORMS OVERLAY TECHNIQUE USING TEST

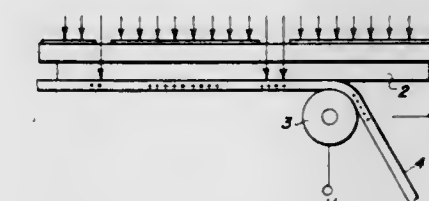
Thomas L. Thourson, Penfield, and Oscar G. Hauser, Rochester, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,430

Int. Cl. G03g 13/22

U.S. Cl. 96-1

6 Claims



A method of forming composite electrostatic latent images in one mode from both positive and negative optical information is disclosed. The techniques employed to form positive electrostatic images from optically positive information and optically negative information involve the use of principles relating to breakdown of air in a gap under the influence of a field. By properly controlling the polarity of the applied field any optical input may be used to deposit a positive electrostatic latent image on a suitable receiver to provide a com-

posite image. This method of forming a composite image from optically positive and negative information may be used in a forms overlay fashion where it is desired to have ready access to certain forms for printout with information complementary thereto or in any other electrophotographic image application where it is desired to employ one developer to develop composite images prepared from such information.

3,653,892

MANIFOLD IMAGING PROCESS WHEREIN THE IMAGED ELEMENTS MAY BE RECOMBINED AND REUSED

Robert W. Gundlach, Victor, and John B. Wells, Rochester, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed July 1, 1969, Ser. No. 838,193

Int. Cl. G03g 13/22

U.S. Cl. 96-1.3

20 Claims

An imaging process wherein a reusable imaging layer comprising a cohesively weak electrically photosensitive imaging material is sandwiched between a donor sheet and a receiver sheet, subjected to an electric field and exposed to an imagewise pattern of electromagnetic radiation to which it is sensitive. The donor and receiver sheets are then separated thereby fracturing the imaging layer in imagewise configuration. The imaging layer is rendered reusable by recombining the sandwich, subjecting it to an electric field opposite in polarity to the first electric field while flood exposing the imaging layer to electromagnetic radiation to which it is sensitive.

3,653,893

IMAGING SYSTEM

Burton B. Jacknow, and Joseph H. Moriconi, both of Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Original application June 5, 1967, Ser. No. 643,394, now Patent No. 3,577,345. Divided and this application Aug. 28, 1970, Ser. No. 68,019

Int. Cl. G03g 13/08

U.S. Cl. 96-1.4

5 Claims

A finely-divided low melting toner comprising a colorant, a thermoplastic resin comprising a vinyl resin, a solid metal salt of a fatty acid, and a solid additive having a melting point between about 115° F. to about 270° F. comprising a benzoate, a sulphonamide or a polychlorinated polyphenyl compound.

3,653,894

ELECTROCONDUCTIVE PAPER, ELECTROGRAPHIC RECORDING PAPER, AND METHOD OF MAKING SAME

Robert M. Levy, Kalamazoo; Robert J. Thiessen, Richland, both of Mich., and Bert Growald, Los Altos, Calif., assignors to Allied Paper Incorporated, Kalamazoo, Mich.

Continuation-in-part of application Ser. No. 565,685, July 18, 1966, now abandoned, Continuation-in-part of application Ser. No. 565,686, July 18, 1966, now abandoned. This application Dec. 11, 1969, Ser. No. 884,307

Int. Cl. G03g 7/00; C08c 17/16; C09d 5/24

U.S. Cl. 96-1.7

20 Claims

Electroconductive paper utilizing montmorillonite clay in a binder as the conductive agent is disclosed. The electroconductive paper can be overcoated with a dielectric film or a coating of a photoconductor in a non-conductive or dielectric binder for an electrostatic printing purpose. When the montmorillonite clay is in a non-water-sensitive binder such as a latex binder, an aqueous coating of photoconductive material can be used.

3,653,895

REPRODUCTION UTILIZING A BICHARGEABLE PHOTOCONDUCTIVE LAYER CONTAINING ZINC OXIDE AND TITANIUM DIOXIDE

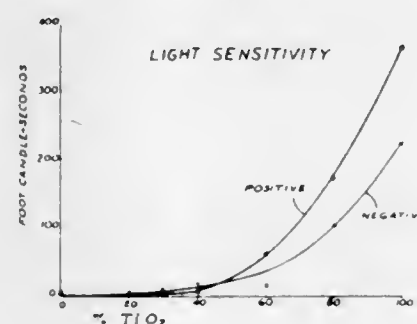
Richard L. Brandon, Vancouver, Wash., assignor to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Mar. 11, 1970, Ser. No. 18,480

Int. Cl. G03g 5/00

U.S. Cl. 96-1 PC

4 Claims



An electrophotographic recording sheet having a bichargeable photoconductive layer extending over a sheet substrate including as photoconductive pigments in the layer a blend of photoconductive zinc oxide and photoconductive titanium dioxide, the titanium dioxide comprising from 20 to 70 percent of such blend and the zinc oxide comprising at least 20 percent of the blend. These impart to the sheet a positive and a negative charge acceptance exceeding 350 volts, and a positive and a negative light sensitivity value of less than 120 footcandle-seconds.

3,653,896

DIFFUSION TRANSFER FILM UNIT

Paul H. Stewart, and David W. Fay, Administrators, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., by said Paul H. Stewart

Filed Nov. 3, 1970, Ser. No. 86,593

Int. Cl. G03c 5/54, 1/58, 1/48

U.S. Cl. 96-3

27 Claims

Photographic elements and film units are disclosed comprising a silver halide emulsion having associated therewith a quinone-coupling dye capable of forming a diffusible methylene base in alkaline processing composition. A diffusible dye is produced imagewise which diffuses to a dye image-receiving layer to provide a positive dye image. The diffusible dye is immobilized in the developed areas of the negative by reacting with an oxidized hydroquinone or catechol developing agent. The dye image-receiving layer may be located integral with the photo-sensitive element or may be located on a separate support adapted to be superposed on the photosensitive element after exposure thereof.

3,653,897

YELLOW DYE DEVELOPERS AND TRANSFER SYSTEMS EMPLOYING SAME

Derek D. Chapman, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

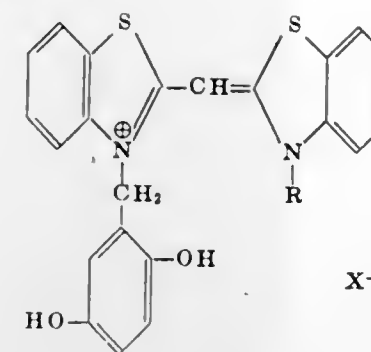
Filed Nov. 23, 1970, Ser. No. 92,272

Int. Cl. G03c 7/00, 5/54, 1/48

U.S. Cl. 96-3

18 Claims

Substituted 3-(dihydroxybenzyl)thiacyanine yellow dye developers having the general formula:



wherein R represents a hydrogen atom, an alkyl group or an aryl group and X represents an acid anion, provide improved dye hue and reduced color contamination in diffusion transfer systems.

3,653,898

FORMATION OF SMALL DIMENSIONED APERTURES

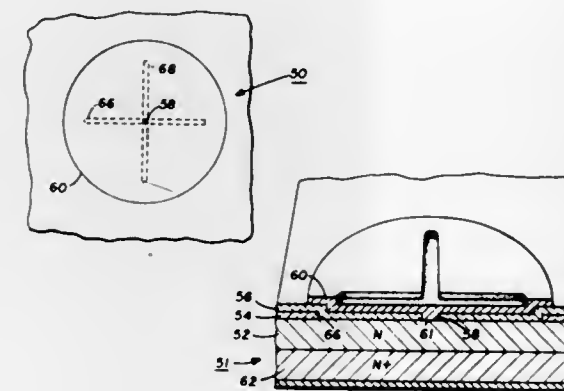
Patrick W. Shaw, Bedford, England, assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of application Ser. No. 468,256, June 30, 1965, now abandoned, which is a continuation-in-part of application Ser. No. 406,990, Oct. 28, 1964, now abandoned. This application Dec. 16, 1969, Ser. No. 882,397

Int. Cl. G03c 5/00

U.S. Cl. 96-35

20 Claims



Disclosed are methods for aperturing thin members by photochemical masking, exposing and etching techniques, such thin members may be a thin film of insulating material deposited or formed on a semiconductor substrate, or they may be a thin sheet or layer of material, such as metal.

3,653,899

PHOTOGRAPHIC MATERIALS AND PROCESSES

John A. Haefner, Webster, and Paul B. Gilman, Jr., Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 12, 1968, Ser. No. 775,165

Int. Cl. G03c 1/62, 5/24

U.S. Cl. 96-48 PD

14 Claims

This invention relates to a direct positive light sensitive photographic material comprising non-silver halide physically developable nuclei having adsorbed thereto an organic dye which is an electron acceptor and a process for preparing a positive metallic image comprising physically developing the same.

3,653,900

SELECTIVE ETCHING PROCESS FOR CHANGING SHADOW-MASK APERTURE SIZE

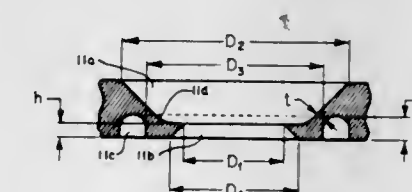
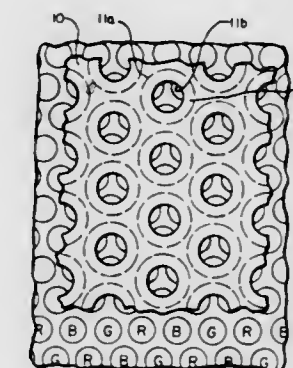
Joseph M. Black, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 15, 1969, Ser. No. 850,408

Int. Cl. G03c 5/00

U.S. Cl. 96-36.1

6 Claims



The shadow mask of a color picture tube is formed by etching a blank to provide a field of apertures individually having a large diameter portion and a coaxially aligned, small diameter portion attached to the former by a thin wall section. In screening a tube which is to utilize such a shadow mask for color selection, the phosphor materials are deposited on the screen in a photographic process involving the exposure of a layer of photosensitive material by actinic energy directed through the small diameter portions of the mask apertures. After screening has been accomplished, the thin wall sections are etched away, leaving the mask with apertures of large diameter, larger than the phosphor deposits in the screen.

3,653,901

COLOR KINESCOPE PRODUCTION WITH A TEMPORARY MASK

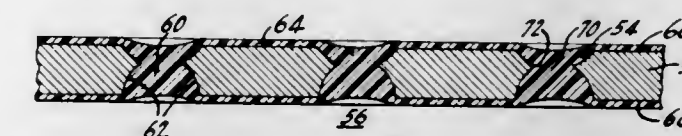
Robert William Etter, Litzitz, Pa., assignor to RCA Corporation

Filed Oct. 31, 1969, Ser. No. 872,981

Int. Cl. G03c 5/00; H01j 9/20

U.S. Cl. 96-36.1

4 Claims



A method for producing a kinescope having an image screen and an apertured target mask, the apertures of the mask being temporarily reduced in size for use as a photographic master for producing the image screen. Such reduction in aperture size is achieved by providing the target mask with a coating of a film-forming material which exhibits shrinkage during drying thereof. The coating is comprised of a number of opaque film portions which individually close

the mask apertures and preferably are disposed on the aperture walls. The coating is dried so as to remove the central regions of the film portions, thereby providing a temporary mask with light-transmitting corridors in the film portions, such corridors being smaller in cross-section than the mask apertures. The temporary mask is used in screen printing. The shrinkable material is eliminated from the mask, after which the screen and target mask are incorporated into a kinescope.

3,653,902

PHOTOGRAPHIC MATERIALS

Norman T. Notley, and Irwin M. Senentz, Jr., both of New Orleans, La., assignors to Kalvar Corporation, New Orleans, La.

Continuation of application Ser. No. 766,356, Aug. 23, 1968, now abandoned, which is a continuation of application Ser. No. 405,597, Oct. 21, 1964, now abandoned. This application Apr. 28, 1970, Ser. No. 32,753

Int. Cl. G03c 5/18, 1/52

U.S. Cl. 96—49

8 Claims

Vesicular photographic films having, as a vehicle, derivatives of polyvinyl alcohol in which at least 40 percent and preferably at least 75 percent of the alcohol groups are in the form of ester or acetal. The photographic materials are obtained by evaporating solvent from a solution containing the polymer and a light decomposable agent.

3,653,903

DIAZO-TYPE MULTICOLOR REPRODUCTION PROCESS

Kouzi Nihyakumen, Hirakata; Taizo Yokoyama, Osaka; Yasuo Ueda, Kobe; Yasutoki Kamezawa, and Tatsuo Aizawa, both of Osaka, all of Japan, assignors to Mita Industrial Company, Ltd., Osaka, Japan

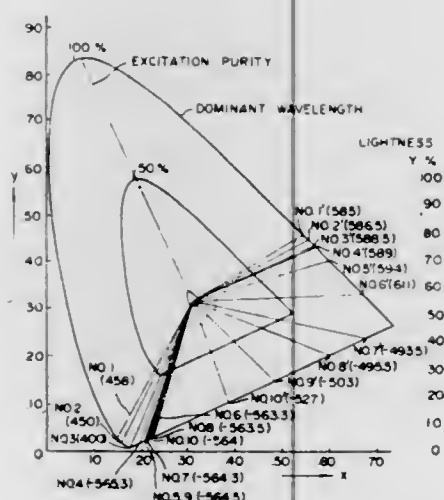
Filed July 31, 1970, Ser. No. 59,923

Claims priority, application Japan, Aug. 2, 1969, 44/60756

Int. Cl. G03c 5/18

U.S. Cl. 96—49

5 Claims



A process for the diazo-type multicolor reproduction which comprises (A) exposing to light a diazo-type photosen-

sitive material having a photosensitive layer containing at least one diazonium salt (c) and a coupler (b) having a substantially lower rate of coupling with the diazonium salt (c) than that of resorcin, said coupler being present in the photosensitive material in an amount of not greater than 1 mole per mole of said diazonium salt (c), and (B) heating a layer of at least one thermovolatil or thermosublimative coupler (a) disposed in a face-to-face contact with said photosensitive material at a predetermined portion, said steps being carried out coincidentally or in the order of (A) to (B) or (B) to (A), and then developing the exposed photosensitive material.

3,653,904

RAPID PHOTOGRAPHIC PROCESSING SOLUTIONS AND METHOD

Murray Friedel, North Miami Beach, Fla., assignor to Visual Graphics Corporation, New York, N.Y.

Filed Feb. 13, 1970, Ser. No. 11,312

Int. Cl. G03c 5/26, 5/24, 5/30

U.S. Cl. 96—50

3 Claims

Rapid processing of exposed photosensitive materials is achieved by the use of alkaline hydroquinone developers at an elevated temperature of from 75° to 125° F.

3,653,905

OXONOL DYES IN FILTER AND ANTI-HALATION LAYERS

Henri Depoorter, Mortsel; Alfred Rillaers, Kontich; Gerard Lemahieu, Mortsel, and Felix Jan Moelants, Wilrijk, all of Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

Filed May 13, 1969, Ser. No. 824,087

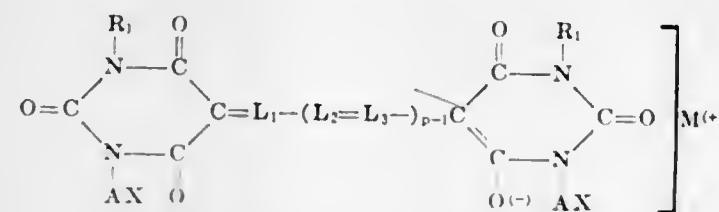
Claims priority, application Great Britain, May 21, 1968, 24,070/68

Int. Cl. G03c 1/84

U.S. Cl. 96—84

6 Claims

Light-screening oxonol dyes are provided for use as filter dyes and anti-halation dyes in photographic non-light-sensitive colloid layers and as screening dyes in photographic light-sensitive emulsion layers which are discharged quickly, completely, and irreversibly in the photographic processing liquids even in the "lith"-type of developers. The novel light-screening dyes of the invention have the general formula:



wherein:

A stands for a branched or unbranched alkylene group including alkylene interrupted by one or more hetero atoms such as oxygen.

X stands for alkoxycarbonyl comprising in the alkoxy group at most 5 carbon atoms, hydroxyl, sulfo in acid or salt form, cyano, halogen such as chlorine or the group SO₂R wherein R stands for alkyl including substituted alkyl or aryl including substituted aryl.

R₁ stands for hydrogen, alkyl including substituted alkyl, e.g., the group AX, cycloalkyl, allyl, aralkyl including substituted aralkyl, aryl including substituted aryl.

each of L₁, L₂, and L₃ stands for methine including substituted methine, e.g., methine substituted by alkyl, aralkyl, aryl and carboxy.

M stands for a cation, e.g., a hydrogen cation, a metal cation or an organic cation of inorganic or organic nature such as ammonium and pyridinium, and p stands for 1, 2, or 3.

3,653,906

PHOTOGRAPHIC MATERIAL CONTAINING ANTISTATIC COATING

Henry Walter Wood, Ilford, England, assignor to Ilford Limited, Ilford, England

Filed Sept. 29, 1969, Ser. No. 862,057

Claims priority, application Great Britain, Oct. 3, 1968, 47,039/68

Int. Cl. G03c 1/82

U.S. Cl. 96—87 A

8 Claims

This application describes photographic material which comprises a support base, at least one photographic emulsion layer on at least one side of said base, the material being characterized in that it has an outer antistatic layer which consists of a dried gelled layer which comprises sodium cellulose sulphate, which has a high degree of substitution, and a potassium salt.

3,653,907

THERMOGRAPHIC COPY SHEET CONTAINING 2,6-DICYCLOHEXYL

Charles H. Benbrook, Nashua, and Albert W. Leclair, Hudson, both of N.H., assignors to Nashua Corporation, Nashua, N.H.

Filed May 13, 1970, Ser. No. 37,050

Int. Cl. G03c 1/02

U.S. Cl. 96—114.1

1 Claim

The presence of 2,6, dicyclohexyl cresol in a reducible silver salt-based thermo copy sheet improves the density and contrast of the image areas.

3,653,908

ANIMAL FOOD PRODUCT AND PROCESS

Marvin E. Buck, and Brian W. Smith, both of Battle Creek, Mich., assignors to General Foods Corporation, White Plains, N.Y.

Continuation-in-part of application Ser. No. 696,155, Jan. 8, 1968, now abandoned. This application June 6, 1969, Ser. No. 789,400

Int. Cl. A23k 1/00, 1/10

U.S. Cl. 99—2

14 Claims

Extrusion cooling of pasteurized meat slurry containing ungelatinized amylaceous material and preferably proteinaceous extracts produces a shelf stable 35–45 percent moisture extrudate that is shape retaining; sugars, alcohols, salts and acidulants serving to provide bacteriostasis.

3,653,909

RUMINANT FEED COMPOSITION

Benjamin B. Wilson, Colonial Heights, Va., assignor to Allied Chemical Corporation, New York, N.Y.

Filed Feb. 9, 1970, Ser. No. 9,954

Int. Cl. A23k 1/00

U.S. Cl. 99—2 R

10 Claims

Ruminant feed compositions that improve the nitrogen intake retained by the ruminant and the production of volatile fatty acids in the rumen are formulated to contain protein, carbohydrates and as a source of nonprotein nitrogen, a mixture of urea and melamine. The ratio of the weight of the urea nitrogen to the weight of melamine nitrogen is preferably between about 0.8 and about 1.2 and the sum of the weight of the urea and melamine nitrogen constitutes preferably between about 25 and about 50 percent of the total nitrogen in the ruminant feed.

3,653,910

PROCESS FOR OBTAINING COFFEE AROMATICS

Esra Pitchon, Flushing, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

Filed Dec. 5, 1969, Ser. No. 882,708

Int. Cl. A23f 1/08

U.S. Cl. 99—71

1 Claim

By introducing steam into a bed of coffee to obtain steam distilled aromatics, the base extract obtained by extraction of the steamed coffee is more acid, and less desirable than extract obtained from unsteamed coffee. In the process of this invention, the steam is made to flow from the top of the bed of coffee, down through the bed. It was discovered that the extract obtained, by extraction of coffee subjected to downflow steaming was less acidic and less degraded than extracts obtained from coffee treated with normal upflow of steam.

3,653,911

PROCESS FOR MAKING PRELIGHTENED COFFEE POWDER

John J. Mancuso, Astoria, N.Y.; Theodore F. Litchult, Ramsey, N.J., and Herman M. Dolezal, Valley Cottage, N.Y., assignors to General Food Corporation, White Plains, N.Y.

Filed Dec. 3, 1969, Ser. No. 881,888

Int. Cl. A23f 1/12

U.S. Cl. 99—71

6 Claims

A prelightened coffee composition is made by mixing buffered coffee percolate with a coffee lightener composition and homogenizing the mixture. This mixture is then spray dried to produce a powder consisting of coffee solids and lightener solids, which has retained a high degree of lightening power and which does not exhibit any feathering when dissolved in hot water.

3,653,912

PREPARATION AND USE OF A BLAND DISPERSIBLE FOOD PROTEIN

William E. Koski; Donald E. Smith, and Ali R. Toubia, all of Minneapolis, Minn., assignors to General Mills, Inc.

Filed Dec. 22, 1969, Ser. No. 887,308

Int. Cl. A23c 1/100

U.S. Cl. 99—64

10 Claims

A beverage is provided which includes a soy product which has been modified by dispersing soy material in water, adding an alkaline substance such as sodium hydroxide to raise the pH to about 12 and then adding an acidic material to reduce the pH to about 7 to 8. The resulting solution may be spray dried. A high protein beverage may be produced by dissolving the modified dry soy material, for example, in water. The modified soy material may alternatively be added to cow's milk to provide a beverage of very high protein content. The beverage may include other flavoring material, such as chocolate.

3,653,913

INFUSION BAG

Adolf Rambold, Bachstrasse 8, Strump near Dusseldorf, Germany

Filed Mar. 28, 1969, Ser. No. 811,339

Claims priority, application Austria, Apr. 8, 1968, 3460/68;

July 18, 1968, 6952/68

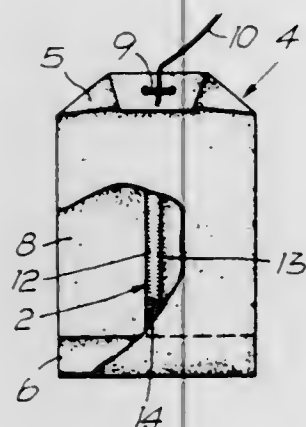
Int. Cl. B65b 29/02

U.S. Cl. 99—77.1

2 Claims

An infusion bag containing a substance, for example, tea, for preparing a beverage consisting of a tube made from a rectangular strip of a thin filtering sheet material the longitudinal margins of which are folded together either with or without a covering strip so as to form a longitudinal joint consisting of at least three layers which are knurled together by a pair of meshing knurling wheels. The tube is divided by at least one transverse bend so as to form a pair of chambers for holding the infusible substance, and the opposite ends of

the tube are connected to each other so as to close the bag. While one of the knurling wheels for knurling the longitudinal joint preferably has continuous teeth, the other wheel



preferably has two parallel narrow rows of teeth. The tips of the teeth of at least one of the knurling wheels are preferably slightly ground off.

3,653,914

PRODUCTION OF TABLETS

William H. Schmitt, Elmhurst, Ill., assignor to Alberto-Culver Company, Melrose Park, Ill.

Continuation-in-part of application Ser. No. 652,688, July 12, 1967, now abandoned. This application Mar. 20, 1970, Ser. No. 21,511

Int. Cl. A23l 1/26; A61k 9/00, 11/02

U.S. Cl. 99-78

25 Claims

Molded effervescent triturate tablets or tablets formed by molding or compressing which have a matrix free of water insoluble polymers are contacted with a volatile organic solvent in which one or more materials comprising the tablet are at least partially soluble. The volatile solvent is removed causing the organic solvent solubilized material to be redeposited in situ. This causes an increase in the hardness and a decrease in the friability characteristics of the tablet. The tablet matrix can contain an edible acid, an edible acid coupled with a carbonate, sweeteners including the water soluble synthetic type, flavoring agents, medicinal ingredients, and detergents.

3,653,915

TORTILLA AND PROCESS USING MONO-OR DIGLYCERIDE

Manuel Jesus Rubio, 192 Benham Ave., Bridgeport, Conn.

Filed June 8, 1970, Ser. No. 44,586

Int. Cl. A21d 2/10

U.S. Cl. 99-80 R

6 Claims

To retard the staling of tortillas, which are an unleavened unshortened food product made from nixtamalized corn or corn flour by incorporating an additive in making the tortilla dough. The additive is mono- or diglyceride or the like.

3,653,916

PROCESS FOR PRODUCING AN ONION FLAVORED SNACK

Robert O. Straughn, and Richard D. Reinhart, both of Minneapolis, Minn., assignors to General Mills, Inc.

Filed Dec. 29, 1969, Ser. No. 888,814

Int. Cl. A23l 1/18

U.S. Cl. 99-81

6 Claims

Preparing a puffed snack product by blending dry ingredients including a meal, onion flavoring and sugar. Sufficient water is added to the blend to raise the total moisture content, by weight, to between 13 and 15 percent. The mix-

ture is tempered for between one-half hour and 8 hours. The mixture is treated in a collet extruder where the temperature is raised to between 255° and 310° F. and the pressure is between 950 and 1,350 pounds per square inch gauge. The mixture expands upon extrusion and is cut into pieces which are toasted and enrobed with an edible oil and salt.

3,653,917

ANGEL FOOD CAKE MIXES AND THEIR PRODUCTION

Issac J. Wahba, Minneapolis; Daniel F. Padmos, Hamel, and Shao-Mu Ma, Minneapolis, all of Minn., assignors to General Mills, Inc.

Filed Feb. 5, 1970, Ser. No. 9,035

Int. Cl. A21d 2/00; A23l 1/00

U.S. Cl. 99-94

5 Claims

Tolerance of certain angel food cake mixes is improved by the addition of calcium chloride.

3,653,918

METHOD OF PROCESSING HAMS

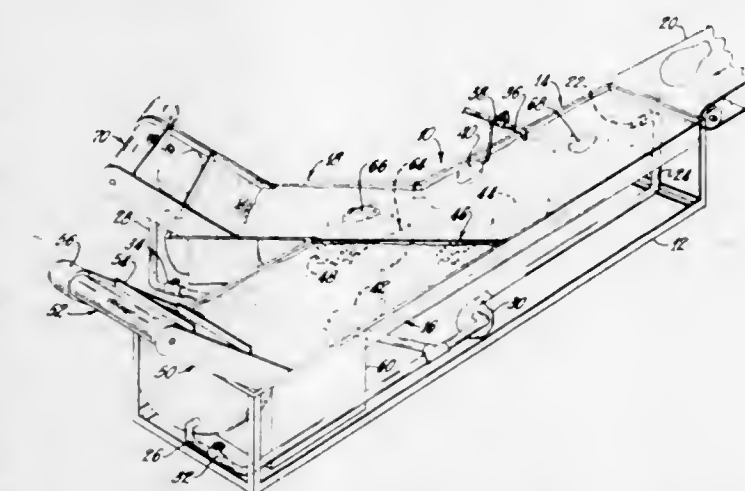
Charles H. Wallace, 5960 Flanders Road, Sylvania, Ohio

Filed Dec. 22, 1969, Ser. No. 886,826

Int. Cl. A22c 18/00

U.S. Cl. 99-107

2 Claims



A method and apparatus for grading or sorting hams are provided. The hams are placed in a container of brine of a predetermined density with the fatter hams tending to float and the leaner ones tending to sink. Those near the surface of the brine in the container are sold with minimum or no trimming while those near the bottom are de-boned and the fat is removed for sale at a premium price. In the particular apparatus, the hams move along a trough containing the brine which is supplied at one location and removed from another for recirculation. A conveyor at one position in the trough removes the floating hams and a conveyor at another position removes the sunken hams.

3,653,919

PRODUCTION OF CHEESE CURD

Claude Giddey, and Georges Dove, both of Geneva, Switzerland, assignors to Alfa-Laval AB, Tumba, Switzerland

Filed Aug. 19, 1969, Ser. No. 851,459

Claims priority, application Switzerland, Aug. 20, 1968, 12497/68; July 23, 1969, 11258/69

Int. Cl. A23c 19/02

U.S. Cl. 99-116

26 Claims

Concentrated milk with a dry substance content of about 30 percent is renneted at 15° to 30° C. for 5 to 15 minutes to insolubilize the casein and obtain a homogeneous non-gelled viscous mass, which is then cooled below 10° C.; and thereafter parallel streams of the renneted milk are heated rapidly to 25° to 45° C. to polymerize the casein and obtain curd in the streams. The curd is then washed in an aqueous bath, separated from the bath, and finally re-collected to form a homogeneous mass.

3,653,920

THIA-ALKANETHIOLS AS MEAT FLAVORS

Hendrik Willem Brinkman, Velp, and Arnoldus van der Heyden, Zevenaar, both of Netherlands, assignors to Lever Brothers Company, New York, N.Y.

Filed June 18, 1970, Ser. No. 47,622

Int. Cl. A23l 1/26

U.S. Cl. 99-140 R

7 Claims

A meat flavor is given or enhanced in foodstuffs by addition of thia-alkanethiols of formula $R^1-S-CH(SH)-R^2$ where R^1 and R^2 are methyl or ethyl radicals.

3,653,921

BUTTER FLAVORED FOOD ADDITIVE CONCENTRATE

Allen C. Buhler, Racine, Wis.; Eric Engel, Winnetka, Ill.; John H. Nelson, Waukesha, and Clyde H. Amundson, Madison, both of Wis., assignors to Morton-Norwich Products, Inc., Chicago, Ill.

Continuation-in-part of application Ser. No. 751,743, Aug. 12, 1968, now abandoned. This application Mar. 27, 1969,

Ser. No. 811,214

Int. Cl. A23l 1/26

U.S. Cl. 99-140 R

20 Claims

A concentrated butter flavorant and a method of manufacturing the same for addition to food to impart a butter-like flavor thereto comprising a lipase enzyme-modified milk fat, flavor and aroma principles, a diluent, and a bicarbonate buffering agent. The concentrate may be diluted as desired for specialized uses and may be provided in dry form.

3,653,922

METHOD OF PREPARING A LOW CALORIE PULVERULENT OR GRANULAR SWEETENING COMPOSITION

William H. Schmitt, Elmhurst, and Robert A. Lukey, Northbrook, both of Ill., assignors to Alberto-Culver Company, Melrose Park, Ill.

Filed Feb. 12, 1968, Ser. No. 704,792

Int. Cl. A23l 1/26

U.S. Cl. 99-141 A

11 Claims

Pulverulent or granular free-flowing water-soluble low calorie sweetening compositions having the general appearance of sucrose are prepared by subjecting an aqueous composition or solution containing from 60 to 80 percent solids in the form of a distinctly major proportion of a water-soluble starch hydrolysate having a dextrose equivalent in the range up to 25 and a small amount of an essentially noncaloric artificial sweetener to drying under atmospheric conditions on a double drum dryer under controlled conditions.

3,653,923

SWEETENING COMPOSITION

Kiyofumi Ishii, Ikeda; Jun Toda, Suita; Hisashi Aoki, Suita, and Hideo Wakabayashi, Suita, all of Japan, assignors to Takeda Chemical Industries, Ltd., Higashi-ku, Osaka, Japan

Filed Feb. 27, 1969, Ser. No. 803,089

Claims priority, application Japan, Mar. 20, 1968, 43/18137

Int. Cl. A23l 1/26

U.S. Cl. 99-141 A

8 Claims

A remarkable synergistic action in sweetening effect is exhibited between neohesperidin dihydrochalcone and a saccharin sweetener by employing both in a ratio of from about 0.1:1 to about 3:1.

3,653,924

METHOD OF PREPARING GLAZED FOOD PRODUCTS

Edgar W. Penton, Auburn, Wash., assignor to Eduardo's Industries, Auburn, Wash.

Filed Feb. 19, 1970, Ser. No. 12,638

Int. Cl. A23b 1/10, 3/14, 7/00

U.S. Cl. 99-168

15 Claims

Glazed food products are prepared by mixing together and mutually extracting predetermined quantities of a liquid fat,

water and solid pieces of seasoning materials. The resulting mixture is permitted to separate into a clear liquid fat phase containing the fat soluble fraction of the seasoning material and a water phase containing dispersed pieces of the fat-insoluble fraction of the seasoning materials. The two phases are separated, after which the water phase and selected batter-forming solids are mixed in proportions predetermined to form a liquid batter. Pieces of poultry, fish, meat, vegetables or other foods are coated with the batter, breaded if desired, and thereafter glazed with the seasoned liquid fat phase. The food pieces may be frozen either before or after being glazed.

3,653,925

METHOD OF PREPARING GLUTEN CONTAINING FILMS AND COATINGS

Charles A. Anker; George A. Foster, Jr., and Mary Ann Loader, all of Minneapolis, Minn., assignors to General Mills, Inc.

Filed Sept. 18, 1969, Ser. No. 859,213

Int. Cl. A23b 7/00; C08h 7/00, 17/26

U.S. Cl. 99-166

12 Claims

Dried wheat gluten is dispersed in an alkaline medium consisting of alcohol and water. The dispersion is applied to solid substrates including food and dried to form an edible coating. The coating can be stripped from the substrate as a continuous film. A portion of a second proteinaceous substance and a plasticizer can be included in the dispersion.

3,653,926

METHOD OF PREPARING A POULTRY PRODUCT

Joseph H. Armellino, 25 Melville Road, Huntington Station, N.Y.

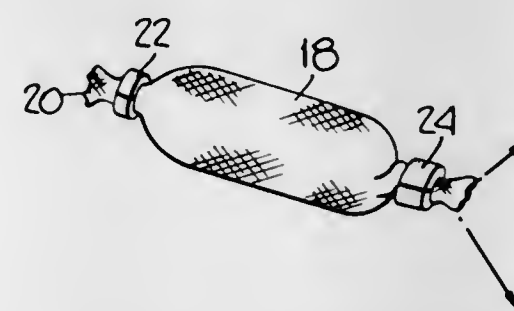
Continuation-in-part of application Ser. No. 877,014, Nov. 14, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 579,243, Sept. 14, 1966, now abandoned.

This application Dec. 22, 1970, Ser. No. 100,653

Int. Cl. B65b 25/06

U.S. Cl. 99-174

3 Claims



A method for preparing a poultry food product wherein the poultry pieces, without any additives, are placed within a pair of sleeves, one of which is substantially liquid impervious plastic material, selectively perforated, and the other sleeve is of open fabric-like material having substantial tensile strength, and pressure is thereafter applied which is sufficient of itself to amalgamate the poultry product by twisting one end of both sleeves containing the poultry pieces.

3,653,927

A METHOD OF PACKAGING MEAT

Lawrence E. Howell, and Howard Vance Bailiff, both of Sacramento, Calif., assignors to Western Meats; Lawrence E. Howell and Howard Vance Bailiff, Sacramento, Calif., part interest to each

Filed Dec. 31, 1969, Ser. No. 889,614

Int. Cl. B65b 25/06

U.S. Cl. 99-174

2 Claims

Rough-textured, reinforced paper towel stock is impregnated with a food-grade wax and cut into sheets large enough to cover and project substantially outwardly from the

periphery of the concave side of a bone-in and tied cut of meat, such as roast-ready rib, or the like. The overhanging projecting margin of the wax paper material is thereupon folded downwardly substantially at right angles, to cover any exposed bone on the edges or ends of the cut and to afford a peripheral skirt, or apron around the upper portion of the



cut. The wrapped meat is then placed in a heat-shrinkable bag, and following air removal and sealing, the bag is subjected to heat so as to effect shrinkage of the bag into skin-tight relation with the enclosed meat. The bag and contents are thereupon removed and transferred elsewhere, such as to storage or shipment.

3,653,928

EASILY PEELED SYNTHETIC CASING

Henry J. Rose, Albin F. Turbak, and Thomas E. Leahy, all of Danville, Ill., assignors to Tee-Pak, Inc., Chicago, Ill.
Filed June 30, 1969, Ser. No. 837,873

Int. Cl. A22c 13/00

U.S. Cl. 99-176

6 Claims

Sausages, such as frankfurters and bolognas, formed in synthetic casings are more easily peeled by soaking the casings; either at the time of manufacture or after stuffing with sausage emulsion, with a soluble non-toxic food grade salt, complex, or coordination compound of iron, aluminum, calcium or magnesium which will interact with components of the sausage emulsion to modify the surface characteristics of the sausage. The soluble metal compounds are preferably applied to frankfurter sausage casings at the time of manufacture just prior to drying the casing. The soluble metal compounds may also be applied to the soak water for larger casings of the type used for bolognas. The soluble metal compounds may also be applied as an external soak bath to the casing before stuffing or to the stuffed sausages, both the frankfurter and bologna types to saturate the casing and provide a uniform application of the metal compound to interact with sausage emulsion components at the surface contacting the casing. The use of casings soaked or impregnated with these metal compounds facilitates removal of the casing from the smoked and/or cooked sausages at a time when untreated casing could not be peeled from the sausage.

3,653,929

PROCESS OF FREEZE DRYING COFFEE

Daniel E. Dwyer, Westbury, N.Y., assignor to General Foods Corporation, White Plains, N.Y.
Continuation-in-part of application Ser. No. 846,805, Aug. 1, 1969, and a continuation-in-part of 855,995, Sept. 8, 1969.
This application Oct. 21, 1969, Ser. No. 868,090

Int. Cl. B01d 1/00; A23f 1/08

U.S. Cl. 99-199 C

18 Claims

Percolated coffee extract is freeze concentrated, frozen, ground, and separated so that about 90 percent of the particles are sized from about 200-4,000 microns prior to freeze drying. Insoluble solids are removed either before or after freeze concentration. The ice separated in freeze concentration is melted, concentrated and returned to the processing stream to recover solids contained therein. The concentrated extract is bulked before freezing to facilitate control of its flow and to optimize its granular structure. Bulking is attained by inserting gas or fines or a combination thereof into the extract. The ground particles are screened prior to freeze

drying, which is accomplished in two phases. The first phase has a high heat energy input at a platen temperature of 200°-250° F. and an absolute pressure of below 500 microns until a particle moisture content of about 40 to 50 percent by wt. is attained. The expression platen temperature as used herein means the temperature of the heated element (and



heating medium therein) contacted directly or indirectly by the product being freeze dried, which is at a somewhat lower temperature. Then the absolute pressure is lowered to below 200 microns with a reduced heat input at a platen temperature of 100°-120° F. until a stable particle moisture content of about 1.0 to 2.5 percent by wt. is attained.

3,653,930

ONE PACKAGE ZINC RICH PROTECTIVE COATING

Gabriel H. Law, Orange, and Walter Michael McMahon, La Habra Heights, both of Calif., assignors to Ameron Inc., Brea, Calif.

Continuation-in-part of application Ser. No. 725,192, Apr. 29, 1968, and a continuation-in-part of 772,049, Oct. 30, 1968. This application Oct. 22, 1969, Ser. No. 868,618

Int. Cl. C09d 5/10

U.S. Cl. 106-1

9 Claims

One package zinc rich coatings for the protection of ferrous surfaces. The coatings contain zinc dust in a vehicle comprising an organic polysilicate, an amine or other hydroxyl source and a solvent. The ratio of vehicle ingredients is selected so that the volume average dielectric constant of the vehicle is below approximately 14, thus insuring that the zinc dust will not pack or settle into a hard mass and will be readily redispersible even after prolonged storage in a closed container. Upon application to a surface, atmospheric moisture reacts with the amine to provide OH ions, which in turn hydrolyze the polysilicate to form a tough adherent silicate binder for the zinc.

Gas evolution in the inventive one package coatings is eliminated by incorporation of particular compounds in the coating vehicle. In a typical embodiment, an alkyl or aryl nitrocompound is used which combines with the evolving hydrogen, producing as a by-product an amine which enhances the coating effectiveness. In other embodiments, cycloketones or lead oxide compounds are used to inhibit hydrogen gas evolution.

3,653,931

ANTI-TARNISH COMPOSITION FOR METAL SURFACES AND PROCESS FOR ITS USE

Peter Jochen Borchert, Elkhart, Ind.; James Edward Slager, Edwardsburg, Mich.; Ronald George Sommer, Mishawaka, and Mitchell Frank Zienty, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Dec. 30, 1970, Ser. No. 102,988

Int. Cl. C09g 1/14

U.S. Cl. 106-3

6 Claims

The clean surface of metals, such as copper and copper-containing alloys, can be protected from tarnishing by a composition containing a mixture of a surfactant, benzotriazole, sodium bisulfite and ethylenediaminetetraacetic acid. This composition is generally mixed with water and the clean metal surface is dipped in or otherwise contacted with the aqueous solution.

3,653,932

ELECTROSTATIC PRINTING COMPOSITION COMPRISING DIDODECYL SEBACATE

James M. Berry, Deerfield, and Gary P. Corpron, Skokie, both of Ill., assignors to Teletype Corporation, Skokie, Ill.

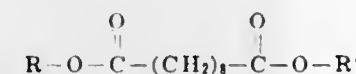
Filed Aug. 28, 1969, Ser. No. 853,889

Int. Cl. C09d 11/00, 13/00

U.S. Cl. 106-22

7 Claims

Printing is effected with a hot melt type ink comprised of coloring material and a vehicle therefor and having a resistivity within the range of about 10^6 to about 10^{11} ohm-centimeters and a viscosity in a range with an upper limit of about 50 centipoises when in a liquid phase. To that end, a stream of ink drops are drawn across and deflected in a span between an ink supply and a carrier for impingement thereon. The vehicle of the ink is comprised of at least one compound which is solid at room temperature, and has the general formula:



in which each R and R' is an alkyl group containing from one to 12 carbon atoms.

3,653,933

ANOMALOUS DISPERSION OPTICAL GLASS HAVING A GOOD WEATHER PROOF CHARACTERISTIC

Munehisa Tsunekawa, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Aug. 22, 1969, Ser. No. 852,381

Claims priority, application Japan, Aug. 31, 1968, 43/62125

Int. Cl. C03c 3/00, 3/08, 3/10

U.S. Cl. 106-47 Q

4 Claims

This invention provides an anomalous dispersion optical glass having a good weatherproof characteristic, in which the composition (mixing composition) range of the glass in weight percent is essentially as follows:

B ₂ O ₃	10 ~ 40
SiO ₂	3 ~ 45
SiO ₂ + 25 ≧ B ₂ O ₃ ≧ 30 - 1/2 SiO ₂	
Al ₂ O ₃	8 ~ 12
PbO	25 ~ 60

and a portion of PbO is replaced with 0-8 weight percent of La₂O₃ and/or RO when desired, and, a portion of PbO is

3,653,934

COMPOSITION FOR MAKING GASTRO-RESISTANT GELATIN CAPSULES

Fernand Jacques Rolle, Beinhelm, France, assignor to R. P. Scherr Corporation

Filed Dec. 23, 1969, Ser. No. 887,787

Claims priority, application France, Dec. 27, 1968, 181144

Int. Cl. C09d 3/04

U.S. Cl. 106-125

2 Claims

The invention provides a new gelatine composition suitable for producing capsules having better resistance to enzymes, better mechanical strength, improved resistance to moisture and a longer storage life than known capsules. This composition essentially comprises the combination product of gelatine, water, glycerine and/or sorbitol and a silicone fluid having an intrinsic viscosity of from 100 to 12,500.

3,653,935

STABILIZING CERTAIN NITROGEN-CONTAINING DERIVATIVES OF CELLULOSE

Brazelton Fulkerson, and John W. Mench, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of application Ser. No. 653,646, July 17, 1967, now abandoned. This application June 4, 1969, Ser. No. 830,546

Int. Cl. C08b 27/42

U.S. Cl. 106-189

5 Claims

Certain nitrogen-containing derivatives of cellulose (products from the reaction of unsaturated cellulose esters or ethers with organic nitrogen-containing bases) spontaneously degrade when they are warmed slightly above room temperature to yield products that are insoluble in common organic solvents such as acetone, whereas the N-containing cellulosic materials, as originally prepared, exhibit high solubility in such solvents. It has been discovered that a small amount of phenolic type organic antioxidant inhibits such undesirable spontaneous degradation.

3,653,936

PIGMENT PREPARATIONS

Karlheinz Wolf, Cologne-Stammheim; Artur Haus, Leverkusen; Reinhold Hornle, Cologne-Flittard, and Theodor Mager, Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Apr. 8, 1969, Ser. No. 814,463

Claims priority, application Germany, Apr. 17, 1968, P 17 67 245.6

Int. Cl. C09c

U.S. Cl. 106-288 Q

8 Claims

Pigments are treated by contacting them with a mixture of (a) a resinic acid, e.g., colophony, or a salt of a resinic acid; and (b) a primary or secondary amine having the formula



in which R is a five- to six-membered, optionally substituted cycloaliphatic radical; and R₁ is hydrogen, R, or an alkyl group optionally substituted by an NH₂ group and containing two to four carbon atoms, or by preparing the neutral or acidic aqueous pigment in the presence of the treating agents (a) and (b). The treated pigments exhibit advantages such as better gloss and covering power.

3,653,937

ALUMINA TRIHYDRATE PIGMENT AND PROCESS FOR THE PREPARATION THEREOF

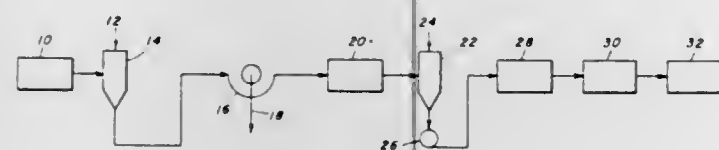
James J. Koenig, Belleville, Ill., and Leroy D. Hart, St. Louis, Mo., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Aug. 11, 1969, Ser. No. 849,081

Int. Cl. C09c 1/40; C01f 7/02

U.S. Cl. 106—288 B

8 Claims



Alumina trihydrate of an average particle size of less than about 0.7 micron and a dispersibility in water of at least about 70 percent by weight. The trihydrate is prepared by heating a slurry containing a mix of alumina hydrate of a particle size of less than 0.7 micron and an alkaline solution at 150°–200° F. for from 5 to 45 minutes, separating the resulting alumina trihydrate from the slurry, dispersing it with the aid of a dispersing agent, and then drying it.

3,653,938

PROCESS FOR THE PRODUCTION OF A TRANSPARENT ORIGINAL

Kazuo Ohuchi, No. 22, Nakajima, and Satoru Honjo, No. 23, Nakajima, both of Odawara-shi, Kanagawa-ken, Japan

Continuation-in-part of application Ser. No. 400,231, Sept. 29, 1964, now abandoned. This application Oct. 28, 1968,

Ser. No. 777,968

Claims priority, application Japan, Sept. 30, 1963, 38/51841

Int. Cl. B41m 5/00

U.S. Cl. 117—15

6 Claims

Transparent originals capable of giving superior light transmission, are prepared by applying a blushing layer containing at least one of a nitrocellulose and a linear polyester resin soluble in organic solvents, onto a transparent support, marking the blushing layer, and smoothening it out with a solvent.

3,653,939

SCREENING OF BLACK-SURROUND COLOR PICTURE TUBES

Charles J. Prazak, III, Elmhurst, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Jan. 5, 1970, Ser. No. 580

Int. Cl. C03c 3/28, 17/00; F21v 9/16

U.S. Cl. 117—33.5 CM

3 Claims

The screen of a black-surround color picture tube is provided with a discontinuous coating of light-absorbing material, discontinuous in that the light-absorbing material is applied to surround those elemental areas of the screen which are to receive deposits of phosphor. The screen is then heated so that the exposed elemental screen areas and the light-absorbing coating attain a uniform temperature. A slurry, including a chosen one of the three phosphor materials, is then dispensed onto the screen and distributed to establish a layer of slurry of a desired thickness over the entire screen surface. The excess slurry is removed by tilting the screen to effect dumping. The slurry layer is then set, without the application of heat, and after the layer has been set, heat is applied to dry the layer. Thereafter, screening continues in conventional fashion.

3,653,940

TITANIUM AND TITANIUM ALLOY WITH LUBRICANT COATED SURFACE

Robert A. Ohlbaum, Silver Spring; Charles A. Zanis, and Joseph R. Crisci, both of Bowie, all of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Apr. 30, 1970, Ser. No. 33,454

Int. Cl. B32b 15/08; B44d 1/42

U.S. Cl. 117—26

2 Claims

TABLE I
GALLING TESTS ON Ti-6Al-4V-3Sn
AND TITANIUM COATINGS IN SEA WATER

COAT NO.	NUMBER OF GALLS TO FAILURE	ALTERED NUMBER OF GALLS TO FAILURE
GRAND DRAW Ti-6Al-4V-3Sn	3, 3, 3	3
NONE	4, 1	1
FLUORIDE IMPREGNATION + GREASE	2, 2	2
MOLYBDENUM DISULFIDE	4, 1	1
TEFLON IMPREGNATION	22, 22, 24, 23, 23, 27	24
TEFLON ASPHALTIC GREASE	40, 28, 31, 45, 115, 47	79
GRAND DRAW Ti-6Al-4V-3Sn	24, 23, 19, 15	21
GRAND DRAW Ti-6Al-4V-3Sn	24, 17, 15, 23, 43, 30	25
TEFLON IMPREGNATION + MOLYBDENUM DISULFIDE + THIN COAT ASPHALTIC GREASE	43, 200, 200	160
IMPROVED FLOW STEEL WIRE	48, 40, 40	40

Minimizing the galling of titanium (or alloys) in sea water by first providing a conversion coating such as an impregnated coating of polytetrafluoroethylene, then overlaying with a coating of molybdenum disulfide and a final outer coating of asphaltic grease. An apparatus for evaluating galling of titanium wires under extreme pressure wherein a rope or wire is supported on a reciprocating weighted crank arm and abuts a stationary wire. The weighted arm applies the necessary pressure and imparts relative motion between the wires, and thereby causes repeatable galling results.

3,653,941

SLURRY PROCESS FOR COATING PARTICULATE MATERIAL UPON A SURFACE

Barry Bernard Bell, and Wellington Edward Pederson, both of Lancaster, Pa., assignors to RCA Corporation

Filed Mar. 2, 1970, Ser. No. 15,672

Int. Cl. H01j 31/20

U.S. Cl. 117—33.5 C

7 Claims

A process for coating a flatlike, concave, nonporous surface, such as a surface of a viewing window for a cathode-ray tube, with particulate material comprising the steps in the following order:

- rotating the surface and dispensing onto the central portion of the surface a puddle of slurry comprised of a particulate material and a liquid vehicle.
- rotating the surface and spreading the puddle outwardly over the surface to the margins thereof.
- further rotating the surface and spreading the puddle inwardly over the surface.
- and further rotating the surface and spreading the puddle outwardly over the surface to the margins thereof.

3,653,942

METHOD OF CONTROLLING TEMPERATURE DISTRIBUTION OF A SPACECRAFT

Carl P. Boebel, Tipp City, and Gary E. Stevenson, Xenia, both of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force

Filed Apr. 28, 1970, Ser. No. 32,770

Int. Cl. B44d 1/36; B64c 1/40

U.S. Cl. 117—33.3

6 Claims

A method of controlling the temperature distribution of a spacecraft is provided which comprises forming on at least a portion of the external surface of the spacecraft a coating comprising metal flakes embedded in a polymeric binder.

3,653,943

BIS OXAZOLES AS BRIGHTENERS FOR FIBERS AND PLASTICS

Henry Xavier Kaempfen, Hillsboro Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed May 4, 1970, Ser. No. 34,516

Int. Cl. B44d 5/00; C09k 1/02; C07d 85/44

U.S. Cl. 117—33.5 R

7 Claims

Natural and synthetic fibers and plastics are brightened by applying thereto 2,2'-bisnaphthoxazolyl and 2-(benzoxazol-2-yl)naphthoxazole compounds. Fibers brightened include cellulose, polyamide and polyester. Plastics brightened include polyvinyl chloride, polyethylene and polyester.

3,653,944

PRESSURE SENSITIVE IMAGE TRANSFER MEDIA

Gerry H. Ehrhardt, West Des Moines; Ronald L. Reeves, and David L. Siglin, both of Des Moines, all of Iowa, assignors to Pacific Industries Inc., New York, N.Y.

Filed Dec. 11, 1969, Ser. No. 884,202

Int. Cl. B41m 5/10

U.S. Cl. 117—36.1

8 Claims



Improved pressure sensitive image transfer media wherein the transfer coating is formed by the aged residue of a hot melt applied dispersion of a hard wax base material, fillers and pigments and a multi-component composite plasticizing oil.

3,653,945

PRODUCTION OF REACTANT SHEETS FOR DEVELOPING COLORLESS DYE IMAGES

Gerald T. Davis, and Robert A. Fettes, both of Chillicothe, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Continuation-in-part of application Ser. No. 610,766, Jan. 23, 1967. This application Oct. 29, 1970, Ser. No. 85,242

Int. Cl. B41m 5/22

U.S. Cl. 117—36.2

6 Claims

Bond-like reactant sheets for use developing colored images on the surfaces thereof formed from colorless dyes are produced by applying to a paper substrate a volatile organic solvent solution of phenol-formaldehyde polymer and quickly evaporating the solvent before substantial penetration of the paper substrate, whereby a uniform discontinuous film of said polymer is formed on the exposed surface of the top layer of fibers or pigments particles of said substrate, said dried polymer film being applied at the rate of 0.01 to 0.2

pound per 1,300 square feet of surface. A preferred method of applying said solvent solution of phenol-formaldehyde polymer is by modified offset gravure printing means.

3,653,946

METHOD OF DEPOSITING AN ADHERENT GOLD FILM ON THE SURFACES OF A SUITABLE SUBSTRATE

Gerald B. Fefferman, Parsippany, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed Sept. 30, 1969, Ser. No. 862,481

Int. Cl. C03c 17/10; B44d 1/18

U.S. Cl. 117—46 CA

6 Claims

An adherent gold film is formed on a suitable substrate by the decomposition of organic resins. A gold resinate is combined with at least two resins selected from the group consisting of lead resinate, silicon resinate and boron resinate which, upon decomposition in air or an oxidizing atmosphere, form inorganic oxides. The resinate mixture is applied to the substrate and the substrate is fired to a temperature sufficient to (1) decompose the resinate mixture to form free gold and the inorganic oxides, (2) combine the inorganic oxides in situ on the surfaces of the substrate and (3) combine the free gold with the combined oxides to form an adherent gold layer containing 90 to 98 percent by weight of gold. Additional gold may be electrolytically deposited on the substrate to obtain a film of the desired thickness.

3,653,947

SURFACE-PRETREATMENT OF NON-METALLIC ARTICLES FOR CHEMICAL NICKEL-PLATING

Joachim Kandler, Lechenich; Gerhard Mietens, Efferen near Cologne, and Michael Ahlgrim, Bliesheim, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany

Filed July 22, 1969, Ser. No. 843,811

Claims priority, application Germany, Aug. 1, 1968, P 17 71 930.1

Int. Cl. C23c 3/02

U.S. Cl. 117—47 A

9 Claims

Pretreatment of surfaces of non-metallic articles for chemical nickel-plating. The surface of the article is treated using a pickling solution of concentrated sulfuric acid containing one or more noble metal salts and the noble metal salt adhered to the surface of the article is subsequently reduced to metal to activate the surface, using an aqueous solution of a reducing agent. The pickling step and the reductive activation of the surface of the article are carried out while using the solutions at a uniform temperature of between about 75° and 90° C., and adding a polyphosphonic acid stabilizer to the aqueous solution of the reducing agent.

3,653,948

PROCESS AND APPARATUS FOR COMPRESSING STRING-FORMING POLYMER SUBSTANCES BY MECHANICAL VIBRATION

Dieter Kaempgen, Wiesbaden-Freudenberg; Willi J. Schmidt, Hahn/Taunus, and Walter Selfried, Wiesbaden-Biebrich, all of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

Filed Nov. 27, 1968, Ser. No. 779,551

Claims priority, application Germany, Nov. 30, 1967, P 17 04 777.7

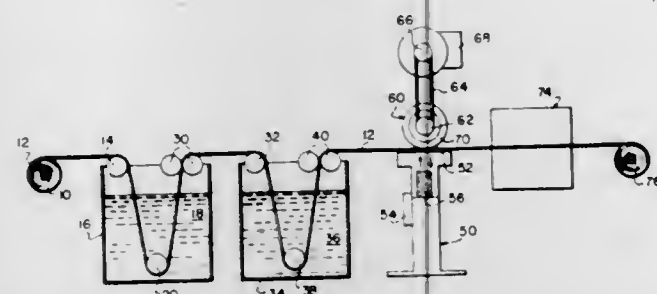
Int. Cl. B44d 1/44

U.S. Cl. 117—65.2

1 Claim

A porous sheet of material is first passed through an impregnation bath containing a polymer solution and then through a coagulation bath which produces string-forming polymers physically incorporated in the pores of the sheet. The sheet is then passed between a relatively rigid vibrating

means engaging one side thereof and a resilient pressure means engaging the opposite side thereof, the resilient pres-



sure means holding the sheet of material in contact with the vibrating means. The sheet is subsequently dried.

3,653,949

COATED FABRICS AND METHODS FOR APPLYING COATINGS THERETO

James J. Dillon, Providence, R.I., assignor to Owens-Corning Fiberglas Corporation

Filed Sept. 5, 1969, Ser. No. 855,513

Int. Cl. B32b 17/04; C03c 25/02

U.S. Cl. 117-66

5 Claims



Glass fibers in the form of yarns and fabrics are provided with a surface treatment to improve their resistance to abrasion and flammability by coating the yarns and fabrics with a thickened dispersion of very fine particles of a solid organic polymeric material, drying and sintering this coating through various heating zones, and optionally padding the treated yarns and fabric with a lubricant to ensure flexibility thereof.

3,653,950

HIGH IMPACT RESISTANT THERMOPLASTIC SUBSTRATE COATED WITH NON-EMBRITTLING PAINT SYSTEM

Patrick V. Bonsignore, Levittown, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Apr. 22, 1970, Ser. No. 30,967

Int. Cl. B32b 27/40

U.S. Cl. 117-72

8 Claims

Rigid sheets of high impact resistant thermoplastic polymers coated with a polyurethane elastomer exhibit improved resistance to crack propagation into the sheet substrate from brittle paint coats. The preferred urethane elastomers used to coat the impact resistant thermoplastic polymers are saturated and fully reacted polymers which are the reaction products of a diisocyanate and a polyhydroxy compound which elastomers impart microknife adhesion values to the substrate of between 0.10 and 0.28. Preferably the polyhydroxy compound is a polyhydroxy-containing polyester and the diisocyanate is an aliphatic or alicyclic diisocyanate. The preferred thermoplastic polymer consists of a block polymer comprising a block of thermoplastic polymer derived from esters of methacrylic acid joined to blocks of urethane modifier comprising the residue of the reaction of a polyhydroxy-containing polyester, an aliphatic or alicyclic diisocyanate and a glycol, the modifier terminated with a functional monomer capable of ethylenic polymerization grafting with the acrylic polymer.

3,653,951 METHOD FOR RAPIDLY COATING SURFACES WITH WET, PARTICULATE MATERIALS

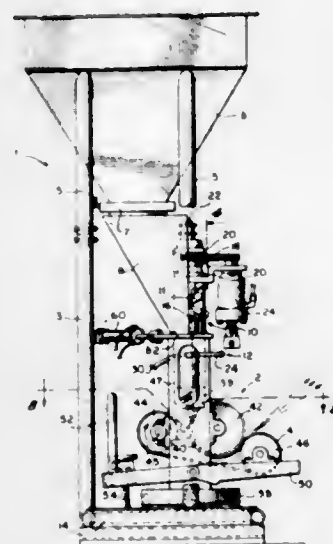
Lewis Fritts Maldeis, Hinsdale, Ill., and Aubrey Meredith Shideler, Medina, Ohio, assignors to Martin Marietta Corporation

Filed Apr. 3, 1969, Ser. No. 813,193

Int. Cl. B44d 1/08, 1/02

U.S. Cl. 117-104 R

11 Claims



An apparatus for rapidly coating a distant surface with wet, particulate material, which includes thrower means having a high speed endless slinger belt for projecting wet, particulate material at a high rate onto a distant surface; storage means for storing dry, particulate material, and feed metering and mixing means for successively and continuously metering the dry material from the storage means, mixing liquid with the dry material and discharging the resulting wet, particulate material at the high rate onto a selected area of the belt.

A method for coating wet, particulate material onto a distant surface at a high rate including the steps of metering dry, particulate material at a high rate from a storage means, adding a metered amount of liquid to the dry material, mixing the liquid and dry material uniformly together, metering the resulting liquid-material mixture onto a slinger belt and projecting the wet mixture at the high rate as a continuous ribbon onto a distant surface.

3,653,952

DYEABLE RESIN BONDED FIBROUS SUBSTRATES

Domenick D. Gagliardi, deceased, late of East Greenwich, R.I. (by Frances Dodge Gagliardi, executrix), assignor to Union Carbide Corporation

Original application Apr. 8, 1959, Ser. No. 804,870, now Patent No. 3,545,909, dated Dec. 8, 1970, Continuation-in-part of application Ser. No. 744,675, June 26, 1958, now abandoned. Divided and this application June 16, 1970, Ser. No. 46,812

Int. Cl. C03c 25/02; D06p 1/76

U.S. Cl. 117-126 GN

4 Claims

Fibrous substrate coated with an elastomer, an aminosilicon compound, and a dye or pigment.

3,653,953

NONAQUEOUS ELECTROLESS PLATING

Louis R. Grant, Jr., Los Angeles, and Frank C. Gunderloy, Jr., Santa Susana, both of Calif., assignors to North American Rockwell Corporation

Filed Jan. 26, 1970, Ser. No. 5,918

Int. Cl. C23c 3/02

U.S. Cl. 117-130 E

10 Claims

A process for electroless plating of chromium, cadmium or copper wherein a salt of the metal is dissolved in a nonaque-

ous organic solvent and contacted with a catalytically active surface in the presence of a reducing agent to thereby reduce the salt and plate the surface with the metal.

kylated or further reacted with an isocyanate prior to mixing with (A).

3,653,954

METHOD OF COATING WITH SLOW-GELLING POLYESTER COMPOSITION

Raymond Paul Gangi, Brooklyn, N.Y., assignor to Woolsey Marine Industries, Inc.

Filed May 4, 1970, Ser. No. 34,632

Int. Cl. B44d 1/36; C08k 1/02

U.S. Cl. 117-132 C

7 Claims

A method is provided for formulating a resinous coating composition which can be coated onto a metallic surface for prolonged periods without gelation. By mixing a ketone with a metallic promoter and subsequently adding the product to a polyester resin composition containing a peroxide catalyst, compositions of enhanced pot life are obtained without sacrifice of any of the desired coating characteristics.

3,653,955

ANTISTATIC FIBER TREATMENTS

Emile E. Habib, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed May 20, 1968, Ser. No. 730,594

Int. Cl. C08j 1/44; D06m 1/00

U.S. Cl. 117-139.5 A

12 Claims

Static problems created during the processing of keratinous fibers and mixtures of fibers containing at least 10 percent by weight of keratinous fibers are minimized by applying to the fibers a conductive silicone lubricant composition containing at least about 0.2 percent by weight, based on the weight of the fibers, of a silicone lubricant. The silicone lubricant can be either a conductive or a non-conductive silicone, and supplementary antistatic additives can be included in the composition.

3,653,956

FLUORINATED EPOXIDES AND USE THEREOF

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, both of Calif., assignors to The United States of America as represented by the Secretary of Agriculture

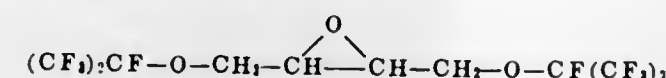
Filed Dec. 22, 1969, Ser. No. 887,380

Int. Cl. D06m 13/68

U.S. Cl. 117-139.5 A

7 Claims

1,4-bis-(heptafluoroisopropoxy)-2-butene is oxidized to form the corresponding epoxide



This epoxide can be converted into homo- or co-polymers which are useful for enhancing the repellency of fibrous substrates, e.g., fabrics made from natural or synthetic fibers.

3,653,957

TEXTILE FIBER MATERIAL TREATED WITH A FINISHING COMPOSITION

Karl Schafer, Opladen; Friedrich Reich, Leverkusen, and Hans Schuster, Schildgen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 18, 1968, Ser. No. 784,934

Claims priority, application Germany, Sept. 25, 1968, P 17 94 221.1

Int. Cl. B32b 27/04; D06m 3/02; C09d 3/60

U.S. Cl. 117-141

3 Claims

Textiles with improved handle, produced by applying a mixture of (A) a reaction product having isocyanate groups and (B) a reaction product of a hydroxy compound and an aliphatic monoisocyanate, wherein (B) can optionally be al-

3,653,958

METHOD OF DECREASING WAX IMPREGNATION TIME BY POROUS PAPER PRODUCTS

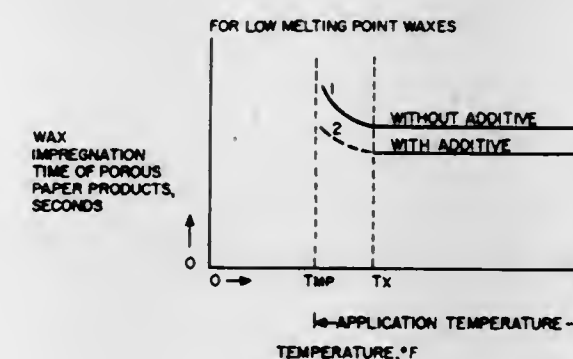
Edward M. Kohn, and Alexander D. Recchuitte, both of Philadelphia, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed Mar. 25, 1969, Ser. No. 810,120

Int. Cl. B44d 1/09; D21h 1/36

U.S. Cl. 117-158

8 Claims



The rate at which a porous paper product absorbs molten paraffin waxes with a melting point less than 136° F. (AMP) is substantially increased by the addition of a small amount of an ester or mixture of esters of a fatty acid and a polyhydric alcohol to the wax before application.

3,653,959

ENCAPSULATING AND POTTING COMPOSITION AND PROCESS

Clifton L. Kehr, Silver Spring, and Walter R. Wszolek, Sykesville, both of Md., assignors to W. R. Grace & Co.

Continuation-in-part of application Ser. No. 617,801, Feb. 23, 1967, now abandoned. This application Apr. 14, 1970, Ser. No. 28,510

Int. Cl. B29c 6/00

U.S. Cl. 117-201

8 Claims

This invention relates to encapsulating by, molding, embedding, casting, impregnating, potting and encasing various components, e.g., decorative, electric, electronic and microelectronic components using a composition which is preferably transparent comprising (1) a liquid polyene containing at least two reactive unsaturated carbon to carbon bonds per molecule and (2) a polythiol containing at least two thiol groups per molecule, the total combined functionality of (a) the reactive unsaturated carbon to carbon bonds per molecule in the polyene and (b) the thiol groups per molecule in the polythiol being greater than four, which composition, with the aforesaid components therein, can be cured under ambient conditions in the presence of a free radical generator to a solid, elastomeric or resinous product.

3,653,960

GAS LASER INCLUDING CATHODE ELEMENT

Donald MacNair, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation of application Ser. No. 847,516, July 18, 1969, now abandoned, which is a continuation of application Ser. No. 568,497, July 28, 1966, now abandoned. This application

Mar. 23, 1970, Ser. No. 21,854

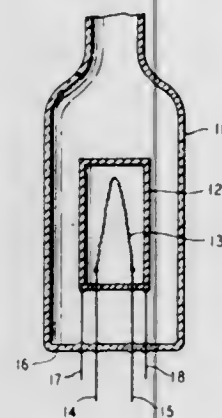
Int. Cl. H01s 3/22

U.S. Cl. 117-221

2 Claims

A gas laser including a cathode member comprising a

platinum containing base member having an emissive coating



deposited thereon comprising at least 90 percent barium zirconate, remainder barium oxide.

3,653,961

PAPERMAKERS FABRICS

Leonard R. Lefkowitz, Latham, N.Y., assignor to Huyck Corporation, Rensselaer, N.Y.

Filed Feb. 11, 1970, Ser. No. 10,627

Int. Cl. B32b 17/04; C03c 25/02

U.S. Cl. 117-126 GB

8 Claims

This invention relates to papermakers fabrics for use in the dryer section of papermaking machinery characterized by having bulky, resin impregnated cross-machine direction yarns.

3,653,962

MAGNETIC RECORDING MEDIUM

Goro Akashi, and Masaaki Fujiyama, both of Minami Ashigara Machi, Ashigara-Kamigum, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigum, Kanagawa, Japan

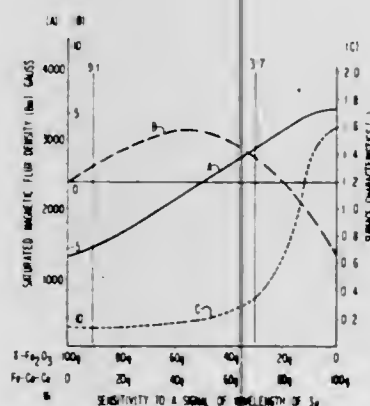
Filed June 11, 1969, Ser. No. 832,094

Claims priority, application Japan, June 11, 1968, 43/40065

Int. Cl. H01f 10/02

U.S. Cl. 117-240

9 Claims



This invention is directed to a magnetic medium of improved sensitivity and surface characteristics. The improved magnetic medium consists of a support coated thereon with a dispersion of a ferromagnetic powder being a mixture of (1) a ferromagnetic oxide powder, and (2) a ferromagnetic powder having an induction of at least 10,000 gauss, the weight ratio of (1) to (2) being from 9:1 to 3:7. Examples of (1) are γ - Fe_2O_3 , Fe_3O_4 and CrO_2 . Examples of (2) are Fe-Co alloy, Fe-Co-Ni alloy, Fe-Ni alloy and Co-Ni alloy.

3,653,963

METHOD FOR CLEANING STEEL WOOL PADS

Robert N. Lewis, 1556 S.E. 6th Street, and Bruce R. Cram, III, 6288 Elliott Street, both of West Linn, Ore.

Continuation-in-part of application Ser. No. 69,162, Sept. 2, 1970, now abandoned. This application Nov. 23, 1970, Ser. No. 92,262

Int. Cl. B08b 3/00

U.S. Cl. 134-26

3 Claims

A method of cleaning used steel wool pads for reuse. The method includes first washing with hot water or steam. The pad in a final treatment is immersed in an organic solvent solution of oil. The pad is then dried with oil remaining on the metallic strands thereof providing a residual protective film.

3,653,964

METHOD OF WASHING POLYAMIDE PRODUCING APPARATUS

Akira Yamamoto, and Keiichi Moriyama, both of Mihara-shi, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Nov. 10, 1969, Ser. No. 875,578

Claims priority, application Japan, Dec. 25, 1968, 43/95622

Int. Cl. B08b 3/10, 9/00

U.S. Cl. 134-42

4 Claims

A method of removing a coating formed on a polyamide producing apparatus by contact with a molten polyamide, which comprises contacting the coating with a composition at a temperature not lower than 200° C., said composition consisting mainly of an ethanolamine and 0.01 to 10 percent by weight, based on said ethanolamine, of a basic substance selected from the group consisting of hydroxides of alkali metals, hydroxides of alkaline earth metals and salts of alkali metals with weak acids.

3,653,965

RECHARGEABLE GALVANIC CELL AND ELECTROLYTE THEREFOR

Tien Shuey Lee, Rocky River, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Oct. 16, 1970, Ser. No. 81,521

Int. Cl. H01m 41/00, 43/02

U.S. Cl. 136-30

6 Claims

A rechargeable galvanic cell having a zinc anode and a zinc-containing electrolyte which comprises an aqueous alkaline or aqueous acidic medium containing dissolved zinc ions and ethylene oxide polymers or their derivatives for suppressing zinc dendrite formation during the charging cycle.

3,653,966

SEPARATOR AND HIGH ENERGY CELL HAVING AN ORGANIC CHARGE TRANSFER COMPLEX CATHODE

Kenneth R. Hill, Severna, Md., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed May 8, 1969, Ser. No. 823,182

Int. Cl. H01m 17/02; H01m 3/02

U.S. Cl. 136-83

8 Claims

A high energy cell employing a light metal anode and a cathode, the active material of which is a semi-conductive organic charge transfer complex. In assembly of the cell direct contact of the anode and cathode promotes formation in situ on the anode of a high resistance ionically conductive film which functions as a self-adjusting cell separator. Other features of the invention appear in the specification.

3,653,967

POSITIVE ELECTRODE FOR USE IN NICKEL CADMIUM CELLS AND THE METHOD FOR PRODUCING SAME AND PRODUCTS UTILIZING SAME

Richard Lawrence Beauchamp, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 9, 1970, Ser. No. 1,885

Int. Cl. H01m 35/18

U.S. Cl. 136-75

9 Claims

The electrolytic deposition of nickel hydroxide in a porous electrode structure is carried out within the critical temperature range of from about 85° C to the boiling point of the electrolyte, resulting in the formation of high energy density positive electrodes for alkaline nickel cadmium cells. In addition, the electrodes exhibit a high percent utilization of active material and resist flaking or shedding of the active material during formation and cell use.

3,653,968

SOLID STATE ELECTROCHEMICAL CELLS

Demetrios Vasilios Louzos, Rocky River, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed May 4, 1970, Ser. No. 34,442

Int. Cl. H01m 21/00

U.S. Cl. 136-83 R

19 Claims

A solid state electrochemical cell having a silver or copper anode, an iodine containing cathode and an electrolyte of the general formula



wherein M is potassium, rubidium or cesium or a mixture thereof.

3,653,969

FUEL CELL SYSTEM WITH PLURAL FUEL CELLS

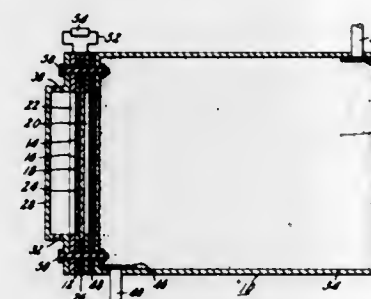
William Alexander Titterton, Lynnfield; Robert White Milgate, Jr., Marblehead, and John Peter Gallagher, Burlington, all of Mass., assignors to General Electric Company

Filed May 9, 1966, Ser. No. 548,788

Int. Cl. H01m 27/14

U.S. Cl. 136-86 C

3 Claims



A system for purging a main fuel cell of impurities comprises an auxiliary fuel cell which utilizes at least one of the streams of gas provided to the main fuel cell, which stream carries gaseous impurities downstream from the main fuel cell to the auxiliary fuel cell whereat they are trapped.

3,653,970

METHOD OF COATING SOLAR CELL WITH BOROSILICATE GLASS AND RESULTANT PRODUCT

Peter Albert Iles, Arcadia, Calif., assignor to National Aeronautics & Space Administration

Continuation of application Ser. No. 537,160, Mar. 24, 1966, now abandoned. This application Apr. 30, 1969, Ser. No. 820,453

Int. Cl. H01l 15/02, 7/32

U.S. Cl. 136-89

18 Claims

A lightweight protective glass coating over the radiation receiving surfaces of a solar cell is formed integrally with the

cell by depositing a layer of glass particles to such surfaces and heating the cell and glass particles to an elevated temperature sufficient to fuse the glass particles and to form the coating. In another embodiment, a conventional protective glass slide is applied to the glass particles, prior to heating, and the cell, particles, and slide are heated to fuse the glass and form a fused glass bond between the cell and the slide.

3,653,971

SEMICONDUCTOR PHOTOELECTRIC GENERATOR

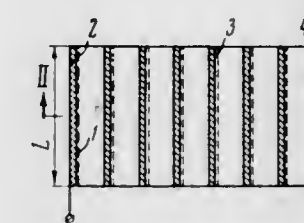
Nikolai Stepanovich Lidorenko, 3 Mytishinskaya, 14-a, kv. 127; Arkady Pavlovich Landsman, Rizhsky proezd, 3, kv. 140; Dmitry Semenovich Strebkov, Luganskaya, 21; Alta Konstantinovna Zaitseva, 3 Mytishinskaya ulitsa, 14, kv. 81; Vitaly Viktorovich Zadde, Moscowposelok Severny, 9 Lina 3, kv. 120, and Viktor Sergeevich Kosarev, 12 Novokuzminskaya ulitsa 4, korpus 2, kv. 2., all of Moscow, U.S.S.R.

Filed July 9, 1969, Ser. No. 840,307

Int. Cl. H01l 15/02

U.S. Cl. 136-89

7 Claims



A semiconductor photoelectric generator is formed of semiconductor photoelectric converters united into a solid-state matrix, each converter having the shape of a microminiature parallelepiped and containing; an alloy region; a base region; at least one P-N junction making an angle with an operating surface of the generator exposed to radiation; a metallic conductor on at least one of said regions making the same angle with the operative surface as the P-N junction and deposited all over the parallelepiped-surface uniting the parallelepipeds of the converters into a matrix; and wherein the width of a microminiature parallelepiped is approximately equal to the diffusion length of minority carriers in said base region.

3,653,972

DISPOSABLE RESERVE CELL WITH ENCAPSULATED ELECTROLYTE

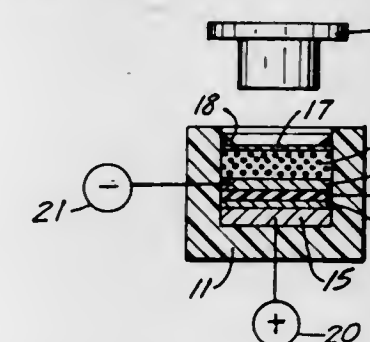
Theodore F. Bolles, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 3, 1969, Ser. No. 873,197

Int. Cl. H01m 21/10

U.S. Cl. 136-90

5 Claims



A disposable reserve cell for the production of an electrical current in which the aqueous electrolyte is contained in a multiplicity of small capsules. The cell is activated by rupturing a substantial portion of the capsules thereby releasing the electrolyte.

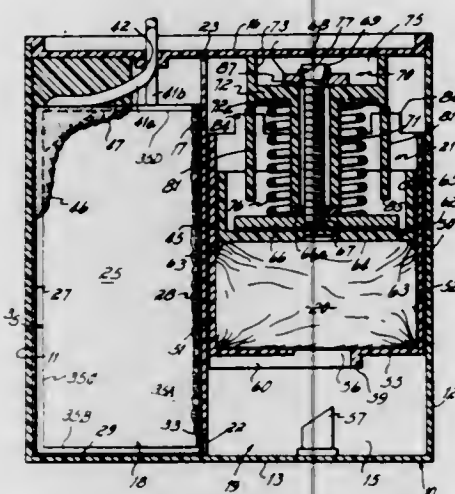
3,653,973

DEFERRED-ACTION BATTERY

Edward P. Broglid, Joplin, Mo., assignor to Eagle-Picher Industries, Inc., Cincinnati, Ohio
Original application Dec. 13, 1968, Ser. No. 783,520, now Patent No. 3,516,869. Divided and this application Nov. 28, 1969, Ser. No. 882,379
Int. Cl. H01m 21/10

U.S. Cl. 136—114

4 Claims



A deferred-action battery including a battery case having a partition in the interior thereof dividing the case into a first chamber in which spaced parallel planar electrodes are disposed normal to the partition and a second chamber in which is located a rupturable electrolyte-containing sack, and including a selectively operable activating assembly for rupturing the sack and causing released electrolyte to flow from the second chamber to the first chamber and thereby activate the battery.

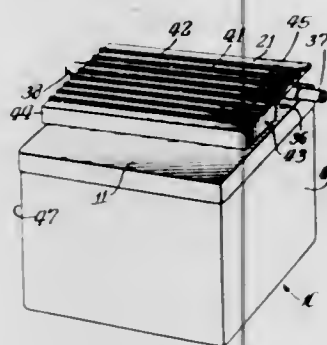
3,653,974

BATTERY COVER

Jerry Brosilow, Chicago, and Jack Levitt, Des Plaines, both of Ill., assignors to World Battery Corporation
Filed Apr. 15, 1970, Ser. No. 28,876
Int. Cl. H01m 1/02, 1/06

U.S. Cl. 136—170

9 Claims



A cover structure for use with a storage battery. The cover includes a plurality of depending vent plugs adapted to have fitted engagement with the top wall of the battery in the fill openings thereof and includes depending wall means for protecting the space about the vent openings and means for protectively overlying the battery terminals. Further, where the battery is provided with a data indicating means on the top wall thereof, the cover structure may include a depending wall means for protecting the space above the data indicating means. The cover includes means for facilitated manual installation and removal thereof.

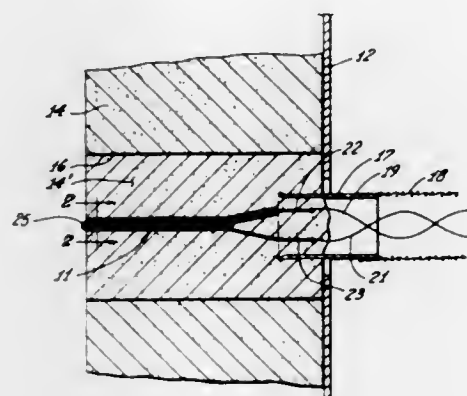
3,653,975

REGENERATIVE THERMOCOUPLE SENSOR

Janusz A. Stalony-Dobrzanski, Playa Del Ray, Calif., assignor to Northrop Corporation, Beverly Hills, Calif.
Filed Dec. 13, 1967, Ser. No. 690,171
Int. Cl. H01v 1/02

U.S. Cl. 136—225

1 Claim



A thermocouple device adapted to regenerate its junction in an ablating environment. The device includes a pair of dissimilar ribbon-like members the ends of which are welded or otherwise secured together. The individual members are folded on themselves in side-by-side non-contacting relation to provide a thermocouple assembly. The assembly—in turn—is imbedded in an ablating or like material. So positioned, ends of the members will reweld themselves as the ablating material melts away. The above feature is a continuous operation, rendering the operation of the device continuous.

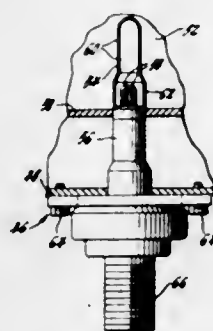
3,653,976

THERMOCOUPLE PROBE ASSEMBLY WITH NICKEL ALUMINIDE TIP

Donald G. Miller, Indianapolis, Ind., and Richard H. Singleton, Pittsburgh, Pa., assignors to General Motors Corporation, Detroit, Mich.
Original application May 5, 1967, Ser. No. 636,325, now Patent No. 3,486,833, dated Dec. 30, 1969. Divided and this application June 19, 1969, Ser. No. 862,096
Int. Cl. H01v 1/02

U.S. Cl. 136—231

1 Claim



Portions of nonrotating gas turbine engine components, such as the leading edge of a turbine stator vane, fabricated of the intermetallic compound NiAl will satisfactorily resist corrosion and structural failure in operation at temperatures of 2,200–2,500° F.

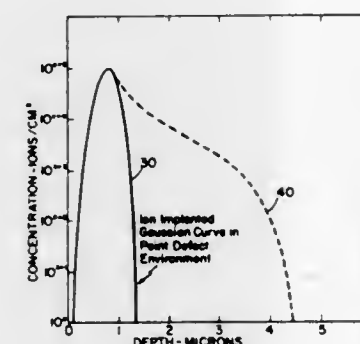
3,653,977

METHOD OF PREVENTING ION CHANNELING IN CRYSTALLINE MATERIALS

Alfred J. Gale, Lexington, Mass., assignor to Ion Physics Corporation, Burlington, Mass.
Filed Apr. 10, 1968, Ser. No. 720,023
Int. Cl. H01l 7/00

U.S. Cl. 148—1.5

7 Claims



The invention discloses a method of preventing ion channeling in crystalline materials by preirradiating the material with sufficiently energetic electrons, X-rays or gamma rays to produce a sufficient density of crystal imperfections known as point defects. These defects are readily annealed away at temperatures insufficient to diffuse dopant atoms or produce a chemical or electrical effect in the material.

3,653,978

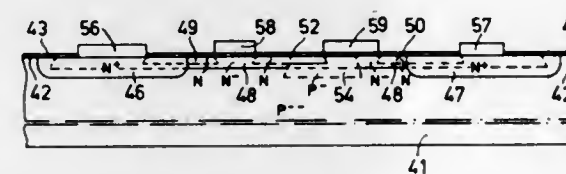
METHOD OF MAKING SEMICONDUCTOR DEVICES

David Phythian Robinson, Stanmore, Middlesex, England; Julian Robert Anthony Beale, Reigate, Surrey, England; John Martin Shannon, Redhill, Surrey, England; John Anthony Kerr, Harrow, Middlesex, England, and Mukunda Behari Das, Unversky Park, Pa., assignors to North American Phillips Co., Inc., New York, N.Y.
Filed Mar. 7, 1969, Ser. No. 805,275

Claims priority, application Great Britain, Mar. 11, 1968, 11,845/68
Int. Cl. H01l 7/54

U.S. Cl. 148—1.5

14 Claims



A method for making an IGFET is described. The method utilizes impurity ion implantation into the surface channel to determine the conductivity thereof. The advantages include special impurity profiles providing improved performance, better control over important parameters such as threshold voltage, the manufacture of improved tetrodes, and the manufacture of improved ICs using for example N- and P-channel devices, and depletion and enhancement devices combined in a single chip.

897 O.G.—8

3,653,979

PROCESS FOR THE PRODUCTION OF A STEEL EXHIBITING CONSISTENTLY LOW WEIGHT LOSS TEST VALUES

Richard Wilfred Whitton, Figtree, New South Wales; Ronald Herbert Southall; Michael William McKenzie, both of Keiraville, New South Wales, and Ralph Edward Shackelford, West Wollongong, New South Wales, all of Australia, assignors to Australian Iron & Steel Pty. Limited, Sydney, New South Wales, Australia
Filed July 14, 1969, Ser. No. 841,551

Claims priority, application Australia, July 25, 1968, 41211/68

Int. Cl. C23f 7/24

U.S. Cl. 148—6.24

4 Claims

Steel strip to be used in the manufacture of carbonated beverage packs is treated to incorporate sulfur into its surface layers by diffusion during the annealing cycle that is normally conducted after cold rolling and cleaning operations. The steel is first treated with an aqueous sulfide solution, dried and then heated in a conventional annealing furnace.

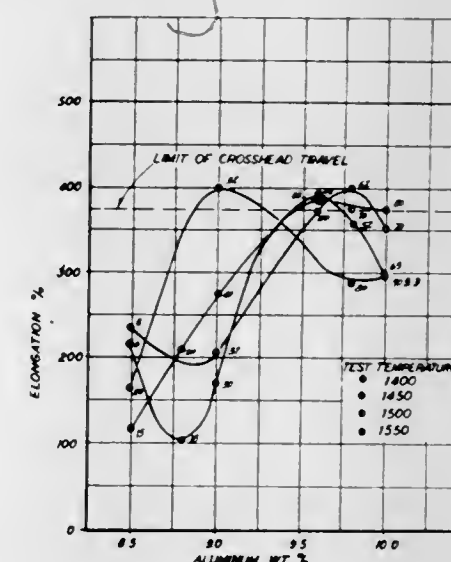
3,653,980

METHOD OF OBTAINING EXCEPTIONAL FORMABILITY IN ALUMINUM BRONZE ALLOYS

George H. Elchelman, Jr., Cheshire, Conn., assignor to Olin Corporation
Filed June 11, 1970, Ser. No. 45,447
Int. Cl. C22f 1/08

U.S. Cl. 148—11.5 R

17 Claims



The instant disclosure teaches a method of obtaining exceptional formability in aluminum bronze alloys comprising: providing an aluminum bronze alloy containing from 8.0 to 11.8 percent aluminum plus 0.5 to 5.0 percent iron, balance essentially copper, cold working said alloy and annealing from 1,000° to 1,400° F. and superplastically deforming at 1,400° to 1,600° F.

3,653,981

METHOD FOR MAKING FERRITIC STAINLESS STEEL SHEET HAVING EXCELLENT WORKABILITY

Shozo Watanabe; Takayuki Ooka; Susumu Takemura, and Motobiko Arakawa, all of Hikari City, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan
Filed Oct. 24, 1968, Ser. No. 770,341

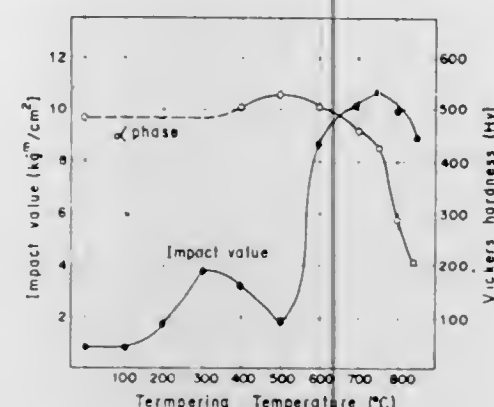
Int. Cl. C21d 1/32, 9/48

U.S. Cl. 148—12.4

3 Claims

A method for making a ferritic stainless steel having an excellent workability, particularly bending workability and producing almost no ridgings, comprising annealing a hot-rolled steel band at a high temperature above 900° C.,

quenching the annealed steel band to form a martensite, then quenching the steel to a temperature below 760° C. so that



the martensite with not be decomposed and thereafter subjecting the steel to conventional cold-rolling and annealing.

3,653,982

TEMPER RESISTANT CHROMIUM-CONTAINING TITANIUM CARBIDE TOOL STEEL

Arnold Louis Prill, Suffern, N.Y., assignor to Chromalloy American Corporation, West Nyack, N.Y.

Filed Dec. 18, 1969, Ser. No. 886,286

Int. Cl. C22c 39/14; B22f 3/24

U.S. Cl. 148—31

4 Claims

A heat treatable, temper resistant, chromium-containing, carbide tool steel having a total carbon content of at least about 6 percent by weight is provided comprising about 25 to 75 percent by volume of primary carbide grains of essentially titanium carbide distributed through a heat treatable steel matrix containing by weight about 6 to 12% chromium, about 0.6 to 1.2% carbon, about 0.5 to 5% molybdenum, 0 to 5% tungsten, the total tungsten and molybdenum content not exceeding about 5%, 0 to 2% vanadium, 0 to 3% nickel, 0 to 5% cobalt, 0 to 1.5% silicon, 0 to 2% manganese and the balance essentially iron, the ratio by weight of chromium to carbon in the steel matrix ranging from about 7:1 to 25:1, the steel matrix surrounding the primary carbide grains being characterized by a microstructure comprising an austenitic decomposition product.

3,653,983

COMPOSITIONS FOR DISPLACING WATER ADHERING TO METAL SURFACES AND PROCESS

Georg Ziehr, Dusseldorf-Holthausen, and Heinz-Dieter Heidenbluth, Dusseldorf, both of Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

Filed Nov. 13, 1969, Ser. No. 876,604

Claims priority, application Germany, Nov. 22, 1968, P 18 10 245.9

Int. Cl. B01d 12/00

U.S. Cl. 148—6.14 R

8 Claims

A composition for the displacing of an aqueous film or layer adhering to a metal surface consisting essentially of an organic water-immiscible solvent selected from the group consisting of an organic water-immiscible solvent having a density of less than 0.9 gm./ml. and a mixture of miscible organic water-immiscible solvents, said mixture having a density of less than 0.9 gm./ml., containing from 0.1 to 10 percent of an acid selected from the group consisting of monocarboxylic acid having from seven to 12 carbon atoms and mixtures of monocarboxylic acids having an average of from seven to 12 carbon atoms and from 0.1 to 8 percent of an alkylamine selected from the group consisting of alkylamines having from six to 10 carbon atoms and mixtures of alkylamines having an average of from six to 10 carbon atoms, the average sum of the carbon atoms in said acid and said alkylamine being from 15 to 17; as well as the process of removing adhering liquid utilizing said composition.

3,653,984 METHOD FOR ANNEALING SILICON STEEL STRIP FOR USE AS MATERIAL OF ELECTRIC MACHINERY

Nobuo Urushiyama; Minoru Yoshio, and Takamitsu Miyata, all of Kitakyushu City, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

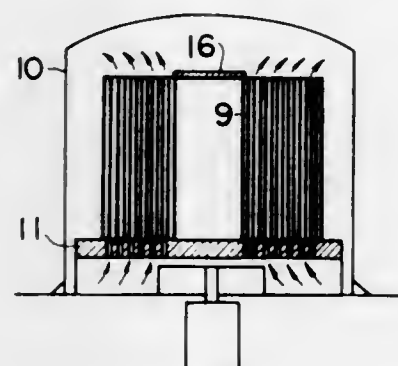
Filed Apr. 28, 1969, Ser. No. 819,876

Claims priority, application Japan, Apr. 30, 1968, 43/28888

Int. Cl. H01f 1/18

U.S. Cl. 148—113

9 Claims



Method for annealing silicon steel strip which has been coated with a slurry of such metal-hydroxides as are capable of forming a glassy film on the surface of said silicon steel strip, which has been wound into a coil, and which has been annealed in the desired atmosphere, thereby contracting the volume of the so applied metal-hydroxides, so as to produce a space between coil-layers.

3,653,985

PROCESS FOR THE MANUFACTURE OF A BAND SAW

Toshiei Funakubo, 3-19, Fukagawa Takabashi, Koto-ku, Tokyo, Japan

Filed Dec. 3, 1969, Ser. No. 881,845

Claims priority, application Japan, Dec. 9, 1968, 43/89531

Int. Cl. C21d 9/24

U.S. Cl. 148—127

4 Claims

A novel process for the manufacture of a metal- or wood-cutting band saw having a uniform structure and mechanical strength and sufficiently flexible to pass over two wheels on a conventional sawing equipment without breaking along the line of weld in the course of metal- or wood-cutting operations.

For the manufacture of such a band saw, a series of saw teeth are formed on one edge of cutting edge of an elongated steel band adapted for serving as a band saw. The steel band is then cut to a predetermined length and the cut material is welded at the two ends directly without any solder therebetween. The steel band saw is then quenched and tempered as a whole to obtain an even temper, and the front or cutting edge of the band is quenched and tempered as usual for hardening the saw teeth.

3,653,986

METHOD FOR CONTROLLING THE EDDY-CURRENT LOSS AND INCREASING THE PERMEABILITY OF MAGNETIC ALLOYS

Vernon J. Pingel, Arlington Heights, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 733,333, May 31, 1968, now abandoned. This application June 27, 1969, Ser. No. 842,780

Int. Cl. H01f 1/24; C22c 19/00

U.S. Cl. 148—104

9 Claims

A method of controlling the eddy-current loss and increasing the permeability of sulfur-and-manganese-bearing, 2-81 Molybdenum Permalloy, pressed powder by maintaining the alloy at an elevated temperature in an air or other environ-

ment for a sufficient time to begin nucleation of a solid-solution precipitate which is evenly distributed within the grains of the alloy, but without permitting significant growth and combination of the precipitate into large particles or their migration to the grain boundaries, and annealing in a reducing atmosphere for a period of time sufficient to cause secondary recrystallization of the grains and dissolve the solid-solution precipitate.

3,653,987

NICKEL BASE ALLOY

William J. Boesch, Utica, N.Y., assignor to Special Metals Corporation, New Hartford, N.Y.

Filed June 1, 1970, Ser. No. 42,412

Int. Cl. C22f 1/10

U.S. Cl. 148—162

7 Claims



A nickel base alloy consisting essentially of, in weight percent, up to 0.18% carbon, from 14.2 to 20% cobalt, from 13.7 to 16% chromium, from 3.8 to 5.5% molybdenum, from 2.75 to 3.75% titanium, from 3.75 to 4.75% aluminum, up to 4% iron, from 0.005 to 0.035% boron, up to 0.5% zirconium, up to 0.5% hafnium, up to 0.75% columbium, up to 0.5% rhenium, up to 0.75% tantalum, up to 1.0% manganese, up to 3% tungsten, up to 0.5% rare earth metals, balance essentially nickel with incidental impurities and having a morphology comprised of gamma prime particles which consist essentially of randomly dispersed irregularly shaped particles less than about 0.35 micron.

A method of treating an alloy consisting essentially of, in weight percent, up to 0.18% carbon, from 14.2 to 20% cobalt, from 13.7 to 16% chromium, from 3.8 to 5.5% molybdenum, from 2.75 to 3.75% titanium, from 3.75 to 4.75% aluminum, up to 4% iron, from 0.005 to 0.035% boron, up to 0.5% zirconium, up to 0.5% hafnium, up to 0.75% columbium, up to 0.5% rhenium, up to 0.75% tantalum, up to 1.0% manganese, up to 3% tungsten, up to 0.5% rare earth metals, balance essentially nickel with incidental impurities, to develop a morphology comprised of gamma prime particles which consist essentially of randomly dispersed irregularly shaped particles less than about 0.35 micron in diameter. It comprises the steps of heating the alloy at a temperature of at least about 2,000° F., cooling the alloy and heating the alloy at a temperature of from about 1,500° F. to about 1,850° F.

3,653,988

METHOD OF FORMING MONOLITHIC SEMICONDUCTOR INTEGRATED CIRCUIT DEVICES

Vincent J. Glinski, Murray Hill, and Bernard T. Murphy, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Continuation-in-part of application Ser. No. 703,165, Feb. 5, 1968, now abandoned. This application Apr. 3, 1969, Ser. No. 820,697

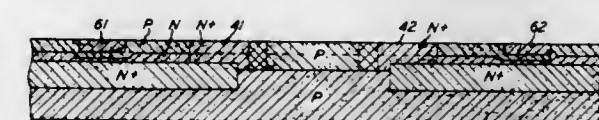
Int. Cl. H01f 7/44, 3/00; B01j 17/00

U.S. Cl. 148—175

7 Claims

This method of fabricating junction-isolated semiconductor integrated circuit devices eliminates the photolitho-

graphic masking operation associated with a base diffusion by performing a non-selective P-type base diffusion into the entire surface of a thin N-type epitaxial layer. The lateral extent of base zones and resistor zones is defined by selectively



diffusing low resistivity N-type deep contact zones completely through the epitaxial layer to intersect the entire perimeter of a buried N-layer. Junction isolation, consisting of either back-to-back diodes or junction field-effect transistors, may be used.

3,653,989

ZN DIFFUSION INTO GAP

Alois Erhard Widmer, Wuerenlos, Switzerland, assignor to RCA Corporation

Filed Apr. 2, 1970, Ser. No. 25,225

Int. Cl. H01l 7/44

U.S. Cl. 148—189

8 Claims

Zinc is diffused into N type gallium phosphide to form a PN junction therein. The zinc diffusion takes place in vacuum at temperatures between about 800°-950° C. from a Zn₂ source.

3,653,990

METHOD FOR IMPROVING STEEL FOR CARBONATED BEVERAGE CONTAINERS

Robert M. Hudson, Churchill Borough; Donald W. Stoner, Monroeville Borough, and George L. Stragand, Elizabeth Borough, all of Pa., assignors to United States Steel Corporation

Filed Mar. 18, 1970, Ser. No. 20,836

Int. Cl. C21d 7/14, 9/46, 1/00

U.S. Cl. 148—12.1

9 Claims

A method of manufacturing tinplate or other coated sheet steels for carbonated beverage containers wherein the sheet steel, following the conventional cold rolling procedure, is annealed in a non-oxidizing atmosphere containing at least 0.10 volume percent hydrogen sulfide and at a temperature of at least 1,200° F.

3,653,991

METHOD OF PRODUCING EPITACTIC GROWTH LAYERS OF SEMICONDUCTOR MATERIAL FOR ELECTRICAL COMPONENTS

Erhard Sirtl, Midland, Mich., and Hartmut Seiter, Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed June 16, 1969, Ser. No. 833,818

Claims priority, application Germany, June 14, 1968, P 17 69 605.8

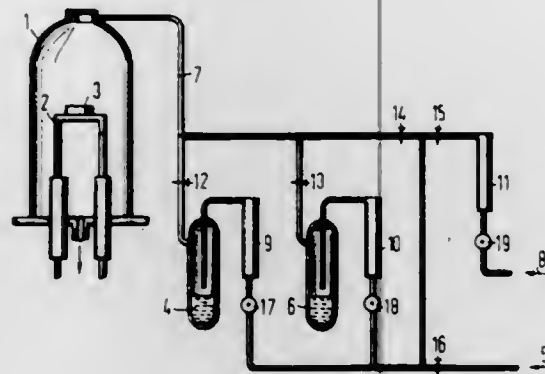
Int. Cl. H01l 7/36

U.S. Cl. 148—175

5 Claims

Homogeneous epitactic growth layers of semiconductor material for electrical components, particularly for integrated circuit, having locally separated regions situated on a crystal wafer, by pyrolytic dissociation of a gaseous compound of the semiconductor material and by precipitating said semiconductor material upon a heated, monocrystalline carrier body which is coated at specific regions of its surface with a masking layer. The method is characterized by the fact that both bromine and hydrogen are included in the reaction gas, shifting the equilibrium of the reaction partners through development of additional hydrogen halide, during the precipitation process at the heated carrier body. Thus precipitation of the semiconductor material, occurs only at the places of the car-

rier body, not coated with the masking layer, while no semiconductor material is precipitated at the regions of the



carrier body which are coated with the masking layer, due to a suppression of the heterogenic seed formation.

3,653,992

AQUEOUS SLURRY SALT TYPE EXPLOSIVES CONTAINING NITRATO-ALKANOL AS SENSITIZER COMPONENT AND MANUFACTURE THEREOF

Harry R. Fee, Hopatcong, and Eldon K. Hurley, Wharton, both of N.J., assignors to Hercules Incorporated, Wilmington, Del.

Filed Mar. 5, 1970, Ser. No. 16,939
Int. Cl. C06b 19/00

U.S. Cl. 149-2

28 Claims

Aqueous slurry salt type explosives containing, as a sensitizer component, a nitrato-alkanol, soluble, and dissolved, in sensitizing amount in the aqueous solution phase.

An aqueous solution phase for explosives of the invention and containing the nitrato-alkanol formed in situ, is provided by reacting a suitable epoxide with aqueous excess HNO_3 to form the nitrato-alkanol, and then neutralizing the excess HNO_3 to form a resulting aqueous salt and nitrato-alkanol product solution, as said aqueous solution phase; and, in a separate embodiment, admixing the remaining ingredients for the explosive with the entire aqueous product solution, to form the slurry explosive product. The nitrato-alkanol, in each method embodiment, is formed and handled without need for isolation of same; and excess HNO_3 , which enhances equilibrium of the nitrato-alkanol-forming reaction is readily removed by the neutralization which concomitantly provides in situ formation of the salt for incorporation into the explosive product without need for associated separation or isolation steps.

3,653,993

SMOKELESS PROPELLANT COMPOSITIONS CONTAINING POLYESTER RESIN

George W. Batchelder, Yucalpa, and Gilbert A. Zimmerman, Monrovia, both of Calif., assignors to Aerojet-General Corporation, Azusa, Calif.

Filed June 12, 1956, Ser. No. 590,998
Int. Cl. C06d 5/06

U.S. Cl. 149-19

17 Claims

1. Method for producing thrust in the absence of smoke, said method comprising burning a propellant composition consisting essentially of a cured intimate mixture of a solid nonmetallic, inorganic oxidizing salt in amount from about 45 to about 90 percent by weight of the total propellant composition, a combustible organic resin, a catalytically effective quantity of a burning rate acceleration catalyst selected from the group consisting of the nitrate salts of zinc, lithium, iron, chromium, and mixtures thereof so as to produce nonsmoking gases, and exhausting said gases through an orifice to produce thrust.

3,653,994

PROPELLANT COMPOSITIONS CONTAINING A METAL NITRITE BURNING RATE CATALYST

George W. Batchelder, Glendora, and Gilbert A. Zimmerman, Monrovia, both of Calif., assignors to Aerojet-General Corporation, Azusa, Calif.

Filed May 24, 1954, Ser. No. 432,014
Int. Cl. C06d 5/06

U.S. Cl. 149-19

7 Claims

1. A solid propellant composition consisting essentially of a cured intimate mixture of from about 50 percent to about 80 percent by weight of the total propellant composition of an ammonium salt selected from the group consisting of ammonium chlorate, perchlorate and nitrate and unsaturated polyester resin consisting of the condensation product of saturated polyhydric alcohol and polycarboxylic acid heteropolymerized with an unsaturated compound selected from the group consisting of lower alkenes, lower alkynes, phenyl substituted lower alkenes, lower alkyl dienes, lower alkenyl esters of lower alkanic acids, lower alkyl esters of lower alkenic acids, lower alkenyl esters of lower alkenic acids, allyl diglycol carbonate, diallyl diglycolate, and mixtures thereof; from 0 percent to about 2 percent by weight ammonium dichromate and from about 0.5 percent to about 5 percent by weight of a burning rate acceleration catalyst selected from the group consisting of potassium nitrite, barium nitrite, calcium nitrite and mixtures thereof.

3,653,995

INCENDIARY COMPOSITION

Edward G. Selleck, San Diego; Alfred F. Weinberg, El Cajon, and Geoffrey R. Tully, Jr., Poway, all of Calif., assignors to Gulf Oil Corporation, San Diego, Calif.

Filed Mar. 26, 1969, Ser. No. 810,804
Int. Cl. C06d 1/02

U.S. Cl. 149-19

7 Claims

A pyrophoric powder made of an alloy of misch metal having a particle size distribution making it particularly suitable for employment in an airborne incendiary device in combination with an organic binder that serves to initiate oxidation and as an oxidizer. Incendiary devices using the powder dispersion exhibit prompt and sure ignition followed by the formation of a clinker with uniform and slow secondary burning properties.

3,653,996

CONTROLLED GELATION IN AQUEOUS EXPLOSIVES CONTAINING BORIC ACID

Donald W. Edwards, Leighton, Pa., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

Filed Jan. 22, 1970, Ser. No. 5,144
Int. Cl. C06b 19/04

U.S. Cl. 149-21

27 Claims

Explosive compositions containing boric acid, a gelling agent, an oxidizer, a fuel component, and an aqueous medium and a method of controlling the degree of gelation of these compositions. The compositions can be gelled to the extent desired by adjusting their pH.

3,653,997

CONDITIONING AND SHAPING SOLUTION FOR CIRCUIT BOARDS

Bill F. Rothschild, Whittier; Fredrick C. Seymour, Downey, and Jon G. Thomas, Anaheim, all of Calif., assignors to North American Rockwell Corporation

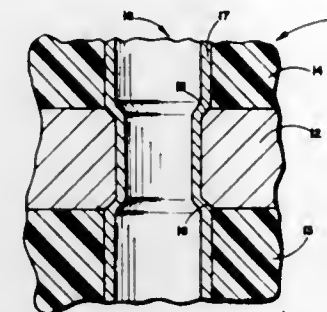
Filed June 22, 1970, Ser. No. 48,247
Int. Cl. C23f 1/02; C09k 3/00

U.S. Cl. 156-3

8 Claims

A preferred solution of sodium dichromate, sulfuric acid, and orthophosphoric acid maintained at a pH of less than

one is used to etch away sharp edges (burrs) remaining after



a copper clad epoxy-glass laminate has been drilled and to condition the epoxy glass for metal deposition.

3,653,998

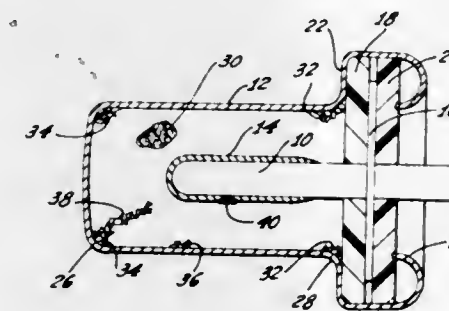
ELECTROLYTIC CELL ETCHING

James P. Sandstrom, Marina Del Rey, Calif., assignor to The Bissett-Berman Corporation, Santa Monica, Calif.

Filed Aug. 21, 1968, Ser. No. 754,277
Int. Cl. C23f 1/04; H05k 3/06

U.S. Cl. 156-6

5 Claims



The present invention relates to the manufacture of electrolytic cells. Specifically, the invention relates to the manufacture of electrolytic cells which do not prematurely short out and which do not provide false readings upon a readout of the information stored in the cell. The electrolytic cells include an inner conductor which is plated with an active material and wherein the active material is plated on the inner conductor using a waterless plating solution and wherein the actual plating occurs at a temperature substantially lower than room temperature, for example, $5^\circ \pm 5^\circ \text{C}$. The waterless plating solution can be a solution of silver nitrate in dimethylsulfoxide. The invention also includes the use of an outer cup electrode which receives the inner electrode and wherein the outer cup electrode is treated to remove strain within the cup electrode. The treatment by thermally etching the cup electrode to remove the strain and at the same time eliminate surface contaminations. As a final step to the construction of the electrolytic cell and after the inner electrode is sealed across an open end of the cup electrode the electrolytic cell is subjected to an elevated temperature substantially above room temperature so as to cure the electrolytic cell and create a condition of equilibrium within the electrolytic cell.

3,653,999

METHOD OF FORMING BEAM LEADS ON SEMICONDUCTOR DEVICES AND INTEGRATED CIRCUITS

Clyde Rhea Fuller, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

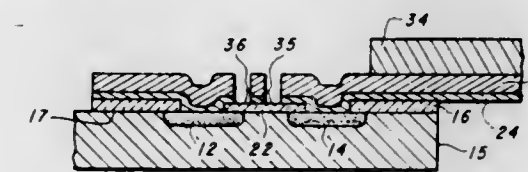
Filed Sept. 25, 1970, Ser. No. 75,635
Int. Cl. H01l 7/50; H05k 1/04

U.S. Cl. 156-11

6 Claims

Disclosed is an improved method for forming corrosion resistant beam lead connectors on semiconductor devices such

as integrated circuits. A barrier layer of a titanium and tungsten alloy is deposited over the surface of the integrated circuit. A layer of gold is then deposited over the barrier layer. The layer of gold is patterned to define interconnection paths between the various devices of the integrated circuit and beam lead connection geometries, using photoresist and a gold etchant. The titanium-tungsten barrier layer is left intact during this step. The photoresist pattern is removed and a second pattern is applied to cover all areas of the integrated



circuit except those areas where beam leads are desired. An additional layer of gold is plated to the appropriate thickness to form the beam leads, the photoresist pattern effecting a plating stop-off and the titanium-tungsten layer providing electrical continuity across the slice. Electrical separation between beam lead connectors and device interconnection paths is effected by etching the titanium-tungsten alloy with an etchant that attacks only the alloy, leaving the gold geometries intact.

3,654,000

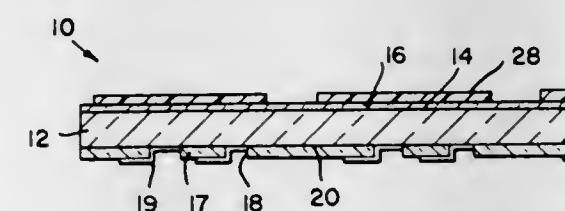
SEPARATING AND MAINTAINING ORIGINAL DICE POSITION IN A WAFER

Raymond P. Totah; Gordon L. Hawkins, both of Costa Mesa; Peter H. Soo, Huntington Beach, and George Wolfe, Jr., Newport Beach, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 18, 1969, Ser. No. 817,440
Int. Cl. H01l 7/50

U.S. Cl. 156-17

5 Claims



A wafer of silicon material containing semiconductor devices on its front side has an oxide coating on its back side. The back side is masked and aligned in conformity with the devices on the front side. The oxide is selectively etched and the remaining oxide serves as a mask for etching through the semiconductor material. The devices are retained in relative position throughout the separation steps.

3,654,001

PROCESS FOR ETCHING BERYLLIUM

Howard G. Mann, Seal Beach, Calif., assignor to North American Rockwell Corporation

Filed June 25, 1968, Ser. No. 739,648
Int. Cl. C23f 1/00

U.S. Cl. 156-18

8 Claims

A process for chemical milling of beryllium and high beryllium alloys is described wherein the beryllium is subjected to an aqueous solution of an acid selected from the group consisting of sulfuric acid, oxalic acid, and ammonium acid fluoride plus sufficient hexavalent chromium ion to prevent channeling. In a preferred embodiment sulfuric acid is present in the range of 5-15 percent chromium ion is present in the range of 7-10 percent CrO_3 ; sodium nitrate is present up to about 1.3 percent; and hydrofluoric acid is present up to about 2 percent.

3,654,002 FIBER PREFORM AND METHOD AND APPARATUS FOR MAKING SAME

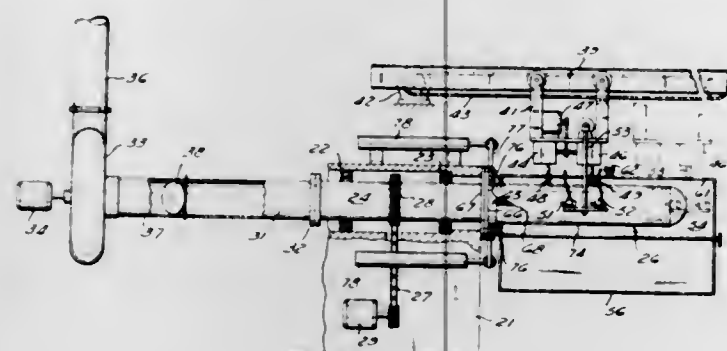
Arthur J. Wiltshire; Henry U. Ranallo, both of Cleveland, and Frank E. Czumber, Chardon, all of Ohio, assignors to Structural Fibers, Inc., Chardon, Ohio

Filed July 5, 1968, Ser. No. 742,692

Int. Cl. B29j 1/02; D21j 5/00

U.S. Cl. 156—62.4

8 Claims



A preform suitable for the bag molding of fiber glass articles such as tanks or the like is disclosed. The preform includes a tubular portion and an integrally formed end wall at one end. The wall of the preform consists of a mat formed by a multitude of short lengths of fibers randomly oriented in the wall and bonded by a settable resin which does not fill the voids between the fibers. The form is free of overlaps and seams. A machine and a method for forming this preform is also disclosed. The machine includes a perforated form rotated about its longitudinal axis while vacuum is applied internally. Choppers deposit short lengths of fibers on the rotating form and resin is sprayed onto the fibers as they are deposited. An oven is provided to cure the resin while the preform remains on the form. Power means are provided to remove the preform from the machine. Because the form is rotating while the cutters traverse the length to deposit the fibers, the dominant orientation of the fibers is in a spiral direction. According to a further aspect of the invention, the preform is wound with a continuous filament so that the preform will have additional reinforcing strength characteristics and so that the outside diameter of the preform will be dimensioned to fit within a tubular mold with minimum clearance.

3,654,003 METHOD OF MOLDING HOLLOW ARTICLE WITH MOLDED-IN FASTENER

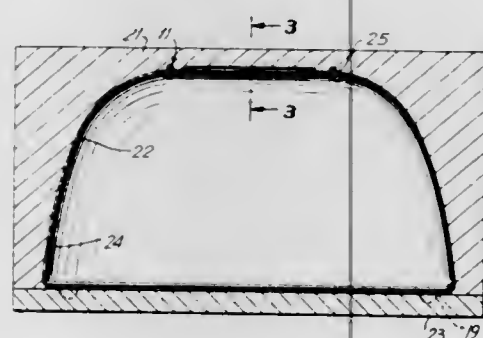
Morris Gary Grossman, Wyckoff, N.J., assignor to Peter's Bag Corporation, New York, N.Y.

Filed May 14, 1969, Ser. No. 824,508

Int. Cl. B32b 1/04

U.S. Cl. 156—66

6 Claims



A method for molding a fastener, such as a zipper, or other material, device or attachment into a hollow article such as a bag for making the fastener or device an integral part of the bag while protecting the fastener elements during the molding operation. The technique of the invention is especially

suitable where the bag or other article is formed by the technique of roto-molding.

3,654,004 APPARATUS FOR THREADING OF FOLDING SHEETS

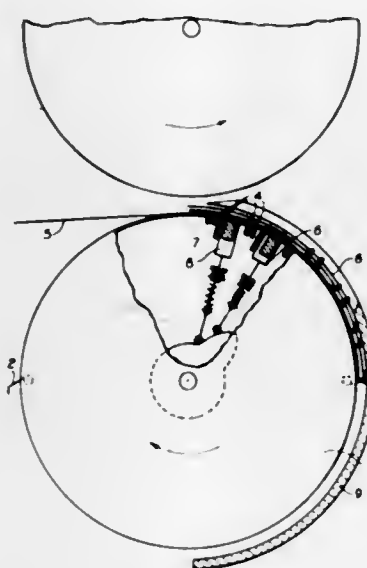
Fritz Piesche, Leipzig, Germany, assignor to Veb Druckmaschinenwerke Leipzig, Leipzig, Germany

Filed Aug. 19, 1969, Ser. No. 851,382

Int. Cl. B32b 7/08

U.S. Cl. 156—91

3 Claims



A method of and an apparatus for stitching of folded sheets with textile, thermoplastic or impregnated threads, which comprises the steps of accompanying of continuously moved folded sheets for a given stroke of its path by stitching needles disposed perpendicularly to the folded sheets at the same speed and in the same direction. The folded sheets are thereby relatively stationary with respect to the stitching needles during the insertion of ends or loops of threads. The thread ends or loops pass a stationary sealing rail or gluing device and are sealed or glued by the latter.

3,654,005 BONDING GLASS WITH THERMOPLASTIC SEALING COMPOSITIONS

John J. Higgins, Westfield; Anthony J. Berejka, Cranford, and Lawrence Spenadel, Westfield, all of N.J., assignors to Esso Research and Engineering Company

Filed July 19, 1968, Ser. No. 745,997

Int. Cl. C09j 3/14; B29c 27/06

U.S. Cl. 156—108

47 Claims

A process of sealing window glass including preparing a thermoplastic sealing tape of either a) butyl rubber or halogenated butyl rubber with a thermoplastic material and a tackifier, or b) EPDM or EPM rubber with a tackifier, inserting the tape in a window frame, heating the tape to soften it, and inserting the window glass.

3,654,006 METHOD OF PRODUCING PACKAGING MATERIAL

William C. Heller, Jr., 3521 N. Shepard Ave., Milwaukee, Wis., and Donald W. Davis, 7038 N. Beach Road, Milwaukee, Wis.

Continuation of application Ser. No. 531,899, Mar. 4, 1966, now abandoned. This application Oct. 29, 1969, Ser. No. 872,079

Int. Cl. B32b 31/10

U.S. Cl. 156—108

10 Claims

A method of producing paperboard, or like, containers having coated window openings therein for viewing the contents. Window openings are formed in a base sheet and covered by a transparent window sheet. The window sheet

and base sheet are then coated with a layer of film forming material to complete the production process.

3,654,007 METHOD OF FOLDING FABRIC ABOUT A TIRE BEAD

Roy D. J. Winstanley, Birmingham; Alfred H. Grossett, Lichfield, and Wilfred H. Harrington, Solihull, all of England, assignors to Dunlop Holdings Limited, London, England

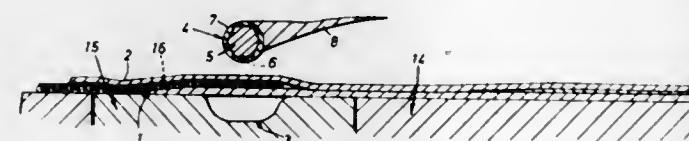
Filed Nov. 22, 1968, Ser. No. 778,245

Claims priority, application Great Britain, Dec. 1, 1967, 54,826/67

Int. Cl. B29h 17/22

U.S. Cl. 156—132

7 Claims



A method of reducing distortion of the steel cords of a radial ply carcass of a pneumatic tire provided with a bias laid filler strip in the bead region of the tire, during the turn-up of the carcass and the filler strip about the tire bead comprising lubricating the tire elements in the bead region of the tire.

3,654,008 MANUFACTURE OF A PROCESS OF A PLASTIC T-ASSEMBLY

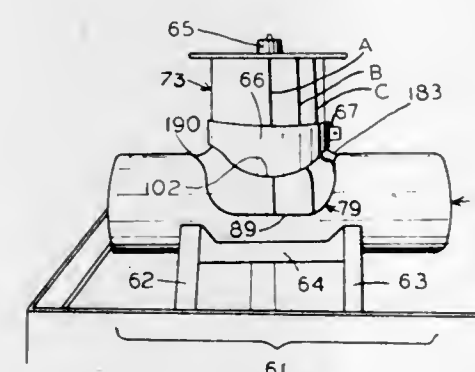
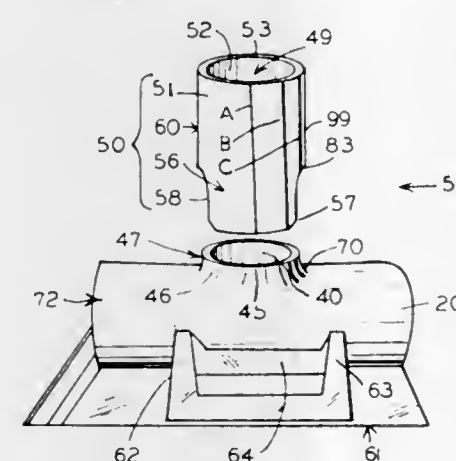
Frank J. Rogers, Waka, and Joe MacClose, Spearman, both of Tex., assignors to Rogers Sales & Service, Inc., Waka, Tex.

Continuation-in-part of application Ser. No. 831,814, May 22, 1969. This application July 15, 1970, Ser. No. 55,113

Int. Cl. B32b 31/14

U.S. Cl. 156—152

6 Claims



Process of manufacture of a plastic T-assembly comprising a conduit with sput unit in combination with a shaped stem

unit, wherein the conduit and sput unit is used as a mold and a part of the stem is utilized as a positioning device for forming a closely mating saddle surface portion on the stem unit between and joining the stem unit and the conduit and sput unit.

3,654,009 PRESSURE VESSELS

Nigel Cecil William Judd, Sandhurst, Camberley; Thomas Lloyd, Crondall, Farnham, and Charles Trevor Mann, Frimley, Camberley, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Feb. 11, 1969, Ser. No. 798,447

Int. Cl. B65h 54/64

U.S. Cl. 156—155

3 Claims

Pressure vessels are formed on a hollow aluminum mandrel having an external surface of a configuration corresponding to the desired internal shape of the vessels. An impervious vessel inner liner is formed on the mandrel as by electro-deposition, and the vessel wall is then formed by winding filamentary reinforcing material on the inner lining, impregnating such material with a resinous material, curing the resinous material, and then removing the hollow aluminum mandrel chemically by use of an aqueous solution of caustic soda.

3,654,010 METHOD OF MAKING GYMNASIIC BARS OF LAMINATED WOOD

Bernhard Hausmann, Blomberg/Lippe, Germany, assignor to Blomberger Holzindustrie B. Hausmann KG, Blomberg/Lippe, Germany

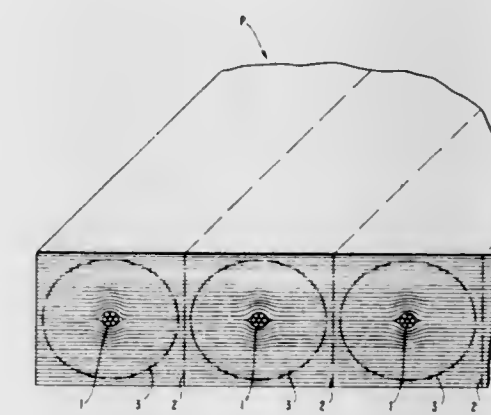
Filed Apr. 16, 1969, Ser. No. 816,670

Claims priority, application Germany, Apr. 16, 1968, P 17 03 197.9

Int. Cl. B32b 21/00, 31/10, 31/18

U.S. Cl. 156—178

7 Claims



A method of making slender rods, such as gymnastic bars of laminated wood with an internal, longitudinally extending insert, wherein the latter is pressed into the wooden body during the making thereof by bonding together a plurality of wood sheets under heat and pressure.

3,654,011 METHOD OF MANUFACTURING MAGNETIC BELTS

Roland N. Buteau, Westbrook, and Ruel E. Taylor, Jr., West Buxton, both of Maine, assignors to Scott Paper Company, Delaware County, Pa.

Filed Apr. 17, 1969, Ser. No. 817,059

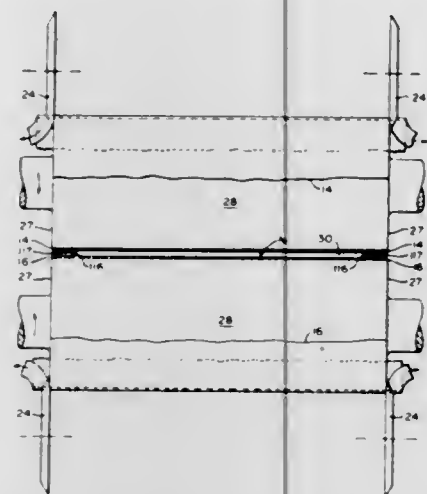
Int. Cl. B31f 5/00

U.S. Cl. 156—204

5 Claims

A magnetic belt manufacturing apparatus wherein two continuous webs of magnetic recording material are unwound at equal speeds, and fed into a splicing nip with their

longitudinal edges coincident and non-recording sides opposed. Two rolls of pressure sensitive tape are unwound at a speed equal to the web unwind speed, passed through creasing and folding nips, and introduced into the splicing nip between the non-recording sides of the webs with their



folded center-lines coincident with the web edges and their exposed adhesive sides extending inwardly from the edges. The flattened tubular web emerging from the splicing nip is cut into a plurality of magnetic recording belts which are conveyed to a packaging station.

3,654,012

METHOD OF MAKING A COMPOSITE PLASTIC ARTICLE OF MANUFACTURE

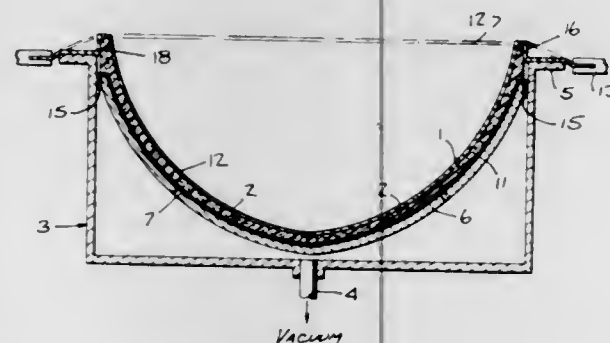
Wilfred C. Schlager, Chicago, Ill., assignor to Unroyal Inc., New York, N.Y.

Filed Feb. 4, 1970, Ser. No. 8,524

Int. Cl. B29c 17/00

U.S. Cl. 156-212

8 Claims



A layer of thermoplastic sheet material such as sheet ABS is heated to a temperature at which it is thermally formable and while at this temperature is thermally formed, as by differential gas forming, typically vacuum forming, against a shaped body of cellular thermoplastic material such as expanded polystyrene. As a result of the heat in the sheet as it is drawn against the cellular body which is at room temperature, fusion welding of the sheet to the surface of the cellular body at the interface takes place. No cement or other adhesive, organic solvent or the like is used. The result is that the cellular body is protected against puncturing, shattering under impact, abrasion, and other physical influences that would normally tend to injure it and is made much stronger. The disadvantages of prior attempts to make such composites, such as the need for preforming the sheet and then bonding it to the body and the need to use solvent-based cements or organic solvents, are completely obviated. The invention is exemplified by the manufacture of a boat having an expanded polystyrene core and layers of sheet ABS covering and fusion welded to its interior and exterior surfaces.

3,654,013 METHOD OF MAKING A FORMED AND BONDED PLASTIC SHEET STRUCTURE

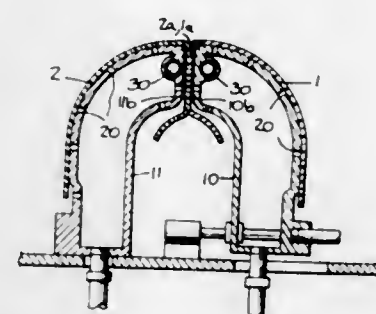
Douglas A. Willsie, Waterloo; Ronald D. Habel, Kitchener, and Robert D. Shepherd, Waterloo, all of Canada, assignors to Unroyal, Inc., New York, N.Y.

Filed Apr. 14, 1969, Ser. No. 815,999

Int. Cl. B29c 27/02; C29c 7/00

U.S. Cl. 156-212

21 Claims



A composite plastic structure is formed by heating a pair of heat formable plastic sheets to heat formable temperature, independently shaping the heated sheets on a pair of cooperating spaced mold members, moving the mold members together so as to place in contact therebetween sealed heat fusible portions of the sheets located between the mold members, and locally heating the contacting portions of the sheets so as to fuse the latter together.

3,654,014

PROCESS FOR PROTECTING A WALL SUBJECTED TO WEAR

Charles Merminod, Geneva, Switzerland, assignor to Societe Anonyme Conrad Zschokke, Geneva, Switzerland

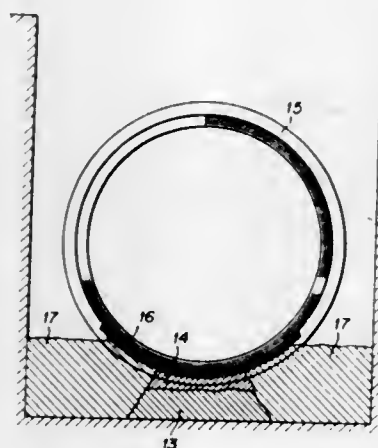
Filed June 18, 1969, Ser. No. 834,371

Claims priority, application Switzerland, July 5, 1968, 10122/68

Int. Cl. F16l 55/18

U.S. Cl. 156-215

13 Claims



This invention relates to a process for protecting a non-flat wall exposed to wear consisting in providing a coating made of a mortar containing synthetic resin on at least part of the surface to be protected. Accordingly one subjects prefabricated protective elements made of a mortar containing synthetic resins to a deformation, so that they adjust better to the form of at least part of the surface, to be protected, one fastens these elements to said surface and one points flat the joints of adjacent coating elements.

3,654,015

METHOD OF MAKING PILLOW CASES

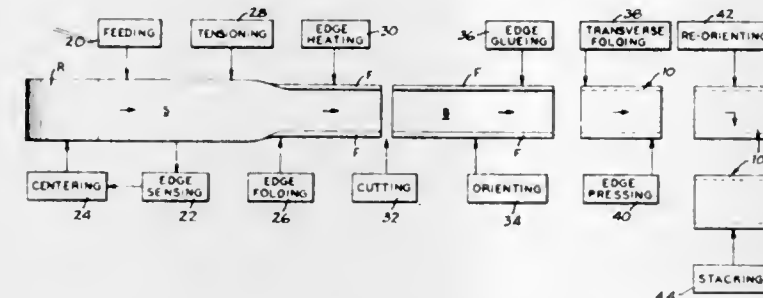
Rupert M. Purcell, 1310 Spencer Ave., San Jose, Calif., and David S. Bartlett, Jr., Sierra Road, Route 2, Box 836, San Jose, Calif.

Filed Nov. 5, 1968, Ser. No. 773,414

Int. Cl. B29d 23/10

U.S. Cl. 156-217

9 Claims



A pillow case formed from thin, non-woven fabric, initially taking the form of an elongated strip which is continuously fed, inwardly folded at its moving edges, then transversely cut whereupon glue is supplied to the edges of the resultant blank which is subsequently transversely folded to bring the glued edges into adherent relationship to form the finished pillow case.

3,654,016

METHOD AND APPARATUS FOR ADHERING FOIL TO A SURFACE

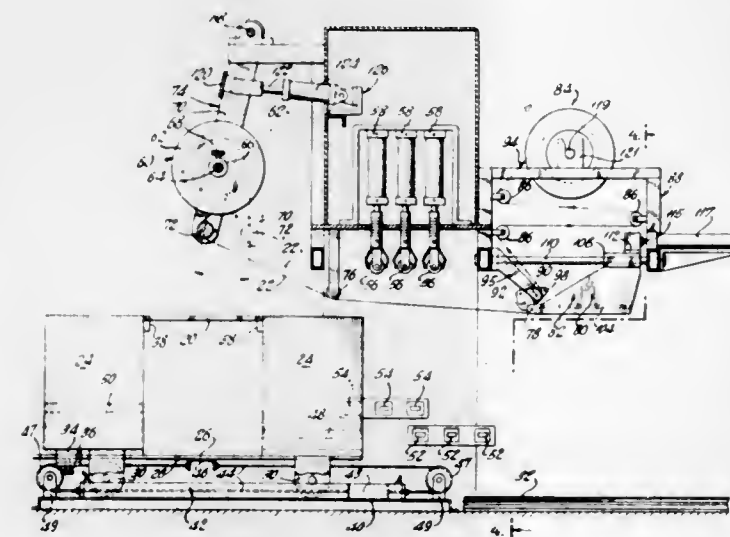
Martin J. Alexander, Tenafly, N.J., assignor to Admiral Coated Products, Inc.

Filed Oct. 8, 1969, Ser. No. 864,845

Int. Cl. B32b 31/08, 31/20

U.S. Cl. 156-247

8 Claims



A method and apparatus for adhering foil to a given surface. The foil is initially supported at one face of a flexible carrier which must be stripped from the foil subsequent to the adhering thereof to the surface. The foil is adhered to the surface by heat-ironing brought about through suitable rollers, and subsequent to the adhering of the foil to the surface the carrier is continuously wound onto a stake-up roll so that the carrier is progressively from the foil to carry out the stripping operations. These stripping operations are brought about in part by movement of the surface and foil with respect to a stripping roll and in part by movement of the stripping roll with respect to the surface to which the foil is adhered, so that the extent to which the surface and foil must be fed is diminished by the extent to which the stripping roll is moved with respect to the surface and the foil adhering thereto. Also the carrier and foil are derived from a supply

roll supported on a swingable frame which moves the supply roll from a given starting position to a given end position during the adhering of the foil to the surface, and a return structure returns the swingable frame back to its starting position after the operations are completed, so that in this way the edge of the foil which is first displaced toward the surface is backed up from the region of the last of the series of heat-ironing rollers to the region of the first thereof, thus reducing waste of foil.

3,654,017

PROCESS OF MAKING ARTICLES FROM FILMS OF THERMOPLASTIC MATERIAL

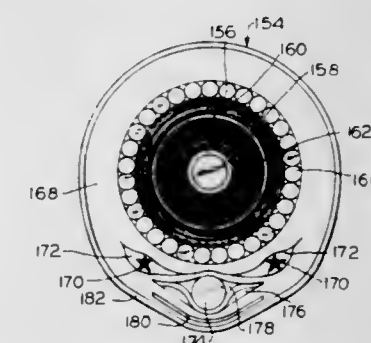
Richard L. Ropiequet, and Margaret J. Montag, both of Portland, Oreg., assignors to Alta Industries, Incorporated, Portland, Oreg.

Filed July 28, 1969, Ser. No. 852,963

Int. Cl. B32b 33/00

U.S. Cl. 156-251

14 Claims



A process is disclosed for making articles of ornamental or unusual appearances by cutting and heating operations performed on a plurality of layers of thermoplastic film material which has been stretched, preferably in two directions at right angles to each other, during manufacture, so as to fuse the layers of material together at least at their edges and in most cases cause contraction of the films in directions parallel to their faces and expansion in a direction perpendicular thereto. A particularly effective procedure is to form an elongated composite roll or bundle of the film material or rods of thermoplastic material or both and to then slice the resulting structure transversely into wafers. These wafers may be heated differentially to cause them to deform into unusual shapes. A number of different types of articles thus made are also shown.

3,654,018

BONDING SKIN TO CONCRETE

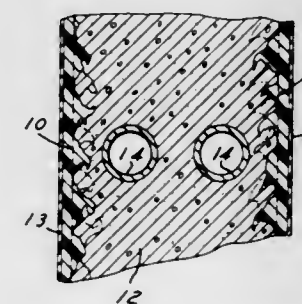
David L. Bogue, Pompano Beach, and William E. Fisher, Jupiter, both of Fla., assignors to KMS Industries, Inc., Ann Arbor, Mich.

Filed Feb. 11, 1970, Ser. No. 10,570

Int. Cl. B28b 5/00; B32b 7/08, 13/12

U.S. Cl. 156-245

1 Claim



A method of forming a solid structure to carry loads and have an attractive appearance which has a smooth and attractive outer surface formed as a fiber-included resin lay-up

of a hard material having an inner surface with hooked projections provided by pulling material from the lay-up and allowing such to droop by gravity and thereafter depositing hardenable aggregate thereover to form an interlocking bond.

3,654,019

METHODS AND APPARATUS FOR BONDING LAMINATE MATERIALS

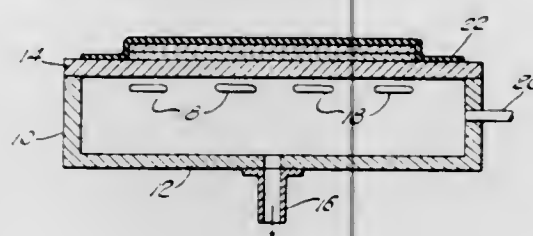
Gordon Edward Cusick, Dalebrook, Handforth Road, Wilm-slow, Cheshire, England

Filed Dec. 10, 1969, Ser. No. 883,734

Int. Cl. B29c 17/00

U.S. Cl. 156-285

5 Claims



Methods and apparatus for adhering outer facing fabrics to fusible interlining backing fabrics by pressing such fabrics together by a suction or negative pressure created by a vacuum, and heating the fabrics while they are so pressed together to cause them to adhere to each other to form laminated materials.

3,654,020

PROCESS FOR THE PREPARATION OF TISSUE-FIBER LAMINATES

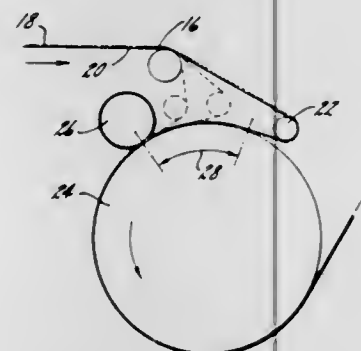
James E. Robinson, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Mar. 30, 1970, Ser. No. 23,889

Int. Cl. B32b 7/14

U.S. Cl. 156-291

6 Claims



Tissue-fiber laminates are prepared by substantially completely embedding a nonwoven fibrous web in a patterned layer of a plastisol adhesive partially embedded in the tissue web. Embedment of the fibrous web is accomplished while the adhesive is in a fluid state.

3,654,021

BONDING PHOTSENSITIVE PLATES, SHEETING OR FILM TO METALLIC SUPPORTS

Herbert Henkler, Darmstadt; Heinrich Hartmann; Klaus Gulbins, both of Limburgerhof, and Hans Wilhelm, Heinsheim, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed Oct. 28, 1968, Ser. No. 771,276

Claims priority, application Germany, Oct. 28, 1967, P 15 97 515.2

Int. Cl. C09j 3/16

U.S. Cl. 156-331

8 Claims

A process for applying photosensitive plates, film or sheeting of a polymerized base material to a metallic support using

a reaction product of an oligomer and/or polymer containing active hydrogen atoms and a polyisocyanate as bonding agent.

3,654,022

METHOD OF MAKING A LAMINATED PHOTOGRAPHIC IDENTIFICATION CARD

Donald G. Wiest, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Original application Aug. 7, 1967, Ser. No. 658,705, now

Patent No. 3,520,758. Divided and this application Dec. 10,

1969, Ser. No. 883,816

Int. Cl. C09j 5/06

U.S. Cl. 156-320

10 Claims

An embossable identification or credit card has been made by laminating the photographic emulsion layer of a transparent photographic film to a rigid substrate using an adhesive based on a latex of poly(vinyl acetate) copolymerized with an alkyl ester of an unsaturated carboxylic acid to which gelatin, gelatin plasticizer and an attach solvent for the substrate are added. The migration of the plasticizer from the adhesive into the emulsion during and subsequent to lamination causes an increased hardening and/or plasticizing of the emulsion and improves cohesive bonding within the emulsion, and consequently the overall toughness, durability and quality of the identification card produced.

3,654,023

MECHANOCHEMICAL SHEET METAL BLANKING SYSTEM

Lawrence M. Rheingold, Baldwin, and Milton Berlin, Forest Hills, both of N.Y., assignors to The Alumet Corporation, Hicksville, N.Y.

Original application Aug. 31, 1967, Ser. No. 664,881, now

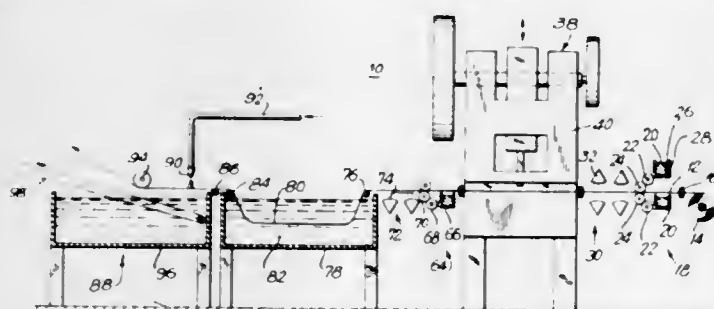
Patent No. 3,563,819, dated Feb. 16, 1971. Divided and this

application Sept. 21, 1970, Ser. No. 73,883

Int. Cl. C23g 3/00

U.S. Cl. 156-345

7 Claims



A system of blanking sheet metal by using a punch and die to stamp a part out of sheet metal stock for only a portion of its thickness so that the part is substantially surrounded by a peripheral fracture but is still retained by the stock and projects a fraction of its thickness therefrom, protecting the broad faces of the part with a resist, then chemically etching the stock and part so that the etch attacks the metal at the fracture and thereby loosens the part and finally removing the part from the stock.

3,654,024

AUTOMATIC LABELLING APPARATUS

Gustav Heinrich, West Hill, Ontario, Canada, assignor to Canadian Stackpole Limited

Filed Dec. 1, 1969, Ser. No. 881,006

Int. Cl. B65c 9/10, 9/42

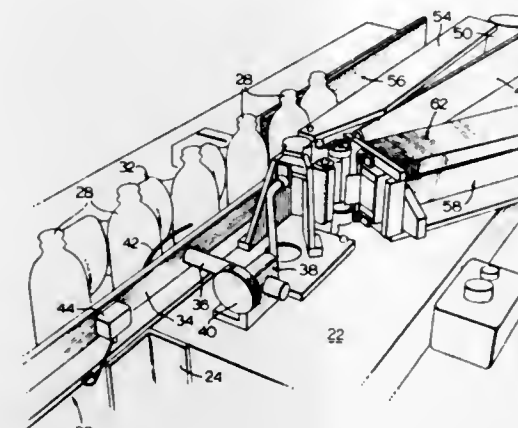
U.S. Cl. 156-363

4 Claims

An automatic labelling apparatus for labelling containers passing on a conveyor has a sensing arm, connected to a switch, the arm contacting the containers passing on the conveyor; the switch is connected to an energized solenoid which forces up a shaft against a spring. The upper end of the

shaft carries a helical gear which in turn meshes with another helical gear attached to the lower end of the spindle on the discharge roller, a finger member being mounted on the spindle. In this position the finger member is withdrawn from the discharge opening of the magazine. When a container hits

number of arcuately spaced supports which are held in spaced relation from a centrally disposed elongated shaft by a plurality of expansible and retractable spokes. A relatively thin metallic shell with a pair of overlapped ends, is disposed in surrounding relation around the supports and provides a



the sensing arm, the solenoid is de-energized with the result that the shaft is pushed downward by the spring and the interaction of the helical gears rotates the finger member into the position where it enters the discharge opening and extracts a label from the magazine.

3,654,025

CAMBERING DRUM

Wolfgang Winzer, Jork, and Reinhard Piotrowski, Hamburg, both of Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Germany

Filed Feb. 9, 1970, Ser. No. 9,557

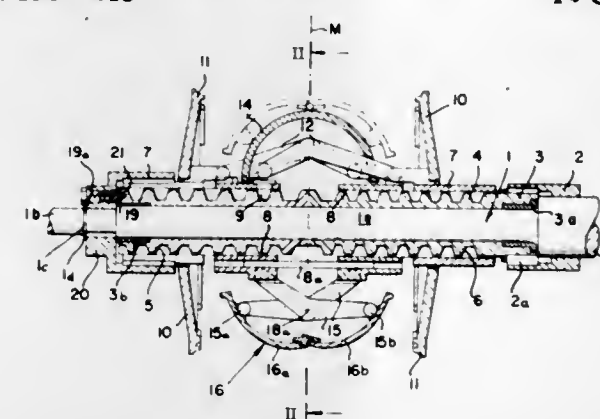
Claims priority, application Germany, Feb. 7, 1969, P 19 06

023.2; Jan. 20, 1970, P 20 02 294.0

Int. Cl. B29h 17/26

U.S. Cl. 156-415

14 Claims



A drum for the cambering of belt-tire carcasses in which sets of toroid segments are displaced radially outwardly nonuniformly to form a cambering shell upon which the tire carcass is deformed by the axial movement of a pair of actuating members coupled by lever linkages with the segments. The shell is flanked by a pair of lateral disks for centering the tire carcasses and coupled with the axially shiftable members.

3,654,026

ADJUSTABLE DIAMETER BAND BUILDING DRUM

Max D. Brinkley, North Canton, and Robert I. Griffiths, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

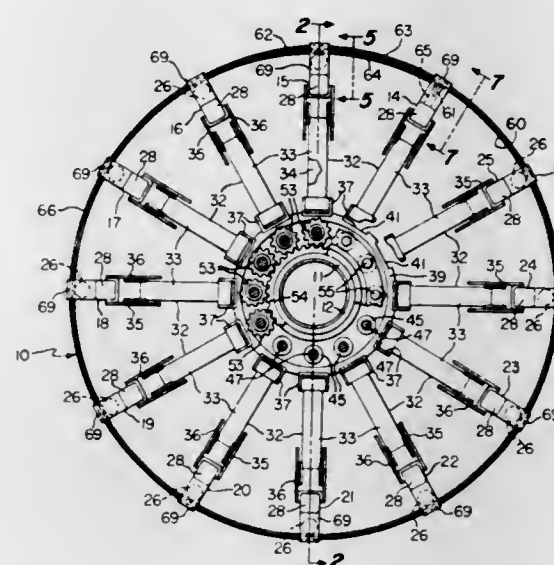
Filed Feb. 20, 1970, Ser. No. 13,253

Int. Cl. B29h 17/16

U.S. Cl. 156-418

19 Claims

A machine for building bands composed of successive layers of rubberized tire building material. The machine has a



working surface on which the generally cylindrical bands are formed. A rubber sleeve is placed around the shell to maintain it in supported relation against the supports. The diameter and circumference of the shell are varied by expanding and retracting the spokes in unison.

3,654,027

APPARATUS FOR MANUFACTURING A SHEATHED CABLE FOR USE IN POST-TENSIONING CONCRETE STRUCTURES

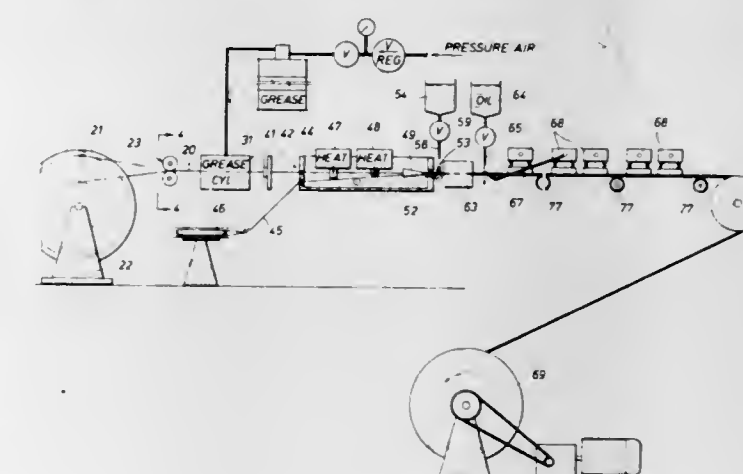
Thomas E. Middleton, Houston, Tex., assignor to Pre-stress Concrete Inc., Houston, Tex.

Filed Sept. 24, 1969, Ser. No. 860,737

Int. Cl. B65h 45/06

U.S. Cl. 156-438

7 Claims



A method and apparatus for manufacturing a loose sheathed cable for use as a post-tensioned reinforcing member in concrete structures including first advancing and lubricating the cable. A plastic strip is advanced adjacent to the cable and heat is applied to soften the edges of the strip. The plastic strip is then formed into a sheath about the cable with the softened edges in overlapping relationship. A solvent applicator is interposed between the overlapping edges to uniformly apply a solvent coating to the contiguous surfaces of the edges. The softened, solvent coated edges are then urged together to form a bond. The exterior of the overlapped portion of the plastic sheath may be lubricated to cool the heated edges and to reduce friction as the sheathed cable

comes into contact with additional members which press the overlapped edges together to ensure a good bond.

3,654,028

APPARATUS FOR MAKING FILAMENT REINFORCED A-STAGE PROFILES

William B. Goldsworthy, 2504 Novato Pl., Palos Verdes Estates, Calif.

Original application July 23, 1969, Ser. No. 844,022, which is a continuation-in-part of application Ser. No. 674,820, Oct. 12, 1967, now Patent No. 3,576,705. Divided and this application Oct. 13, 1969, Ser. No. 871,159

Int. Cl. B65h 65/00

U.S. Cl. 156—438

18 Claims



Fiberglass filament unwound from a series of spools is impregnated with a resin matrix and passed through a pair of rollers or sizing bushing for removing the excess resin and air therefrom. The resin impregnated fiberglass is then enveloped within a sheet of unidirectionally oriented plastic film, the latter being sealed along its upper longitudinal margin by means of an ultrasonic weld or heat weld. The film enclosed composite may then be heated to shrink the film. The temperature should be sufficiently low to have no curing effect on the resin leaving it in the uncured or so-called "A-stage." For some systems, it is desirable to advance the resin to a semicured or so-called "B-stage." The film enclosed composite may then be wound upon suitable reels and stored for further use.

3,654,029

APPARATUS FOR MAKING NET-LIKE STRUCTURES

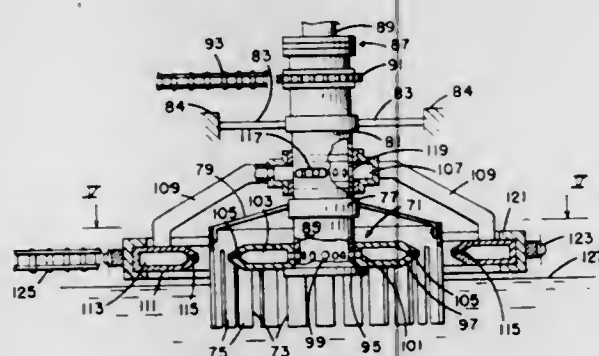
Warren H. Guy, Glen Mills, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Original application Sept. 24, 1968, Ser. No. 762,116, now Patent No. 3,562,046, dated Feb. 1, 1971. Divided and this application July 13, 1970, Ser. No. 54,442

Int. Cl. D04h 3/16

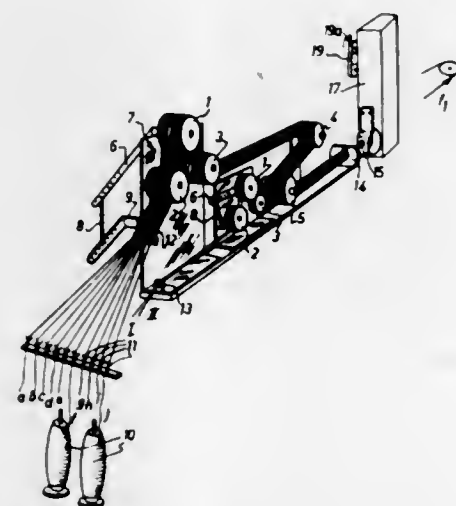
U.S. Cl. 156—441

6 Claims



Apparatus for making a net-like structure by which streams of strand-forming material are extruded and combined in crossing relationship, and including means which permit the streams to be connected to each other at only

selected of their locations of crossing whereby the resulting structure includes mesh strands which are bonded to certain of the strands crossing therewith to form integral, unitary strand junctions and are unconnected to other of such strands at their points of crossing.



1. Installation for manufacturing a cable connecting a control post with a flying missile, said cable consisting of electric conducting wires assembled with sheathing threads, said wires and threads receiving a cover, which installation comprises:

at least one distributing and tension-equalizing device for the said threads and wires, grooved rollers arranged in a triangle on said distributing and tension-equalizing device and over which the said threads and wires pass, a pivoting lever secured to the spindle of one of said rollers, a loaded spring connecting a fixed point on said device with said pivoting lever, whereby the said roller is resiliently mounted to enable the tensions of the said threads and wires to be adjusted.

3,654,031

APPARATUS FOR MAKING EXTRUDED NETS HAVING INTEGRAL STAND JUNCTIONS

Theodore H. Fairbanks, Liverpool, Pa., assignor to FMC Corporation, Philadelphia, Pa.

Filed Oct. 29, 1969, Ser. No. 872,089

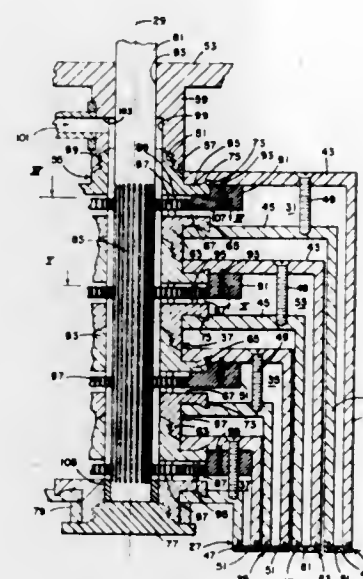
Int. Cl. D04h 3/16

U.S. Cl. 156—441

5 Claims

An apparatus for making an extruded net-like structure

having intersecting mesh strands in which at least portions of the tensioned loop from the source of strapping and effecting and maintaining interfacial friction between such end



certain mesh strands pass directly through other mesh strands at their locations of intersection and are bonded thereat.

3,654,032

APPARATUS FOR MAKING CORRUGATED PAPER BOARD

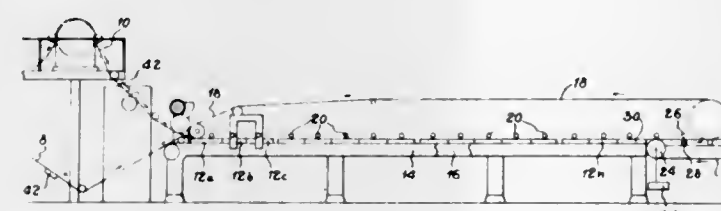
Frank A. Kruglinski, North Bergen, and Joseph A. Miller, Englewood, both of N.J., assignors to General Corrugated Machinery Co., Inc., Palisades Park, N.J.

Filed Sept. 12, 1969, Ser. No. 857,306

Int. Cl. B31f 1/20

U.S. Cl. 156—470

3 Claims



Apparatus for making corrugated paper board of the type having at least two facing sheets. The contacting component webs of supply material are fed along heating plates to adhesively secure them together. To prevent board warpage because of the outer (bottom) facing sheet's being drier than the inner (top) sheet, moisture is added to the outer sheet after the board leaves the heating plates, to equalize the moisture content of the two sheets.

3,654,033

STRAP TENSIONING AND SEALING TOOL

Barry R. Angarola, Schaumburg, and Robert J. Nix, River Grove, both of Ill., assignors to Signode Corporation

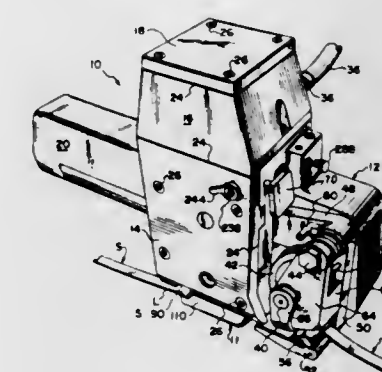
Filed Apr. 1, 1970, Ser. No. 24,667

Int. Cl. B32b 31/16

U.S. Cl. 156—494

15 Claims

A fully automatic cyclicly operable strapping tool for tensioning a loop of fusible plastic strapping having overlapping and regions about an object and thereafter, when a predetermined degree of tension has been attained in the loop, sever-



APPARATUS FOR POSITIONING STRIP ENDS IN A SPLICING ALIGNMENT

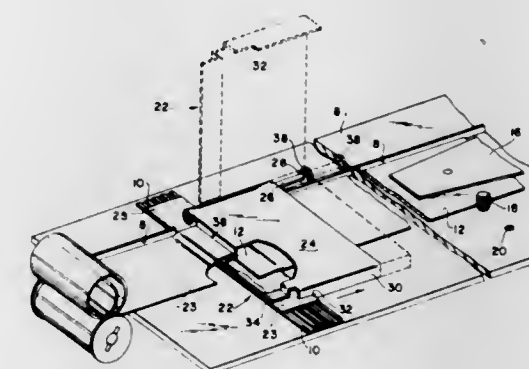
Paul A. Hermle, and Phillip A. Payne, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 21, 1969, Ser. No. 817,870

Int. Cl. B31f 5/00

U.S. Cl. 156—502

4 Claims



Splicing mechanism and method wherein the splicing mechanism has a strip-end positioning member movable to a first position in which an end of a first strip placed thereon is positioned in alignment with a previously positioned end of a second strip and in spaced registering relation to a tape to which the end of the second strip is secured. Upon arresting the first strip and moving the strip-end positioning member toward a second position, the end of the first strip is released for movement by any suitable means into splicing engagement with the tape.

3,654,035

WEB BUTT SPLICING APPARATUS

Hisashi Takimoto, Kanagawa, Japan, assignor to Fuji Photo Film Co. Ltd., Kanagawa, Japan

Filed Jan. 26, 1970, Ser. No. 5,452

Claims priority, application Japan, Feb. 26, 1969, 44/14401

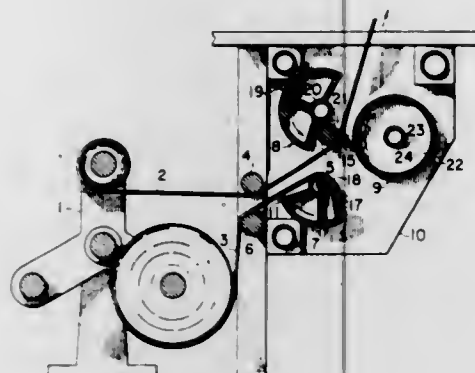
Int. Cl. B31f 5/06; B65n 19/18; G03d 15/04

U.S. Cl. 156—505

5 Claims

Three rotatable drums are mounted on a framework with two of the webs carrying a cooperating cutting tool with old and new webs fed therebetween. Rotation of the same causes

simultaneous cutting of the old and new webs as they are held in overlapping position to achieve butt positioning of the



ends while an adhesive strip carried on the periphery of the third drum moves into position to overlap the abutting ends.

3,654,036

APPARATUS FOR APPLYING COVER SLIDES

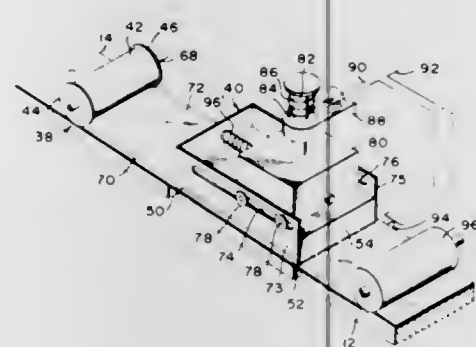
Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Robert L. Oliver, Granada Hills, and Edward F. Zimmerman, Newhall, both of Calif.

Filed Jan. 28, 1970, Ser. No. 6,615

Int. Cl. B32b 31/10, 31/18, 31/20

U.S. Cl. 156-510

3 Claims



Apparatus for applying thin glass slides to solar cells in an assembly line manner including a conveyor belt, a cartridge feeder for consecutively feeding cells onto the conveyor belt, and rollers for feeding a long strip or coil of thin flexible glass along a path parallel to the conveyor belt. The cells and sheet are first sprayed with an adhesive, moved through a drying chamber, and moved together by rollers that press down the glass sheet. After the strip and cells have been pressed together, they pass through a drying chamber and are ready for separating. The strip is separated by applying hot wires to the strip around each cell to which it is held and thereafter breaking the strip at these parting lines.

3,654,037

METHOD AND APPARATUS FOR MAKING PLASTIC TUBES

Fritz Lieblang, Seehofstrasse 3, D-1 West-Berlin, 37, Germany

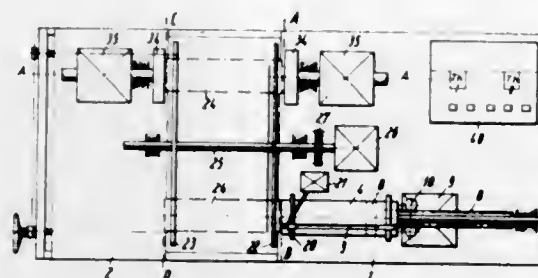
Filed July 24, 1969, Ser. No. 853,584

Int. Cl. B32b 31/02, 31/16

U.S. Cl. 156-512

11 Claims

A method and apparatus for manufacturing tubes bent



ends and which may be closed by a lid on one or both ends.

3,654,038

BOX TAPING MACHINE

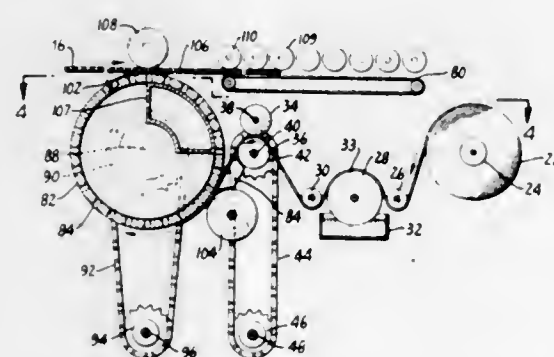
William J. Hottendorf, Box 566, Sunnyvale, Calif.

Filed May 10, 1966, Ser. No. 548,964

Int. Cl. B32b 31/00

U.S. Cl. 156-521

4 Claims



This application discloses a machine for taping and folding paperboard box blanks wherein a strip of tape is applied to one side edge of a box blank while the blank is moving in a direction parallel to that edge, and the blank is subsequently folded by structure similar to the folding device shown in Hottendorf U.S. Pat. No. 2,986,078 to bring a projecting portion of that tape into engagement with an opposite edge of the box blank.

3,654,039

GLASS LAMINATING PROCEDURE APPARATUS

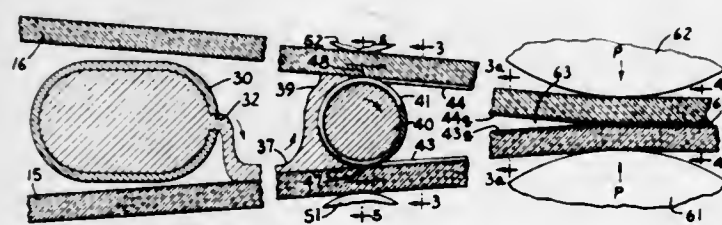
Emil W. Bucher, Lake Bluff, Ill., assignor to Lumni-Strip, Inc., Lake Bluff, Ill.

Filed Feb. 19, 1970, Ser. No. 1,552

Int. Cl. B32b 31/20, 31/12

U.S. Cl. 156-558

8 Claims



An apparatus for producing laminated glass free of bubbles which includes a cylindrical metering bar interposed between upper and lower convergently-arranged, moving strips of glass which not only meters liquid adhesive but which serves as a doctor to fill any shallow depressions in the glass, thereby to establish perfectly planar adhesive surfaces which are subsequently brought into face contact at a nip using optimum pressure so that a full charge of adhesive is maintained in all of the shallow depressions. In a preferred embodiment the metering bar has metering grooves formed by

closely spaced convolutions of wire and is rotated at a peripheral speed which is a small fraction of the speed of movement of the glass strips.

3,654,040

STACKER WITH A LABELING MACHINE

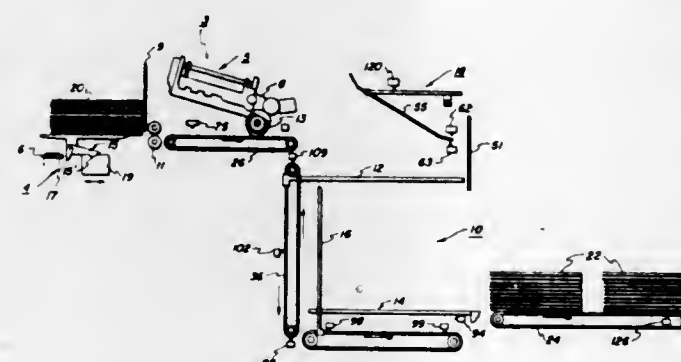
Donald W. Watson, Arlington Heights, Ill., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,222

Int. Cl. B32b 31/20; B65h 31/12

U.S. Cl. 156-568

2 Claims



An article stacker labeler combination including a movable elevator upon which articles may be stacked from a labeler, stack transfer means adapted following predetermined descent of the elevator to intercept and remove a completed stack from the elevator to enable the completed stack to be ejected from the stacker and the elevator reset for the next stack, stack ejector means adapted when actuated to move the completed stack along the stack transfer means and out of the stacker, and control means for the elevator and the ejector means adapted to lower the elevator as a stack builds up thereon, and, following transfer of the completed stack from the elevator to the transfer means, to actuate the ejector means to remove the completed stack, the control means including means to quickly return the elevator to the stack-start position following ejection of the completed stack from the stacker.

3,654,041

SONIC WELDING APPARATUS UTILIZING VIBRATION DAMPENING MEANS

Robert D. Wysong, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va.

Original application Aug. 8, 1967, Ser. No. 659,189, now

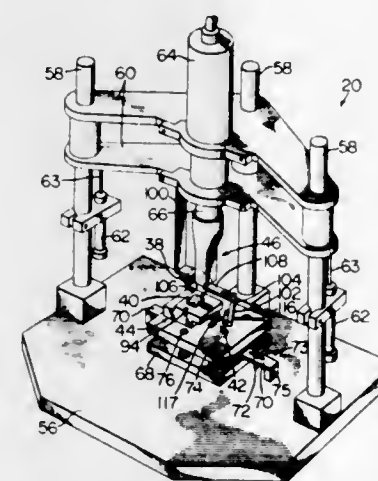
Patent No. 3,499,809. Divided and this application Dec. 9,

1969, Ser. No. 879,979

Int. Cl. B32b 31/16; B29c 27/08

U.S. Cl. 156-580

13 Claims



This application discloses an apparatus and method for the sonic welding of one or more flexible or vibratable blades

with a blade portion of each blade held by two or more plastic holding members with a free blade portion extending out of said plastic holding members. A vibration damping means is provided to dampen the vibratable blade free portion of each of such one or more blades to prevent crystallization and fatigue of said vibratable blade or blades while said plastic holding members are being sonically welded. The vibration damping means may include a damping pad carried by one sonic welding means or base and another damping pad carried by another sonic welding means or horn. The blade or blades may each have a second free portion extending from the plastic holding members in another direction, and such second free portion may be dampened by a third damping pad.

3,654,042

METHOD AND APPARATUS FOR ROLL PRESSURE BONDING

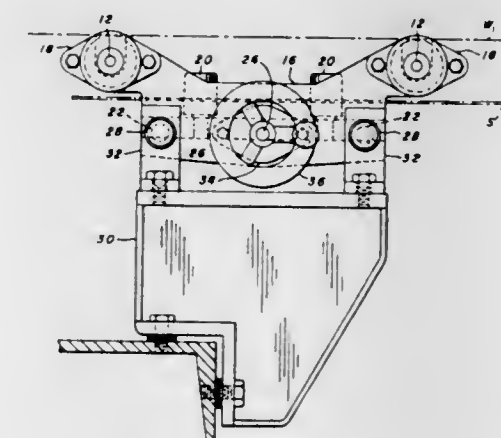
Paul C. Lipsie, Apollo, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Jan. 2, 1970, Ser. No. 175

Int. Cl. B32b 31/20

U.S. Cl. 156-582

18 Claims



A method and apparatus for roll pressure bonding a plurality of spaced apart stripes to a substrate, which insures accurate alignment of the striping material by employing striping material guides which laterally move from side to side with the substrate.

3,654,043

MOVABLE HEAT-SEALING APPARATUS

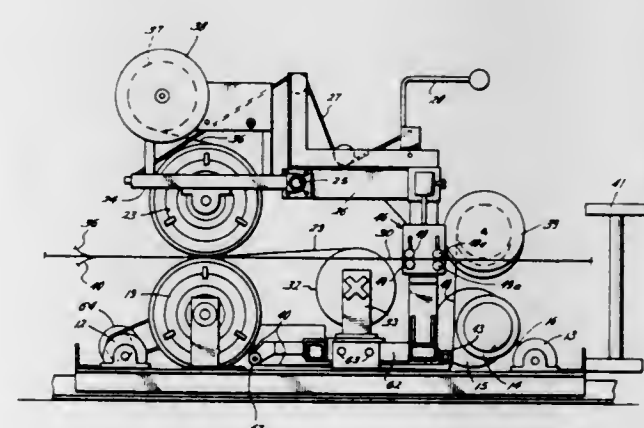
William I. Jacobi, 1108 Nevada St., Northfield, Minn.

Filed Nov. 28, 1969, Ser. No. 880,864

Int. Cl. B32b 31/08; B29c 27/06

U.S. Cl. 156-582

4 Claims



This patent relates to a machine for heat-sealing two sheets of material together while moving along a track. The machine is provided with heat-sealing wheels, a support for a sheet or material carried by the machine, an edge-guide as-

sembly for guiding a second sheet of material external to the machine into position to be sealed to the sheet carried by the machine, supports for strips of material to be utilized in sealing, and means for laterally adjusting all such parts to align them with the external sheet.

3,654,044

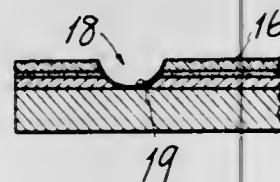
DECORATIVE OVERLAY PAPER COVERED PLYWOOD AND PROCESS OF MANUFACTURING THE SAME

Hatsuo Hirota, Nagoya, Japan, assignor to Toyo Plywood Co., Ltd., Nagoya-shi, Japan
Continuation-in-part of application Ser. No. 763,426, Sept. 27, 1968, now abandoned. This application Nov. 10, 1970, Ser. No. 88,443

Int. Cl. B32b 21/06; E04f 13/10

U.S. Cl. 161-2

17 Claims



This specification discloses to a plywood overlaid with a decorative paper and the method of manufacturing the same. An adhesive bonds the paper to the plywood. The decorative paper is characterized by being very thin and by having a simulated wood grain pattern. The overlaid paper is coated with a transparent resin coat. The coat is embossed with wood-grain simulating pattern. The coat also includes elongated longitudinal parallel channels wider than the embossings and reaching the depth of the plywood. The channels are colored differently from the color of the wood grain pattern.

3,654,045

PLASTIC CONSTRUCTION FOR AN ITEM USED IN A HEAT ENVIRONMENT, SUCH AS AN ASHTRAY

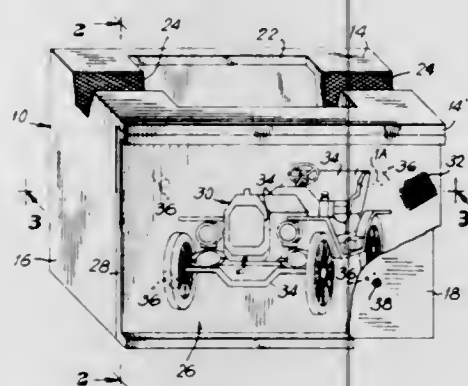
Robert D. Kahn, Rockville Centre, N.Y., assignor to Fedtro, Inc., Rockville Centre, N.Y.

Filed Jan. 21, 1970, Ser. No. 4,503

Int. Cl. D04d 7/04; A24f 19/00

U.S. Cl. 161-7

1 Claim



A structure for a utilitarian item, such as an ash tray, for exposure to heat, including a nonflammable, heat resistant main body portion and an attached decorative portion formed of a material which is suitable for decorative hot stamping and engraving processes.

3,654,046 DECORATIVE NOVELTY DEVICE

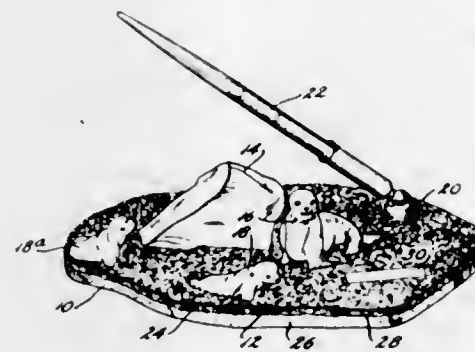
Joanne C. Crane, 12005 Woodbine Lane, S.W., Tacoma, Wash.

Original application Mar. 11, 1966, Ser. No. 533,484, now abandoned. Divided and this application Oct. 15, 1969, Ser. No. 871,414

Int. Cl. B44f 1/00

U.S. Cl. 161-5

1 Claim



An article illustrative of a particular geographic location, such as the Arctic Region, including a multi-layer base with decorative and utilitarian objects mounted thereon. The base includes a lower portion or mass of substantially completely fused pellets and an upper portion or mass of partially fused pellets to produce light scintillations.

3,654,047

SURGICAL INSTRUMENT HOLDER

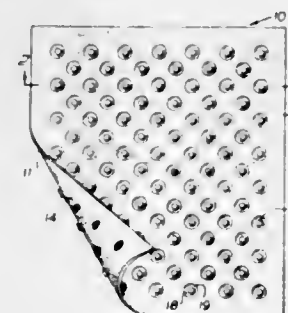
Howard Berkowitz, 19 Beaverdale Road, Stony Brook, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,035

Int. Cl. B32b 3/12; F16b 47/00

U.S. Cl. 161-7

10 Claims



A surgical pad for draping over a patient to hold various articles thereon is manufactured of a flexible sheet of non-porous plastic material. The bottom side of the sheet has a roughened, friction gripping surface with portions pressed upwardly to define projections on the upper surface which may engage articles placed on the sheet. The projections define cavities open at the bottom of the sheet which are surrounded by rings projecting downwardly from the sheet to serve as mechanical gripping means and as suction cups for holding the pad in place on the patient.

3,654,048

COMPACT BALE COMPRISING 1-15 PARTS BY WEIGHT BITUMEN AND 85-99 PARTS BY WEIGHT OF SHREDDED MUNICIPAL REFUSE

Robert J. Bathgate, Media, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

Filed Apr. 13, 1970, Ser. No. 27,652

Int. Cl. B65f 5/00

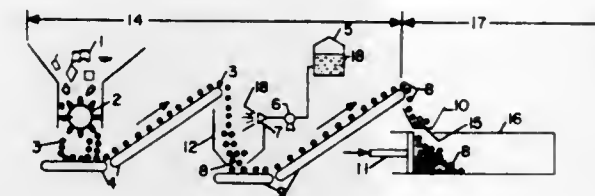
U.S. Cl. 161-7

9 Claims

After municipal refuse is collected, it is shredded and compressed into a bale. The distribution throughout the shredded municipal refuse of an additive, prior to compression, substantially improves the physical properties of

the compressed bale. The additive can be either a bitumen or bitumen containing a minor quantity of a petroleum

expanded and re-expanded dimensional precision in erected rigid states by using an isotenoid-geodesic design of fibers in predesigned, nonstressed fiber relationship and impregnating the same with a space hardenable impregnate and preferably a multicurable impregnate, which impregnated fabric upon fashioning, after collapsing and upon expansion, to the cured form, provides lightweight, close precise structure of rigidized dimensional precision.



naphthenic acid or a polyoxyethylene fatty alkyl-1,3-propanediamine, said additive having a paper peel strength of at least 0.4 pound per inch at 70° F.

3,654,049

SELF-RETAINING EXTRUDED PLASTIC WRAP MEMBER

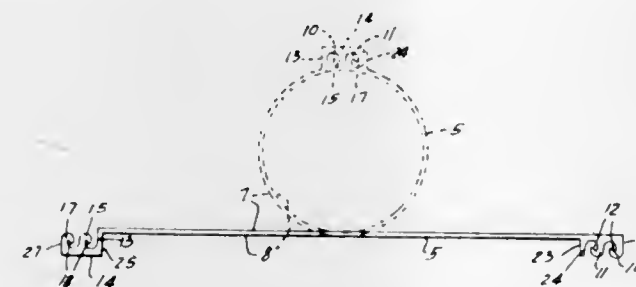
Steven Ausnit, 124 E. 61st St., New York, N.Y. 10021

Filed Apr. 30, 1970, Ser. No. 33,307

Int. Cl. A44b 19/10, 19/14

U.S. Cl. 161-7

3 Claims



A self-retaining, one-piece, extruded plastic wrap member having a sheet-like flexible body with an object-embracing inner face and longitudinal edges which are arranged to be in edge-to-edge joint abutment when the body is wrapped about an elongated object with the inner face backed in substantially continuous engagement with the article at both sides of the joint and having a complementary interlock structure provided along the edges on the opposite outer face of the body to secure it about the object.

3,654,050

FABRICATED STRUCTURE OF IMPROVED EXPANDABLE DIMENSIONAL PRECISION AND METHOD

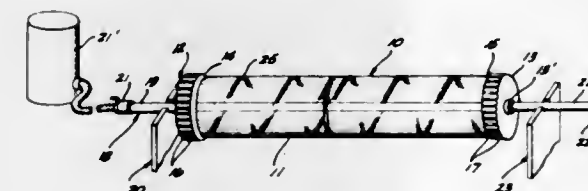
Allister F. Fraser, Santa Barbara, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 6, 1969, Ser. No. 863,888

Int. Cl. B65h 81/04

U.S. Cl. 161-17

10 Claims



The method of preparing improved collapsible expandable and rigid or reinflatable, rigidizable fiber wound structures forming inflatable units of relatively uniform

3,654,051

CARPET TILE

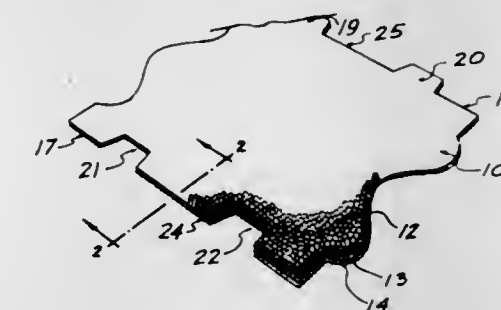
Arthur Bieler, Miami, Fla., assignor to The Celotex Corporation, Tampa, Fla.

Filed July 16, 1969, Ser. No. 842,213

Int. Cl. B32b 3/00, 25/00

U.S. Cl. 161-37

8 Claims



A pile carpet tile has a generally polygonal periphery with complementary irregularities along opposite edges to insure a homogeneous seamless appearance with concealed edges when tiles are installed to cover a large area.

3,654,052

STRUCTURES FABRICATED FROM A PLURALITY OF SIMILAR STRUCTURAL ELEMENTS ARRANGED IN A REPETITIVE PATTERN

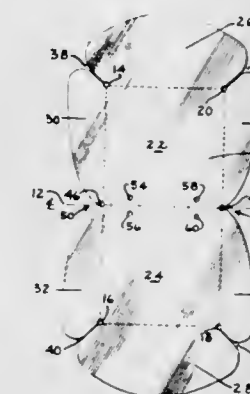
Ralph K. Rye, 102 Bellevue Road, Swampscott, Mass. 01907

Filed Oct. 27, 1969, Ser. No. 869,826

Int. Cl. B32b 3/06, 3/10

U.S. Cl. 161-37

5 Claims



A symmetrical and generally four-sided structural element of sheet material has ears formed at its two ends and four tabs formed on its sides, said ears and tabs being dovetailed to define four corner engaging slits extending inwardly to terminate at four corner fastening means receiving apertures. The side tabs of the element preferably slope inwardly toward central fastening means receiving apertures provided in alignment with the corner fastening receiving apertures to define central engaging nips so that a plurality of the structural elements may be interlocked in partially overlapped relationship at their corners and/

or at their sides. The preferred fastening means for the elements is a grommet formed with prongs adapted to spring back after insertion through the fastening means receiving apertures. A lamp shade spider is also provided for use in the preferred structure formed from the invention, which spider is designed to detachably receive a variable number of supporting spokes in preferably equiangular relationship so as to afford maximum versatility in the selection of lamp shade size and configuration.

3,654,053

DECORATIVE PANEL, PLATE, BOARD OR THE LIKE AND METHOD OF FABRICATING SAME

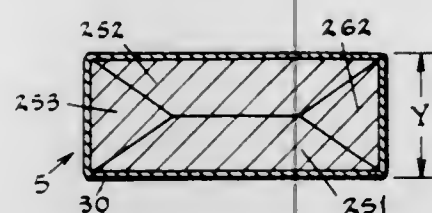
William C. Toedter, Toledo, Ohio, assignor to Re-Flect-O-Lite Corporation, Toledo, Ohio

Filed Nov. 19, 1969, Ser. No. 877,812

Int. Cl. B32b 3/04, 3/10, 3/22

U.S. Cl. 161—43

6 Claims



An article comprising an unfinished, but film clad, flat, relatively inexpensive blank, scored, folded and adhesively secured to synthesize a finished decorative panel, plate, board or the like having the appearance of relatively expensive material or finish and a method of fabricating such article and that at various thicknesses, notwithstanding the thickness dimension of the clad blank from which the panel is constructed. As used herein in the hereto appended claims, the words "panel, plate, board or the like" shall be each understood to refer to a smooth, generally flat, relatively thin, internally integrated body extending laterally to dimensions greatly in excess of the dimensions of its axial extension and presenting, superlatively, a pair of major and opposite parallel faces of like dimensions and outline spaced from each other and adjoined by intermediate edge and often end surfaces.

3,654,054

KNITTED FABRIC WITH PROJECTING BARBS

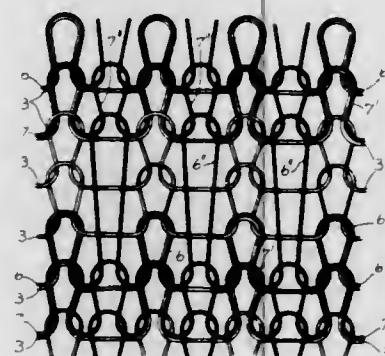
Norbert Waller, Weil im Schonbuch, Germany, assignor to Gottlieb Binder Holzgerlingen, Baden-Württemberg, Germany

Filed Aug. 22, 1969, Ser. No. 852,295

Int. Cl. D04b 21/02

U.S. Cl. 161—48

4 Claims



A knitted fabric consisting of a base fabric into which while being knitted a supplementary monofilament thread of a thermoplastic material is knitted so as to form loops

which are drawn out to a considerable length and are then set by a heat treatment and erected to an upright position relative to the base fabric either by stretching the latter or by means of special hook-shaped tools around which these loops are laid, whereupon these set and erected loops are fixed by a sizing material and are then cut open to form barbs with narrow heads which, when the entire fabric is pressed together with another pile fabric, become hooked together with this other fabric.

3,654,055

TOW BAND

Jack N. Gray, Columbia, S.C., assignor to Fiber Industries, Inc.

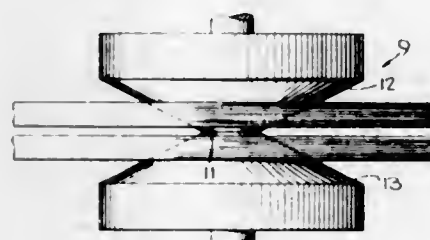
Continuation of application Ser. No. 700,960, Jan. 26, 1968, which is a division of application Ser. No. 382,328, July 13, 1964, now Patent No. 3,380,131.

This application Sept. 8, 1970, Ser. No. 70,468

Int. Cl. B32b 5/12

U.S. Cl. 161—60

7 Claims



A continuous filament polyester tow band produced from a plurality of subtows and characterized by a limited and controlled degree of intermingling of filaments.

3,654,056

FINISHED GLASS TEXTILE MATERIALS AND METHOD OF FORMING SAME

John L. Nisbet and Hubert C. Woodall, Jr., Winston-Salem, N.C., assignors to Carolina Narrow Fabric Company, Winston-Salem, N.C.

Continuation-in-part of abandoned application Ser. No. 764,303, Oct. 1, 1968. This application Sept. 17, 1969, Ser. No. 858,796

Int. Cl. D05c 17/02

U.S. Cl. 161—62

23 Claims

A producer-sized fiber glass material, such as yarn, is chemically desized with a size converting enzyme and the material is then finished, as by applying a resin bonded pigment finish thereto, to form a product of higher strength, flexibility and abrasion resistance than former products desized and finished in accordance with conventional techniques.

3,654,057

SELF-SEALING FUEL TANK

Albert Olevitch, 3100 Early Road, Dayton, Ohio 45415, and David H. Littlefield, Enon, Ohio (6 Kendon Road, Pittsford, N.Y. 14534)

Filed Oct. 21, 1970, Ser. No. 82,658

Int. Cl. B32b 3/12, 3/26

U.S. Cl. 161—69

5 Claims

A self-sealing fuel tank comprises two rubber layers and a plurality of sealer packages mounted between the layers. The sealer packages contain a foamable polymeric material dissolved in a highly volatile solvent. If the two rubber layers and one or more of the sealer packages are ruptured, e.g., by a bullet passing therethrough, the highly volatile solvent is exposed to the atmosphere and evaporates. Upon evaporation of the solvent, the foamable polymeric material produces a foam which plugs the

bullet holes in the adjacent rubber walls. This combination of events prevents fuel from leaking out of the fuel tank. Fuel tanks of this invention are useful in military vehicles such as aircraft, tanks, and trucks which are liable to be struck by projectiles such as bullets, shells and shrapnel.

3,654,058

METHODS OF CURING ORGANOPOLYSILOXANES AND LAMINATES FORMED THEREBY

Amy L. Jasinski, Reston, Va., and Ian M. Thomas, Temperance, Mich., assignors to Owens-Illinois, Inc.

No Drawing. Continuation-in-part of application Ser. No. 777,139, Nov. 19, 1968. This application Aug. 20, 1970, Ser. No. 65,670

Int. Cl. C08g 31/24, 47/10

U.S. Cl. 161—93

16 Claims

A glass cloth laminate prepared from solutions of organopolysiloxanes prepared from trialkoxysilanes. The curing of the organopolysiloxanes is accomplished by the use of a phosphonic acid (or precursor thereof) catalyst which markedly reduces the gel time of the resin in the laminate in the press whereby strong, hard, blister-free laminates are prepared.

3,654,059

DISPOSABLE COVERING

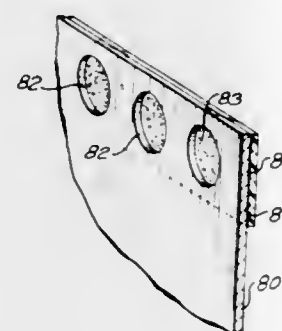
Jack K. Zisblatt, Fort Lee, N.J., assignor of a fractional part interest to Allison C. Collard, New York, N.Y.

Continuation-in-part of application Ser. No. 768,439, Oct. 17, 1968. This application Sept. 15, 1969, Ser. No. 857,809

Int. Cl. B32b 3/10; C09j 7/04

U.S. Cl. 161—109

14 Claims



A disposable covering such as an antimacassar for the protection of beds, sofas and chairs consisting of non-woven fabric material having one or more adhesive strips disposed along one or more of its surfaces, and containing a backing strip or adhesive release for covering the adhesive until the non-woven, disposable fabric is ready for use. The covering may serve as a headrest cover, or a mattress cover, and after use, may easily be removed from the article of furniture without leaving behind any of its adhesive backing.

3,654,060

ABSORBENT SLITTED MULTI-PLY FILMS

Maurice A. Goldman, Newark, N.J., assignor to Fibre Products Laboratories, Inc.

Filed Dec. 29, 1969, Ser. No. 888,653

Int. Cl. A61l 15/00; B32b 3/10, 31/18

U.S. Cl. 161—112

10 Claims

An absorbent multi-ply film or sheeting product comprising a layer of plastic sheet material having adhered to at least one side thereof a fibrous facing layer, the multi-ply film or sheeting product being further provided with a plurality of elongated slits which extend at least through the plastic layer, the product being absorbent,



supple, aseptic and flameproof and having sufficient absorbency, body and tensile strength for use as shielding

materials, such as, protective coverings, drapes, clothing, etc., particularly in medical, surgical, and convalescent hospitals.

3,654,061

PIPE WRAP

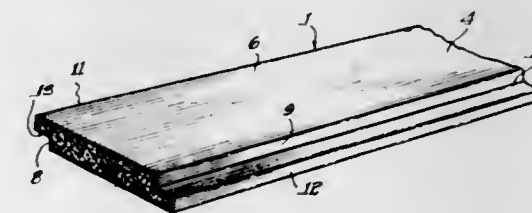
John J. Berwanger, Hinsdale, Ill., assignor to Hood Sponge Rubber Company, Chicago, Ill.

Filed Nov. 19, 1970, Ser. No. 90,909

Int. Cl. B32b 3/02, 5/18

U.S. Cl. 161—118

4 Claims



A pipe wrap comprises a strip of material that has a substantially moisture impervious skin enclosing a sponge rubber core or interior. The longitudinal margins of the strip are rabbeted to provide short, opposed, outwardly directed flanges that are thinner than the remainder of the strip and are offset from each other such that the strip may be helically wrapped about a pipe with the flanges overlapping and fitting into the rabbets to form a helical seam at which the outer surface of the strip at each turn of the wrap is flush with the outer surface of an adjacent turn of the wrap so that a sheath with a smooth substantially continuous outer cylindrical surface is produced.

3,654,062

INJECTION MOLDED DECORATIVE PLAQUES

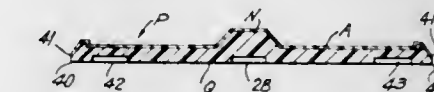
Theodore Loew, Schenectady, N.Y., assignor to Standard Products Co., Cleveland, Ohio

Filed Sept. 28, 1970, Ser. No. 75,821

Int. Cl. D21f 13/00; D21h 1/00; D21j 5/00

U.S. Cl. 161—119

4 Claims



A molded decorative plaque is provided comprising a body portion of a plastic material and a facing sheet disposed over the front face of the body portion. The front face of the body portion is provided with a decorative contour and a facing sheet conforms to the contour thereof. The facing sheet is a laminated structure comprised of an outer sheet, a layer of metal on the inner surface of the outer sheet and an inner backing sheet of plastic material which is adhesively bonded to the layer of metal. The plastic material of the backing sheet is com-

patible with the plastic material of the body portion and is joined thereto under heat and pressure to form an integral bond between the body portion and facing sheet. A layer of protective varnish or the like is provided on the outer surface of the facing sheet as an integral part thereof.

3,654,063

CARPET UNDERPAD COMPOSITE

William A. Blackburn, Chapel Hill, and Philip J. Stevenson, Durham, N.C., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 9, 1970, Ser. No. 27,003

Int. Cl. B32b 1/00, 3/00

U.S. Cl. 161—125

10 Claims



A high tear strength sponge rubber carpet underpad composite comprised of a layer of sponge or blown elastomer which preferably has a plurality of formed bulges or patterned contours and a spunbonded non-woven fabric embedded in the elastomer to a depth less than the fabric thickness, the fabric consisting of continuous nylon filaments which are free of sizing coatings, lubricants, etc., and which have etched surfaces, the filaments being autogenously bonded together at a substantial number of touching cross-over points.

3,654,064

WATER-DISINTEGRABLE SHEET MATERIAL

David H. E. Laumann, Freehold, N.J.; Isadore I. Zlotkin, trustee in bankruptcy for National Polymers and Chemicals Corporation

Continuation-in-part of application Ser. No. 790,134, Jan. 9, 1969. This application Oct. 30, 1969, Ser. No. 872,656

Int. Cl. A61g 9/00; B32b 9/06

U.S. Cl. 161—156

13 Claims



Coated paper is provided in sheet, roll or other physical form and shape which is water-repellent when wetted on either side but which readily disintegrates when both sides are wetted as when the entire sheet is immersed in water. The paper is preferably of toilet or facial tissue quality or water-soluble or any other type, provided it is not wet-strength grade, which readily disintegrates in water. A water-soluble grade of non-woven fabric may also be used instead of paper. The paper is first covered with an extremely thin (2 to about 5 pounds per ream) coating which does not appreciably penetrate into or impregnate the paper. The coating is preferably an extremely thin layer of polyethylene which serves as a hold-out coating

for a subsequent water-repellent coating, preferably of wax, modified with ethyl vinyl acetate or synthetic rubbers and softeners. By flashing the polyethylene or other polymer hold-out layer with heat prior to application of the wax coating or by applying the modified wax at temperatures in the range of 185° to 235° F. (depending on the speed of the wax coating operation) the stretch properties of the polyethylene are totally eliminated and yet the polyethylene serves as a hold-out coating for the flexible wax layer and prevents it from sinking into the tissue paper and rendering it water-insoluble and with wet strength properties. When an additional uncoated sheet of tissue paper is placed on top of the waxy insoluble coating the result is a sheet which repels water as well as the passage of bacteria and other micro-organisms on either side and maintains its strength but which, when wetted on both sides, readily disintegrates or dissolves much like an uncoated sheet of tissue paper. When wetted on one side the sheet derives its strength from the bottom layer of paper which is kept dry and strong by the water-repellent coating. The coating, itself, while flexible and virtually pin-hole free, has no stretch properties and is very weak. When both top and bottom layers of paper are wetted (as when flushed in a toilet) the entire sheet tears and disintegrates readily since there remains nothing to support the thin, weak water-insoluble coating. The sheet material is adapted for a variety of uses in the hospital, sanitary, nursing home and consumer fields and may be cut or shaped into sizes and configurations suitable for the particular intended use.

3,654,065

FLAT-SHAPED ARTICLES OF VINYL POLYMERS AND PROCESS OF PRODUCING SAME

Stefan Dorogi, Geislingen-Steige, Germany, assignor to Goeppinger Raliko- und Kunstleder-Werke GmbH, Goeppingen, Germany

Filed July 22, 1968, Ser. No. 746,392

Int. Cl. B29d 27/00; C08f 29/24, 47/08

U.S. Cl. 161—159

36 Claims

Microporous, air- and water vapor-permeable, water-absorbing sheets, films, foils, or the like flat-shaped articles of vinyl polymers, preferably of homopolymers and copolymers of vinylchloride, are produced by incorporating into the plasticized vinyl polymer compound an aqueous solution of a water soluble vinyl or the like polymer, subjecting the mixture to the action of shearing forces, applying the resulting plastic mixture to a fibrous web serving as support, removing the water from the coating or impregnation under conditions whereby no bubbles are formed, gelling the vinyl polymer by heating, removing the water soluble vinyl or the like polymer by washing from the coating or impregnation, and drying the resulting flat-shaped article. If desired, self-supporting foils are obtained by stripping the coating from the support. The resulting flat-shaped article may be laminated to various kinds of fibrous web before or after removing, by washing, the water soluble components of the vinyl polymer compound.

The vinyl polymer may have admixed thereto other film-forming polymers compatible therewith, plasticizers, extenders, fillers, dyestuffs, pigments, lubricants, antioxidants, stabilizers, anti-aging agents, and, if desired, vulcanization accelerators, cross-linking agents, and other conventionally used additives.

The resulting microporous foils having a microscopically fine cellular reticulate structure and laminates thereof with fibrous webs may be grained, stamped, embossed, printed, dyed, lacquered, and/or subjected to other finishing processes.

The flat-shaped articles according to the present invention are useful for all purposes requiring air- and water vapor-permeability and/or water-absorbing properties, for

instance, as artificial leather to be used as upholstery material, in the garment and shoe industry, and for other purposes.

3,654,066

MANUFACTURE OF A POROUS POLYMERIC SHEET

Osamu Fukushima, Yoshitami Saito, and Yuya Enomoto, Kurashiki, Japan, assignors to Kuraray Co. Ltd., Kurashiki, Japan

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,427

Claims priority, application Japan, May 8, 1968,

43/31,089; May 16, 1968, 43/33,069; May 18,

1968, 43/33,664; May 27, 1968, 43/35,878, 43/

35,879; June 8, 1968, 43/39,601, 43/39,602

Int. Cl. B32b 3/26, 27/40

U.S. Cl. 161—160

6 Claims

A porous polymeric sheet having a specific gravity of less than 0.7 and a thickness of 0.05 to 2.0 mm. and containing pores inclined at an angle of less than 80° against the plane of the sheet and having a length of 0.03 to 10 mm. A sheet material comprising said porous polymeric sheet and a substrate bound to the lower surface of said porous polymeric sheet. Said porous polymeric sheet is produced by immersing a polymer solution applied to a support into a coagulation bath under a condition of rapid coagulation to coagulate rapidly the upper portion of the solution and to form macropores in the inner portion; stressing the upper portion in transverse direction, that is, a direction parallel to the plane of the support, in the bath to shift the upper portion to transverse direction and to incline the pores formed; treating further the layer with the bath to complete the coagulation, thereby forming porous structure containing pores inclined at an angle of less than 80° against the plane; and peeling off the resulting porous polymeric sheet from the support.

3,654,067

BUILDING WALL STRUCTURE

Solomon A. Klein, 129 North St.,

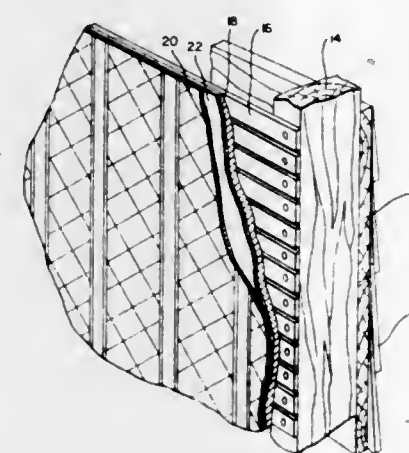
Newtonville, Mass. 02109

Continuation-in-part of application Ser. No. 490,157, Sept. 15, 1965, which is a continuation-in-part of application Ser. No. 205,303, June 26, 1962. This application Mar. 16, 1970, Ser. No. 19,720

Int. Cl. B32b 15/06; E04c 2/02

U.S. Cl. 161—216

2 Claims



An interior plastered house wall is covered with a covering having a front paper ply and a metal foil back ply, this covering being adhered to the wall by an adhesive composition which (1) facilitates the application of the covering to a wall, (2) permits the covering to be pulled from the wall years later, and (3) effectively holds the covering to the wall for several years unless removed by force.

3,654,068

FLAME RETARDANT FIRE BARRIER LAMINATE

Richard L. Muri, Ashland, Mass., assignor to Ludlow Corporation, Needham Heights, Mass.

No Drawing. Continuation-in-part of application Ser. No. 625,442, Mar. 23, 1967. This application May 18, 1970, Ser. No. 38,584

Int. Cl. B32b 27/08, 27/20, 27/30

U.S. Cl. 161—251 5 Claims
A flame resistant barrier laminate consisting of (1) a first ply formed of a cellulosic paper impregnated with a halogenated resin and a compound from the arsenic group, (2) a second protective outer ply, and (3) an adhesive comprising a polymer of an unsaturated halogen-bearing monomer and a hydrated metal oxide such as alumina.

3,654,069

POLYSTYRENE LAMINATE AND ADHESIVE-COATED FILM FOR LAMINATION TO POLYSTYRENE

Bertram B. Freudenberg, Wilmington, Del., assignor to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed Nov. 12, 1969, Ser. No. 876,117

Int. Cl. B32b 27/08; C09j

U.S. Cl. 161—254

8 Claims

Polystyrene sheet can be provided with a decorative and/or protective film coating by utilization of a styrene/acrylonitrile polymer adhesive and a film having a predominantly methacrylate polymeric surface. The preferred laminate combines high impact polystyrene having laminated thereto a film consisting of a heterogeneous polymeric composition having a predominantly methacrylate continuous phase with cross-linked predominantly acrylate polymer dispersed therein. The film coated with adhesive is of particular use in that it can be continuously applied to the substrate at the time of extrusion of the substrate.

3,654,070

OXIDATION AND REUSE OF EFFLUENT FROM OXYGEN PULPING OF RAW CELLULOSE

Louis A. Pradt, Wausau, and Wayne B. Gitchel and Clarence A. Hoffman, Rothschild, Wis., assignors to Sterling Drug Inc., New York, N.Y.

Filed Apr. 2, 1970, Ser. No. 25,116

Int. Cl. D21c 11/14

U.S. Cl. 162—30

5 Claims

The spent liquor from the pulping of cellulosic material by oxidation in aqueous alkaline medium is subjected to oxidation with an oxygen-containing gas at a temperature between 200° and 375° C., which process oxidizes the organic waste products to carbon dioxide and regenerates the aqueous alkaline medium for reuse in the pulping process. The carbon dioxide produced is collected by liquefaction or directed to energy recovery systems.

3,654,071

PROCESS FOR REPLACING SODIUM AND SULFUR LOSSES AND FOR CONTROLLING THE SULFIDE CONTENT IN SODIUM- AND SULFUR-CONTAINING CELLULOSIC DIGESTING LIQUORS

Rolf Karl August Brannland, Alfredshem, and Per-Erik Ingemar Alsefelt and Hans Otto Gyllenstein, Husum, Sweden, assignors to Mo och Domsjö Aktiebolag, Örnsköldsvik, Sweden

Filed May 9, 1969, Ser. No. 823,519

Claims priority, application Sweden, May 10, 1968, 6,377/68

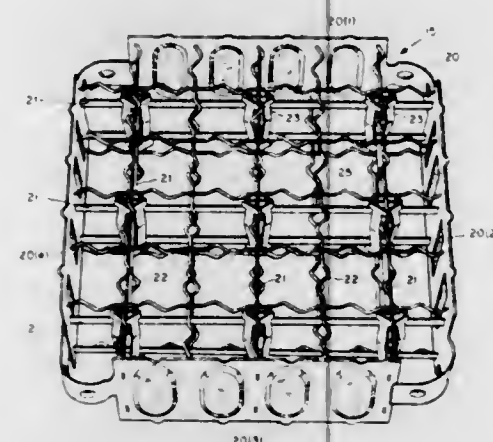
Int. Cl. D21c 11/12

U.S. Cl. 162—33

16 Claims

A sodium- and sulfur-containing acidic waste liquor from an auxiliary cellulose pulp-treating, processing or

and retainer spring material. One embodiment is especially designed for fabrication from low neutron absorp-



tion material, such as zirconium alloys and for the automated production thereof.

3,654,078

METHOD FOR PRODUCING L-GLUTAMIC ACID
Yoshio Nakao and Masakazu Kikuchi, Osaka, Masaru Suzuki, Hyogo, and Muneharu Doi, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 15, 1970, Ser. No. 28,973
Claims priority, application Japan, Apr. 15, 1969, 44/29,103

Int. Cl. C12b 1/00

U.S. Cl. 195—28 R

15 Claims

L-glutamic acid is produced by culturing a microorganism requiring a glycerol compound for growth and belonging to the genus *Corynebacterium*.

3,654,079

PROCESS FOR PRODUCING L-PHENYLALANINE BY FERMENTATION

Katsunobu Tanaka, Kazuo Oshima, Yoh Tokoro, and Mitsuyoshi Okii, Tokyo-to, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,597
Claims priority, application Japan, Mar. 29, 1968, 43/20,030

Int. Cl. C12d 13/06

U.S. Cl. 195—28 R

3 Claims

This invention relates to a process for producing L-phenylalanine by fermentation comprising culturing a hydrocarbon-assimilable and tyrosine-requiring microorganism in a medium which contains hydrocarbon and nitrogen sources and accumulating significant amount of L-phenylalanine in the medium.

3,654,080

PROCESS FOR ISOMERIZING GLUCOSE TO FRUCTOSE

Barbara L. Bengtson and William R. Lamm, Clinton, Iowa, assignors to Standard Brands Incorporated, New York, N.Y.

No Drawing. Filed Jan. 5, 1970, Ser. No. 838

Int. Cl. C12b 1/00; C12c 11/04; C12d

U.S. Cl. 195—31 R

7 Claims

The disclosure is directed to a process of enzymatically converting a portion of the glucose in a glucose-containing solution to fructose. Viable microorganisms which contain intracellular glucose isomerase are treated with a toxic agent to destroy at least 95 percent of the micro-

organisms. The treated microorganisms are cultured to promote growth, and the cellular material therefrom is incorporated into a glucose solution wherein conditions are maintained to convert a portion of the glucose to fructose.

3,654,081

STARCH LIQUEFACTION PROCESS

Richard Vernon Vance, Florissant, Mo., Arthur Orville Rock, Edwardsville, Ill., and Paul Walter Carr, St. Louis, Mo., assignors to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Continuation-in-part of abandoned application Ser. No. 622,395, Mar. 13, 1967. This application June 1, 1970, Ser. No. 42,492

Int. Cl. C12d 13/02

U.S. Cl. 195—31 R

8 Claims

A process is disclosed by which starch can be easily and completely liquefied by adding calcium salts or calcium and sodium salts to an aqueous starch slurry which also preferably contains some alpha-amylase, passing the slurry mixture through a steam jet at a temperature of about 121° C. to 177° C., flash-cooling the hot mixture to about 93° C. to 102° C., adding some alpha-amylase, maintaining the mixture at this temperature for about 10–60 minutes, cooling the mixture to about 85° C., adding some alpha-amylase and maintaining the resulting mixture at this temperature until the mixture reaches a dextrose equivalent value of about 9 to 30. When crude starch is employed, the insolubles can be easily separated from the liquefied starch by filtration prior to any subsequent treatment of the liquefied starch.

3,654,082

PRODUCTION OF HIGH MALTOTETRAOSE SYRUP
Mukhtar Abdullah, Westmont, Ill., assignor to

CPC International Inc.

No Drawing. Filed Feb. 10, 1969, Ser. No. 798,151

Int. Cl. C12b 1/00

U.S. Cl. 195—31 R

31 Claims

A process is described for converting starch which comprises subjecting a solution of a gelatinized starch selected from the group consisting of acid-modified starch, partial hydrolyzates of starch obtained by acid and/or enzyme hydrolysis of starch, and mixtures thereof, to the action of an amylase which is produced by the microorganism *Pseudomonas stutzeri* and recovering a starch conversion product. The prior or simultaneous use of a starch debranching enzyme during the conversion process is also disclosed. A novel maltotetraose syrup and dried solids obtainable from said syrup are additionally revealed.

3,654,083

PREPARATION OF STABLE, WATER-SOLUBLE ENZYME CONJUGATES

Huibert Cornelis Theus Moelker, Oss, Netherlands, assignor to Organon Inc., Orange, N.J.

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,951
Claims priority, application Netherlands, Aug. 31, 1968, 6812443

Int. Cl. C07g 7/02; C12k 1/00

U.S. Cl. 195—63

11 Claims

The invention relates to the preparation of new and stable water-soluble enzyme conjugates. They can be obtained by the formation of covalent bonds between the enzyme and a compound containing reactive groups in the presence of one or more amino acids or peptides or mixtures thereof. These soluble conjugates are obtained in a high yield of activity and exhibit a good stability against thermic denaturation. Further they are stable in a pH range which is wider than that of the original enzyme.

3,654,084

METHOD OF PRODUCING YEAST

Sergei Vladimirovich Chepigo, Leningradsky prospekt 74, korpus 2a, kv. 9; Solomon Iosifovich Belenky, Nagatinskoe shosse 10, kv. 43; Vsevolod Sergeevich Somov, Nastasinskiy pereulok 4, kv. 8; Vasily Gerasimovich Voronkov, Nagatinskoe shosse 10, kv. 17; Mikhail Alexandrovich Belavsky, Ulitsa Goncharova 13b, kv. 22; Oleg Georgievich Korotaev, Ramenki 3, d. 76, kv. 1; Galina Sergeevna Rodionova, Ulitsa Fornichevoi 2, kv. 32; and Nikolai Spiridonovich Maximenko, Ulitsa Verkhne-Pervomaiskaya 59–35, korpus 2, kv. 81, all of Moscow, U.S.S.R.; Boris Aronovich Glazman, Ulitsa Karla Libknekhta 81, kv. 12, Krasnodar, U.S.S.R.; and Larisa Alexandrovna Belova, Donskaya ulitsa 19/25, korpus A, kv. 49; and Galina Ivanovna Vorobiova, Ulitsa Golyanovo 83, kv. 2, both of Moscow, U.S.S.R.

No Drawing. Filed June 16, 1969, Ser. No. 833,793

Int. Cl. C12c 11/10

U.S. Cl. 195—95

4 Claims

Process for producing yeast, predominantly fodder-type yeast, by continuous cultivation of yeast in an aqueous nutrient medium containing plant tissue hydrolyzates or n-paraffins as the source of carbon and aerating the nutrient medium with air to which ozone is added in a concentration of 10⁻⁶ to 1.5 vol. percent.

3,654,085

STORAGE DEVICE FOR ORGAN TRANSPLANTS
Artur Valter Leopold Norr and Fritz Bertil Willy Holm, Lidings, Sweden, assignors to AGA Aktiebolag, Lidings, Sweden

Filed Nov. 17, 1969, Ser. No. 877,217

Claims priority, application Sweden, Nov. 26, 1968, 16,077/68

Int. Cl. A61b 19/00

U.S. Cl. 195—127

3 Claims

A pressure chamber for storing organic transplants and supplying them with oxygenated blood is provided with an oxygenator and a blood pump in the chamber. The pump is driven from a motor outside the chamber so as to avoid pressure influence on the blood, a pressure-tight transmission connecting the motor with the pump through the chamber wall.

3,654,086

BACTERIAL PROTEASE AND BACTERIAL AMYLASE COMPOSITIONS

Jack Ziffer, Milwaukee, Wis., assignor to Pabst Brewing Company, Milwaukee, Wis.

No Drawing. Filed Mar. 27, 1969, Ser. No. 811,225

Int. Cl. C12k 1/00; C07g 7/02

U.S. Cl. 195—63

10 Claims

One or more odorless zinc compounds, preferably zinc oxide, is mixed with bacterial protease in order to decrease the typical protease odor.

3,654,087

METHOD OF PRODUCING AMYLO-1,6-GLUCOSIDASE

Lowell E. Coker and Almerin W. Turner, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,571

Int. Cl. C12d 13/10

U.S. Cl. 195—65

7 Claims

Method of producing amylo-1,6-glucosidase, wherein an inoculum of a culture capable of producing amylo-1,6-glucosidase, is propagated without forming enzyme in an aqueous medium substantially free of maltose, maltotriose and pullulan comprising dextrose as the principal carbohydrate source and inducing the cells to form amylo-1,6-glucosidase in an aqueous medium containing maltose, maltotriose or pullulan.

3,654,088

METHOD OF PRODUCING AMYLO-1,6-GLUCOSIDASE

Lowell E. Coker and Almerin W. Turner, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,572

Int. Cl. C12d 13/10

U.S. Cl. 195—65

4 Claims

Method of utilizing amylopectin as the principal carbohydrate source for the production of amylo-1,6-glucosidase, which comprises (1) conditioning cells of a culture capable of producing amylo-1,6-glucosidase in an aqueous medium comprising a carbohydrate inducer selected from the group consisting of maltose, maltotriose, pullulan and mixtures thereof, (2) bringing together in an aqueous medium the induced cells and pasted amylopectin and (3) incubating at pH 6.0 to 8.1 to produce amylo-1,6-glucosidase, wherein the amylopectin constitutes the principal carbohydrate source in step (3).

3,654,089

PRODUCTION OF AMYLO-1,6-GLUCOSIDASE

Lowell E. Coker and Almerin W. Turner, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill.

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,630

Int. Cl. C12d 13/10

U.S. Cl. 195—65

7 Claims

Utilization of phytate filtrate and/or steep liquor as the principal nitrogenous material for the production of amylo-1,6-glucosidase, comprising (1) bringing together in an aqueous medium induced cells capable of producing amylo-1,6-glucosidase and at least one nitrogenous material selected from the group consisting of steep liquor and phytate filtrate and (2) incubating at pH 6.0 to 8.1 to produce amylo-1,6-glucosidase.

3,654,090

METHOD FOR THE DETERMINATION OF ANTIGENS AND ANTIBODIES

Antonius Hermanus Wilhelmus Maria Schuurs and Bauke Klaas van Weemen, Oss, Netherlands, assignors to Organon Inc., West Orange, N.J.

No Drawing. Filed Sept. 24, 1968, Ser. No. 762,120

Int. Cl. C12k 1/04

U.S. Cl. 195—103.5

10 Claims

The invention relates to a method for the determination of a component of the antigen-antibody reaction, comprising the use of one component in an insolubilized form and the other one covalently linked to an enzyme. By the addition of a sample of the component to be determined the distribution of the enzyme-labelled component over the liquid and solid phase is altered. The amount of soluble or insoluble enzyme-labelled component can easily be determined in small quantities by the specific enzyme activity, said amount being a measure for the quantity of component in the sample. The invention also comprises the reagents consisting of one component in insolubilized form and the other corresponding one in enzyme-labelled form.

3,654,091

INCUBATION CHAMBER

Gerald F. Binnings, Arcadia, Theodore N. Meyer, Westminster, and Mel J. Riley, Covina, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Original application May 9, 1968, Ser. No. 727,859, now Patent No. 3,574,064. Divided and this application Apr. 23, 1970, Ser. No. 31,097

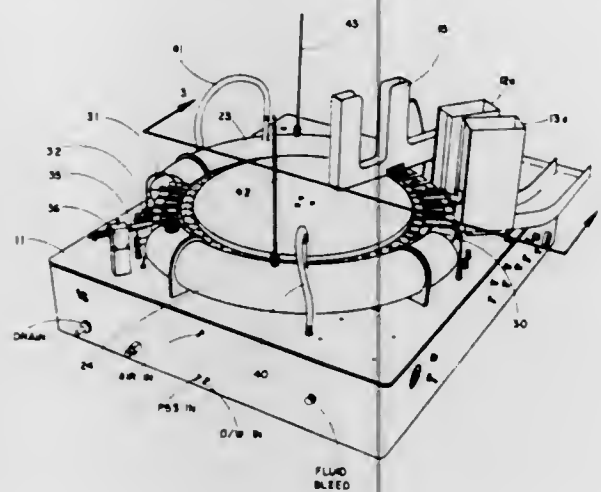
Int. Cl. C12k 1/10

U.S. Cl. 195—139

2 Claims

This disclosure describes apparatus for automatically processing special laboratory slides carrying specific antigenic material with samples of blood serum taken from

patients to detect the presence of specific antibodies in the serum as an indication of previous exposure to the antigen. Specifically, the disclosure describes the apparatus as applied to the fluorescent treponemal antibody (FTA) test for syphilis using an indirect fluorescent antibody technique with *T. pallidum* (Nichols strain) as the antigen. The apparatus of the invention includes a mechanism for discharging from a magazine a number of antigen carrying laboratory slides onto a rotating carrier and the dispensing of samples of patients' serum onto the laboratory slides. This is followed by the incubation of the slide carrying the previously fixed antigen and the patients'



serum for several minutes to allow the reaction of any specific antibodies in the serum with the fixed antigen. The apparatus further includes means for washing to remove excess serum, means for injecting a conjugate which reacts with the human serum affixed to the antigen and carries a fluorescent tag such as fluorescein isothiocyanate. The apparatus includes means for further incubation to insure the reaction between the antigen-antibody complex and the conjugate followed by further washing and discharging of the reacted slides to an off-loading mechanism for subsequent examination under a laboratory microscope.

3,654,091

MULTIPLE-STAGE EVAPORATOR

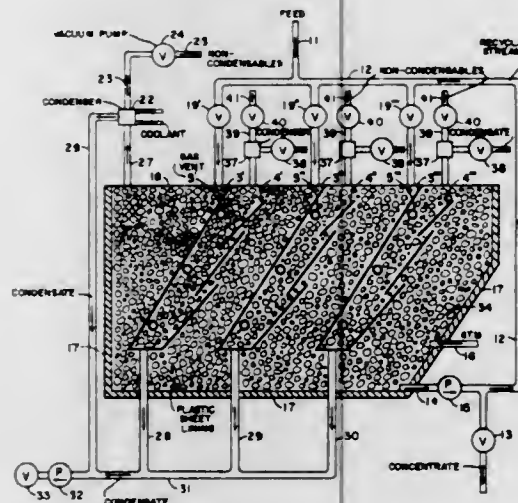
John C. St. Clair, Box 333, R.R. 2, London, Ohio 43140

Filed Nov. 20, 1970, Ser. No. 91,511

Int. Cl. B01d 1/02, 1/26, 3/00

U.S. Cl. 202-174

10 Claims



A twenty-stage vacuum evaporator is made from a series of 20 sloping sheets of polyester plastic film separated by 0.5 inch diameter pebbles. The plastic sheets of film slope at a 15° angle and are supported 8 inches

apart by and in a bed of the pebbles. Pumps circulate the liquid solution evaporated over the upper surfaces of the plastic sheets of film and the liquid is evaporated by vapors contacting and condensing on the under surfaces of the plastic sheets, with each sheet dividing off a chamber that evaporates liquid at a successive lower pressure. Condensate formed by the vapors condensing on the underside of the plastic sheets is prevented from mixing with the liquid solution being evaporated by a series of short plastic sheets, placed at a smaller angle with the horizontal than the larger sheets, that catch the condensate like shingles on a house and direct the condensate into bottom outlets.

3,654,093

COKE PREVENTION IN DISTILLATION OF ALKYL CHLORIDES

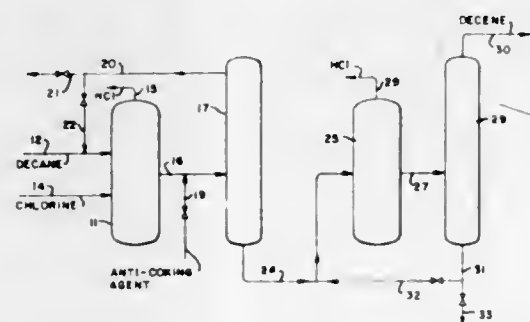
Donald A. Schexnayder, 16201 Buccaneer, Apt. 228, Houston, Tex. 77058, and Donald L. Wood, 10410 Quiet Hill Road, La Porte, Tex. 77571

Filed Sept. 11, 1969, Ser. No. 857,019

Int. Cl. B01d 3/34

U.S. Cl. 203-8

4 Claims



The formation of carbon solids (coke) during the physical processing of alkyl chloride-containing streams in ferrous metal apparatus such as fractionators is substantially reduced by carrying out such processing in the presence of up to about 1% by weight of lower alkylated aromatics; polymethylated benzenes and methylated naphthalenes are preferred.

3,654,094

PROCESS FOR PURIFYING PROPYLENE OXIDE BY PLURAL STAGE DISTILLATION

Kazuo Yamagishi, Tokyo, and Osamu Kageyama and Yoshiaki Numa, Ohimachi, Japan, assignors to Daicel, Ltd., Osaka, Japan

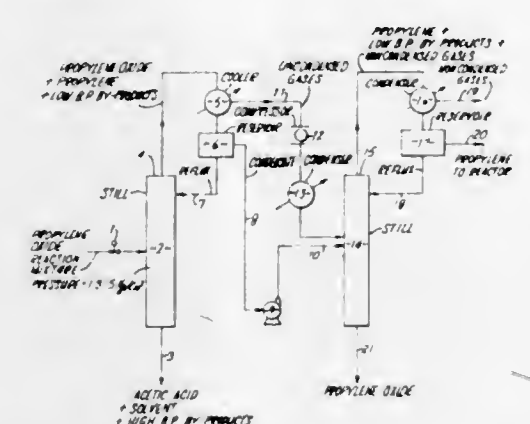
Filed Mar. 18, 1970, Ser. No. 20,594

Claims priority, application Japan, Mar. 22, 1969, 44/21,944

Int. Cl. B01d 3/14; C07d 1/08

U.S. Cl. 203-77

3 Claims



A process for purifying propylene oxide from a reaction mixture containing propylene oxide, propylene, peracetic acid, acetic acid and the reaction solvent, in which the reaction mixture is distilled under a pressure of 1.3-5.0

kg./cm.² so that a distillate containing propylene oxide and propylene is discharged from the column head, condensing the distillate and then subjecting the condensed distillate to a second distillation to recover propylene oxide from the bottom of the second distillation column.

3,654,095

ELECTROLYTIC PRODUCTION OF MULTICOLORED PRINTS

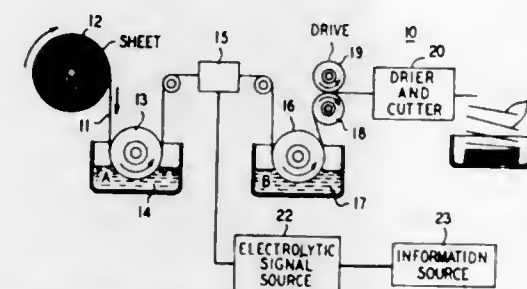
Donald Eldridge Koontz, Summit, Leonard Norman Schoenberg, North Plainfield, and Dennis Robert Turner, Chatham Township, Morris County, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 6, 1970, Ser. No. 61,623

Int. Cl. B21h 1/20

U.S. Cl. 204-2

20 Claims



A multicolored print is produced electrolytically from a modulated electrical signal by a scanning operation. Metallic anodes of as many different compositions as colors desired, are used together with one or more color producing reagents. Red, green, and blue images are produced using anodes containing copper, platinum and iron with a single ferrocyanide reagent or using anodes containing nickel, iron and copper with a combination of alpha-benzoin oxime, a dimethylglyoxime reagent, and a ferrocyanide reagent.

3,654,096

MAKING COPPER SHEETS ELECTROLYTICALLY

Jan Versteegh, Chile, South America, assignor to The Anaconda Company

No Drawing. Filed Jan. 14, 1969, Ser. No. 791,130

Int. Cl. C23b 5/18, 7/08

U.S. Cl. 204-12

7 Claims

A method is described for making pure copper sheets, such as starting sheets used in electrowinning and electrorefining of copper, by electrodeposition on a copper plate. The method involves first thoroughly wetting the surface of the copper plate with an aqueous solution of a water-soluble thiol having collecting properties in the flotation of sulfidic copper minerals. Among such polar thio compounds which are preferably used are alkyl thiocarbonates, thiocarbamide, and alkyl and aryl dithiophosphates. The solution preferably contains about 0.5% to 20% by weight of the thiol; and preferably also contains a wetting agent. After the copper plate has been wetted with such solution, copper is electrolytically deposited thereon. When a deposit of desired thickness has been built up, it is easily stripped in sheet form from the treated copper plate.

3,654,097

METHOD OF MAKING MULTILAYER PRINTED CIRCUITS

Joseph F. Degnan, Webster, N.Y., assignor to General Dynamics Corporation

Filed July 22, 1969, Ser. No. 843,434

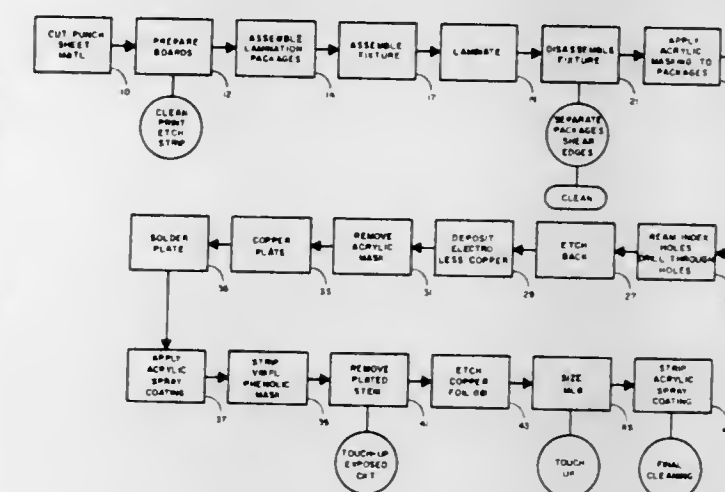
Int. Cl. C23b 5/48; B41m 3/08; B44d 1/18

U.S. Cl. 204-15

11 Claims

Improved methods of fabricating multilayer printed circuit boards are described wherein at least one exposed circuit face is prefabricated before the boards are laminated together by means of a non-flowing "B" stage epoxy

glass sheets and in a fixture having flowable material confined on opposite sides of the package (viz the layers to be laminated), thereby permitting the use of such non-flowing material which reduces shrinkage, improves lamination quality, maintains registration among the boards, and simplifies fixturing. The lamination packages may also



include a vinyl phenolic glass cloth layer which is laminated on one side. Also during the process an acrylic resin protective coating is applied which together with the vinyl phenolic layer, provides selectively removable masks which facilitate removal of electroless surface plating on exposed circuit faces and drilling holes through the boards. Thereafter, plated connections are provided via the holes between the circuits on the boards.

3,654,098

ELECTROCHEMICAL PROCESS OF COATING USING A FLUIDIZED BED

John Rayner Backhurst, Corbridge, Northumberland, Francis Goodridge, Ponteland, Newcastle-upon-Tyne, Raymond Ernest Plimley, Chandlersford, and Martin Fleischmann, Newcastle-upon-Tyne, England, assignors to National Research Development Corporation, London, England

No Drawing. Filed May 1, 1968, Ser. No. 725,920

Claims priority, application Great Britain, May 9, 1967, 21,557/67

Int. Cl. C23b 5/60, 5/00; B01k 3/00

U.S. Cl. 204-20

7 Claims

Particularly for use in a fluidized particle electrode for an electrochemical cell such as a zinc/air battery, a method of producing particles of substantially uniform shape comprises electrochemically depositing surface metal on to substantially uniform particles which form a fluidized bed electrode in a plating bath.

The particles may comprise non-metallic cores which are coated with a thin metallic coating electrolessly, or by a vacuum deposition technique, before being introduced into the plating bath.

3,654,099

CATHODIC ACTIVATION OF STAINLESS STEEL

Eric De Bruyne, Deerlijk, Belgium, assignor to N.V. Bekaert S.A., Zwevegem, Belgium

No Drawing. Filed June 10, 1970, Ser. No. 45,261

Claims priority, application Great Britain, June 20, 1969, 31,369/69

Int. Cl. C23b 5/62

U.S. Cl. 204-29

28 Claims

Processes for production of stainless steel articles such as, for example, stainless steel wires, strips, sheets and the like by activating the surface of a stainless steel substrate by cathodic treatment in an aqueous acid bath at high current density followed by electroplating the activated surface to provide the desired layer or layers of electroplate.

3,654,100

PROCESS OF FORMING COLORED, ANODE OXIDIZED FILM ON ALUMINUM MATERIAL

Kazuko Nagai, Yokohama, and Yoshiharu Yamada, Kawasaki, Japan, assignors to Riken Almite Industry Co., Ltd., Kawasaki, Japan

No Drawing. Filed May 25, 1970, Ser. No. 40,411

Claims priority, application Japan, May 31, 1969, 44/4,208

Int. Cl. C23f 5/02

U.S. Cl. 204—35 N

5 Claims

Process for forming colored anode-oxidized film on an aluminum material by subjecting the aluminum to anodic oxidation in an aqueous solution containing a major proportion of oxalic acid and a chlorine compound and in some cases, at least one or more color controlling agents, with application of either an electric current having an excessive A.C. component or an electric current having an excessive D.C. component. When an electric current having excessive D.C. component is used, a previous electrolysis is carried out prior to the anodic oxidation.

3,654,101

NOVEL CHROMIUM PLATING COMPOSITIONS AND PROCESSES

Fred Aoun, Madison Heights, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed Jan. 9, 1970, Ser. No. 1,874

Int. Cl. C23b 5/06

U.S. Cl. 204—51

12 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for electroplating chromium plate onto a basis metal which comprises passing current from an anode to a cathode at least a portion of which contains a conductive metal layer through an aqueous acidic chromium plating bath composition containing

- (1) At least one chromium compound providing hexavalent chromium ions for electroplating chromium; and
- (2) Bromate ion as cooperating additive to provide increased chromium throwing power; for a time sufficient to deposit a chromium electroplate having a thickness of at least 1×10^{-5} mm.

3,654,102

METHOD OF PREPARING ELECTROLYTIC MANGANESE DIOXIDE

Thomas W. Clapper, Oklahoma City, Okla., and Martin A. Prieto, Whittier, Calif., assignors to American Potash & Chemical Corporation, Oklahoma City, Okla.

No Drawing. Filed Aug. 25, 1970, Ser. No. 66,871

Int. Cl. C23b 11/00; B01k 3/06

U.S. Cl. 204—83

5 Claims

Method of preparing manganese dioxide by the electrolysis of an aqueous solution containing sulfuric acid and manganese sulfate wherein the improvement comprises the use of an anode formed of an expanded metal of titanium, tantalum or zirconium.

3,654,103

PROCESSES FOR CONTROLLING THE pH OF A SULFUR DIOXIDE SCRUBBING SYSTEM

Wayne A. McRae, Lexington, Mass., assignor to Ionics, Incorporated, Watertown, Mass.

Continuation-in-part of application Ser. No. 717,766, Apr. 1, 1968, now Patent No. 3,523,755. This application Aug. 3, 1970, Ser. No. 60,348

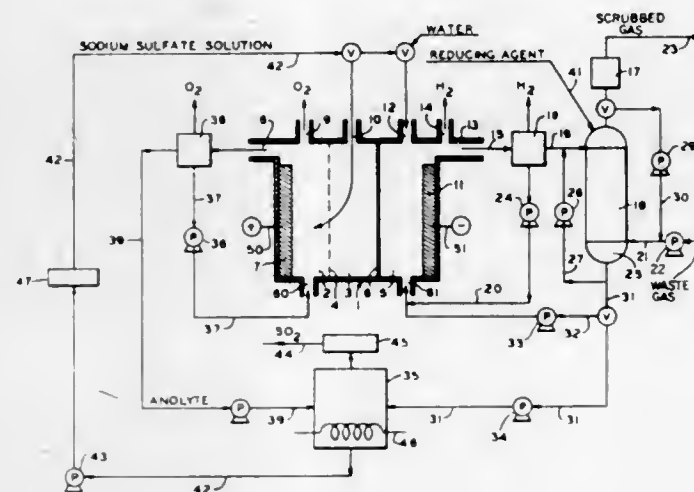
Int. Cl. B01k 1/00; C01d 7/34

U.S. Cl. 204—92

10 Claims

This invention is directed to a continuous cyclic process for the absorption of sulfur dioxide and/or nitrogen oxides (capable of oxidizing bisulfite) into solution from a gas containing minor amounts of nitrogen oxides, sulfur dioxide with or without oxygen and/or other oxidants with

subsequent recovery of a concentrated sulfur dioxide gas stream. Electrolytically produced reducing agents such as sodium dithionite are added to the absorbing solution to absorb nitrogen oxides, to control the pH of the system and also to prevent loss of recoverable sulfur dioxide from the undesired oxidation of said sulfur dioxide which oxidation otherwise generally occurs within the absorber. Suitable reducing agents are those which will preferentially react with and remove dissolved oxidants present in



the solution thereby forming bisulfite. The reducing agent consumed may be reformed by electrolytically reducing bisulfite and/or sulfur dioxide in the cathode compartment of an electrolytic cell with the resulting reformed reducing agent recycled for additional oxidant removal. The pH of the system is controlled by adding lime and soda ash equivalent to the amount of sulfur dioxide oxidized or by crystallizing sulfate salts out of part of the anolyte bisulfate effluent from the electrolytic cells, thereby removing and recovering sulfuric acid from the system.

3,654,104

ELECTROLYSIS OF SALT SOLUTION

Mitsuo Yoshida, Hisao Kai, and Tetsuo Yamane, Nobeoka-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

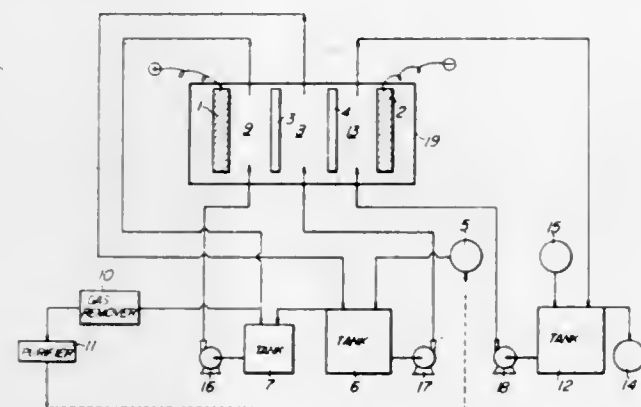
Filed Feb. 5, 1970, Ser. No. 8,825

Claims priority, application Japan, Feb. 15, 1969, 44/10,766

Int. Cl. B01d 59/42; B01k 1/00; C01d 1/06

U.S. Cl. 204—98

3 Claims



An aqueous solution of alkali metal halide or hydrochloric acid is electrolyzed in an electrolytic cell consisting of at least one unit cell which comprises a cathode, an anode, a cation exchange membrane, and a neutral diaphragm having a water permeability of not more than

5 cc./min. cm^2 under a pressure difference of 1 kg./ cm^2 , where the cation exchange membrane and the neutral diaphragm are juxtaposed at a distance between the cathode and the anode to form an anode compartment between the anode and the neutral diaphragm, an intermediate compartment between the neutral diaphragm and the cation exchange membrane, and a cathode compartment between the cation exchange membrane and the cathode, by passing each compartment solution at a flow velocity of at least 3 cm./sec., while keeping an inside pressure of the intermediate compartment higher than that of the anode compartment.

3,654,105

PRODUCTION OF SILICA SOLS BY ELECTROLYSIS

Henry Thomas Joseph Chilton, Llangollen, Wales, assignor to Monsanto Chemicals Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 665,733, Sept. 6, 1967, which is a continuation-in-part of application Ser. No. 631,897, Apr. 19, 1967. This application July 15, 1969, Ser. No. 842,031

Claims priority, application Great Britain, July 19, 1968, 34,520/68

Int. Cl. B01j 13/00; B01k 1/00; C01b 33/14

U.S. Cl. 204—101

10 Claims

The present invention relates to the production of a silica sol which comprises the steps of passing an electric current between the pair of electrodes, the anode of which pair is fabricated of a silicon-containing material such as a ferrosilicon, positioned in an electrolytic cell containing a liquid medium comprising water, an alcohol such as ethanol and an electrolyte such as sulphuric acid for a sufficient period of time to form the above-described silica sol. Additional embodiments (of the present invention) cover the aqueous medium composition per se and the continuous process for preparing the silica sol.

3,654,106

ISOCYANATE-CONTAINING TELOMERS AND A PROCESS FOR THE PRODUCTION THEREOF

Kuno Wagner and Wulf von Bonin, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 6, 1968, Ser. No. 773,964

Claims priority, application Germany, Nov. 9, 1967, F 53,991

Int. Cl. C08d 1/34; C08g 22/16, 22/34

U.S. Cl. 204—159.23

6 Claims

Isocyanate group containing telomers are prepared by reacting ethylenically unsaturated monomers with organic isocyanates in the presence of heat, high energy radiation, peroxidic radical forming agents and/or nitrogen containing radical forming agents or combination thereof.

3,654,107

PROCESS FOR CHLORINATION OF SATURATED HYDROCARBONS

Richard C. Lindwall and Richard E. Crocker, Anaheim, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Jan. 18, 1968, Ser. No. 703,838

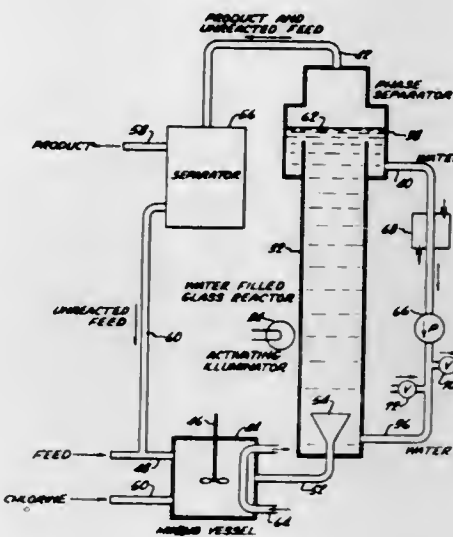
Int. Cl. C07c 17/10

U.S. Cl. 204—163 R

9 Claims

An apparatus and process for controlling the direct reaction of chlorine with a saturated hydrocarbon wherein the hydrocarbon and the chlorine are premixed in the dark under non-reacting conditions, the hydrocarbon-chlorine mixture is dispersed as globules or droplets in a flowing aqueous medium, and the aqueous medium carrying the suspended globules is exposed to reaction-initiating light, wherein the reaction temperature is controlled

by the aqueous phase and inorganic reaction products are removed into the aqueous phase along with any water



soluble inhibiting agents to permit complete reaction of the chlorine with the hydrocarbons are disclosed.

3,654,108

METHOD FOR GLOW CLEANING

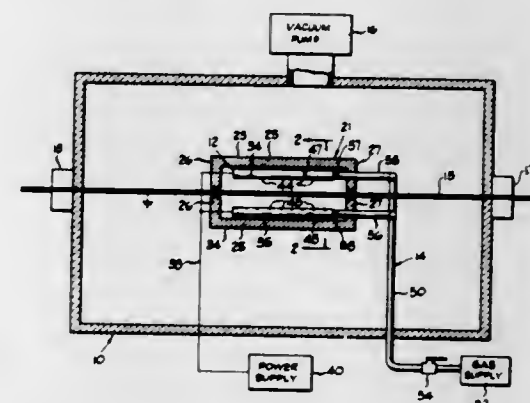
Hugh R. Smith, Jr., Piedmont, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 484,417, Sept. 1, 1965. This application Sept. 23, 1969, Ser. No. 867,113

Int. Cl. C23g 5/00; B08b 5/00; B01k 1/00

U.S. Cl. 204—164

6 Claims



A glow cleaning method for removing contaminants from the surface of a substrate which is to be subsequently coated employs a reactive gas capable of yielding negative ions in the glow discharge which are chemically combinable with the contaminants, and an electric field accelerates these ions toward the surface to be cleaned. The contaminants are dislodged from the surface by physical bombardment and are removed by chemical reaction with the bombarding ions to produce reaction products which do not readily adhere to the substrate surface.

3,654,109

APPARATUS AND METHOD FOR MEASURING RATE IN FLOW PROCESSES

Jakob H. Hohl and Karl H. Raacke, Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 25, 1968, Ser. No. 724,179

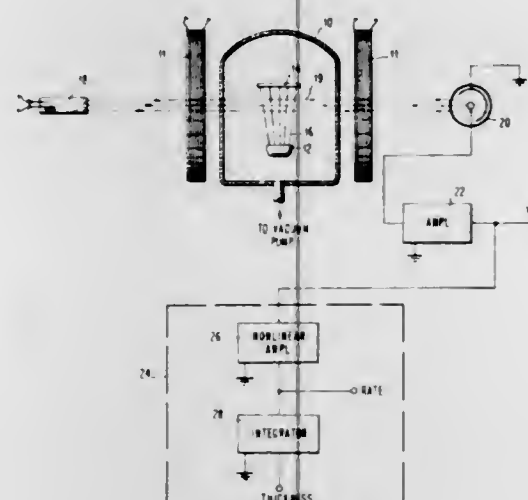
Int. Cl. C23c 15/00

U.S. Cl. 204—192

26 Claims

Rate, thickness, and composition of materials deposited in vapor deposition processes may be measured, even at

very low deposition rates, using the disclosed atomic absorption spectroscopy apparatus. The apparatus has a source of radiant energy having a selected wavelength absorbed by the material sought to be measured and means for measuring the total amount of radiant energy so absorbed at the selected wavelength. It further includes



means for converting this absorption measurement to a rate and/or thickness measurement and also a composition measurement, if desired. Radiant energy in the ultra-violet light spectrum is normally employed, and the disclosed apparatus and method is particularly suited for measuring deposition parameters in the fabrication of nickel-iron magnetic films.

3,654,110

METHOD OF APPLYING A COATING BY CATHODE SPUTTERING

Friedrich Kraus, Neubiberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

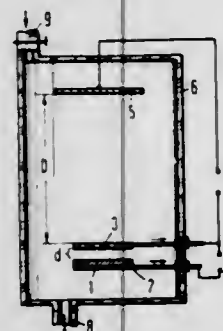
Filed Feb. 6, 1969, Ser. No. 797,125

Claims priority, application Germany, Feb. 12, 1968, P 16 90 692.6

Int. Cl. C23c 15/00

U.S. Cl. 204—192

11 Claims



The invention relates to a method of coating a layer of inorganic, solid material upon a base by cathode sputtering. The invention is characterized by the fact that a grid or sieve-like perforated cathode, which is comprised, at least at its surface, of the material to be deposited, is arranged between anode and substrate and is negatively biased against both. The substrate is brought so close to the cathode that the space between the two is insufficient to maintain an independent gas discharge, at the adjusted pressure and the applied voltage.

3,654,111 APPARATUS FOR THE CONTROL OF HYDROGENATION-DEHYDROGENATION PROCESS ON METAL CATALYSTS IN THE GAS PHASE

Zoltan Csuros, Jozsef Petro, Tibor Mathe, and Antal Tungler, Budapest, Hungary, assignors to Magyar Tudomanyos Akademia, Budapest, Hungary

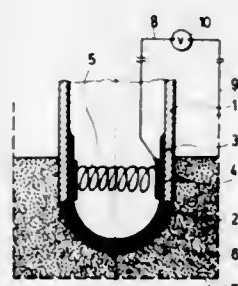
Filed May 11, 1970, Ser. No. 36,032

Claims priority, application Hungary, May 16, 1969, MA-1,990

Int. Cl. G01n 27/46

U.S. Cl. 204—195

2 Claims



A method for controlling the preparation of hydrogenation-dehydrogenation catalysts by reduction and their activation by means of hydrogen. The metal connection is fixed to a metal catalyst forming a catalyst bed, the said metal connection being a measuring electrode which is connected through a glass electrolyte to a reference electrode, and the electromotive force of the cell obtained in this way is measured.

3,654,112

DEVICE FOR MEASURING AND DOSING A GAS

Nicolaas Marinus Beckmans, Leopold Heijne, and Adrianus Teunis Vink, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

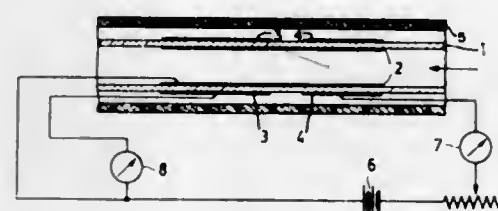
Filed July 17, 1968, Ser. No. 745,586

Claims priority, application Netherlands, July 20, 1967, 6710038

Int. Cl. G01n 27/46

U.S. Cl. 204—195

4 Claims



A device for measuring and controlling the composition of a gas in which there is employed a solid partition wall exhibiting a reversible reaction with the gas molecules and ion conductivity. The partition wall is provided on both sides with an electrode layer at least one of these layers being electrically interrupted.

3,654,113

PROGRAMMED FLUID SAMPLING AND ANALYSIS APPARATUS

Julius H. Bochinski, La Habra, Calif., assignor to North American Rockwell Corporation, El Segundo, Calif.

Filed Nov. 24, 1969, Ser. No. 879,055

Int. Cl. G01n 27/00, 27/28

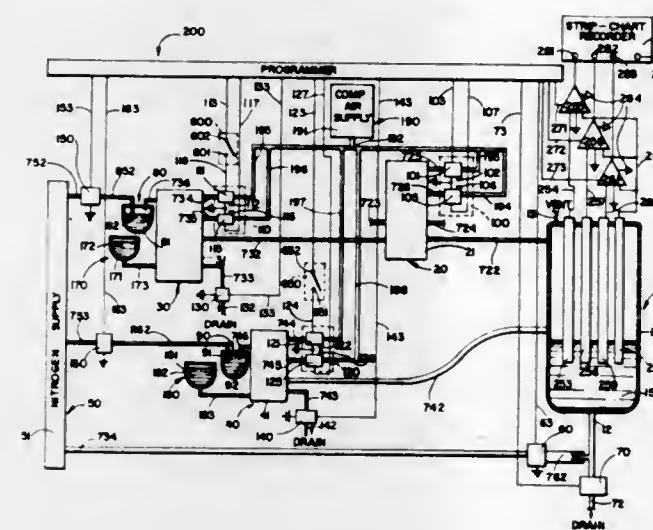
U.S. Cl. 204—195 R

16 Claims

The programmed fluid sampling and analysis apparatus and method includes programmer controlled sampling of

a fluid stream in order to subject the fluid to automated analysis of the ion concentrations of the chemicals of the fluid. A flushing fluid and an electrolyte fluid are programmed through the apparatus impelled by a gas which ultimately mix in a vessel wherefrom the mixtures are analyzed by specific element-ion sensitive probes connected

diameter end of the nozzle, and exerts a propelling force on the wire, propelling the wire through the nozzle from the smaller and out the larger diameter end of the nozzle. Any number of aligned conveying nozzles may be provided and connected in aligned relation with respect to each other and each nozzle may be supplied with treating liquid to treat the wire as conveying it.



to electronic amplifying and recording equipment. A programmed analysis of each specific probe output is provided on a strip chart recorder and the ion concentrations are determined by reading the steady state values of the recorded and amplified outputs of each of the specific element-ion sensitive probes.

3,654,114

APPARATUS FOR THE TREATMENT AND TORSION-FREE TRANSPORTATION OF THIN WIRE

Omri Brandstaetter, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

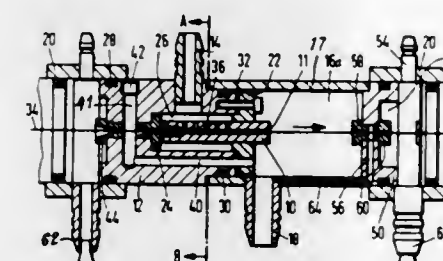
Filed July 2, 1970, Ser. No. 51,887

Claims priority, application Germany, July 9, 1969, P 19 34 818.6

Int. Cl. B01k 3/00

U.S. Cl. 204—206

12 Claims



Fluid conveying device for conveying thin wire free from torsion and bending stresses including a conveying nozzle of increasing diameter from its entry to its discharge end and extending along a pressure chamber. A series of axially aligned converging wire guides are provided at the entering end and beyond the discharge end of the conveying nozzle, to guide the wire to pass along the center of the conveying nozzle. Fluid under pressure supplied to the pressure chamber enters the conveying nozzle through a series of passageways leading through the wall of the nozzle and spaced about and along the nozzle. Fluid under pressure entering the conveying nozzle through the passageways flows towards the larger

3,654,115 MANUFACTURE OF PERFORATED METAL FOIL

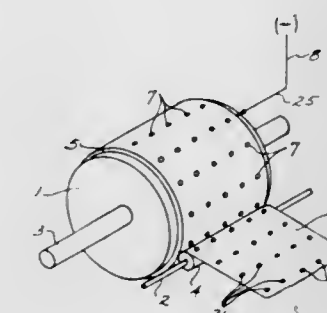
Rene N. Langlais, Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1968, Ser. No. 787,440

Int. Cl. B23p 1/00

U.S. Cl. 204—216

1 Claim



A rotatable mandrel forms an electrode for electroplating, being formed by an insulating cylinder surrounded by an attached closely fitting cylindrical sleeve of metal through which holes are formed. In the holes are masses of hardened nonconductive filler material forming slugs, the outer surfaces of which are coextensive with the cylindrical form of the sleeve. A small crevice forms an outline in the cylindrical sleeve surface around each slug. Each crevice contains a jelly-like insulating substance disposed according to said outline. The mandrel is caused to rotate in an electrolytic metal-plating bath. The jelly-like substance is selected so as not to contaminate the bath. Electrolytic deposition forms a perforated plated skin on the sleeve. The plating is then stripped from the sleeve and moved through a cleaning bath. The result is an accurately perforated, uniform untorn metal foil strip.

3,654,116 ADAPTIVE ION-CONTROL SYSTEM FOR ELECTROCHEMICAL MACHINING

Kiyoshi Inoue, 100 Sakato, Kawasaki, Kanagawa, Tokyo, Japan

Continuation-in-part of application Ser. No. 714,251, Mar. 19, 1968. This application Aug. 1, 1969, Ser. No. 849,261

Claims priority, application Japan, Aug. 7, 1968, 43/55,924; Apr. 19, 1969, 44/30,466

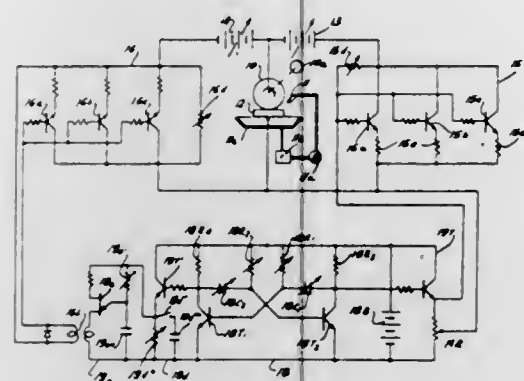
Int. Cl. B23p; C23b 5/76

U.S. Cl. 204—224

29 Claims

Method of and apparatus for electrochemically machining a workpiece wherein the machining electrolyzing current passes in the form of steep-wavefront pulses of one polarity spaced by intervals and during these intervals, opposite-polarity pulses are applied across the tool electrode and the workpiece with a pulse width at most equal to the duration of the respective interval but preferably of a shorter duration and with an adjustable lag. Also, adaptive control for electrochemical machining in which passivation conditions in the machining gap is directed by sensing the deviation in an electrical machining parameter, a condition of the electrolyte, or a condition of servo feed of the tool or workpiece toward the other, whereby the

reverse-polarity or opposite-polarity pulse has its amplitude, timing and direction adjusted in accordance with



the levels necessary to completely eliminate such passivation or ion contamination without unduly increasing tool electrode wear.

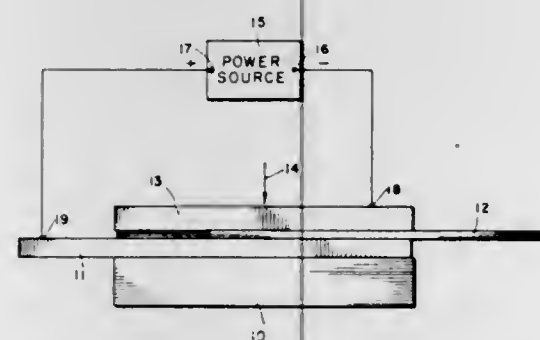
3,654,117

ELECTRODE STENCIL FOR ANODIC PRINTING

Gerhart P. Klein, Manchester, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind.
Continuation of application Ser. No. 594,123, Nov. 14, 1966. This application Oct. 7, 1969, Ser. No. 866,102
Int. Cl. C23b 5/76; B01k 3/06

U.S. Cl. 204—224

8 Claims



A printing system is provided comprising a film-forming metal stencil printing surface having an image formed on the surface that is electronically conductive. Means are provided for holding electro sensitive paper in contact with the printing surface, and a power source is utilized to provide current flow from the electrode stencil to the electrode means to develop the image on the sheet of photosensitive paper.

3,654,118

ELECTROLYSIS

Tadeusz Ryszard Selwa, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
Original application Mar. 6, 1967, Ser. No. 620,889, now Patent No. 3,476,660, dated Nov. 4, 1969. Divided and this application May 6, 1969, Ser. No. 840,576
Claims priority, application Great Britain, Mar. 23, 1966, 12,854/66

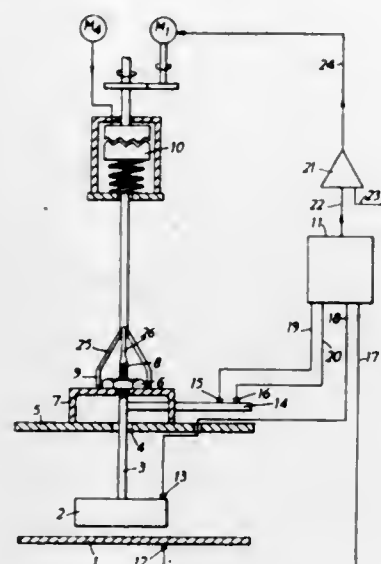
Int. Cl. B23p 1/12; B01k 3/00

U.S. Cl. 204—225

13 Claims

A method of adjusting sequentially each anode-cathode gap of a working mercury-cathode electrolytic cell by carrying out automatically in appropriate sequence (1) selection of an anode-cathode gap for adjustment, (2) positioning a servo-operated anode-adjusting tool over the appropriate anode, (3) bringing the tool into and out of engagement with an adjusting means on the anode support,

(4) measuring the electrical conductance of the anode-cathode gap, (5) adjusting the anode setting to a predetermined value of gap-conductance, and repeating the



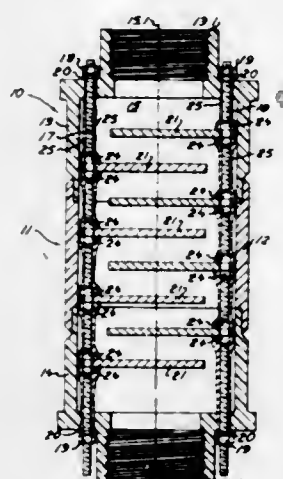
3,654,119

OLIGODYNAMIC TREATMENT OF LIQUIDS

Gordon F. White, Vancouver, and Adam R. Wilkinson, Burnaby, British Columbia, Canada, assignors to White Water International Ltd., Vancouver, British Columbia, Canada
Filed Oct. 12, 1970, Ser. No. 79,987
Int. Cl. B01k 3/00, 1/00

U.S. Cl. 204—228

4 Claims



Oligodynamic treatment wherein the liquids are passed over electrodes each of which is an alloy of copper and silver. The electrodes are opposite poles of an electrical circuit having means for changing polarity of the electrodes at predetermined intervals.

3,654,120

ELECTROLYTIC CELL INCLUDING BIPOLAR ELECTRODES WITH RESIN-IMPREGNATED HOLES IN THE ELECTRODE BODY

Georg Messner, Munich, Germany, assignor to Nora International Company, Panama City, Panama
Filed July 29, 1969, Ser. No. 845,701
Int. Cl. B01k 3/04; C22d 1/02

U.S. Cl. 204—255

11 Claims

Describes a cell and process for the electrolysis of hydro-halogen solutions composed of a plurality of unit

cells clamped together in a filter press arrangement, wherein each unit cell consists of a graphite electrode and a frame disposed peripherally on the electrode, a diaphragm between each unit cell, each bipolar graphite electrode having a plurality of holes between the active faces of the graphite electrodes with the pores in the graphite in the vicinity of the holes being impregnated



or sealed with a resin to form a continuous barrier through the center of the electrode which is effective in minimizing loss of current due to the migration of ionic currents through the electrodes. The frame is provided with a plurality of separate exit ports for separately discharging halogen and hydrogen, together with the spent hydro-halogen solution.

3,654,121

ELECTROLYTIC ANODE

Carl D. Keith, Summit, Alfred J. Haley, Jr., Florham Park, and Robert M. Kero, Cranford, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Newark, N.J.
No Drawing. Filed Dec. 23, 1968, Ser. No. 786,438
The portion of the term of the patent subsequent to Dec. 28, 1988, has been disclaimed
Int. Cl. B01k 3/04

U.S. 204—290 F

3 Claims

An improved anode for the electrolysis of brines is comprised of a corrosion resistant valve metal substrate, a thin porous adherent exterior coating of silica, and between the substrate and exterior coating a thin layer of ruthenium oxide.

3,654,122

WORKPIECE HOLDING FIXTURE FOR ELECTROLYTIC SHAPING APPARATUS

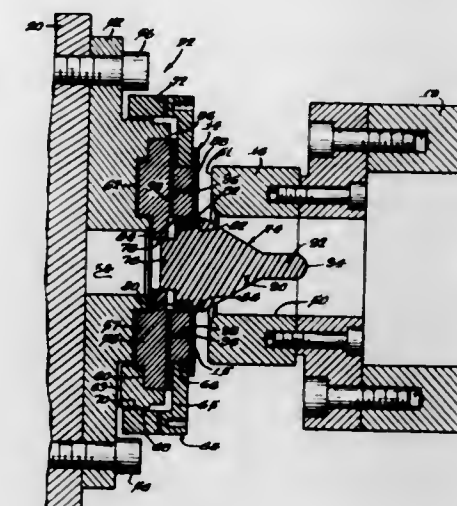
Lynn A. Williams, Winnetka, Ill., assignor to Anocut Engineering Company, Elk Grove Village, Ill.
Application Mar. 15, 1967, Ser. No. 633,650, which is a Continuation-in-part of application Ser. No. 228,401, Oct. 4, 1962. Divided and this application June 27, 1969, Ser. No. 837,234
Int. Cl. C23b 5/70

U.S. Cl. 204—297

9 Claims

Apparatus for electrolytically machining a workpiece by means of an electrically conductive electrode where the electrolyte is pumped under substantial pressure through the electrode and between the working face of the electrode and the surface being electrolytically machined on a workpiece held in a fixture which provides a support for the back of the workpiece held thereagainst by the pressure of the electrolyte and has ports and passages to drain away any electrolyte tending to accumulate between the workpiece and the workpiece support; the fixture provides electrical contact for the positive side of the current supply to the workpiece, and it is fitted with

means to hold the workpiece in position, such as a central pilot member for annular workpieces, and periphery sup-



ports for all shapes of workpieces including annular workpieces. The fixture may be rotated, if desired.

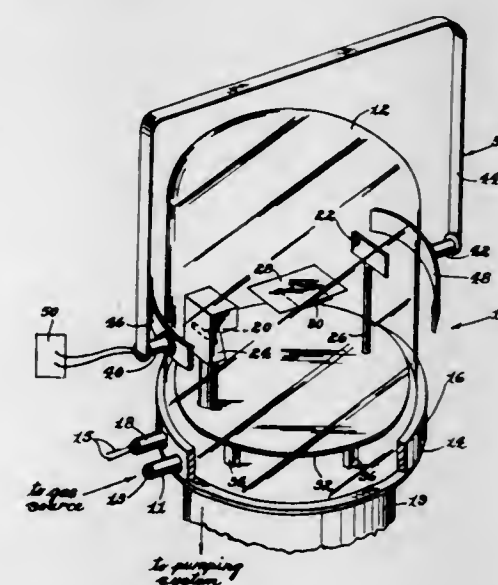
3,654,123

SPUTTERING

Dennis G. Hajzak, Rochester, N.Y., assignor to The Bendix Corporation
Filed Sept. 25, 1968, Ser. No. 762,436
Int. Cl. C23c 15/00

U.S. Cl. 204—298

5 Claims



This disclosure shows means to achieve controlled coatings by sputtering. By incorporating in a conventional sputtering system means to form a controllable sheet of plasma and means to cause a predetermined, continuous relative movement between the plasma and the substrate, control of deposition of the target material is achieved. This technique may be used to achieve uniformity over wider surface areas and may also be used to achieve controlled non-uniformity of deposited coatings.

3,654,124

APPARATUS FOR ELECTROPHORETIC DEPOSITION

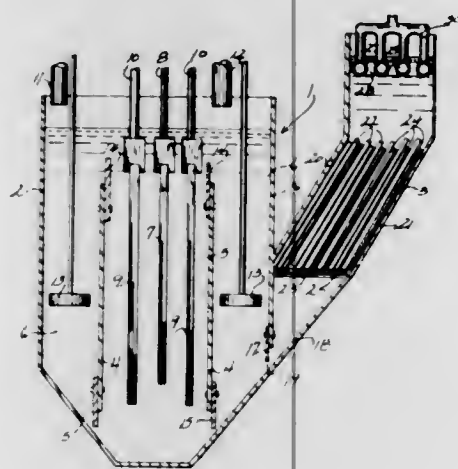
Donald I. Lusk, Mequon, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis.
Filed Jan. 31, 1969, Ser. No. 795,440
Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—299

15 Claims

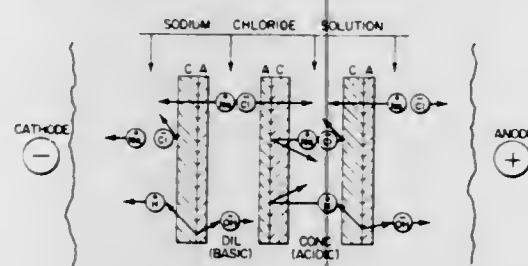
An apparatus for the electrophoretic deposition of glass including a casing which defines a deposition chamber and

a settling chamber which communicates with the deposition chamber. The metal article to be coated is made an anode in an electrical circuit and is located in the deposition chamber along with a cathode. Glass slip, which is a water suspension of glass frit particles, clays and mill additions, is used to fill the deposition chamber and is added continuously to replace those solids removed during the coating operation. A voltage is applied across the circuit and the glass particles and clays are deposited on the metal workpiece.



In addition, a provision is made to continuously deionize the liquid or water phase of the glass slip. The glass frit particles settle out in the settling chamber on a series of spaced, generally parallel plates which are located at an angle of 50° to 90° with respect to the horizontal. Relatively glass-free liquid is withdrawn from the upper end of the settling chamber, passed through a series of ion exchange columns and the deionized liquid is returned to the deposition chamber, while the glass frit particles, which have settled out, flow downwardly from the settling chamber and are also returned to the deposition chamber.

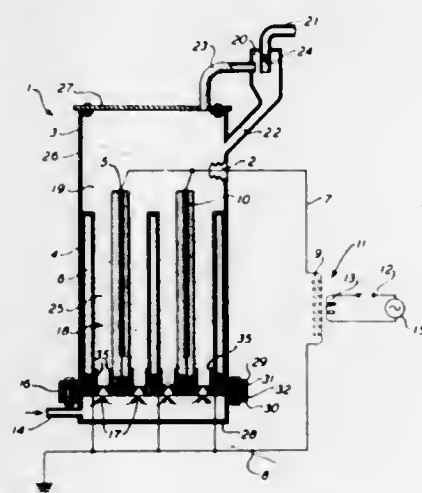
3,654,125
APPARATUS FOR ELECTRODIALYSIS OF ELECTROLYTES EMPLOYING BILAMINAR ION EXCHANGE MEMBRANES
Frank B. Leitz, Weston, Mass., assignor to Ionics, Incorporated, Watertown, Mass.
Original application Aug. 5, 1968, Ser. No. 750,312, now Patent No. 3,562,139, dated Feb. 9, 1971. Divided and this application Oct. 5, 1970, Ser. No. 77,976
Int. Cl. B01d 13/02; C02b 1/82
U.S. Cl. 204—301 3 Claims



Method and apparatus for the deionization of electrolyte solutions wherein alternately oriented anion-cation bilaminate ion-exchange membranes define the chambers of a multi-chamber electrodialysis cell and wherein the anion exchange laminae of each of said membranes bound the salt diluting chambers and the cation exchange laminae bound with the salt concentrating chambers. A direct

electric current is passed transversely through all of said chambers and membranes which current is periodically reversed.

3,654,126
FLUIDIZED BED OZONE GENERATOR
Ralph McNabney, Morristown, N.J., and Derk Th. A. Huibers, Naarden, Netherlands, assignors to Air Reduction Company, Incorporated, New York, N.Y.
Filed Nov. 20, 1969, Ser. No. 878,494
Int. Cl. C01b 13/12
U.S. Cl. 204—314 7 Claims

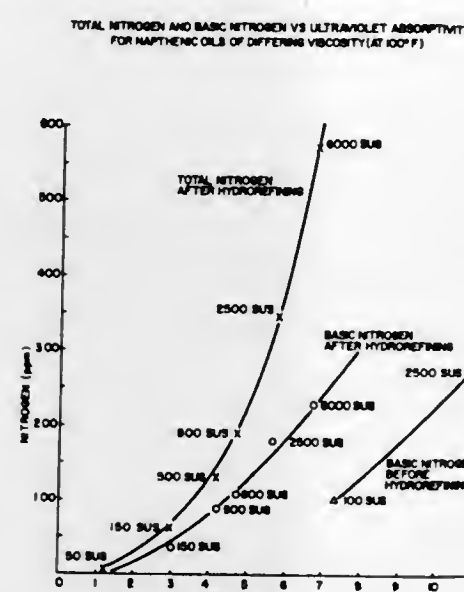


Apparatus and method are disclosed for high efficiency electrical conversion of oxygen to ozone. An oxygen-containing gas is passed upwardly through a particulate dielectric contained between spaced electrode surfaces, whereby a fluidized bed is established consisting of a suspension of said dielectric particles in the streaming gas. Means are present for simultaneously maintaining a silent electrical discharge across the spaced electrodes and through the fluidized bed. The bed acts as a highly effective heat sink and also promotes the presence of high-frequency components in the current waves passing between electrodes, as a result of which increased electrical efficiency and increased ozone output is enabled in the conversion process.

3,654,127
PROCESS FOR PREPARING HIGH VISCOSITY HYDROREFINED CABLE OIL
Ivor W. Mills, Media, and Glenn R. Dimeler and William A. Atkinson, Jr., West Chester, Pa., and James P. Hoffman, Wilmington, Del., assignors to Sun Oil Company, Philadelphia, Pa.
Filed Aug. 18, 1969, Ser. No. 850,778
Int. Cl. C10g 7/00; H01b 3/22
U.S. Cl. 208—14 14 Claims

In a process wherein a topped naphthenic crude is heated and flash distilled under vacuum in a first distillation step to remove gas oil and lubricating oil fractions and a heavy residuum containing asphaltic and high molecular weight naphthenic acid components is obtained, an improvement comprises (a) subjecting said heavy residuum to vacuum distillation in a second distillation step at a pressure lower than that to which the residuum was subjected in said first distillation step; (b) separating from the second distillation step a heavy distillate having an initial ASTM D-1500 color greater than 7.5, SUS viscosity at 100° F. in the range of 8100–14,000 SUS, a 260 UVA greater than 12.0 and containing high molecular weight naphthenic acids; (c) catalytically hydrogenating said heavy distillate at a temperature in the range of 500–775° F., with H₂ of 50–100% purity, and from 800–3000 p.s.i. of hydrogen at the reactor inlet (at total pressures from 800–6000 p.s.i.g.) at a fresh feed liquid hourly

space velocity (LHSV) of from 0.1–8.0; and (d) recovering hydrogenated oil having an initial ASTM D-1500 color no greater than 2.5, a viscosity in the range of 5000–12,000 SUS at 100° F., an API gravity at 60° F.



in the range of 15.5–18.5, a refractive index in the range of 1.51–1.53, a 260 UVA less than 10.0, a flash point above 425° F., a pour point greater than 10° F. and which contains at least 40 wt. percent gel aromatics.

3,654,128
DEWAXING OF LUBRICATING OILS
Robert A. Woodle, Nederland, Tex., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 24, 1969, Ser. No. 888,050
Int. Cl. C10g 43/08
U.S. Cl. 208—33 4 Claims

Lubricating oil distillates containing both paraffin wax and microcrystalline wax, are dewaxed in a process combining catalytic hydrodewaxing and centrifuge dewaxing.

3,654,129
HYDROREFINING OF COKE-FORMING HYDROCARBON DISTILLATES
Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 742,503, July 5, 1968. This application Apr. 20, 1970, Ser. No. 30,313
Int. Cl. C10g 9/16, 23/00; C23f 14/00
U.S. Cl. 208—48 7 Claims

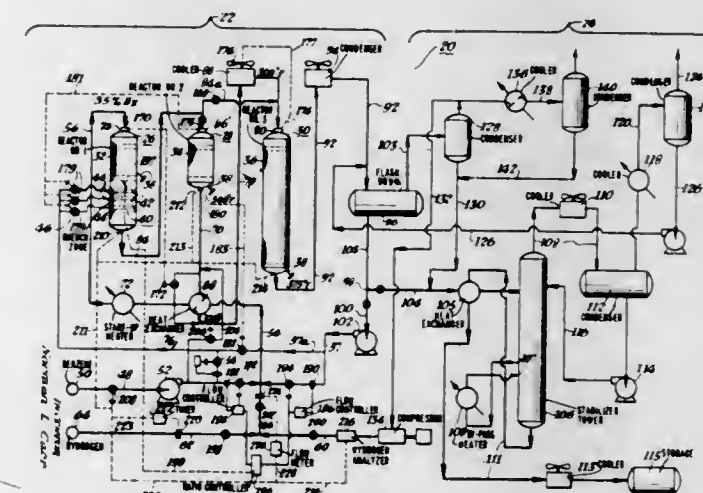
An olefin polymerization inhibitor is added to an unsaturated coke-forming hydrocarbon distillate prior to subjecting the same to hydrorefining, to retard the thermal polymerization chains sufficiently to insure formation only of soluble polymers and thereafter hydrogenating said soluble polymers in a hydrorefining (hydrogluination) zone. Suitable inhibitors are selected from the group consisting of phenols, aromatic amines and thiophenols, and are employed in an amount of from 0.005% to 1.0% by weight of the hydrocarbonaceous charge stock.

3,654,130
PREPARATION OF HIGH V.I. LUBE OILS
Alexis Voorhies, Jr., and Glen P. Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company
No Drawing. Filed Nov. 10, 1969, Ser. No. 875,509
Int. Cl. C10g 23/02, 37/06
U.S. Cl. 208—57 4 Claims

High boiling hydrocarbon feeds are converted to high V.I. lube oils in high yields by hydrotreating in a first stage

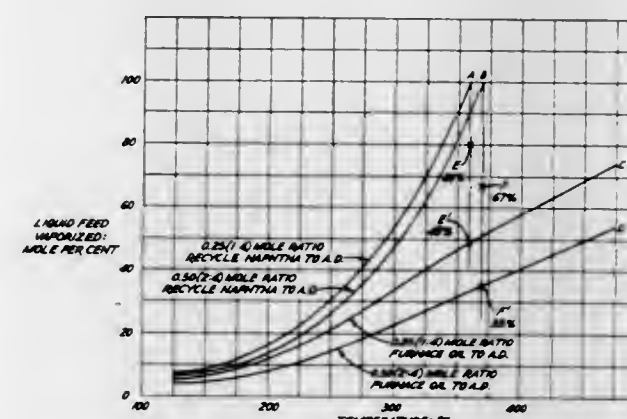
over a hydrogenation catalyst under conditions adapted to saturate the polynuclear aromatic hydrocarbons therein and then hydrocracking in a second stage over a faujasite-base catalyst, such as Pd on H-faujasite, under conditions such that less than 15% conversion to products boiling below 650° F. occurs and polynuclear naphthenes are converted to single ring naphthenes, and paraffins are isomerized to branch-chain structure.

3,654,131
MAINTAINING A GASEOUS PHASE IN A HYDRO-CARBON HYDROGENATION SYSTEM
Norman L. Carr, Pittsburgh, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Dec. 15, 1969, Ser. No. 885,066
Int. Cl. C07c 5/10; C10g 23/00
U.S. Cl. 208—57 16 Claims



A petrochemical plant is disclosed comprising reactor means including a catalyst capable of inducing a catalytic exothermic reaction therein, means for controlling the inlet and outlet temperatures of said reactor means, means for supplying reactants including a normally liquid reactant to said reactor means, and the basis for the control means for maintaining the temperature of said reactants above the dew point thereof in every part of said reactor means.

3,654,132
HYDROGENATION PROCESS IN PRESENCE OF A HIGH BOILING DILUENT
Robert D. Christman, Penn Hills, and Joel D. McKinney, Indiana Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
Filed Dec. 19, 1969, Ser. No. 886,554
Int. Cl. C10g 23/04
U.S. Cl. 208—57 9 Claims

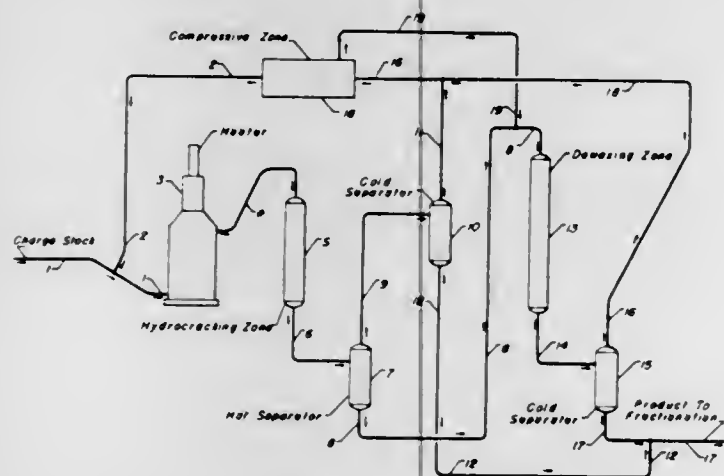


A process for the selective hydrogenation of diolefins over monoolefins in an aromatic distillate stream in the

presence of a noble metal catalyst at a temperature below about 350 to 400° F. at which temperature said aromatic distillate is at least partially in the liquid phase, in the presence of a diluent hydrocarbon having a boiling range above said aromatic distillate which increases the proportion of said aromatic distillate in the liquid phase and thereby both inhibits solid polymer formation in said process and provides improved temperature control.

3,654,133
DEWAXED LUBRICATING OIL PRODUCTION
Robert K. Olson, Hinsdale, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 23, 1970, Ser. No. 48,969
Int. Cl. C10g 23/02, 37/02
U.S. Cl. 208—59

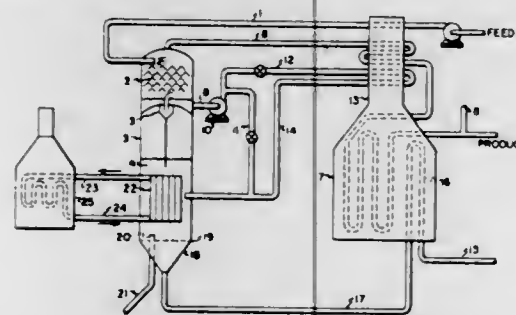
7 Claims



A multiple-stage process for producing dewaxed lubricating oil base stocks having viscosity indices greater than about 100. The hydrocarbonaceous charge stock is initially processed in a hydrocracking zone selectively controlled to convert relatively low viscosity index, condensed-ring hydrocarbons to a relatively high viscosity index product. The product effluent from this first zone is separated, at substantially the same temperature and pressure, producing a principally liquid phase containing the heavier waxy components. This waxy distillate serves as a charge stock to the second reaction zone which is selectively controlled to convert the waxy constituents, by way of both hydrocracking and hydroisomerization, into lower-boiling hydrocarbon products.

3,654,134
PROCESS COMBINATION OF FLUID COKING AND STEAM CRACKING
Guy B. Wirth, Florham Park, and Charles E. Jahnig, Rumson, N.J., assignors to Esso Research and Engineering Company
Filed Sept. 19, 1969, Ser. No. 859,490
Int. Cl. C10b 55/10; C10g 37/02
U.S. Cl. 208—54

26 Claims



This invention relates to a fluid coking-steam cracking furnace combination process for producing coke and gaseous hydrocarbons from a heavy hydrocarbon feedstock

wherein a substantial portion of the heat requirements for the endothermic-cracking reaction in the fluid coking vessel are met by passing steam through a furnace, preferably a steam cracking furnace, and thereafter introducing said heated steam into the bottom of the fluidized bed of the coker vessel. In one embodiment, steam is first heated in a steam cracking furnace and introduced into the bottom of the fluid bed to provide a substantial portion of the heat requirements for the cracking reaction. The remaining portion of the heat requirements for the cracking reaction are supplied by employing heat transfer surfaces within the fluid bed of the coker vessel. Heat is supplied to the heat transfer surfaces by passing a hot molten medium, such as molten lead, or hot combustion gases within said heat transfer surfaces. In another embodiment, the heat requirements for the endothermic cracking reaction are supplied by introducing steam, which has been heated in a steam cracking furnace, into the bottom of the fluid bed, and withdrawing carbonaceous material from the fluid bed and contacting said material with heat transfer surfaces located in an external heat exchanger to provide the remaining portion of the heat required for the cracking reaction. The introduction of steam into the bottom of the fluid bed, in addition to supplying a substantial portion of the heat requirements to the fluid bed, functions to fluidize the bed and to provide the diluent medium for the vaporized hydrocarbons recovered from the fluid bed coking zone which are then passed to a steam cracking furnace to produce the low molecular weight unsaturated products.

3,654,135
PROCESS FOR OBTAINING AROMATIC HYDROCARBONS FROM OILS AND/OR THEIR RESIDUES, RICH IN AROMATIC HYDROCARBONS, AND HAVING A HIGH CONTENT OF UNSATURATED COMPOUNDS

Otto Wegener, Mulheim-Speldorf, Rudolf Oberkubusch and Gerd Collin, Duisburg-Meiderich, and Maximilian Zander and Herbert Buffleb, Castrop-Rauxel, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Germany
No Drawing. Filed Dec. 9, 1969, Ser. No. 883,591
Claims priority, application Germany, Dec. 19, 1968, P 18 15 568.5

Int. Cl. C10g 37/08; C07c 7/14

U.S. Cl. 208—71

6 Claims

Aromatic compounds, e.g., naphthalene, phenanthrene, anthracene, duren, are obtained in increased yields from oils and/or residues rich in aromatic compounds and having a high content of unsaturated compounds, by pre-treating said oils or residues by a thermal treatment at increased temperature in the range of 300–500° C. and at an excess pressure of 4–30 atmospheres, subjecting the pre-treated material to fractional distillation and recovering the aromatic hydrocarbons from their fractions by cooling and crystallization.

The aromatic compounds are thereby recovered in increased yields and increased purity.

3,654,136
PRODUCTION OF GASOLINE FROM NATURAL GAS

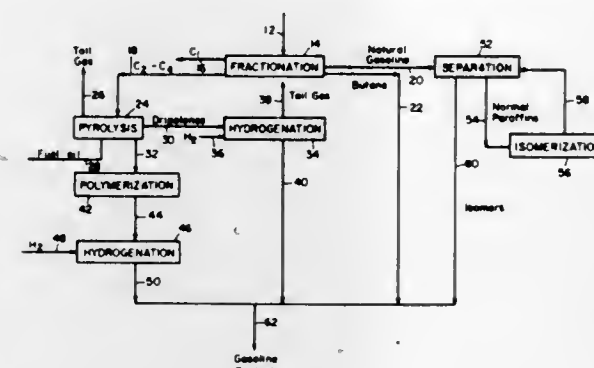
Daniel Millsom, Hightstown, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.
Filed Nov. 26, 1969, Ser. No. 880,220
Int. Cl. C10g 37/08

U.S. Cl. 208—71

4 Claims

A process for the production of gasoline from natural gas in which a C₂ to C₄ natural gas liquids fraction is converted to polyolefins boiling below about 400° F. and the polyolefins are then hydrogenated to form gasoline blending stock. A natural gasoline fraction comprising

mostly C₅ to C₇ hydrocarbons is treated by isomerization to convert at least about 95% of the normal paraffins contained therein to isoparaffins. The isomer product and



isomers originally contained in the natural gasoline fraction are then blended with the hydrogenated polyolefin product.

3,654,137
RISER CRACKING OF SOLVENT EXTRACTED GAS OIL

Edward J. Dober, Pittsburgh, and Robert W. Koch, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 23, 1970, Ser. No. 57,587

Int. Cl. C10g 11/18

U.S. Cl. 208—87

8 Claims



A gas oil is passed through a solvent extraction zone to separate an aromatics-rich extract fraction from an aromatics-lean raffinate fraction, each having a boiling range substantially as wide as the feed gas oil. A fluidized mixture of zeolite and nonzeolite cracking catalyst is continuously passed upwardly through an elongated cracking reactor which does not contain added hydrogen. The aromatics-lean raffinate fraction is continuously charged to the reactor at a position close to the bottom thereof while the aromatics-rich extract fraction is continuously charged to the reactor at a position more remote from the bottom thereof.

3,654,138
METHOD OF STARTING UP A HYDROCRACKING PROCESS

James F. Mosby, Griffith, Ind., and James C. Koller, Jr., Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill.

No Drawing. Continuation-in-part of abandoned application Ser. No. 572,224, Aug. 15, 1966. This application June 17, 1970, Ser. No. 47,167

Int. Cl. C10g 13/02, 23/00

U.S. Cl. 208—111

25 Claims

Start-up method comprises contacting the hydrocracking catalyst with a hydrogen-containing gas at a pressure between about 0 and about 2,500 p.s.i.g. and a temperature between about 400° F. and about 850° F.; cooling

the catalyst to minimize conversion of hydrocarbons; contacting the catalyst with a first preliminary hydrocarbon feedstock having low concentrations of nitrogen, sulfur and aromatics in a manner that will not deleteriously affect the catalyst; increasing the temperature in the reaction zone to obtain conversion of the first preliminary hydrocarbon feedstock to lower-boiling hydrocarbons; stopping the flow of the first preliminary hydrocarbon feedstock; and contacting the catalyst with a principal petroleum hydrocarbon feedstock. The hydrocracking catalyst comprises a hydrogenation component on a co-catalytic support. The preferred support comprises ultrastable, large-pore crystalline aluminosilicate material suspended in a porous matrix of amorphous silica-alumina. The preferred hydrogenation component comprises a mixture of cobalt oxide and molybdenum trioxide.

3,654,139
DESULPHURISATION AND DE-AROMATISATION OF PETROLEUM DISTILLATES

John Winsor, 58 Giffard Drive, Farnborough, Hampshire, England, and John Carruthers, 42 Sandalwood Ave., Chertsey, Surrey, England

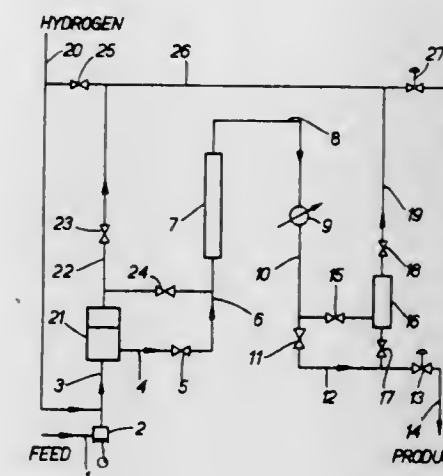
Filed July 5, 1968, Ser. No. 742,733

Claims priority, application Great Britain, July 11, 1967, 31,770/67

Int. Cl. C10g 23/00; C07c 5/10

U.S. Cl. 208—89

14 Claims



A process is disclosed in which a 60–250° C. distillate containing up to 2% wt. sulphur and up to 25% wt. aromatics is catalytically desulphurised with hydrogen in a first stage to convert the major proportion of the sulphur to hydrogen sulphide. Hydrogen sulphide is removed, the fraction is contacted with supported elemental nickel to remove remaining sulphur in a second stage without liberation of hydrogen sulphide, without aromatics hydrogenation, and without hydrocracking, and the desulphurised fraction is hydrogenated over supported elemental nickel in a third stage.

3,654,140
NOVEL CAT CRACKING OIL FEED INJECTOR DESIGN
Jacob Griffel, New York, N.Y., and Ivan Mayer, Summit, N.J., assignors to Esso Research and Engineering Company

Filed Aug. 12, 1970, Ser. No. 63,130

Int. Cl. C10g 11/00, 11/18

U.S. Cl. 208—113

7 Claims

An improved fluidized catalytic cracking process is provided which comprises feeding a substantially liquid hydrocarbon oil feedstock to at least one feed injection zone of a fluidized catalytic cracking reaction zone, concurrently

feeding steam to said injection zone in a volumetric ratio of steam to liquid hydrocarbon ranging from about 3 to about 75, thereby imparting to the resulting mixture an exit velocity relative to the fluidized catalyst of at least about 100 feet per second, whereby the oil feedstock is essentially completely atomized forming droplets less than about 350 microns in diameter.

3,654,141

CATALYTIC CRACKING OF SHALE OIL OVER ZEOLITE CATALYST

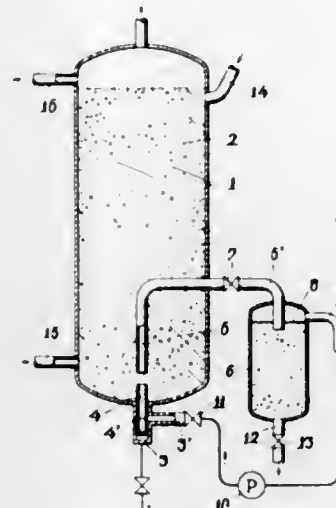
Harrison C. Maryland, Lockport, Ill., assignor to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Jan. 8, 1969, Ser. No. 789,937
Int. Cl. C10g 11/02, 11/18

U.S. Cl. 208—120

8 Claims

A process for catalytically cracking of oils derived from oil shale which contain high amounts of nitrogen, i.e., over about 1 percent is disclosed. The catalytic cracking is conducted at temperatures of about 975° F. up to about 1200° F. At these temperatures the adverse effects of nitrogen poisoning of the catalyst are substantially negated.



3,654,142

REGENERATION OF PLATINUM-RHENIUM REFORMING CATALYST

Vincent J. Moravec, Jr., 1315 Nasa Road 1, Apt. 263 77058, and William K. Meerbott, 3006 Winslow 77025, both of Houston, Tex.

Filed July 29, 1970, Ser. No. 59,246
Int. Cl. B01j 11/02, 11/18; C10g 35/06

U.S. Cl. 208—140

6 Claims

The activity and stability of a deactivated reforming catalyst containing a platinum group metal and rhodium are restored to that of fresh catalyst by (1) removing substantially all carbon from the catalyst; (2) contacting the catalyst at about 900° F. with a non-reducing gas containing halogen, steam and oxygen until about 85% wt. of the desired halide content is added; (3) discontinuing the use of steam and oxygen from the last-mentioned step until the halogenation is completed; and (4) drying and reducing the catalyst with a hydrogen-containing gas; then reusing the catalyst in a reforming process. Preferably, the catalyst is halogenated to a level about 20% greater than that of fresh catalyst. It is also preferred that the catalyst then be dried with a non-reducing gas at about 900° F. until the water content in the exit gas is below 150 p.p.m.v. followed by reducing the metallic oxides by contact with a hydrogen-containing gas at 700–900° F.

3,654,143

METHOD AND APPARATUS FOR WITHDRAWING SOLID CATALYST PARTICLES

Yoshihide Koderu, Kawasaki-shi, Jun Kato and Kazuo Shimada, Tokyo, Morio Suzuki, Fujisawa-shi, Hidetaka Ohse, Soka-shi, and Satoshi Ohshima and Yasunori Kuriki, Tokyo, Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Filed Dec. 29, 1969, Ser. No. 888,470
Claims priority, application Japan, Dec. 28, 1968, 44/95,945

Int. Cl. C10g 23/06

U.S. Cl. 208—146

4 Claims

In catalyst in a reaction tank having a material feed pipe at the lower portion thereof and a product-taking-out-pipe at the upper portion thereof, a discharge nozzle and a suction nozzle are provided, the discharge nozzle being connected to the discharge side of a pump provided outside the reaction tank and the suction nozzle being connected to the suction side of the pump, respectively. When the pump operates, a reaction liquid is discharged from the discharge nozzle and then sucked into the suction nozzle along with catalyst. Thus, catalyst is recovered

in a catalyst recovery tank provided between the suction nozzle and the pump, and the reaction liquid is circulated from the pump to the suction nozzle through the discharge nozzle. Either the discharge nozzle or the suction nozzle

is, as occasion demands, slid so as to make contact with the other. Thus, the inner surface of the suction nozzle is rinsed by circulating a reaction liquid, and thereby catalyst adhering to the inner surface of the said suction nozzle is removed.

3,654,144

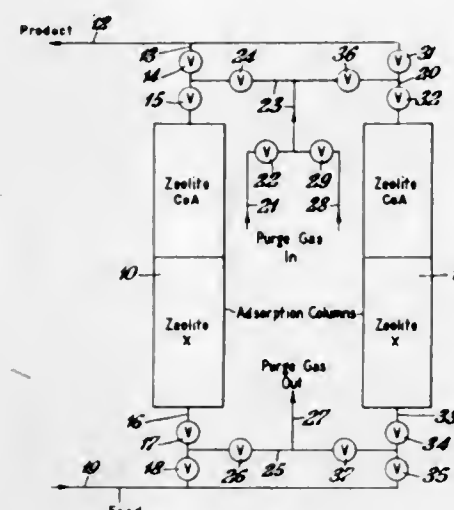
PURIFICATION OF LIQUID HYDROCARBONS CONTAINING CARBONYL SULFIDE

John Joseph Collins, Katonah, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed June 10, 1970, Ser. No. 45,117
Int. Cl. C10g 29/22

U.S. Cl. 208—245

6 Claims



COS is removed as an impurity from hydrocarbon feedstocks by selective adsorption of the COS from the mixture thereof with the hydrocarbon in the liquid state using zeolite A which has been to some degree calcium cation exchanged. The liquid hydrocarbon stream containing sulfur compounds is passed through a bed of the modified zeolite A, and advantageously if other sulfur-containing impurities of larger molecular dimension are also present, the liquid hydrocarbon stream is also passed through a bed of molecular sieve having a pore size large enough to adsorb benzene.

3,654,145

DISCOVERY IN SEPARATION OF HYDROCARBONS

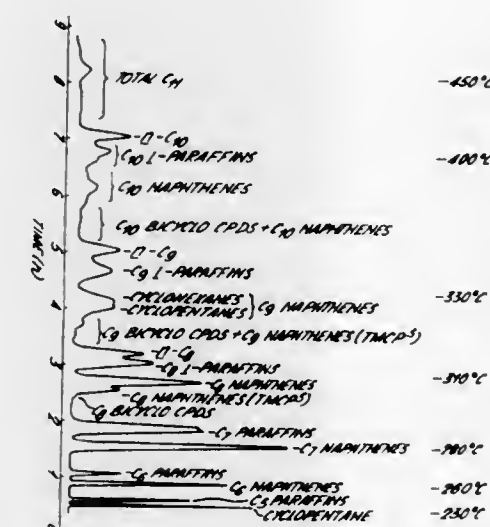
John Vincent Brunnock, deceased, late of Frimley, England, by Pamela Mary Brunnock, legal representative, Frimley, and Leonard Arthur Luke, Ashford, England, assignors to the British Petroleum Company Limited, London, England

Filed Feb. 17, 1969, Ser. No. 800,376
Claims priority, application Great Britain, Feb. 21, 1968, 8,407/68; July 24, 1968, 35,237/68

Int. Cl. C07c 7/12

U.S. Cl. 208—310

13 Claims



Hydrocarbon mixtures containing paraffinic and naphthenic hydrocarbons differing in carbon number by at least 2 are separated into fractions consisting substantially of naphthenic or paraffinic hydrocarbons of the same carbon number by passing the mixture in the vapour phase, together with an inert carrier gas, through a column of a molecular sieve having pore diameters greater than 5 Å. The column is temperature programmed within the range 40–250° C. above the average boiling point of the highest carbon number components present and the fractions are recovered from the bed as successive effluents.

3,654,146

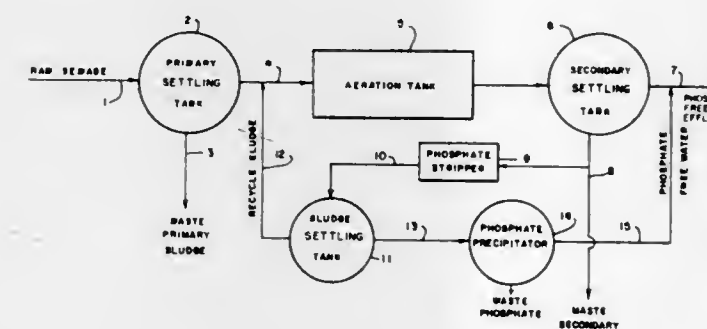
AEROBIC REMOVAL OF PHOSPHATE FROM ACTIVATED SLUDGE

Gilbert V. Levin, Chevy Chase, Md., and George J. Topol, Reston, Va., assignors to Biospherics Incorporated, Rockville, Md.

Filed Feb. 3, 1971, Ser. No. 112,179
Int. Cl. C02c 1/06

U.S. Cl. 210—6

4 Claims



There is disclosed an activated sludge sewage treatment process in which phosphates are removed from phosphate-enriched sludge by aerating the phosphate-enriched sludge

with an oxygen-containing gas. During aeration, the organisms in the sludge, after consuming the available food substrate, go into endogenous respiration, consuming much of their own cellular material. Thus, the aeration serves to reduce the volume of sludge as well as to cause the organisms in the sludge to release phosphate. A phosphate-enriched supernatant liquor is formed on settling. The sludge, having a reduced phosphate content, is separated from the phosphate-enriched supernatant liquor and at least a portion thereof is recycled for mixing with influent sewage material in an activated sludge sewage treatment process. The resultant mixed liquor is aerated to reduce the BOD content and to cause the organisms present to take up phosphate and phosphate-enriched sludge is separated from the mixed liquor to provide a substantially phosphate-free effluent.

3,654,147

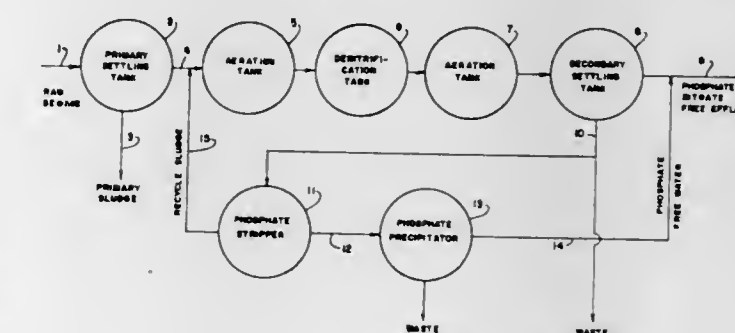
NITRATE REMOVAL FROM SEWAGE

Gilbert V. Levin, Chevy Chase, and George J. Topol, Silver Spring, Md., assignors to Biospherics Incorporated, Rockville, Md.

Filed Mar. 16, 1971, Ser. No. 124,716
Int. Cl. C02c 1/06

U.S. Cl. 210—6

3 Claims



There is disclosed an activated sludge sewage treatment process in which the nitrogen content of raw sewage is removed. In the process, raw sewage is mixed with activated sludge to form a mixed liquor and the mixed liquor is aerated at a rate sufficient to convert ammonia present in the sewage to nitrate. The mixed liquor is then passed to a zone wherein it is maintained under conditions in which there is insufficient oxygen present to satisfy the needs of the microorganisms in the mixed liquor. This causes the microorganisms to break down the nitrate and to fulfill their oxygen needs by obtaining oxygen from the nitrate. Nitrogen gas is formed in the process and is evolved from the system.

There is also disclosed a process whereby the phosphate content of sewage is also reduced. In this embodiment, conditions are controlled so that the sludge which is withdrawn from the mixed liquor contains a substantial portion of the phosphate content. The final effluent which is passed out of the system is substantially free of phosphate and nitrate.

3,654,148

LIQUID PURIFICATION SYSTEM

William E. Bradley, New Hope, Pa., assignor to Puredesal, Inc., Levittown, Pa.

Filed Sept. 28, 1970, Ser. No. 75,940
Int. Cl. B01d 13/00, 31/00

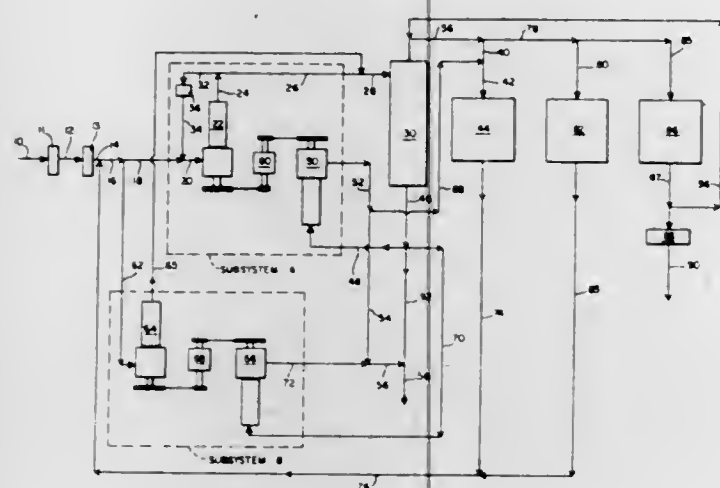
U.S. Cl. 210—23

11 Claims

Liquid purification is accomplished using the same pressure dialysis or reverse osmosis membrane in desalination or fluid processing apparatus to achieve two or more successive stages of purification. By operating the apparatus using a particular time sequence of fluid pressures and/or

solutions having different concentrations and chemical compositions, the apparatus and particularly the reverse

path for conducting a flow of the molten aluminum, and the flow is advanced upwardly through the filter from the under side thereof. Ahead of the filter, the molten aluminum may be conducted through suitable means for re-



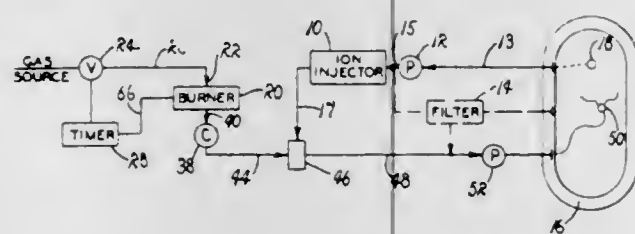
osmosis membrane are effectively rejuvenated for substantially continuous utilization.

3,654,149

METHOD AND SYSTEM FOR PURIFYING WATER
Joel Hedgpeth, Clovis, Calif., assignor to Huebner & Worrel
Filed May 4, 1970, Ser. No. 34,261
Int. Cl. C02b 1/18

U.S. Cl. 210—61

7 Claims



An improved method and system for purifying water, particularly that of swimming pools, contaminated by the presence of micro-organisms such as bacteria, algae, and like organic matter, and characterized by steps and means for introducing oxygen into the water to be purified in the presence of water soluble catalytic metallic ions, for achieving an oxidation of the contaminant, and for achieving an introduction of carbon dioxide into the water at a rate sufficient to establish and maintain the water at a suitable pH, whereby the metallic ions are held in solution and continuously made available to act as a catalyst in the oxidation process.

3,654,150

METHOD FOR FILTERING MOLTEN METAL
Anthony Garth Eccles, Arvida, Quebec, Canada, assignor to Alcan Research and Development Limited, Montreal, Quebec, Canada

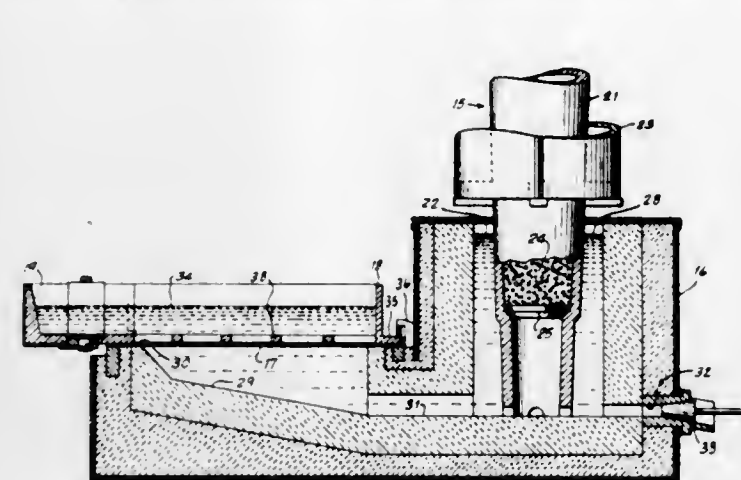
Filed Aug. 8, 1969, Ser. No. 848,597

Int. Cl. B01d 37/04

U.S. Cl. 210—69

2 Claims

Molten metal such as aluminum is filtered (e.g. for casting) by passing it through a woven mesh filter which is maintained entirely submerged in the molten aluminum. The filter in one form comprises plural contiguous layers of glass cloth stretched across the upstream side of a rigid flat grid disposed substantially horizontally in a confined



moving entrained gas. Beyond the filter, the molten aluminum may be conducted in quiescent flow at a uniform level (higher than the level of the filter), e.g. to the upper end of one or more molds wherein it is cast into ingots.

3,654,151

DEFLOCCULATION OF SOLID MATERIALS IN AQUEOUS MEDIUM

Thomas M. King, St. Louis, and Howard L. Vandersall, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.

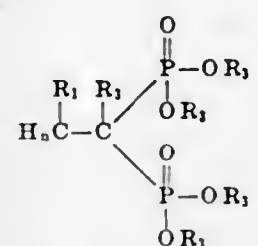
No Drawing. Filed Apr. 13, 1970, Ser. No. 27,981

Int. Cl. B01j 13/00; C04b 33/12; C10m 3/38

U.S. Cl. 252—8.5 C

4 Claims

Ethane diphosphonates having the formula



wherein R₁ and R₂ are hereinafter defined and R₃ is hydrogen or a metal ion and n is an integer having a value of 1 or 2, are disclosed as deflocculating agents in aqueous vehicles or systems containing finely divided solid materials such as oil well drilling muds.

3,654,152

PROCESS FOR MAKING DETERGENT INHIBITING ADDITIVES

Jean Corringier, Oxford, England, and Jean Fourreau, Caudebec-en-Caux, France, assignors to Esso Chimie, Courbevoie, Hauts-de-Seine, France

No Drawing. Filed Aug. 7, 1969, Ser. No. 848,350

Claims priority, application France, Aug. 20, 1968,

163,490

Int. Cl. C10m 1/46

U.S. Cl. 252—32.7

9 Claims

A process of preparing a detergent inhibitor additive which consists of a colloidal dispersion of alkali metal or alkaline earth metal salt in an oil solution of an alkyl phenol and a thiophosphonic acid. In this process alkali metal base or alkaline earth metal base is treated with CO₂ in a mixture of alkyl phenol and oil and a very small amount of thiophosphonic acid. Base is added several times followed by CO₂ and finally with thiophosphonic acid.

3,654,153

CUTTING FLUID FOR COLD WORK

Jury Ivanovich Nikitin, Krasnopolskaya ulitsa 11/13, kv. 41; Sergel Mikhailovich Sokhin, Krasnopolskaya ulitsa 11/13, kv. 29; and Boris Vukolovich Pogorely, Radomyshskaya ulitsa 25, kv. 77, all of Kiev, U.S.S.R.

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,945

Int. Cl. C10m 1/20, 1/28

U.S. Cl. 252—42.1

2 Claims

A water-base cutting fluid for cold work, particularly for metal grinding, which contains sodium carbonate and an addition of sodium carboxymethyl cellulose [C₆H₇O₂(OCH₂COONa)₃]_n.

3,654,154

ESTERS OF PHOSPHORODITHIOATES

Milton Braid, Westmont, N.J., assignor to Mobil Oil Corporation

No Drawing. Original application June 3, 1968, Ser. No. 733,815, now Patent No. 3,544,465, dated Dec. 1, 1970. Divided and this application June 25, 1970, Ser. No. 49,984

Int. Cl. C10m 1/48

U.S. Cl. 252—46.6

5 Claims

Lubricating oils and fuels are inhibited against oxidation by adding to them an antioxidant amount of a product made by reacting an O,O-diorgano-S-(2-hydroxyalkyl) phosphorodithioate with a thionyl halide, sulfonyl halide, organo sulfonyl halide or a sulfate ester.

3,654,155

ESTERS OF PHOSPHORODITHIOATES

Milton Braid, Westmont, N.J., assignor to Mobil Oil Corporation

No Drawing. Original application June 3, 1968, Ser. No. 733,815, now Patent No. 3,544,465, dated Dec. 1, 1970. Divided and this application June 25, 1970, Ser. No. 49,985

Int. Cl. C10m 1/48

U.S. Cl. 252—46.7

12 Claims

Novel esters of O,O-diorgano-S-(2-hydroxyalkyl) phosphorodithioates are excellent antioxidants and corrosion inhibitors in industrial fluid compositions. Of particular interest are those phosphorodithioates which have been reacted with a boron-containing compound.

3,654,156

LUBRICANTS FOR COLD ROLLING AND MANUFACTURING THE SAME

Yoshio Ishii and Shizuyoshi Sakai, Nagoya-shi, Nobuo Fukuda and Shoji Shimada, Kitakyushu-shi, Kikuro Kurokawa, Nishinomiya-shi, and Rokuji Suzuki, Osaka-fu, Japan, assignors to Dalco Chemical Industry Co., Ltd., Higashi-ku, Osaka-shi, Japan

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,164

Claims priority, application Japan, Feb. 23, 1968,

43/11,613

Int. Cl. C10m 1/26

U.S. Cl. 252—49.5

6 Claims

A lubricant for cold roll is disclosed which comprises an addition product of an epoxy compound and an oxidation product of an aliphatic hydrocarbon having an acid value of 30 to 110; said addition product having an acid value of 0 to 30 and containing said epoxy compound in the molecule in an amount sufficient to reduce at least 60 percent of the acid value of said oxidation product; and said oxidation product of the hydrocarbon being prepared by contacting at 100 to 180° C. an aliphatic hydrocarbon having 15 to 55 carbon atoms with molecular oxygen.

3,654,157

LUBRICANT COMPOSITIONS

Gerassimos Frangatos, Westmont, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed July 15, 1970, Ser. No. 55,261

Int. Cl. C10m 1/46

U.S. Cl. 252—49.9

9 Claims

Lubricants are stabilized against oxidation by adding an antioxidant amount of a copolymer of a dialkyl hydrocarbylphosphonate and an arylimino dialkanol.

3,654,158

NONCORROSIVE FUELS AND LUBRICATING OILS

John D. Newkirk, Downers Grove, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

No Drawing. Filed Dec. 22, 1969, Ser. No. 887,434

Int. Cl. C10m 1/32, 1/44; C10I 1/22

U.S. Cl. 252—49.9

1 Claim

A method of inhibiting corrosion in hydrocarbon systems which comprises adding from 0.01–100 p.p.m. of bis-1,3-alkylamino-2 propanol or phosphorylated bis-1,3-alkylamino-2 propanol.

3,654,159

PIEZOELECTRIC CERAMICS

Hiromu Omichi, Kanagawa-ken, and Norio Kobayashi, Tokyo, Japan, assignors to Mitsumi Electric Company, Ltd., Tokyo, Japan

Filed May 18, 1970, Ser. No. 38,316

Claims priority, application Japan, May 21, 1969,

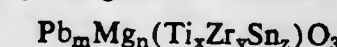
44/38,940

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9

3 Claims

A piezoelectric ceramic composed of a basic composition expressed by the general formula



where the fractions m and n are respectively 0.80 to 0.99 and 0.01 to 0.20 in atom ratio and the fractions x, y and z are respectively 0.42 to 0.80, 0 to 0.40 and 0.05 to 0.42 in molar ratio, CeO₂ is added to said basic composition in an amount of 0.1 to 1.5 percent by weight relative to the latter, and Cu is added in the form of its single substance, oxide or salt to said basic composition and CeO₂ in an amount of 0.04 to 0.80 percent by weight with respect to the total amount of said basic composition and CeO₂.

3,654,160

PIEZOELECTRIC CERAMICS

Tomeji Ohno, Masao Takahashi, Tsuneo Akashi, and Norio Tsubouchi, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Continuation-in-part of application Ser. No. 688,431, Dec. 6, 1967, now Patent No. 3,487,091, dated Dec. 30, 1969. This application July 10, 1969, Ser. No. 840,682

Claims priority, application Japan, July 12, 1968,

43/49,408

The portion of the term of the patent subsequent to Dec. 30, 1986, has been disclaimed

Int. Cl. C04b 35/46, 35/48

U.S. Cl. 252—62.9

3 Claims

Piezoelectric ceramics are provided consisting essentially of a solid solution of Pb(Fe_{1/2}Sb_{1/2})O₃, PbTiO₃ and PbZrO₃, where up to 25 atom percent of Pb may be replaced by at least one of Ba, Sr and Ca, and manganese oxide in the amount of 0.10 to 3.0 weight percent in the form of MnO.

3,654,161

FERROMAGNETIC MATERIAL

John W. Geus, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

Filed Jan. 5, 1970, Ser. No. 577

Claims priority, application Netherlands, Jan. 4, 1969, 6900169

Int. Cl. C04b 35/00

U.S. Cl. 252—62.56

8 Claims

The present invention concerns a process for the preparation of a ferromagnetic material which is precipitated in a finely divided form onto a carrier material suspended in a solution containing the elements to be precipitated. The carrier material is generated in the liquid in which the precipitation of the ferromagnetic material will be carried out, by injecting a dissolved compound of the carrier material to be formed into the agitated liquid in which the carrier material is practically insoluble. An alkaline solution of silica is injected into the liquid, whose pH value is lower than 7, an acidic solution of metal ions from which the carrier material must be built up is injected into the liquid, whose pH value ranges between 4 and 7, or a solution of the elements from which the carrier material must be built up is injected in a readily hydrolysable form in a water-miscible solvent, into water as the liquid. The metal ions used are ions of aluminium, titanium, tin or thorium, or mixtures thereof, or use is made of hydrolysable chlorides such as SiCl_4 , AlCl_3 , TiCl_4 , SbCl_3 or SnCl_4 , or mixtures thereof, dissolved in methyl alcohol, ethyl alcohol or acetone and hydrolysable esters of inorganic acids and alcohols, such as $\text{Al}(\text{OC}_2\text{H}_5)_3$, $\text{Sb}(\text{i-C}_3\text{H}_7\text{O})_3$, dissolved in methyl alcohol, ethyl alcohol or acetone.

3,654,162

FERRIMAGNETIC IRON GARNET HAVING LARGE FARADAY EFFECT

Carl F. Buhner, Oyster Bay, N.Y., assignor to GTE Laboratories Incorporated

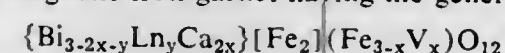
No Drawing. Filed Oct. 1, 1970, Ser. No. 77,346

Int. Cl. C04b 35/00; G02f 1/22

U.S. Cl. 252—62.57

5 Claims

A ferrimagnetic iron garnet having the general formula



where Ln is a trivalent rare earth element and x and y are selected to provide both a large Faraday rotation and a thermally induced magnetic compensation point. The garnet is particularly applicable to magneto-optical memories in which both the read-in and read-out processes are optically controlled.

3,654,163

COBALT FERRITE MAGNETIC POWDER FOR TAPE RECORDING

Yoshimi Makino and Shigetaka Higuchi, Kanagawa-ken, Iwao Kamiya, Tokyo, and Yoshikazu Masuya, Kanagawa-ken, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 25, 1969, Ser. No. 802,031

Claims priority, application Japan, Feb. 27, 1968, 43/12,175

Int. Cl. C04b 35/32

U.S. Cl. 252—62.63

1 Claim

Improved cobalt ferrite magnetic powders suitable for application to magnetic recording techniques, and containing controlled amounts of zinc, magnesium, cadmium, or calcium, or mixtures of two or more of these metals to improve the storage characteristics of the tape.

3,654,164

DRILLING FLUIDS

Russell L. Sperry, Ojai, Calif., assignor to Petroleum Solids Control, Inc., Long Beach, Calif.

No Drawing. Continuation of application Ser. No. 716,552, May 27, 1968, which is a continuation-in-part of application Ser. No. 588,627, Oct. 21, 1966. This application June 3, 1970, Ser. No. 41,754

Int. Cl. C10m 3/22

U.S. Cl. 252—8.5 A

6 Claims

Drilling mud additive compositions are provided which, when added to drilling mud systems, cement the clay cuttings from the drilling operation and prevent their disintegration while at the same time control the viscosity of the drilling fluid. These compositions, which display cohered inhibition against hydratable shales or "gumbo" clays, are characterized by a combination of (1) a copolymer of equimolar amounts of maleic anhydride with alkyl vinyl ether, in which the alkyl contains from 1 to 4 carbon atoms, having a specific viscosity of from 1.3 to about 6 at 1% by weight concentration in methyl ethyl ketone at 25° C., and (2) a water-soluble inorganic salt in which the cation is either sodium, potassium, rubidium and cesium or a mixture of sodium and potassium and in which the anion is either a halide, carbonate, bicarbonate, sulfate, sulfite, sulfide, sulfamate, nitrate, nitrite, chromate, dichromate, molybdenate and vanadate and the ratio of said copolymer to the said inorganic salt ranging from about 1:25 to 3:1.

3,654,165

TELEPHONE CLEANER-SANITIZER

Stanley Charles Bryant and Kenneth H. Mohlenrich, Baltimore, Md., assignors to said Bryant and to Denis T. Lynch, Reisterstown, Md., fractional part interest to each

No Drawing. Filed Sept. 10, 1970, Ser. No. 71,268

Int. Cl. C11d 3/48, 17/00

U.S. Cl. 252—90

7 Claims

A cleaner-sanitizer specifically for wiping application to telephone instruments, including a fast-acting, penetrative, quick-drying bacteriocidal detergent solution, which leaves a safe, active residue, comprised of selected proportions of sodium lauryl sulfate, dimethyl sulfone, isopropanol, and iodine, in solution; use of the above in combination with a lint-free wiper is also disclosed.

3,654,166

DETERGENT COMPOSITIONS

Hans-Werner Eckert, Dusseldorf, and Arnold Heins, Hilden, Rhineland, Germany, assignors to Henkel & Cie GmbH, Dusseldorf, Postfach, Germany

No Drawing. Continuation-in-part of application Ser. No. 656,136, July 26, 1967. This application Aug. 2, 1968, Ser. No. 749,596

Claims priority, application Germany, Aug. 14, 1967, H 63,601; May 8, 1968, P 17 67 413.4

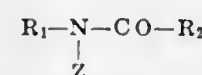
The portion of the term of the patent subsequent to Jan. 25, 1989, has been disclaimed

Int. Cl. C11d 3/30; D06m 13/38, 13/40

U.S. Cl. 252—117

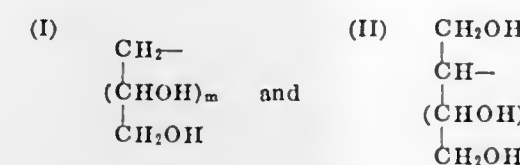
9 Claims

Detergent compositions comprising (a) from 20 to 90 wt. percent of at least one surfactant selected from the group of anionic, zwitterionic and non-ionic surfactants, and (b) from 10 to 80 wt. percent of, as textile softener, an N-alkyl-N-acyl-N-polyhydroxyalkyl compound of the formula:



wherein R_1 is alkyl having 10 to 22 carbon atoms, which can be interrupted by an ether oxygen in the vicinity of

the nitrogen atom, R_2 is alkyl having 7 to 21 carbon atoms, R_1 and R_2 together containing from 23 to 39 carbon atoms and Z is a polyhydroxyalkyl having one of the following formulae:



wherein m has a value of 3 or 4 and n has a value of 2 or 3.

3,654,167

WASHING POLYMERS

Harold S. Akrongold and Rochelle Akrongold, both of 39 Cathay Road, East Rockaway, N.Y. 11518

No Drawing. Continuation-in-part of application Ser. No. 601,330, Dec. 13, 1966. This application Dec. 23, 1969, Ser. No. 887,753

Int. Cl. C11d 3/30, 9/38, 17/00

U.S. Cl. 252—119

44 Claims

A hydrophilic gel of a polymeric fat acid polyamide and a diethanolamide of a fatty acid or a branched chain fatty acid for use as a detergent and in detergent type soaps.

3,654,168

DETERGENT COMPOSITION CONTAINING AMORPHOUS SODIUM SILICATE, AND METHOD OF WASHING FABRIC

Conrad J. Gaiser, 24 66th Place, Long Beach, Calif. 90803

No Drawing. Continuation-in-part of application Ser. No. 815,990, Apr. 14, 1969, which is a continuation-in-part of application Ser. No. 654,230, July 18, 1967, now Patent No. 3,450,494, dated June 17, 1969. This application July 28, 1969, Ser. No. 845,531

The portion of the term of the patent subsequent to June 17, 1986, has been disclaimed

Int. Cl. C11d 3/08, 3/30, 7/14

U.S. Cl. 252—135

3 Claims

A detergent composition comprises amorphous sodium silicate having a burr-like particle structure which provides a highly colloidal dispersion in water for effective soil suspension, thus precluding pollution of the water effluent by phosphate heretofore employed for such purpose. A water softening chelating agent, and a surfactant to loosen soil from fabric are included in the composition.

3,654,169

METHOD OF SCALE INHIBITION USING PHOSPHONATE DERIVATIVES OF ISOCYANURIC ACID

Edwin A. Matzner, Kirkwood, and Robert S. Mitchell, Webster Groves, Md., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,708

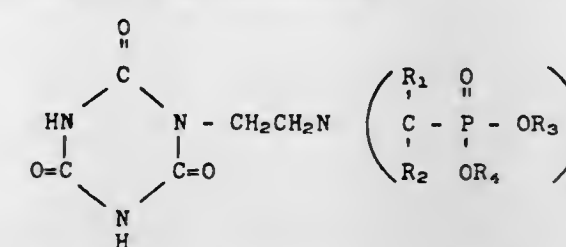
Int. Cl. C02b 5/06; C07d 55/38

U.S. Cl. 252—180

11 Claims

The precipitation of scale-forming salts in an aqueous system is inhibited by adding either stoichiometric or sub-

stoichiometric amounts to said system of derivatives of isocyanuric acid of the general formula



wherein R_1 and R_2 are hereinafter defined and R_3 and R_4 are each hydrogen or a metal ion.

3,654,170

PROCESS OF INHIBITING SCALE USING MIXTURES OF PYROPHOSPHATES AND DITHIOPHOSPHORIC ACIDS

Alfred Eugene Woodson, Festus, Mo., assignor to Petrolite Corporation, Wilmington, Del.

No Drawing. Filed Dec. 18, 1969, Ser. No. 886,376

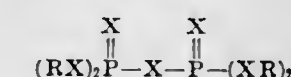
Int. Cl. C23f 14/02

U.S. Cl. 252—181

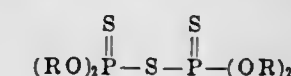
12 Claims

Pyrophosphates, or mixture of pyrophosphates with the O,O-disubstituted dithiophosphoric acids, are particularly useful as scale inhibitors for aqueous systems.

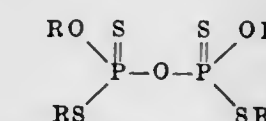
The pyrophosphates employed herein contain both oxygen and sulfur, of the formula



where X is oxygen or sulfur such as those of the formula



and



where R is other than a lower alkyl group (i.e. containing less than seven carbon atoms) and preferably a higher alkyl (i.e. at least six carbons), phenol, etc., and most preferably an oxyalkylated radical. Pyrophosphates are prepared by reacting P_2S_5 with the appropriate alcohol and continuing the reaction to convert the O,O-disubstituted dithiophosphoric acid initially formed to the pyrophosphate. The resulting product usually contains the O,O-disubstituted dithiophosphoric acid in addition to the pyrophosphate.

3,654,171

WATER AND METAL OXIDES OR HYDROXIDES AS DISPERSANTS FOR CLAY-THICKENED GREASES

Robert E. Emond, Mooretown, Ontario, and Alcide C. Horth, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company

No Drawing. Filed June 4, 1969, Ser. No. 830,519

Int. Cl. C10m 5/26

U.S. Cl. 252—30

13 Claims

Clay-thickened greases which are water resistant, shear stable, and noncorrosive to copper are prepared by combining a major amount of lubricating oil, 3 to 20 wt. percent of an oleophilic clay grease thickener and a dispersing agent comprising 1.0 to 12 wt. percent of a Group I, II, III, IV, VII, or VIII metal oxide or hydroxide and 1 to 15 wt. percent of water, said water including free water and/or water of hydration. The water can subsequently be left in the grease or can be later removed or reduced by dehydration.

3,654,172

TERBIUM ACTIVATED RADIOLUMINESCENT SILICATE GLASSES

Richard F. Reade, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 785,347, Dec. 19, 1968. This application Mar. 26, 1970, Ser. No. 23,041

Int. Cl. C03c; C09k 1/54

U.S. Cl. 252—301.4 F

5 Claims

This invention relates to glass compositions which emit strong, visible luminescence when exposed to such ionizing radiations as X-rays, gamma-rays, or cathode rays. In particular, this invention relates to glasses within the alkali metal-alkaline earth metal-silica composition field which are activated by terbium to emit strong, visible luminescence when exposed to X-radiations having energies ranging from 50–120 kilovolts (kv.), such as are commonly encountered in medical radiography practice.

3,654,173

PROCESS FOR MAKING IMPROVED PHOSPHATE PHOSPHORS FROM MONETITE

Martha J. B. Thomas, Winchester, Ernest A. Dale, Hamilton, and Keith H. Butler, Marblehead, Mass., assignors to GTE Sylvania Incorporated

No Drawing. Continuation-in-part of application Ser. No. 819,949, Apr. 28, 1969. This application Apr. 14, 1971, Ser. No. 134,027

Int. Cl. C09k 1/36

U.S. Cl. 252—301.4 P

4 Claims

Improved phosphors are made by controlled heating of anhydrous calcium hydrogen phosphate particles, the particles being maintained in agglomeration-preventing motion throughout the heating process, to form calcium pyrophosphate which is then mixed with other phosphor raw materials and fired to form the phosphor.

3,654,174

PROCESS FOR MAKING IMPROVED PHOSPHATE PHOSPHORS FROM BRUSHITE

Ernest A. Dale, Hamilton, and Martha J. B. Thomas, Winchester, Mass., assignors to GTE Sylvania Incorporated

No Drawing. Continuation-in-part of application Ser. No. 819,409, Apr. 25, 1969. This application Apr. 14, 1971, Ser. No. 134,084

Int. Cl. C09k 1/34

U.S. Cl. 252—301.4 P

6 Claims

An improved form of $\text{Ca}_2\text{P}_2\text{O}_7$ for phosphors is made by precipitating particulate $\text{CaHPO}_4 \cdot 2\text{H}_2\text{O}$ from a solution, washing the precipitated powder, removing most of the water from the wet powder to provide a fairly free flowing material and carefully heating the material at a temperature sufficient to convert it to $\text{Ca}_2\text{P}_2\text{O}_7$, the particles being maintained in agglomeration-preventing motion throughout the heating process. The $\text{Ca}_2\text{P}_2\text{O}_7$ is then mixed with other phosphor raw materials and fired to form the phosphor.

3,654,175

METHOD OF GENERATING STABLE FOGS

George L. Henderson, Seattle, Wash., assignor to Applied Technology Corporation, Seattle, Wash.

No Drawing. Filed Dec. 30, 1968. Ser. No. 788,026

Int. Cl. C09k 3/30

U.S. Cl. 252—305

11 Claims

Disclosed herein is a method of generating stable water mists or "fogs" particularly useful in reducing the risk of frost damage to growing crops. Steam, or preferably a gaseous mixture of steam and combustion gases is passed through a liquid layer of an evaporation retarding chemical such as n-hexadecanol. At the temperature of the

gaseous mixture a quantity of the evaporation retarding chemical is vaporized proportional to its vapor pressure at that temperature. The gaseous mixture of steam and chemical vapors or steam, combustion gases and chemical vapors pass upward into the atmosphere where the steam and chemical vapors condense together at substantially the same time and in substantially the same proportions at which they were evaporated, the evaporation retarding chemical forming a saturated monolayer around the surface of each of the condensed water droplets. The combustion gases, being noncondensable at the atmospheric ambient temperature, pass into the atmosphere. Preferably, steam is generated by burning an air-fuel mixture in close proximity to a body of water and ejecting the hot gases, principally carbon dioxide and nitrogen, directly into the water to heat the same and generate steam.

3,654,176

COMPOSITION AND PROCESS FOR MAKING STABLE AQUEOUS SOL OF SYNTHETIC SILICATE

Barbara Susan Neumann and Keith Geoffrey Sansom, Redhill, England, assignors to Laporte Industries Limited, London, England

No Drawing. Filed June 2, 1970, Ser. No. 42,860. Claims priority, application Great Britain, June 10, 1969, 29,216/69

Int. Cl. B01j 13/00

U.S. Cl. 252—313 R

12 Claims

Compositions are described containing a synthetic silicate, having a structure similar to that of clay minerals of the smectite type, a peptizer and a small amount of a cation for which the ratio Z/r^2 is greater than 2.0×10^{16} where Z is the valency of the cation and r is its radius. The compositions may be formulated with water to give sols of improved stability against gelling.

3,654,177

EMULSIFIER COMPOSITION

John T. Foley, Readington Township, N.J., assignor to Witco Chemical Corporation, New York, N.Y.

No Drawing. Filed Jan. 12, 1970, Ser. No. 2,357

Int. Cl. B01f 17/16, 17/22, 17/32

U.S. Cl. 252—356

8 Claims

Emulsifier compositions comprising admixtures of (a) an imidazoline or oxazoline salt of a long chain fatty acid and (b) a salt of a long chain aliphatic amido amine and a long chain aliphatic carboxylic acid, said emulsifier compositions being particularly effective for preparing water-in-oil emulsions which exhibit excellent heat stability and metal coating properties for corrosion inhibition.

3,654,178

PARTIAL FATTY ESTERS OF GLYCEROL AND POLYGLYCEROL STABILIZED WITH ORGANIC PHOSPHITES

Otto S. Kauder, Jamaica, N.Y., assignor to Argus Chemical Corporation, Brooklyn, N.Y.

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,532

Int. Cl. B01f 17/36

U.S. Cl. 252—356

4 Claims

Compositions comprising (1) partial fatty acid esters of glycerol containing at least 40% by weight monoester of glycerol and/or partial fatty acid esters of polyglycerol wherein the polyglyceride has at least one free hydroxyl group and said esters being substantially saturated as indicated by having an iodine number less than about 15 and (2) small amounts of an organic phosphite stabilizer are resistant to deterioration at temperatures in excess of about 200° C. The compositions are widely used as surfactants and dispersing agents.

3,654,179

INDICATOR FOR DETECTING HYDROGEN PEROXIDE AND PEROXIDATIVE COMPOUNDS CONTAINING BINDSCHEDLER'S GREEN

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,864

Int. Cl. C12k 1/04

U.S. Cl. 252—408

5 Claims

Bindschedler's Green has been found to be an excellent indicator for detecting hydrogen peroxide and peroxidative active compounds. For example, when said indicator is formulated with glucose oxidase and peroxidase, it provides a very sensitive test for glucose in urine and other body fluids.

3,654,180

INDICATOR FOR DETECTING HYDROGEN PEROXIDE AND PEROXIDATIVE COMPOUNDS CONTAINING ALPHA NAPHTHOFLAVONE

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

No Drawing. Filed Mar. 1, 1971, Ser. No. 119,926

Int. Cl. C12k 1/04

U.S. Cl. 252—408

8 Claims

Alpha naphthoflavone is an excellent indicator for detecting hydrogen peroxide and peroxidative compounds such as hemoglobin. When formulated with either a peroxidative active compound or a peroxide, this indicator provides a very sensitive chromogenic response to the presence of said constituents in aqueous fluids.

3,654,181

METHOD FOR ACTIVATION OF IRON OXIDE CONTAINING DEHYDROGENATION CATALYSTS

Samuel S. Sutherland, Jr., Freeport, and George W. Dalley, Angleton, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 21, 1970, Ser. No. 82,576

Int. Cl. B01j 11/02, 11/30

U.S. Cl. 252—414

2 Claims

A method of activation of the self-regenerating iron oxide catalysts employed to dehydrogenate ethylbenzene to styrene by operating the reactor containing such catalyst so as to produce abnormally high conversions of ethylbenzene for a period of at least two days. Thereafter, the activity of the catalyst is improved at the usual levels of conversion.

3,654,182

REGENERATION OF A COKE-DEACTIVATED CATALYST COMPRISING A COMBINATION OF PLATINUM, GERMANIUM AND HALOGEN WITH A POROUS CARRIER MATERIAL

John C. Hayes, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Nov. 26, 1969, Ser. No. 880,411

The portion of the term of the patent subsequent to Nov. 23, 1988, has been disclaimed

Int. Cl. B01j 11/02, 11/18, 11/80

U.S. Cl. 252—415

15 Claims

A deactivated hydrocarbon conversion catalyst, which is a combination of a platinum group component, a germanium component and a halogen component with a porous carrier material and which has been deactivated by a deposition of carbonaceous material thereon during a previous contacting with a hydrocarbon charge stock at hydrocarbon conversion conditions, is regenerated by the sequential steps of: (1) burning carbon from the deactivated catalyst at a relatively low temperature with a substantially sulfur-free first gaseous mixture containing relatively small amounts of oxygen, H_2O and HCl ; (2)

treating the resulting catalyst at a relatively high temperature with a second gaseous mixture containing O_2 , H_2O and HCl ; (3) purging oxygen from contact with the resulting catalyst; and (4) reducing the resulting catalyst by contacting with a substantially sulfur-free third gaseous mixture containing hydrogen and small amounts of H_2O and HCl . Key features of the regeneration method involve the presence of both H_2O and HCl in the gaseous mixtures used in the carbon-burning, oxygen-treating and reduction steps, the use of sulfur-free gaseous mixtures in all of these steps, and the careful control of the mole ratio of H_2O to HCl employed in each of these gaseous mixtures.

3,654,183

CATALYST FOR POLYMERIZATION OF ETHYLENE OXIDE

Howard Paul Klein, Heinz Schulze, and George Phillip Speranza, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Original application Nov. 7, 1968, Ser. No. 774,202, now Patent No. 3,532,645. Divided and this application Jan. 26, 1970, Ser. No. 5,925

Int. Cl. C08g 23/06

U.S. Cl. 252—431

11 Claims

A catalyst for use in the polymerization of ethylene oxide is prepared by contacting an alkaline earth metal hexammoniate with a cyclic imino ether in the presence of an excess of liquid ammonia at conditions such that the ammonia remains in the liquid state. This catalyst preparation may also be carried out in the presence of a normally liquid inert hydrocarbon solvent.

3,654,184

REFORMING CATALYST AND METHOD OF MANUFACTURE

Kenneth R. McCallister and Thomas P. O'Neal, Shreveport, La., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Feb. 2, 1970, Ser. No. 7,972

Int. Cl. B01j 11/78

U.S. Cl. 252—442

9 Claims

A catalyst composition comprising combined halogen, a platinum group metal and germanium oxide composited with alumina. The catalyst composition is characterized by a method of preparation whereby an impregnating solution is prepared by dissolving germanium dioxide in water at a temperature of at least about 160° F. and a soluble platinum group metal compound added thereto. The catalyst composition is particularly useful in the reforming of gasoline fractions to improve the anti-knock characteristics thereof.

3,654,185

ZINC-CONTAINING ZEOLITE CATALYST

Thomas E. Berry, East Alton, Ill., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 803,091, Feb. 27, 1969. This application Jan. 9, 1970, Ser. No. 1,854

Int. Cl. B01j 11/40

U.S. Cl. 252—455 Z

8 Claims

A crystalline aluminosilicate zeolite catalyst support having high crystalline stability and acidic catalytic activity is prepared from an alkali zeolite, preferably a Y-faujasite, by (1) removing the alkali metal ions to below about 1.0% w. by ion exchange, and (2) incorporating zinc ions and calcining at a high temperature of about 800° C. The support can then be combined with hydrogenative metals such as Group VIII and Group VI-B, followed by drying and calcining to provide superior hydroisomerization and hydrocracking catalysts.

3,654,186

MANUFACTURE OF DEHYDROGENATION CATALYST

Kenneth D. Vesely, Arlington Heights, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Apr. 13, 1970, Ser. No. 27,989
Int. Cl. B01j 11/32

U.S. Cl. 252—465

5 Claims

A method of catalyst manufacture. Alumina, an alkali metal hydroxide and a soluble compound of chromium are prepared in aqueous slurry, the alumina being a substantially pure boehmite alumina monohydrate. The slurry is aged, spray-dried and calcined to yield a microspherical product particularly useful as a dehydrogenation catalyst in a fluidized type of operation.

3,654,187

CONDUCTIVE FILM FOR ELECTRIC HEATER

Haruo Takenaka, Nobuo Hiratsuka, and Toshiaki Okiyama, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
No Drawing. Filed Jan. 30, 1969, Ser. No. 795,343
Claims priority, application Japan, Jan. 30, 1968, 43/5,561

Int. Cl. B01f 5/00; H01b 1/06

U.S. Cl. 252—511

8 Claims

A conductive film for electric heaters containing a plastic film having a thermal softening point of higher than 100° C. and having uniformly dispersed therein 5–50% by weight based on the plastic film of a conductive material, the thickness of the film being less than 400 microns and the intrinsic volume resistance being less than 10%/cm.

3,654,188

PREPARATION OF SOLID SOLUTIONS COMPRISING A VALVE METAL DIOXIDE AND A PRECIOUS METAL DIOXIDE

James M. Kolb, Mentor, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio
No Drawing. Filed Sept. 23, 1970, Ser. No. 74,876
Int. Cl. H01b 1/08

U.S. Cl. 252—520

4 Claims

A solid solution of a valve metal dioxide and a precious metal dioxide is prepared in bulk form by compacting a mixture of a valve metal with a precious metal salt followed by careful heating in an oxidizing atmosphere.

3,654,189

METHOD OF PREPARING POLYMERIC METAL PHOSPHINATES

David L. Venezky, Fairfax County, Va., assignor to the United States of America as represented by the Secretary of the Navy
No Drawing. Continuation-in-part of application Ser. No. 658,985, Aug. 4, 1967. This application Mar. 16, 1970, Ser. No. 20,095

Int. Cl. C08g 33/16, 33/20

U.S. Cl. 260—2 P

16 Claims

A method of preparing poly(metal phosphinates) wherein a solution of a dihydrocarbon phosphinic acid in acetic anhydride is heated under reflux with a hydrous polyvalent metal nitrate or a combination of hydrous polyvalent metal nitrates and the products thereof.

3,654,190

FIRE RETARDANT INTUMESCENT PAINT

Donald Levine, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed May 28, 1970, Ser. No. 41,641

Int. Cl. C08c 17/10; C08d 13/10

U.S. Cl. 260—2.5 FP

4 Claims

Fire retardant intumescent paint comprising (1) a binder such as chlorinated natural rubber, solid vinyl-toluene/

butadiene resin and mixtures thereof; (2) fire retardant materials such as melamine, ammonium polyphosphate or tris (2,3-dibromopropyl) phosphate and dipentaerythritol or tripentaerythritol, (3) a source of chlorine and a material to provide slippage such as a chlorinated paraffin, (4) a solvent such as a 50–50 mixture of toluene and xylol, (5) an anti-settling agent, (6) a coloring agent such as titanium dioxide or a mixture of yellow oxide and black iron oxide; and (7) a surfactant.

3,654,191

CURABLE EPOXIDE COMPOSITIONS COMPRISING A POLYEPOXIDE, AN N-GLYCIDYL- OR N-β-METHYLGLYCIDYL-OXAZOLIDIN-2-ONE AND AN EPOXIDE CURING AGENT

Juergen Habermeyer, Allschwil, Hans Batzer, Arlesheim, Daniel Porret, Binningen, and Walter Kunz, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 7, 1970, Ser. No. 52,985
Claims priority, application Switzerland, July 29, 1969, 11,563/69

Int. Cl. C08g 31/14

U.S. Cl. 260—2 N

6 Claims

Curable mixtures, which are suitable for the manufacture of shaped articles, coatings and adhesive bonds, and which comprise (a) a polyepoxide compound containing at least 2 epoxide groups, (b) an unsubstituted or substituted N-glycidyl- or N-β-methylglycidyl-oxazolidin-2-one compound, and (c) a curing agent for epoxide resins, such as a polyamine or a polycarboxylic anhydride.

3,654,192

POLY(ARYLENE S-TRIAZINES)

Herward A. Vogel, Oakdale Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,743

Int. Cl. C08g 33/00

U.S. Cl. 260—2 R

21 Claims

Aromatic dinitriles, such as 4,4'-dicyanodiphenyl ether, are heated in the presence of a catalyst, such as trifluoromethane sulfonic acid or a Lewis acid catalyst, e.g., zinc chloride, to form solid polymers with a plurality of s-triazine rings linked together with arylene bridges, such polymers being useful in films, coatings, fibers, molded articles, adhesives, and sealants.

3,654,193

OPAQUE, MICROPOROUS FILM AND PROCESS FOR PREPARING THE SAME

Jerome A. Selner, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 524,923, Feb. 1, 1966. This application Jan. 13, 1970, Ser. No. 2,536

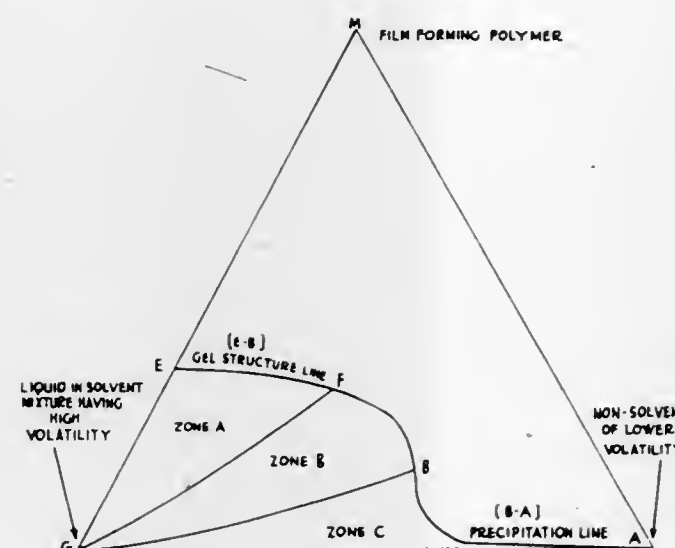
Int. Cl. C08c 1/26

U.S. Cl. 260—2.5 M

28 Claims

The disclosed invention relates to opaque films with enhanced optical properties produced by the inclusion of pigments, fluorescent materials and optical brighteners in the opaque films in such a manner as to maximize their effectiveness therein. The films of this invention, absent the above described additives, are microporous and opaque in and of themselves. Therefore, lesser amounts of the additives are necessary to obtain desired optical properties. The preparation of the films of the disclosed invention involves the mixing of a film forming polymer with a solvent mixture for the film forming polymer, whereby the solvent mixture comprises at least two miscible liquids, at least one of the liquids being a non-solvent for the polymer and having a lower volatility than that of the other liquids in the mixture. The polymer solvent mixture is then applied to a substrate and the

solvent mixture is removed as by evaporation. During the removal, a gelled film having entrapped therein the low volatility non-solvent is first formed and upon further evaporation, the non-solvent is removed, leaving behind small closed voids in its place. These voids cause the film to be opaque.



The added ingredients are included by dispersing them in the solvent mixture of the above-described process prior to the removal of the solvent mixture from the composition.

3,654,194

PROCESS FOR PRODUCING POLYOXYALKYLENE ETHER-POLYOLS FROM LIGNIN AND TANNIN AND PRODUCTS SO MADE

Daniel T. Christian, Baton Rouge, La., Melvin Look, El Cerrito, and Albert Nobell, Coloma, Calif., and Thomas S. Armstrong, Carson City, Nev., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.
No Drawing. Original application Feb. 6, 1967, Ser. No. 614,043, now Patent No. 3,546,199, dated Dec. 8, 1970. Divided and this application Apr. 27, 1970, Ser. No. 32,360

Int. Cl. C08g 22/14, 22/44

U.S. Cl. 260—2.5

3 Claims

A process for producing polyoxyalkylene ether-polyols from lignin or tannin by reacting lignin or tannin with an oxyalkylating agent thereby producing a polyoxyalkylene ether-polyol adapted to be reacted with isocyanates having at least 2 NCO groups per molecule to produce a urethane product.

3,654,195

PROCESS FOR THE PREPARATION OF POLYURETHANE FOAMS IN THE PRESENCE OF AN ORGANOPOLYSILOXANE COPOLYMER SURFACTANT

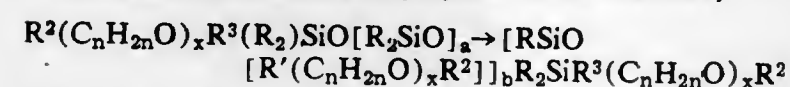
William J. Raleigh, Watervliet, N.Y., assignor to General Electric Company

No Drawing. Filed May 27, 1970, Ser. No. 41,067
Int. Cl. C08g 22/44

U.S. Cl. 260—2.5 AH

2 Claims

An organopolysiloxane copolymer of the formula,



wherein R, R² are lower monovalent hydrocarbon radicals, R' and R³ are lower divalent hydrocarbon radicals, a has a value of at least 4, b has a value of at least 1, n has a value of from 2 to 4 and x has a value of at least 5.

3,654,196

METHOD OF MAKING POLYAMIDE FOAMS

Raymond Frederick Moore and Eric Smith, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Mar. 22, 1971, Ser. No. 126,902
Claims priority, application Great Britain, Apr. 17, 1970, 18,475/70

Int. Cl. C08j 1/22

U.S. Cl. 260—2.5 N

10 Claims

Manufacture of polyamide foam by heating a polyamide to a temperature within its working range with an oxy-acid of phosphorus, preferably orthophosphoric acid, and a metal salt of a carboxylic acid, the salt being stable at the heating temperature but the free carboxylic acid being one which decarboxylates at the heating temperature, particularly a 2 to 6 C acid with a carboxylic group activated by a keto group or a carboxylic acid or ester group. Sodium or potassium oxalate is preferred.

3,654,197

SULPHUR-CROSSLINKABLE MOLDED SUBSTANCES

Friedrich Seifert, Marl, and Josef Blitscheldt, Datteln, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed May 25, 1970, Ser. No. 40,409
Claims priority, application Germany, July 24, 1969, P 19 37 587.2

Int. Cl. C08c 9/14; C08d 9/08

U.S. Cl. 260—4 R

3 Claims

Molded substances having improved cold-resistance and being unreactive to stress cracking are formed from mixtures of partly crystalline, partly amorphous, polymers together with small but significant amounts of sulphur-vulcanizable unsaturated rubber and sulphur, with or without an accelerator of vulcanization.

3,654,198

NON-CRATERING FUSIBLE POLYESTER-CELLULOSE ESTER COATING COMPOSITION

James D. Hood and James G. Stranch, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Filed June 29, 1970, Ser. No. 50,928

Int. Cl. C08b 21/08; C03c 17/28; C08g 51/36

U.S. Cl. 260—16

22 Claims

A polyester coating composition including a linear polyester such as poly(1,4-cyclohexanedimethylene-50 mole percent terephthalate-50 mole percent isophthalate), cellulose acetate butyrate, and optionally a plasticizer such as di-2-ethylhexyl phthalate, a stabilizer such as dilauryl 3,3'-thiodipropionate, dyes and/or pigments, a linear bisphenolic polyester. The coating can be applied to a heatable substrate in powder form and caused to fuse by application of heat in the range of 375° F. to 500° F. producing a smooth, non-cratered surface.

3,654,199

GRANULATED CORK AND CALCINED FOSSIL SILICA FILLER HOT TOP MATERIAL

Jean Bourette, 2 Impasse de la Voumonnaie, Dreux, France

No Drawing. Continuation-in-part of application Ser. No. 718,257, Apr. 2, 1968. This application Apr. 24, 1970, Ser. No. 31,729

Int. Cl. C08b 27/04, 27/20; C08f 45/04, 45/20

U.S. Cl. 260—17.2

6 Claims

The invention relates to a hot top or sprue plate material for ingot molds. The composition comprises calcined fossil silica filler mixed with granulated cork and agglomerated by means of a synthetic thermoplastic and/or thermosetting resin.

3,654,200

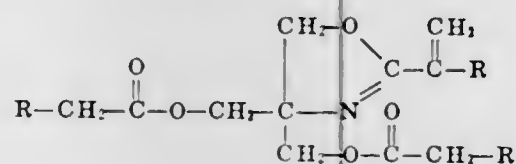
DIMETHYLOLAMIDE MODIFIED BARK ALKALI PRODUCT AND METHOD OF MAKING SAME
 Tsong-Han Hsu, Brewster, N.Y., assignor to U.S. Plywood-Champion Papers Inc., Hamilton, Ohio
 No Drawing. Filed July 9, 1970, Ser. No. 53,650
 Int. Cl. C08b 15/06; C08g 51/18

U.S. Cl. 260—17.2 19 Claims
 A bark alkali product made from whole bark is modified with dimethylurea to make a thermosettable resin useful as a plywood adhesive in a method wherein coniferous tree bark is comminuted, then cooked at 90–100° C. in an aqueous sodium hydroxide solution until a predetermined formaldehyde reactivity is reached thus yielding a liquid bark alkali. The liquid bark alkali, which contains the whole bark constituents without separating into selected fractions is then modified or reacted with a dimethylolamide of a dibasic acid such as dimethylolurea at 60–75° C. to produce the modified alkali bark product of the invention which is useful as a plywood adhesive, has water resistance, can be used as a direct substitute for phenol-formaldehyde up to about 65% in adhesive formulae, and can be fused or cured by exposing the product or plywood layers containing it to sufficient heat.

3,654,201

POLYMERIC DISPERSIONS STABILIZED BY VINYL OXAZOLINE POLYMERS
 Said K. Mansour and John W. Rehfsuss, Valley Station, Ky., assignors to Celanese Coatings Company, New York, N.Y.
 No Drawing. Filed Jan. 19, 1970, Ser. No. 4,132
 Int. Cl. C08f 45/44

U.S. Cl. 260—23 12 Claims
 Novel synthetic polymeric dispersions comprising an organic liquid medium, a dispersed polymer of ethylenically unsaturated monomers and a polymeric stabilizer of monomers of the general formula:



are prepared. In this dispersion the stabilizer is at least swollen by the organic liquid medium while the dispersed polymer is substantially insoluble in this medium. These dispersions are useful especially in their pigmented form in preparing protective coatings for various substrata.

3,654,202

POLYETHYLENE FILLED WITH TREATED CHRYSOTILE
 Elio Eusebi, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.
 No Drawing. Original application Mar. 21, 1968, Ser. No. 714,798. Divided and this application July 27, 1970, Ser. No. 58,702
 Int. Cl. C08f 19/14, 21/04

U.S. Cl. 260—23 H 3 Claims
 The reacting of chrysotile with a suitable higher unsaturated fatty acid provides an improved filler material for certain synthetic resins. In a preferred form of the invention this improved filler is prepared by reacting chrysotile fibers with the sodium salt of an unsaturated higher fatty acid in an aqueous solution thereof. The treated chrysotile may then be incorporated into a synthetic resin such as a polyethylene under conditions whereby the resin is chemically combined with the unsaturated fatty acid moiety of the filler thereby providing

a filled plastic having improved tensile and flexural properties.

3,654,203

PROCESS FOR PRODUCING AND NOVEL WATER-SOLUBLE SYNTHETIC RESINS
 Wolfgang Daimer and Heinrich Lackner, Graz, Austria, assignors to Vianova Kunstharz Aktiengesellschaft, Vienna, Austria
 No Drawing. Filed Apr. 21, 1969, Ser. No. 818,062
 Claims priority, application Austria, May 2, 1968, A 4,216/68
 Int. Cl. C08f 27/00, 47/16

U.S. Cl. 260—19 UA 18 Claims
 Water-soluble synthetic resins are described comprising addition products of (1) polymers of dienes having a molecular weight of from 200 to 20,000; and (2) unsaturated carboxylic acids having at least 6 carbon atoms. The resins are substantially free of hydrolyzable groups and have an acid value of at least 40 mg. KOH/g. The resins are highly stable and have a low viscosity permitting the preparation of high solids protective coating compositions.

3,654,204

5-HYDROXY - 2-(SUBSTITUTED)THIENO[2,3-d]PYRIMIDINE-6-CARBOXYLIC ACID DERIVATIVES
 Dong H. Kim, Wayne, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
 No Drawing. Filed Nov. 4, 1969, Ser. No. 874,033
 Int. Cl. C07d 51/46

U.S. Cl. 260—251 A 5 Claims
 5-hydroxy - 2 - (substituted)thieno[2,3-d]pyrimidine-6-carboxylic acid derivatives (I) useful as CNS depressants in the calming of animals are disclosed as well as methods of synthesizing the compounds (I) by contacting a pyrimidine (IV) with a strong base. The CNS depressant compound 5-hydroxy-2-phenylthieno[2,3-d]pyrimidine-6-carboxanilide is produced by refluxing 2-phenyl-4-[(phenylcarbamoyl)methylthio] - 5 - pyrimidinecarboxylic acid, ethyl ester with sodium in 2-ethoxyethanol.

3,654,205

5-HYDROXY-2-SUBSTITUTED-FURO[2,3-d]PYRIMIDINE-6-CARBOXYLIC ACID, ESTERS
 Dong H. Kim, Wayne, and Arthur A. Santilli, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.
 No Drawing. Filed Nov. 4, 1969, Ser. No. 874,054
 Int. Cl. C07d 51/46

U.S. Cl. 260—251 A 3 Claims
 5 - hydroxy - 2 - substituted-furo[2,3-d]pyrimidine-6-carboxylic acid, esters (I) useful as CNS depressants in the calming of animals are disclosed as well as methods of synthesizing the compounds (I) by contacting a pyrimidine (III) with an alkali metal hydride. The CNS depressant compound 5-hydroxy-2-phenylfuro[2,3-d]pyrimidine-6-carboxylic acid, methyl ester is produced by refluxing 4 - carboxymethoxy-2-phenyl-5-pyridinecarboxylic acid, 5-ethyl ester, 4-methyl ester with sodium hydride in tetrahydrofuran.

3,654,206

ALKOXYLATED PHOSPHATE ESTERS AS LEVELING AGENTS IN FLOOR POLISHES
 Harry Kroll, Warwick, Alder R. Therrien, Woonsocket, and Americo L. Forchielli, Cumberland, R.I., assignors to Philip A. Hunt Chemical Corporation, Palsades Park, N.J.
 No Drawing. Filed Feb. 26, 1971, Ser. No. 119,341
 Int. Cl. C08d 9/12; C08c 11/70

U.S. Cl. 260—27 11 Claims
 Emulsion floor polish compositions comprising aqueous emulsions of water insoluble polymers, waxes and am-

3,654,210

AQUEOUS POLYMER DISPERSIONS ON THE BASIS OF POLYTETRA-FLUOROETHYLENE

Jurgen Kuhls and Helmut Hahn, Burghausen, Salzach, and Alfred Steininger, Thalhausen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed July 28, 1969, Ser. No. 845,504
 Claims priority, application Germany, Aug. 7, 1968, P 17 95 078.6
 Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 F 12 Claims
 The present invention relates to aqueous dispersions of polymers on the basis of polytetrafluoroethylene. The polymeric particles have an average diameter of 0.2 to 0.5 μ and consist of a core made from 90–99% by weight of tetrafluoroethylene and 1–10% by weight of certain halogen containing comonomers and a shell of tetrafluoroethylene homopolymer. This polymeric material has improved properties for paste extrusion processes.

3,654,207

BLOCK-RESISTANT HEAT SEALABLE WAX COMPOSITION

Karekin G. Arabian, Walnut Creek, and Arvid K. Leary, Union City, Calif., assignors to Shell Oil Company, New York, N.Y.
 No Drawing. Filed July 22, 1970, Ser. No. 57,365
 Int. Cl. C08f 45/52

U.S. Cl. 260—28.5 AV 1 Claim
 A heat-sealable wax composition having improved resistance to blocking immediately after application contains wax, two ethylene-vinyl acetate copolymers and an ethylene-vinyl acetate-acrylic acid terpolymer.

3,654,208

METHOD OF REDUCING THE ANTIFREEZE CONCENTRATION IN EMULSIONS OF VINYL CHLORIDE POLYMERS

Graham John Blake, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
 No Drawing. Filed Apr. 17, 1970, Ser. No. 29,694
 Claims priority, application Great Britain, Apr. 23, 1969, 20,805/69
 Int. Cl. C08f 3/30

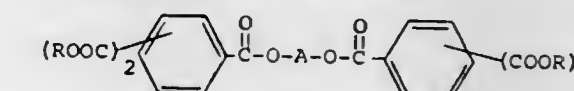
U.S. Cl. 260—29.6 ME 7 Claims
 A process for improving the stability of an emulsion of vinyl chloride polymer which has been prepared at a temperature below 0° C. in an aqueous medium containing sufficient antifreeze to maintain the polymerization medium liquid at the polymerization temperature which comprises reducing the concentration of the antifreeze in the emulsion preferably by subjecting the emulsion to the dialysis through a membrane permeable to antifreeze and water.

3,654,211

ALKYLENE BIS-DIALKYL AROMATIC TRICARBOXYLATE PLASTICIZERS

John Thomas Lutz, Jr., Cornwells Heights, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
 No Drawing. Filed Apr. 7, 1970, Ser. No. 26,395
 Int. Cl. C08f 45/36

U.S. Cl. 260—31.6 18 Claims
 Plasticizing of vinyl chloride polymers with tricarboxylic acid esters having the formula:



where R is an alkyl hydrocarbon having 4 to 13 carbon atoms, and A is the residue of an alkylene or alicyclic glycol having 2 to 10 carbon atoms or of a polyalkylene ether glycol having 4 to 8 carbon atoms. The esters are produced by the esterification of an aromatic tricarboxylic acid or acid anhydride with one of the above glycols and then with an alcohol, or with the glycol and alcohol at the same time.

3,654,212

PROCESSING AIDS FOR POLYMERS CONTAINING LACTONES

Roy F. Wright, Bartlesville, Okla., assignor to Phillips Petroleum Company
 No Drawing. Filed Dec. 10, 1969, Ser. No. 883,987
 Int. Cl. C08f 43/00, 45/44

U.S. Cl. 260—32.6 A 10 Claims
 Polyamines and carbamic acid inner salts of polyamines provide improved processability for polymers containing lactones.

3,654,213

ALIPHATIC HYDROCARBON-COMPATIBLE PRESSURE-SENSITIVE ADHESIVE

Roger M. Christenson and Carl C. Anderson, Gibsonsia, Pa., assignors to National Starch and Chemical Corporation, New York, N.Y.
 No Drawing. Filed May 27, 1968, Ser. No. 732,088
 Int. Cl. C08f 37/04, 45/28

U.S. Cl. 260—33.6 UA 10 Claims
 Normally tacky pressure-sensitive adhesives based on interpolymers of vinyl esters and alkyl acrylates and which are compatible with liquid aliphatic hydrocarbon solvents such as hexane, are provided by including as at least a portion of the vinyl ester component a vinyl ester of a

tertiary alkanolic acid, the vinyl ester having 10 to 13 carbon atoms. Preferred interpolymers also contain a vinyl ester of a non-tertiary alkanolic acid and a small amount of interpolymerized ethylenically unsaturated carboxylic acid. These interpolymers can be dissolved at high solids content in organic solvents which contain a substantial proportion of liquid aliphatic hydrocarbon.

3,654,214

DISUBSTITUTED UREAS AND THOUREAS AS STABILIZERS FOR OIL-EXTENDED UNVULCANIZED BUTADIENE-STYRENE COPOLYMERS
Joseph A. Beckman, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio
No Drawing. Filed Aug. 8, 1969, Ser. No. 848,733
Int. Cl. C08f 45/60

U.S. Cl. 260—33.6 AQ 9 Claims
An unvulcanized rubbery copolymer of butadiene and styrene, whether or not interconnected, is stabilized by a urea or thiourea in which one of the nitrogen groups is substituted by an aryl group and the other is substituted by either an aryl group or an aliphatic group.

3,654,215

FILLER CROSS-LINKED POLYSILOXANES

John C. Goossens, Scotia, N.Y., assignor to General Electric Company
No Drawing. Filed Dec. 26, 1967, Ser. No. 693,074
Int. Cl. C08g 51/04

U.S. Cl. 260—37 SB 8 Claims
Polysiloxane chains are cross-linked through filler particles. The cross-linked polysiloxanes are prepared by reacting SiH-containing polysiloxane chains with silanol-containing filler in the presence of a platinum-containing catalyst. The compositions of the present invention are useful as an elastic interlayer between glass panes in a safety glass laminate.

3,654,216

HIGH STRENGTH FLUOROCARBON ELASTOMER COMPOSITIONS

Kermon Murray, Enon, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
No Drawing. Filed Feb. 25, 1970, Ser. No. 14,188
Int. Cl. C08f 15/08

U.S. Cl. 260—41 B 6 Claims
A high strength fluorocarbon elastomer composition is prepared by curing a mixture comprising (1) a copolymer of hexafluoropropylene and vinylidene fluoride, (2) magnesium oxide, (3) N-(4-carboxyphenyl)maleimide, and (4) benzoyl peroxide. The vulcanizates are useful in the fabrication of seals, O-rings, hose, tires, vibration damping devices, and the like.

3,654,217

POLYMERIC THERMOPLASTIC COMPOSITIONS BASED ON POST-CHLORINATED POLYVINYL-CHLORIDE HAVING IMPROVED WORKABILITY AND IMPACT RESISTANCE

Egidio Cerri, Mestre, Italy, assignor to Montecatini-Edison S.p.A., Milan, Italy
No Drawing. Filed June 20, 1967, Ser. No. 647,310
Claims priority, application Italy, June 23, 1966, 14,336/66

U.S. Cl. 260—41 10 Claims
A composition of matter comprising: (a) at least one member selected from the group consisting of a chlorinated polymer of vinyl chloride and a chlorinated copolymer of vinyl chloride, (b) at least one graft copolymer of

a halogenated polyolefin and a member selected from the group consisting of a polymer of vinyl chloride and a copolymer of vinyl chloride, and (c) at least one mineral filler.

3,654,218

PROCESS OF FORMING AN ELASTOMER-CARBON BLACK MIXTURE

Willi Clas, Wesseling, and Wolfgang Buchel, Wesseling-Berzdorf, Germany, assignors to Deutsche Gold- und Silber-Scheldeanstalt vormals Roessler, Frankfurt am Main, Germany
No Drawing. Filed Aug. 22, 1969, Ser. No. 852,475
Claims priority, application Germany, Aug. 24, 1968, P 17 95 222.6

U.S. Cl. 260—41.5 6 Claims
A rubber latex is coagulated in the presence of an aqueous dispersion of finely divided carbon black, the dispersion being formed at a pH of 1 to 2. The coagulate may then be subjected to washing, filtering and drying and the thus-formed granulate may subsequently be subjected to a grinding step. The granulate has substantially no tendency to cake without the necessity of adding additional separating agents.

3,654,219

NOVEL FIBER GLASS-REINFORCED RESIN COMPOSITIONS AND PROCESSES FOR THEIR PREPARATION

William M. Boyer, 514 S. Roosevelt Drive 47714, and Kiyoshi Hattori, 1110 Harrelton Court 47715, both of Evansville, Ind.
No Drawing. Filed June 19, 1968, Ser. No. 738,112
Int. Cl. C08f 45/10

U.S. Cl. 260—41.5 5 Claims
Novel fiber glass reinforced resin compositions which comprise blends of glass fiber reinforced resin concentrates with unreinforced resins and processes therefor, particularly a process of blending glass fiber reinforced thermoplastic resin concentrates with thermoplastic resins, the glass-fiber containing resin being dissimilar from the unreinforced blending resin, said dissimilar resin comprising from 5 to about 30 percent by weight of the composition.

3,654,220

STABILIZED POLYOLEFIN COMPOSITIONS

Henryk A. Cyba, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Continuation-in-part of application Ser. No. 750,483, Aug. 6, 1968. This application May 1, 1970, Ser. No. 33,992

U.S. Cl. 260—45.9 R 8 Claims
Polymeric composition containing an N,N-di-(hydrocarbyloxyalkyl)-hydrocarbylamine. In one embodiment the compound serves as a curing catalyst for curable polymeric compositions. In another embodiment the compound serves as a stabilizer to retard deterioration due to oxidation, UV absorption or thermal effects.

3,654,221

PROCESS FOR PRODUCING COLOR STABLE AND ODOR-FREE HETEROCYCLIC NITROGEN COMPOUND CONTAINING POLYMERS

Albert H. Greer, Haddonfield, N.J., assignor to Sybron Corporation, Rochester, N.Y.
No Drawing. Filed Dec. 30, 1968, Ser. No. 788,059
Int. Cl. C08f 7/12, 45/60

U.S. Cl. 260—45.9 R 9 Claims
A color stable, odor-free polymer is produced from monomers including polymerizable heterocyclic nitrogen compounds by reacting an aqueous dispersion of

3,654,225

PROCESS FOR THE PREPARATION OF POLY-ETHYLENE 1,2 - DIPHENOXYETHANE-4,4'-DICARBOXYLATE USING A MANGANESE COMPOUND AS AN ESTER INTERCHANGE CATALYST AND AMORPHOUS GERMANIUM DIOXIDE AS A CONDENSATION CATALYST

Hidehiko Kobayashi and Kichiro Sasaguri, Tokyo, Hiroshi Komoto, Saitama, and Sukeo Kawashima, Tokyo, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Kita-ku, Osaka, Japan

No Drawing. Filed May 26, 1969, Ser. No. 827,990
Claims priority, application Japan, June 1, 1968, 43/37,135

U.S. Cl. 260—47 C 4 Claims
Int. Cl. C08g 17/013, 17/015

This invention discloses a process for the preparation of polyethylene 1,2 - diphenoxymethane - 4,4' - dicarboxylate which comprises reacting 1,2 - bis(p - carbomethoxyphenoxy) ethane with ethylene glycol in the presence of a manganese compound to effect an ester interchange reaction, said 1,2 - bis(p - carbomethoxyphenoxy) ethane being purified to have an acid value of 0.03 or less, subsequently adding a phosphorus compound to the reaction system to extinguish the polymerization catalytic activity of said manganese compound while controlling the concentration of ethylene glycol in the reaction system to 40% by weight or less, and thereafter effecting a polycondensation reaction in the presence of amorphous germanium dioxide. In accordance with the present invention, there can be obtained polyethylene; 1, 2-diphenoxymethane - 4,4' - dicarboxylate which is excellent in whiteness, transparency and thermal stability and low in crystallization velocity, and which is free from coloration when molded or spun and heated.

3,654,222

NOVEL ORGANOTIN STABILIZER COMPOSITIONS AND RESIN COMPOSITIONS STABILIZED THEREWITH

Christian H. Stapfer, Newtown, Pa., and Ashok C. Shah, Flemington, N.J., assignors to Cincinatti Milacron Chemicals Inc., Reading, Ohio

No Drawing. Filed Nov. 21, 1969, Ser. No. 878,950
Int. Cl. C08g 45/62

U.S. Cl. 260—45.75 K 17 Claims

Halogen-containing polymers such as polyvinyl chloride are stabilized against degradation caused by heat, oxidation and light by (means of) a combination of an alkyltin carboxylate and a monoalkyltin sulfide. Optionally, an alkyl substituted phenol may be included.

3,654,223

POLYMERIZATION OF POLYAMIDES IN THE PRESENCE OF AQUEOUS DISPERSIONS OF PHENOLIC ANTIOXIDANTS

Douglas Hogg Thomson, Manchester, England, assignor to Imperial Chemical Industries Limited, London, England

No Drawing. Filed June 6, 1969, Ser. No. 831,233
Claims priority, application Great Britain, June 18, 1968, 29,019/68

U.S. Cl. 260—45.95 6 Claims
Int. Cl. C08g 20/08, 51/58

Phenols which are substantially insoluble in water, especially sterically hindered and polynuclear phenols with antioxidant properties, are brought into stable aqueous dispersion by agitating with water and a surface active compound containing a quaternary ammonium group. Addition of the dispersions to polymer-forming ingredients followed by polymerisation, especially in the case of polyamides, is a useful method of incorporating the phenols in polymers.

3,654,224

HYDROXYL OR THIOL TERMINATED TELOMERIC ETHERS

Jack Milgrom, Concord, Mass., assignor to the General Tire & Rubber Company

No Drawing. Filed Oct. 20, 1967, Ser. No. 676,712
Int. Cl. C07c 69/60, 69/80

U.S. Cl. 260—475 P 15 Claims
Hydroxyl or thiol terminated alkylene ether telomers varying from liquids to thermoplastic solids and composed of one or more telomer moieties from a cyclic ether taxogen joined through a carbon atom to a telogen moiety are prepared by telomerization of a cyclic ether monomer with a telogen in the presence of a catalyst of the double metal cyanide complex class. As a specific example, a hydroxyl terminated diester of the formula:

HO-(CH₂-CH₂-O)_n-C(=O)-CH=CH-C(=O)-(O-CH₂-CH₂-O)_m-OH

may be prepared by teleomerization of propylene oxide with maleic acid using a zinc hexacyanocobaltate dioxane complex as the telomerization catalyst.

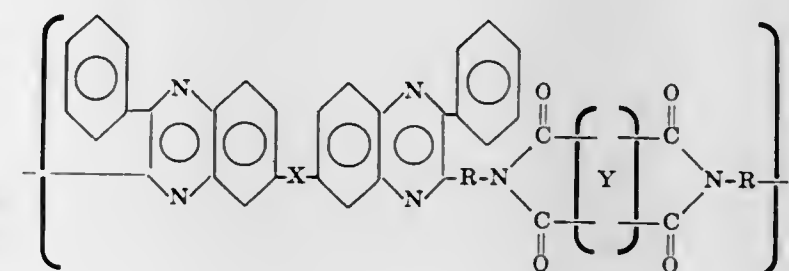
3,654,226

SOLUBLE IMIDE-QUINOXALINE COPOLYMERS

Joseph M. Augl, Sterling, Va., and James V. Duffy, Beltsville, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 26, 1971, Ser. No. 128,524
Int. Cl. C08g 33/02

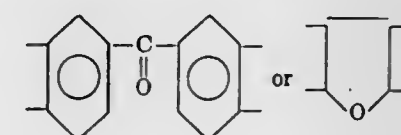
U.S. Cl. 260—50 10 Claims
Phenylated imide quinoxaline co-polymers consisting essentially of units of the formula



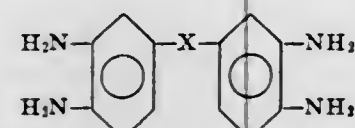
wherein X is a direct bond,

O, S, SO, SO₂ or —C—
||
O

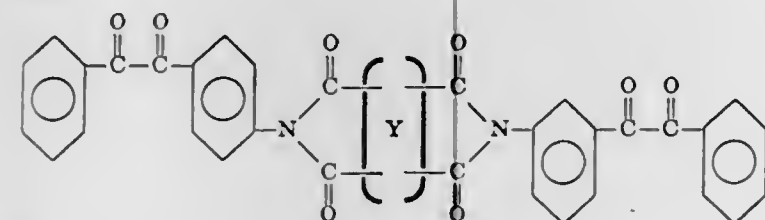
R is m or p-phenylene and Y is



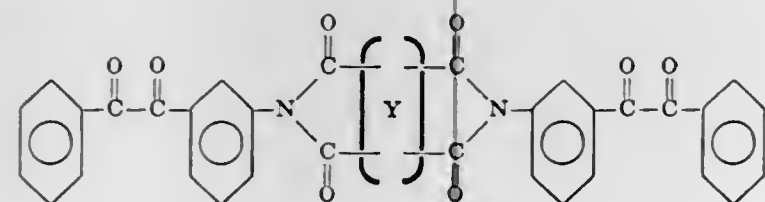
which are useful as coatings for fibers, graphite precursors, films and laminating materials are prepared by contacting



with



or



3,654,227

MANUFACTURE OF AROMATIC POLYIMIDES AND PROCESS FOR PREPARATION OF REINFORCED POLYMER ARTICLE FROM SAID POLYIMIDES

Raymond Anthony Dine-Hart, Farnborough, England, assignor to National Research Development Corporation, London, England

No Drawing. Filed Apr. 12, 1968, Ser. No. 721,093
Claims priority, application Great Britain, Apr. 13, 1967, 17,116/67; Dec. 1, 1967, 54,823/67
Int. Cl. C08g 20/32

U.S. Cl. 260—37 N

17 Claims

A process for the manufacture of aromatic polyimides is provided and comprises fusing an aromatic tetracarboxylic acid dianhydride, or derivative thereof, with a diorganocarbonyl derivative of an aromatic diamine whereby carboxylic acids or related simple organic compounds are eliminated and aromatic polyimides are obtained without the necessity of passing through the polyamic acid stage.

Preferably the dianhydride is fused with the diacetyl derivative of the relevant diamine and by control of the reaction conditions and product of the process may be either a generally insoluble and infusible polyimide or a soluble, fusible polymer which may be molded to produce an insoluble and infusible polyimide by further heat or may be used in the manufacture of composite by conventional methods; for example by impregnation in a fiber reinforcing material in solution, removal of the solvent followed by molding under heat and pressure and post cure.

3,654,228

PROCESS FOR THE PREPARATION OF POLYOXYMETHYLENE

Shin'ichi Ishida, Tokyo, Noboru Ohshima, Saltama-ken, Norimasa Fujita and Kyoichiro Mori, Kanagawa-ken, Kunio Kurita and Hayashi Ohki, Tokyo, Kunio Sato, Kanagawa-ken, Kazuo Nagamatsu, Tokyo, and Akira Tokushige, Kanagawa-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sept. 10, 1969, Ser. No. 856,741
Claims priority, application Japan, Sept. 11, 1968, 43/65,106, 43/65,107
Int. Cl. C08g 1/02

U.S. Cl. 260—67 FP

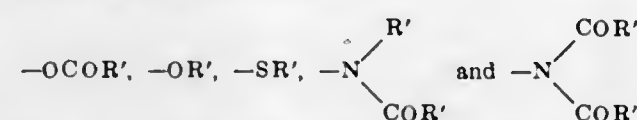
9 Claims

Process for polymerizing formaldehyde which comprises blowing a gas stream comprising gaseous formalde-

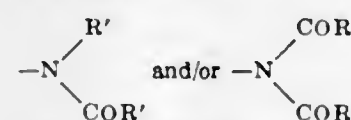
hyde into a liquid polymerization medium below the liquid level thereof in such a depth that no unreacted gas appears above the liquid level, said polymerization medium containing a catalyst selected from the group consisting of (1) tetravalent organotin compounds of the general formula,



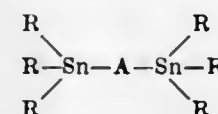
wherein m is an integer of from 1 to 3, R which may be the same or different represents alkyl, alkenyl, aryl and aralkyl groups having from 1 to 20 carbon atoms, whose one or more hydrogen atoms may be substituted by a member selected from the group consisting of hydroxy, carbonyl, ester, nitro, cyano, ether groups and halogen, and Y which may be the same or different represents groups of the general formulae,



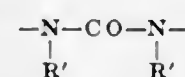
wherein R' has the same meaning as R defined above, however, when Y is the group



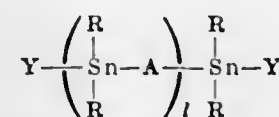
m is not 1, (2) tetravalent organotin compounds of the general formula,



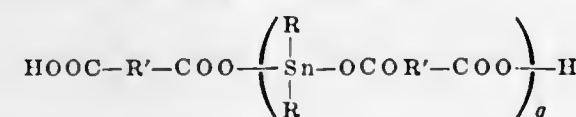
wherein R which may be the same or different represents alkyl, alkenyl, aryl and aralkyl groups having from 1 to 20 carbon atoms, whose one or more hydrogen atoms may be substituted by a member selected from the group consisting of hydroxy, carbonyl, ester, nitro, cyano and ether groups and halogen, and A represents a member selected from the group consisting of oxygen, sulfur atom and a group of the formula,



wherein R' has the same meaning as R defined above, (3) tetravalent organotin compounds of the general formula,

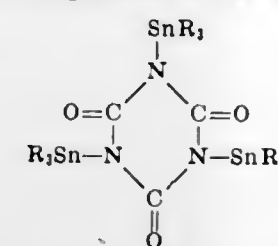


wherein l is an integer of from 1 to 100, R which may be the same or different represents alkyl, alkenyl, aryl and aralkyl groups having from 1 to 20 carbon atoms, whose one or more hydrogen atoms may be substituted by a member selected from the group consisting of hydroxy, carbonyl, ester, nitro, cyano and ether groups and halogen, and A represents a member selected from the group consisting of oxygen, sulfur atom and groups of the formulae, $-OCOR'$, $-OR'$, and SR' wherein R' has the same meaning as R defined above, (4) tetravalent organotin compounds of the formula,



wherein q is an integer of from 1 to 50, R which may be the same or different represents alkyl, alkenyl, aryl and aralkyl groups having from 1 to 20 carbon atoms, whose one or more hydrogen atoms may be substituted by a member selected from the group consisting of hydroxy, carbonyl, ester, ether, nitro and cyano groups and halogen, and R' represents alkylene, alkenylene and arylene

groups having from 1 to 15 carbon atoms, and (5) tetravalent organotin compounds of the formula,



wherein R which may be the same or different represents alkyl, aryl, alkenyl and aralkyl groups having from 1 to 20 carbon atoms, whose one or more hydrogen atoms may be substituted by a member selected from the group consisting of hydroxy, carbonyl, nitro, cyano and ether groups and halogen.

3,654,229

BAKING ENAMEL VEHICLE COMPRISING THE REACTION PRODUCT OF AN OXAZOLINE WITH MELAMINE AND FORMALDEHYDE

Jerry Hoyt Hunsucker, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y.
No Drawing. Filed May 12, 1970, Ser. No. 36,680
Int. Cl. C08g 9/24, 9/30

U.S. Cl. 260—67.6 R

23 Claims

An improved vehicle for the formulation of baking enamels obtained by reacting an oxazoline with a member selected from the group consisting of formaldehyde, melamine, hexamethoxymethylmelamine, urea, urea-formaldehyde resin, dimethylolpropionic acid, and phenol or mixtures thereof.

3,654,230

POLYMERIC COMPOSITIONS

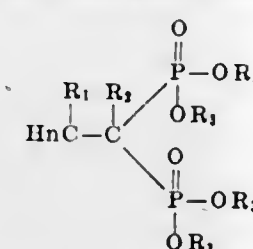
Al F. Kerst, Littleton, Colo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Apr. 13, 1970, Ser. No. 28,031
Int. Cl. C08f 45/54; C08g 22/16, 51/54

U.S. Cl. 260—75 NR

14 Claims

A polymer comprising a reactive hydrogen containing material such as polyurethane, copolymerized with an ethane diphosphonate having the formula



wherein R_1 and R_2 are hereinafter defined, R_3 is hydrogen or an organic radical, and n is an integer having a value of 1 or 2.

3,654,231

MANUFACTURE OF EXTRUDED SUPER-POLYESTER PRODUCTS

Carl T. Brozek, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 29, 1970, Ser. No. 50,768

Int. Cl. C08g 17/003

U.S. Cl. 260—75 M

6 Claims

In a process for polymerizing and extruding polyester film or other products comprising the steps of:

- in a prepolymer build-up step performed in a separate apparatus, polymerizing prepolymer to a polymer having a product inherent viscosity above about 0.7; and
 - extruding the polymer to finished form;
- the present invention provides the improvement which comprises eliminating the separate, polymer build-up step in a separate apparatus by (1) introducing a polyfunc-

tional polyol cross-linking agent into the prepolymer, and (2) providing a mechanical energy input of from about 15 to about 150 ft./lbs./sec. per pound of the polyester material in the mixing stage of the extrusion apparatus thereby permitting polymer formation and attainment of product inherent viscosity in a single and continuous extrusion step with very little, if any, adverse affect on the tensile or other physical properties of the extruded material. Otherwise, conventional extrusion conditions including time and temperature are used to accomplish polymerization and extrusion in a single continuous operation without the need for a separate and distinct polymer build-up step for purposes of attaining product inherent viscosity prior to extrusion.

3,654,232

SURFACE BROMINATED FIBERS COMPRISED OF POLY(1,4 - CYCLOHEXYLENE-DIMETHYLENE TEREPHTHALATE)

Winston J. Jackson, Jr., and John R. Caldwell, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Feb. 5, 1971, Ser. No. 113,029
Int. Cl. C08g 53/20

U.S. Cl. 260—75 T

4 Claims

Fibers comprised of poly(1,4-cyclohexylenedimethylene terephthalate) having improved resistance to burning are prepared by contacting the fiber with a brominating agent in the presence of a chlorinating agent, and the sum of bromine and chlorine on the surface of the fiber is at least four percent of the weight of the fiber and the toughness of the fiber is reduced not more than 20 percent, based on the toughness of the fiber before contacting the fiber.

3,654,233

PROCESS FOR THE MANUFACTURE OF LINEAR POLYESTERS USING METAL GERMANATES AND METAL GLYCOL GERMANATES AS THE CATALYST

Christian Kosel, Bobingen, and Adolf Hartmann, Gessertshausen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Apr. 29, 1968, Ser. No. 725,153
Claims priority, application Germany, May 5, 1967, F 52,329

Int. Cl. C08g 17/13

U.S. Cl. 260—75 R

4 Claims

Manufacturer of linear polyesters by an ester-interchange between dicarboxylic acid esters of low molecular weight aliphatic alcohols and diols and subsequent polycondensation of the bis-diol esters in the presence of metal germanates and metal glycol germanates as compounds catalyzing both the ester-interchange and the polycondensation.

3,654,234

PROCESS FOR PREPARATION OF POLYESTERS OF DICARBOXYLIC ACIDS AND GLYCOLS IN THE PRESENCE OF CRYSTALLINE GERMANATE CATALYSTS

Lambert Gaston Jeurissen, Edegem, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Filed July 1, 1969, Ser. No. 838,347
Claims priority, application Great Britain, Nov. 29, 1968, 56,896/68

Int. Cl. C08g 17/15

U.S. Cl. 260—75 R

9 Claims

An improved catalyst for the polycondensation of a glycol dicarboxylate and the process for the preparation of film-forming polyesters by the polycondensation of a dicarboxylate in the presence of said catalyst are described. The catalyst is a trihydrogen germanate (IV) of an alkali metal, an alkaline earth metal, or an ammonium group. The film-forming polyester made by the process utilizing

said catalyst has improved physical properties including color and stability.

3,654,235

ANTISTATIC POLYCARBONAMIDE FILAMENTS
Lawrence W. Crovatt, Jr., Gulf Breeze, and Dennis J. Durant, Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

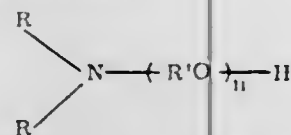
No Drawing. Filed May 11, 1970, Ser. No. 36,451

Int. Cl. C08g 20/38

U.S. Cl. 260—78 S

11 Claims

Synthetic melt-spun polyamide filaments are provided having uniformly admixed therein, as a separate phase, from about 1% to about 15% by weight of the polyamide of an amine of the structure



wherein each R is an alkyl group, R' is an alkylene group and n is an integer of at least 15. Yarns, fibers and fabrics made from these filaments possess permanent antistatic properties, even after numerous launderings.

3,654,236

TERPOLYAMIDES

James S. Ridgway, Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 758,687, Sept. 10, 1968. This application Sept. 15, 1970, Ser. No. 72,529

Int. Cl. C08g 20/20

U.S. Cl. 260—78 R

10 Claims

High shrinkage polymers useful in production of hosiery and crimped conjugate yarns are provided by linear terpolyamides of at least one aliphatic diamine such as hexamethylene diamine, at least one aliphatic dicarboxylic acid such as adipic acid, at least one benzene dicarboxylic acid such as terephthalic acid and at least one diphenyl-substituted aliphatic dicarboxylic acid such as α,α' -diphenyladipic acid.

3,654,237

ALIPHATIC ACID SULFONATE MODIFIED POLYAMIDES

Christian Kosel, Bobingen, Adolf Hartmann, Gessertshausen, and Gerhard Gatys, Bobingen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed July 7, 1969, Ser. No. 839,661
Claims priority, application Germany, July 11, 1968, P 17 70 863.3

Int. Cl. C08g 20/38

U.S. Cl. 260—78 R

4 Claims

Usual polyamide-forming starting substances are condensed in the presence of aliphatic sulfonates or sulfonate esters to obtain polyamides having a particularly good dye affinity.

3,654,238

PROCESS FOR THE PREPARATION OF POLYAMIDE-SULPHOXIDE

Sebastiaan E. M. Kooijman, Geleen, and Jozef A. Thoma, Sittard, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Continuation-in-part of application Ser. No. 647,906, June 22, 1967. This application July 14, 1969, Ser. No. 841,598

Claims priority, application Netherlands, July 12, 1968, 6809969

Int. Cl. C08g 20/38

U.S. Cl. 260—78 A

6 Claims

Polyamide sulphoxides are prepared by oxidizing polyamides composed of monomer units having the formula

$[-NH-CO-(CH_2)_2-S-(CH_2)_3-]$ with an aqueous solution of hydrogen peroxide at about room temperature. Polyamide articles which have been treated according to the process of the present invention have been found to have substantially reduced surface charge.

3,654,239

PROCESS FOR THE PREPARATION OF POLY-(α -CYANOACRYLATES)

John M. McIntire and Thomas H. Wicker, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 729,905, May 17, 1968. This application Nov. 20, 1970, Ser. No. 91,539

Int. Cl. C08f 1/11, 3/74

U.S. Cl. 260—78.4 N

10 Claims

Process for preparing a poly(α -cyanoacrylate) comprising polymerizing a monomer employing a free radical or anionic catalyst and using a solvent having a solubility parameter of about 6.9 to about 9.0 and dielectric constant of less than about 10, whereby the polymer separates from the solvent during polymerization. These poly(α -cyanoacrylates) are useful as viscosity modifiers in α -cyanoacrylate adhesive compositions.

3,654,240

CROSSLINKING POLYMERS

Gaetano F. D'Alelio, 2011 E. Cedar St., South Bend, Ind. 46617

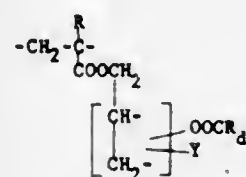
No Drawing. Continuation-in-part of application Ser. No. 581,688, Sept. 26, 1966. This application Nov. 25, 1968, Ser. No. 778,849

Int. Cl. C08f 3/64, 15/16

U.S. Cl. 260—78.5

18 Claims

This invention relates to crosslinkable polymers having a plurality of repeating units of the formula



wherein R is F, CH₃, Cl, or CN, R₁COO— is the radical derived from an unsaturated fatty acid containing 16 to 20 carbon atoms and consisting of 1 to 4 —CH=CH— groups, and Y represents —OH, an acyloxy (—OOCR'), or a urethane group (—OOCNHR''), wherein R' is hydrogen or an aliphatic, aromatic or cycloaliphatic hydrocarbon radical preferably of no more than 20 carbon atoms, and R'' is R' or a monoisocyanate derivative of an R' hydrocarbon radical. These new polymers become insoluble on exposure to air.

3,654,241

FAST CURING ONE-PART SEALANT

John I. Doughty, White Bear Lake, and Philip G. Christman, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 668,183, Sept. 15, 1967. This application Oct. 30, 1969, Ser. No. 872,746

Int. Cl. C08g 23/00

U.S. Cl. 260—79

15 Claims

A one-part, can-stable, mercapto-terminated polymer-based sealant containing ingredients capable of reacting to liberate water in situ thereby enhancing the cure rate of

the sealant even at low humidities. The ingredients include (1) a latent oxidative curing agent, (2) a latent, hygroscopic accelerating agent, and (3) a sulfonamido containing compound.

3,654,242

POLY(p-STYRENESULFONYLHYDRAZIDES)

John E. Herweh and Algirdas C. Poshkus, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

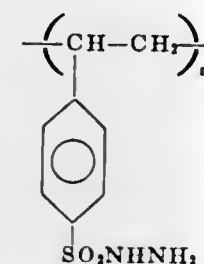
No Drawing. Filed July 30, 1968, Ser. No. 748,658

Int. Cl. C08f 27/08, 27/06

U.S. Cl. 260—79.3 R

2 Claims

A novel class of polymeric compositions having repeating structural units of the formula



These compositions find utility as polymeric blowing agents for use in forming foamed resinous compositions.

3,654,243

VULCANIZATION OF UNSATURATED ETHYLENE- α -OLEFIN RUBBERS

Harald Blümel, Marl, Germany, assignor to Chemische Werke Huls A.G., Marl, Germany

No Drawing. Filed Oct. 13, 1965, Ser. No. 495,695

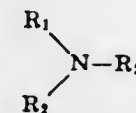
Claims priority, application Germany, Oct. 16, 1964, C 34,115

Int. Cl. C08f 27/06

U.S. Cl. 260—79.5 B

21 Claims

Vulcanized unsaturated ethylene-propylene rubbers having improved resistances to tear and crack growth are produced by the use of a vulcanization system comprising thiuram accelerators and/or dithiocarbamate accelerators, together with an amine of the formula:



wherein

R₁ is an alkyl, hydroxyalkyl, alkyloxyalkyl, or alkenyloxyalkyl residue;

R₂ is H, or a cycloalkyl residue; and

R₃ is H, or an alkyl, hydroxyalkyl, alkyloxyalkyl, or alkenyloxyalkyl residue.

This system also results in a substantially increased vulcanization velocity, as compared to prior art systems.

3,654,244

POLYMERS FOR SOIL-RELEASE TEXTILE FINISHES

Allen G. Pittman, El Cerrito, and William L. Wasley, Berkeley, Calif., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 16, 1970, Ser. No. 20,096

Int. Cl. C08f 15/16, 15/40

U.S. Cl. 260—79.7

27 Claims

Fluorocarbon acrylates or methacrylates are copolymerized with acrylates or methacrylates which contain one or more alkenyloxy groups. The copolymers are useful for application to fibrous materials to provide both soil repellency and soil releasability.

3,654,245

FLUORINE-CONTAINING POLYMERS

Yutaka Kometani, Sanda-shi, and Masayoshi Tatemoto, Takatsuki-shi, Japan, assignors to Dalkin Kogyo Kabushiki Kaisha, Osaka-shi, Japan

No Drawing. Continuation of application Ser. No. 477,012, Aug. 3, 1965. This application Nov. 25, 1968, Ser. No. 778,856

Claims priority, application Japan, Aug. 7, 1964, 39/45,124

Int. Cl. C08f 3/42, 3/62, 3/74

U.S. Cl. 260—80

17 Claims

Polymers made from unsaturated aliphatic polyfluorocarboxylic acids having a double bond at an ω position and 4–19 carbon atoms, and derivatives of such acids.

3,654,246

VULCANIZABLE, AMORPHOUS OLEFINIC TERPOLYMERS OF ALPHA OLEFINS AND POLYENES PRESENTING AN ALKYLIDENIC GROUP CONJUGATED WITH A DOUBLE BOND OF A RING WHICH IS A MEMBER OF AN ENDOCYCLIC GROUP

Walter Marconi, Sebastiano Cesca, and Arnaldo Roggero, S. Donato Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

No Drawing. Filed Aug. 6, 1968, Ser. No. 750,478

Claims priority, application Italy, Aug. 8, 1967, 19,319/67

Int. Cl. C08f 17/00

U.S. Cl. 260—80.7

15 Claims

Novel vulcanizable amorphous terpolymers are disclosed which comprise two alpha-olefins and a polyene containing an alkylidene group conjugated with a double bond of a ring which is a member of an endocyclic system. The process for preparing these terpolymers is also disclosed.

3,654,247

PRODUCTION OF 93–100% ALCOHOLYZED POLY-VINYL ALCOHOL HAVING LOW COLD WATER SOLUBLES CONTENT AND IMPROVED SLURRY-ING PROPERTIES

John E. Bristol, Niagara Falls, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 707,406, Feb. 23, 1968. This application Feb. 17, 1970, Ser. No. 12,123

Int. Cl. C08f 3/34

U.S. Cl. 260—86.1 E

13 Claims

The cold water solubles content and/or the cold water imbibing tendency of a 93 to 100% alcoholized polyvinyl alcohol are reduced by heating at a temperature of 70 to 190° C., preferably 90 to 150° C., a dispersion of the polyvinyl alcohol in a liquid solvent comprising 30 to 100% methanol, 0 to 13% water and 0 to 45% of a 2–5 carbon monohydric alcohol, methyl acetate, acetone, ethylene glycol dimethyl ether, toluene, methylene chloride, or the like. Such heat treatment improves the cold water slurring properties of the polyvinyl alcohol and increases the room temperature water resistance of coatings and films prepared from the polyvinyl alcohol.

3,654,248

PROCESS FOR THE PREPARATION OF VINYL CHLORIDE POLYMERS FOR PASTE

Eiichi Iida, Tokyo, Tsuneo Komatsubara, Sadao Ueno, and Soichiro Takeuchi, Takaoka-shi, Etuo Matui, Tokyo, and Toshio Sano, Kawasaki-shi, Japan, assignors to The Japanese Geon Company, Ltd., Tokyo, Japan

No Drawing. Filed July 27, 1970, Ser. No. 58,664

Claims priority, application Japan, July 31, 1969, 44/60,283

Int. Cl. C08f 1/13, 3/30

U.S. Cl. 260—87.5

17 Claims

A process for the preparation of a vinyl chloride polymer for paste resin, which comprises dispersing in water

a vinyl chloride monomer alone or a mixture of vinyl chloride with other monomer or monomers which are copolymerizable therewith, together with at least one oil-soluble catalyst selected from the group consisting of diacyl peroxides, azo compounds, peroxy esters of organic acids and acetylcyclohexylsulfonyl peroxide, and an anionic surfactant of alkylarylsulfonate type, subjecting the resulting dispersion to a homogenization treatment, and thereafter polymerizing the same, acid polymerization being carried out in the presence of at least one halogenated hydro-carbon having not less than 8 carbon atoms and a halogen content of 20-70% by weight.

3,654,249

PROCESS FOR POLYMERIZING α -OLEFINS

Bernd Diederich, Frankfurt am Main, and Wilhelm Dummer, Wiesbaden, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed June 25, 1969, Ser. No. 836,585
Claims priority, application Germany, Mar. 13, 1969, P 19 12 706.1

Int. Cl. C08f 1/56, 3/06

U.S. Cl. 260-88.2

8 Claims

The invention provides a process for homopolymerizing or copolymerizing ethylene in the presence of mixed catalysts comprising as component A the reaction product of 0.1 to 1.0 part by weight of $\text{Mg}(\text{OH})_2$, 1 part by weight of $\text{Ti}(\text{O}-\text{isoC}_3\text{H}_7)_4$ and 0.4 to 0.9 part by weight of TiCl_4 and as component B an organo-aluminum compound. Under a pressure of up to 20 atmospheres the polymer yields are so high per unit of catalyst that the residues thereof need not be removed. By variation of the proportions of $\text{Mg}(\text{OH})_2$ to titanium compounds polymers having densities in the industrially interesting range of from 0.952 to 0.962 g./cc. can be obtained.

3,654,250

COPOLYMERS FROM PARA TERTIARY BUTYL STYRENE AND ALPHA METHYL STYRENE AND METHOD FOR PRODUCING SAME

Bernard J. Davis, Pass Christian, Miss., assignor to Reichhold Chemicals, Inc., White Plains, N.Y.
No Drawing. Filed Nov. 17, 1969, Ser. No. 877,516

Int. Cl. C08f 15/04

U.S. Cl. 260-88.2 C

9 Claims

Resinous copolymers of para tertiary butyl styrene and alpha methyl styrene are prepared by reacting (A) para tertiary butyl styrene and (B) alpha methyl styrene in the presence of a Friedel-Crafts catalyst at a temperature ranging from about 5° C. to about 55° C. and recovering these resinous copolymers. These resinous copolymers are colorless, and have softening points up to about 140° C. and are soluble down to about 0° C. in odorless low-kauri butanol (KB) value solvents.

3,654,251

CROSSLINKING POLYMERS

Gaetano F. D'Alelio, 2011 E. Cedar St., South Bend, Ind. 46617

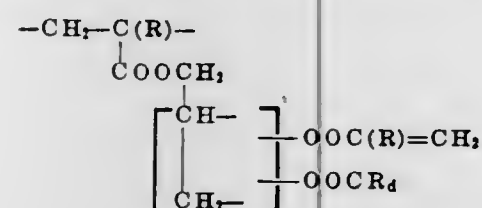
No Drawing. Filed Nov. 25, 1968, Ser. No. 778,850

Int. Cl. C08f 3/64, 15/26

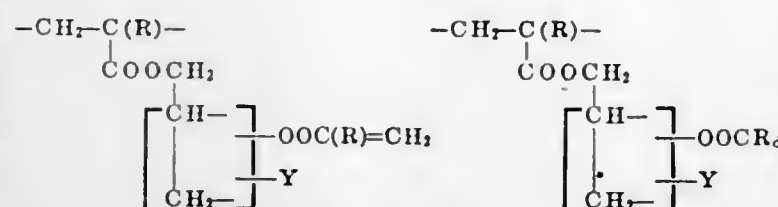
U.S. Cl. 260-88.3

18 Claims

This invention relates to crosslinkable polymers having a plurality of repeating units of the formula



or a mixture of repeating units of the formulas



In which R represents H and CH_3 , R_4 represents an unsaturated hydrocarbon group containing 15 to 20 carbon atoms and consisting of a terminal CH_3 group and at least one and no more than four ---CH=CH--- groups and the remainder $\text{---CH}_2\text{---}$ groups, and Y represents ---OH or R'COO--- wherein R' is a monovalent hydrocarbon containing one to 20 carbon atoms. These polymers are multipurpose polymers and are converted to crosslinked polymers by air drying or by radical and thermal initiation, and by ultraviolet and ionizing radiation.

3,654,252

ALKALI RESISTANT POLYMERS AND METHOD THEREFOR

Charles F. Capizzi, 4904 Harmon Ave., Las Vegas, Nev. 89109

No Drawing. Filed Jan. 29, 1970, Ser. No. 6,960

Int. Cl. C08f 3/30, 27/00

U.S. Cl. 260-92.8 A

4 Claims

The reaction products of vinyl chloride polymers (e.g. polyvinyl chloride) and trichloroethylene which are useful as coatings to protect surfaces from the action of acids and bases. Said products are formed by dissolving polyvinyl chloride in a ketone solvent. The polyvinyl chloride is then reacted with trichloroethylene by application of heat in the absence of air or by evaporating the solvent by heating same or by allowing the reaction mixture to stand at room temperature.

3,654,253

CONTINUOUS PRODUCTION OF ETHYLENE HOMOPOLYMERS

Klaus Steigerwald, 29 Ottweilerstrasse; and Oskar Buechner, 23 an der Froschlache, both of 6700 Ludwigshafen, Germany; Wolfgang Ball, O 6, 9, 6800 Mannheim, Germany; and Helmut Pfannmueller, 9 Donnersbergstrasse; and Friedrich Urban, 29 Schillerstrasse, both of 6703 Limburgerhof, Germany

No Drawing. Filed Oct. 31, 1969, Ser. No. 873,136
Claims priority, application Germany, Nov. 7, 1968, P 18 07 493.6

Int. Cl. C08f 3/04, 1/60, 1/80

U.S. Cl. 260-94.9 R

7 Claims

Production of ethylene homopolymers at elevated temperature under superatmospheric pressure in a tube reactor having two successive reaction zones, a mixture of ethylene, polymerization initiator and polymerization modifier being introduced continuously at the beginning of each reaction zone. At the beginning of the first reaction zone a mixture of ethylene, an organic hydroperoxide having a half value temperature in the range from 200° to 260° C. and a polymerization modifier having a C_s value of from 2.0×10^{-2} to 1.0×10^{-4} is introduced and at the beginning of the second reaction zone a mixture of an organic peroxide having a half value temperature in the range from 150° to 195° C. and a polymerization modifier having a C_s value of from 2.0×10^{-2} to 1.0×10^{-4} is introduced. The half value temperatures of the two organic peroxides are at least 20° C. apart. The products have a wide molecular weight distribution and are practically devoid of very high molecular weight constituents.

3,654,254

POLYMERISATION PROCESS

Brian Ernest Job, Alexander Joseph Peter Ploli, and Till Medinger, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 25, 1969, Ser. No. 879,905

Claims priority, application Great Britain, Dec. 16, 1968, 59,704/68

Int. Cl. C08f 3/04, 1/30

U.S. Cl. 260-94.9 B

6 Claims

Ethylene is polymerised by contact with an initiator of the general formula $\text{M}(\text{all})_3\text{X}$ or $\text{M}(\text{all})_2\text{X}_2$ where M is a transition metal of Group IV of the Periodic Table of Elements, (all) is a π -allylic group and X is a halogen atom.

3,654,255

PROCESS FOR THE SEPARATION OF MIXTURES OF FATTY ACIDS AND ROSIN ACIDS

Adolf Koebner, Cumberland, England

No Drawing. Filed Feb. 6, 1970, Ser. No. 9,447

Int. Cl. C09f 1/04

U.S. Cl. 260-97.6

12 Claims

A process for the separation of a mixture of fatty and rosin acids, in which a mixture of fatty acids in the form of esters, and rosin acids is neutralized by reaction with an alkali-metal or ammonium base in aqueous solution and in the presence of at least one mole (per mole of rosin acid) of an alkali-metal or ammonium aryl or alkyl-aryl sulfonate. The mixture is allowed to stand until it separates into two layers, the upper layer consisting of the fatty acid esters and the lower layer containing the alkali-metal or ammonium salts of the rosin acids, and the two layers are then mechanically separated and their constituents recovered. This process is particularly applicable for removing unsaponifiables from crude tall oil.

3,654,256

PAPER SIZE FROM NEUTRALS-FREE RESIN ACIDS

Glen W. Hedrick, Lake City, Fla., Hugh B. Summers, Jr., Savannah, Ga., and John B. Lewis, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 25, 1969, Ser. No. 810,379

Int. Cl. C09f 1/04

U.S. Cl. 260-105

3 Claims

Alkaline salts of resin-acids-containing materials were converted to sodium resins, the resins were re-refined in acetone, the solids separated from the liquids, and the solids dried to yield a neutrals-free product useful as an improved paper size.

3,654,257

DIAZO DERIVATIVES OF IMIDAZOLE CARBOXYLIC ACID ESTERS

Charles A. Krauth, Taejon Presbyterian College, Teajon, Korea, and Yoder Fulmer Shealy and Clinton Allen O'Dell, both of 2000 9th Ave. S., Birmingham, Ala. 35204

No Drawing. Original application Sept. 14, 1967, Ser. No. 667,659. Divided and this application Apr. 28, 1970, Ser. No. 51,747

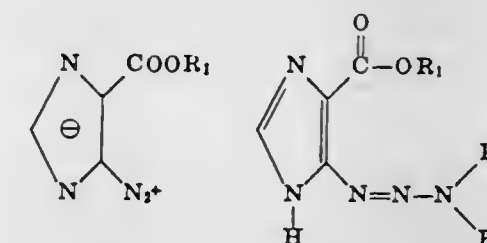
Int. Cl. A611 13/00; C07c 113/00, 115/00

U.S. Cl. 260-141

4 Claims

The present invention relates to certain derivatives of the imidazole heterocyclic ring which is a 5-membered

diazo structure containing two nitrogen atoms and two double bonds. Since tautomeric structures are possible, substituents in the 4 and 5 positions are written thus, 4(or 5) and 5(or 4). The present compounds are diazo derivatives of imidazole carboxylic acid esters. The formulas for the compounds of the present invention and subsequently triazeno products are set out below:

FORMULA I

$\text{R}_1 = \text{C}_1\text{--C}_8$ alkyl, diethylaminoethyl, and acid addition salts thereof,

$\text{R}_2 = \text{alkyl}$, substituted alkyl, aryl,

$\text{R}_3 = \text{H}$, alkyl, substituted alkyl and aryl.

3,654,258

DISPERSE YELLOW DYE OF 5-(2-NITRO-P-ANISYLAZO) BARBITURIC ACID

Donald Edward McKay, 249-A S. 8th Ave., Highland Park, N.J. 08904

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,539

Int. Cl. C09b 29/36

U.S. Cl. 260-154

1 Claim

A colorfast strong yellow disperse dye is prepared by coupling 2-nitro-p-anisidine to barbituric acid to form 5-(2-nitro-p-anisylazo) barbituric acid, m. 305-6° C. It dyes polyesters and organic derivatives of cellulose (including acetate and triacetate), and nylons in greenish yellow shades.

3,654,259

CATIONIC TRIAZOLEAZOINDOLE DYESTUFFS

Masao Iizuka, Norio Igari, and Shigeo Maeda, Tokyo, Japan, assignors to Hodogaya Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 15, 1969, Ser. No. 824,773

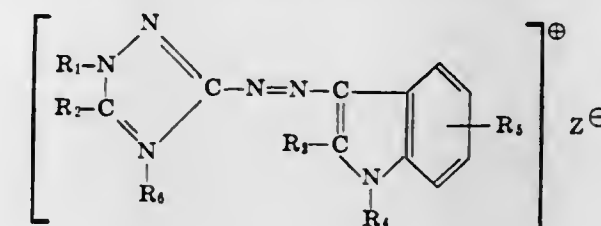
Claims priority, application Japan, May 20, 1968, 43/33,540

Int. Cl. C09b 29/36; D06p 3/52, 3/76

U.S. Cl. 260-157

8 Claims

New water-soluble quaternized cationic monoazo dyestuffs represented by the general formula



wherein R_1 , R_2 , R_3 , R_4 , R_5 , R_6 and Z^+ have the meanings respectively defined in the description and claims.

The new cationic monoazo dyestuffs are suitable for dyeing various fibrous materials such as mordant-treated cellulose fibres, acetate fibres, paper, silk, leather, synthetic fibres, especially fibres of polyacrylonitrile, polyesters and interpolymers thereof and the like. Greenish yellow to reddish yellow shades of the dyes thus obtained are characterized by their excellent fastness to sunlight, washing, rubbing and heat and their almost complete lack of phototropism.

3,654,260

AZOBENZENE

Eishun Tsuchida, Tokyo, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
No Drawing. Filed Jan. 26, 1970, Ser. No. 5,994
Claims priority, application Japan, Feb. 3, 1969, 44/7,311

Int. Cl. C09b 27/00; C07c 107/06

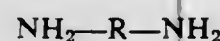
U.S. Cl. 260—205

8 Claims

Process for preparing aromatic diamine azo compounds represented by the general formula



wherein R is a member selected from the group consisting of a p-phenylene radical unsubstituted or substituted with lower alkyl radicals containing 1-3 carbon atoms; a p,p'-bis-phenylene radical unsubstituted or substituted on at least one of the nuclei with lower alkyl radicals containing 1-3 carbon atoms and a p,p'-methylene-bis-phenylene radical unsubstituted or substituted on at least one of the nuclei with lower alkyl radicals containing 1-3 carbon atoms which comprises reacting at least one aromatic diamine represented by the general formula



where R is as defined above while feeding oxygen in the presence of a metal complex in which a transition metal ion is coordinated with an unsubstituted or alkyl-nuclear substituted pyridine and water (hydroxyl group) and or C₁-C₃ alkyl-substituted aniline.

3,654,261

QUATERNARY AMMONIUM ALKOXIDE ALKOXY POLYOL COMPOUNDS

Calvin K. Johnson, Palos Heights, Ill., assignor to CPC International Inc.

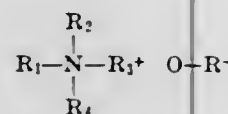
No Drawing. Filed June 27, 1968, Ser. No. 740,450

Int. Cl. C07c 47/18, 85/00

U.S. Cl. 260—210 R

11 Claims

Covers epoxy resin compositions derived from reacting an uncured epoxy resin and an epoxy resin flexibilizer comprising a polyol quaternary ammonium alkoxide, preferably in presence of a curing agent, which resin compositions have desired strength and flexibility and resistance to chemical and solvent attack. Also covers cured epoxy resin compositions derived from the above combination of ingredients. Lastly, covers the flexibilizer compositions themselves which have the following structural formula:



where R₁, R₂, R₃ and R₄ are selected from the group consisting of alkyl, aryl, aralkyl, cycloalkyl and cycloheteryl and R is the residue of a polyol.

3,654,262

3-DEOXY-3-C-LOWER ALKYL GLYCOSIDES AND NUCLEOSIDES

Edward Walton, Scotch Plains, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 21, 1969, Ser. No. 852,097

Int. Cl. C07d 47/18, 51/52, 51/54

U.S. Cl. 260—210 R

9 Claims

Novel 3-deoxy-3-C-lower-alkyl-β-D-xylofuranosyl halide intermediates are prepared by the steps of (A) forming the 5-O-trityl derivative of an alkyl 2,3-anhydro-β-D-ribofuranoside, (B) reacting with a lower alkyl

Grignard reagent to obtain the alkyl 3-deoxy-3-C-lower-alkyl-5-O-trityl-β-D-xylofuranoside, (C) removal of 5-O-trityl group, (D) acylating to the alkyl 2,5-di-O-acyl-3-deoxy-3-C-lower-alkyl-β-D-xylofuranoside, and (E) converting the latter compound to the 2,5-di-O-acyl-3-deoxy-3-lower-alkyl-D-xylofuranosyl halide by a halogen replacement reaction. Steps C and D may be reversed. The novel intermediate is then converted into novel purine and pyrimidine nucleosides. The novel compounds of this invention have utility in vitro in inhibiting cell growth. They are also useful as screening agents for ultraviolet light.

3,654,263

STARCH DERIVATIVES, PROCESSES FOR MAKING THEM, COMPOSITIONS BASED UPON THE STARCH DERIVATIVES AND METHODS OF MAKING THE COMPOSITIONS

Richard W. Cescato, Chicago, Ill., assignor to CPC International Inc.

No Drawing. Filed Dec. 30, 1966, Ser. No. 608,720

Int. Cl. C08b 19/06

U.S. Cl. 260—233.3 R

16 Claims

This application covers a process for producing starch derivatives by oxidizing a starch that has been reacted with a reagent that introduces a positive electric charge into the starch molecule, under conditions such that the reaction product has residual unreacted hydroxyl groups. The degree of substitution of the cationic-type constituents is from about 0.01 to about 0.1. Also covered are the derivatives thus produced. The carboxyl groups present in the molecule, as a result of the oxidation, are preferably in sufficient quantity that the ratio of the percentage of carboxyl groups by weight, dry basis, to the degree of substitution with the said substituent is at least 1 to 1.

The application is also addressed to paper coating compositions containing, as at least a part of the starch binder for the composition, a novel starch derivative of the kind just described.

Also covered are methods of making the paper coating compositions containing the novel starch derivatives.

3,654,264

N-CYCLOHEXYL-3-GUANIDINOAZETIDINE

Tetsuya Okutani and Akinobu Nagaoka, Osaka, Japan, assignors to Takeda Chemical Industries, Ltd., Higashiku, Osaka, Japan

No Drawing. Filed Feb. 3, 1970, Ser. No. 8,428

Claims priority, application Japan, Feb. 11, 1969, 44/9,954

Int. Cl. A61k 27/00; C07d 25/00

U.S. Cl. 260—239 A

3 Claims

N-cyclohexyl-3-guanidinoazetidine and salts thereof are useful as hypertensive agents.

3,654,265

SYNTHETIC PENICILLIN

John Michael Essery, Fayetteville, and Janet Ruth West, Manlius, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Filed Nov. 27, 1970, Ser. No. 93,438

Int. Cl. C07d 99/12

U.S. Cl. 260—239.1

6 Claims

Pivaloyloxymethyl 6-(D-α-sulfoaminophenylacetamido)penicillanate sodium salt (I) is a valuable antibiotic agent, nutritional supplement in animal feed, therapeutic agent in poultry and animals, including man, and is especially useful in the treatment of infectious diseases caused by Gram-positive and Gram-negative bacteria, most particularly those caused by the Pseudomonas genus, Sodium pivaloyloxymethyl 6-(D-α-sulfoaminophenylacet-

amido)penicillanate is prepared by the treatment of disodium 6-(D-α-sulfoaminophenylacetamido)penicillanate (II) with chloromethyl pivalate in hexamethylphosphor-triamide. Compound I has a similar antibacterial spectrum to that of compound II but is absorbed from the gastro-intestinal tract 2-3 fold more efficiently than compound II.

3,654,266

INTERMEDIATES FOR PREPARING SEMI-SYNTHETIC PENICILLINS AND METHODS OF PRODUCTION

Charles A. Robinson, West Chester, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Filed May 8, 1968, Ser. No. 727,688

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

20 Claims

The new compounds are (a) organosilane derivatives of 6-aminopenicillanic acid, which are prepared by the reaction of 6-aminopenicillanic acid or a salt thereof with a di- or tri-halosilane in the presence of an acid acceptor. Said organosilane derivatives of 6-aminopenicillanic acid are soluble in organic solvents and are readily acylatable with acylating agents to provide new compounds (b) which are organosilane derivatives of penicillins that readily provide, on hydrolysis or alcoholysis, the corresponding penicillins known to have useful antibiotic activity.

3,654,267

PROCESS FOR THE RESOLUTION OF RACEMIC 3-SUCCINYLOXY-5-PHENYL-1,3-DIHYDRO-2H-1,4-BENZODIAZEPINE-2-ONE-DERIVATIVES INTO OPTICAL ANTIPODES

Glancarlo Jommi and Giovanna Riva, Milan, Francesco Mauri, Sesto San Giovanni, and Luigi Mauri, Villa Santa, Italy, assignors to Ravizza S.A., Lausanne, Switzerland

No Drawing. Filed Mar. 25, 1970, Ser. No. 22,673

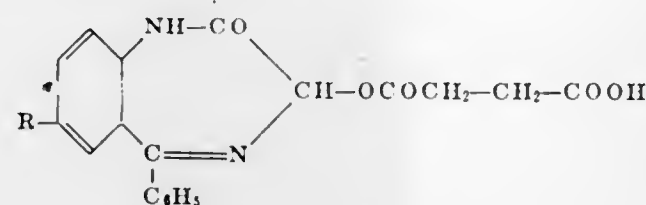
Claims priority, application Great Britain, Apr. 8, 1969, 18,034/69; Feb. 28, 1970, 9,759/70

Int. Cl. C07d 53/06

U.S. Cl. 260—239.3

5 Claims

Invention concerned with a process for the resolution into optical antipodes of racemic compounds comprised in the general formula



wherein R is NO₂, Cl, F, Br, based on the sharply different solubility in ethylacetate of the salts of the dextro-forms and levo-forms with (+)ephedrine or (−)ephedrine.

3,654,268

PRODUCTION OF CAPROLACTAM

Edwin George Edward Hawkins, Lower Kingswood, Surrey, England, assignor to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,475

Claims priority, application Great Britain, Dec. 15, 1967, 57,228/67

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 A

10 Claims

Cyclohexanone is converted to 1,1'-peroxydicyclohexylamine which is then heated in the liquid phase to produce caprolactam and cyclohexanone, which cyclohexanone is recycled as feed to the process.

3,654,269

1-4-SUBSTITUTED SEMICARBAZIDES AND METHODS OF OBTAINING THEM

Antonio Luis Palomo Coll, Maestro Perez Cabrero 7, Barcelona, Spain

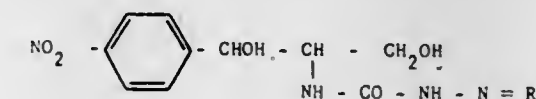
No Drawing. Filed Mar. 20, 1969, Ser. No. 809,038

Int. Cl. C07c 133/02

U.S. Cl. 260—240 A

18 Claims

A 1-4-substituted semicarbazide of the formula



The method of obtaining the semicarbazides essentially comprises reacting 1-p-nitrophenyl-2-amino-1,3-propanediol in a suitable solvent with an alkylidene or benzylidene amino isocyanate.

3,654,270

1-OXA-3,8-DIAZASPIRO[4,5]DECAN-2,4-DIONES

Susumu Umamoto, Sakai-shi, Akio Maki, Kyoto, and Keiji Nakamura, Neyagawa-shi, Japan, assignors to Daiinippon Pharmaceutical Co., Ltd., Osaka, Japan

No Drawing. Filed June 4, 1969, Ser. No. 830,530

Int. Cl. C07d 93/14

U.S. Cl. 260—243 AA

9 Claims

1-oxo-3,8-diazaspiro[4,5]decan-2,4-diones represented by the following formula:



which are novel chemical compounds useful as psychotropic agent with an extremely low toxicity, and to a process for the manufacture thereof.

3,654,271

PROCESS FOR PREPARING SIMPLE AND SUBSTITUTED MORPHOLINES

Arthur Lamendin, Bernard Matel, and Jean Dhenin, Bethune, France, assignors to Societe de Produits Chimiques Marles-Kuhlmann, Paris, France

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,471

Claims priority, application France, Apr. 26, 1968, 149,680

Int. Cl. C07d 87/26

U.S. Cl. 260—247

10 Claims

The present invention concerns a new process for preparing simple or substituted morpholines by dehydration of amino-alcohols chlorohydrates.

3,654,272

X-RAY CONTRAST MEDIA

Ernst Felder and Davide Pitre, Milan, Italy, assignors to Bracco Industria Chimica, Societa per Azioni, Milan, Italy

No Drawing. Continuation-in-part of application Ser. No. 814,164, Apr. 7, 1969. This application Aug. 13, 1969, Ser. No. 849,858

Claims priority, application Switzerland, May 2, 1968, 6,627/68

Int. Cl. C07c 103/32

U.S. Cl. 260—247.2 R

4 Claims

The di-(3-carboxy-2,4,6-triiodoanilides) of 4,7,10-trioxatridecane-1,13-dioic acid and 4,7,10,13-tetraoxahexadecane-1,16-dioic acid and the non-toxic water-soluble salts thereof with metals and amines are effective, well-tolerated X-ray contrast media which tend to accumulate in the gall bladder when their aqueous solutions are injected intravenously.

3,654,273

TRISUBSTITUTED TRIAZINES

Paul D. Schuman, Eugene C. Stump, Jr., and Stephen Rochow, Gainesville, Fla., assignors to PCR, Inc. No Drawing. Continuation-in-part of application Ser. No. 655,713, July 6, 1967. This application May 31, 1968, Ser. No. 733,304

Int. Cl. C07d 55/50

U.S. Cl. 260—248 CS

5 Claims

A series of high molecular weight fluorinated alkyl trisubstituted triazines is disclosed. They are fluids having outstanding fire resistance, thermal stability, lubricity, and which exhibit a wide fluid range, which may be varied dependent upon the nature of certain disclosed polyfluoroalkyl substituents on the 2, 4 and 6 position of the s-triazine ring.

3,654,274

PHOSPHORUS-CONTAINING TRIAZINES

Leon H. Chance and Jerry P. Moreau, New Orleans, La., assignors to the United States of America as represented by the Department of Agriculture

No Drawing. Filed June 9, 1970, Ser. No. 44,864

Int. Cl. C07d 55/20

U.S. Cl. 260—249.8

2 Claims

New processes for preparing aminoalkoxyphosphinyl-1,3,5-triazines and processes for producing flame resistant cellulosic materials by treating the cellulosic materials with the formaldehyde derivatives of the aminoalkoxyphosphinyl triazines.

3,654,275

QUINOXALINECARBOXAMIDE ANTIINFLAMMATORY AGENTS

James M. McManus, Old Lyme, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y.

No Drawing. Filed Oct. 15, 1969, Ser. No. 866,732

Int. Cl. C07d 51/78

U.S. Cl. 260—250 R

8 Claims

1,2,3,4-tetrahydro-1-acyl-3-oxo-2-quinoxalinecarboxamides, a novel class of heterocyclic compounds possessing antiinflammatory activity.

3,654,276

PROCESS FOR MANUFACTURING IMIDAZOLES

Walter Hafner, Bavaria, Germany, assignor to Consortium fur Electrochemische Industrie G.m.b.H., Bavaria, Germany

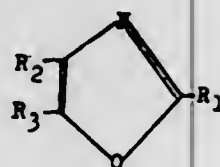
No Drawing. Filed Sept. 3, 1968, Ser. No. 757,166
Claims priority, application Germany, Sept. 2, 1967,
P 16 70 459.9

Int. Cl. C07d 49/36

U.S. Cl. 260—268 H

3 Claims

Process for manufacturing imidazoles, by reacting an oxazole of the general formula



where R_1 is hydrogen, an aliphatic or araliphatic radical containing no carbon-carbon double bond in alpha position with respect to the ring, and R_2 or R_3 are hydrogen, an aliphatic or an aromatic radical with primary amines of the general formula NH_2R where R is an aliphatic, such as an alkyl radical of up to 18 carbon atoms, which may be substituted by hydroxyl-, ether, amino or alkyl-amino groups, araliphatic or aromatic radical, with a hydrogen ion splitting compound having a dissociation constant in water of at least 10^{-10} .

3,654,277

1-[PHENYLALKYL-CYCLOALKYLOXYALKYL]-PIPERAZINYL-4-ACETIC ACID-ANILIDE COMPOUNDS AND THERAPEUTIC COMPOSITIONS

Werner Winter and Max Thiel, Mannheim, Kurt Stach, Wolfgang Schaumann, and Karl Dietmann, Mannheim-Waldhof, and Wolfgang Juhra, Mannheim, Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Postfach, Germany

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,168

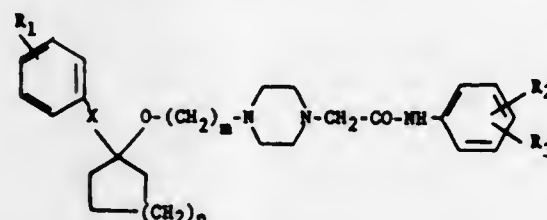
Claims priority, application Germany, Sept. 19, 1968, P 17 95 362.7

Int. Cl. C07d 51/70

U.S. Cl. 260—268 R

8 Claims

Basic ethers having the formula



wherein R_1 , R_2 and R_3 each represent hydrogen, halogen, lower alkyl, alkoxy or trifluoromethyl, X is a valency bond or a methylene group, n is a whole number of from 1 to 8 and m is 2 or 3, and their pharmaceutically acceptable salts, having cardiovascular activity.

3,654,278

ARYL-SUBSTITUTED TETRAKETOPIPERAZINE MONOMERS

Marvin T. Tetenbaum, Convent, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

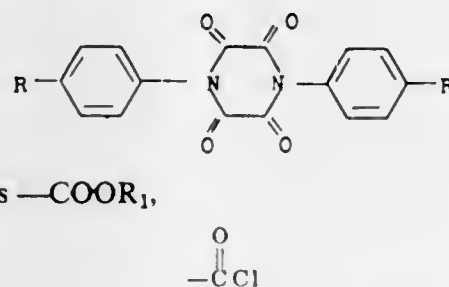
No Drawing. Filed Oct. 29, 1969, Ser. No. 872,366

Int. Cl. C07d 51/68

U.S. Cl. 260—268 PH

2 Claims

Compounds of the structure:

wherein R is $-COOR_1$,

or $-Br$, wherein R_1 is H , CH_3 , C_2H_5 or phenyl, are useful monomers for the preparation of polymers which, when blended with nylons, polyethylene terephthalate or poly(1,4-cyclohexylenedimethylene terephthalate), advantageously modify the properties thereof. The compound of the above structure, wherein $R=CH_3$, has insecticidal properties.

3,654,279

COMPLEX OF THE FORMULA $PdL(CO)X$, WHERE L IS HETEROAROMATIC NITROGEN COMPOUND AND X IS A HALIDE

Thomas J. Hurley, Jr., Madison, and Martin A. Robinson, Orange, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed June 21, 1968, Ser. No. 738,829

Int. Cl. C07d 35/18

U.S. Cl. 260—270

6 Claims

A new composition of matter having the formula



3,654,282

1,2,3,4-TETRAHYDRO-ISOQUINOLINE 1-CARBOXYLIC ACIDS

Jean-Pierre Fourneau and Jean Delourme, Paris, France, assignors to Laboratoires Houde, Paris, France

No Drawing. Filed Aug. 21, 1969, Ser. No. 852,081

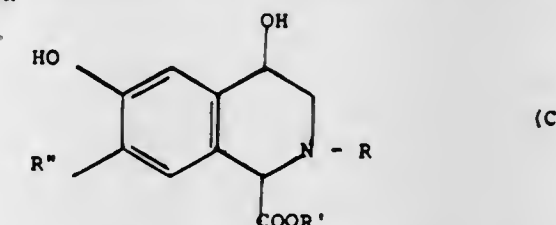
Claims priority, application France, Mar. 9, 1970, 164,817

Int. Cl. C07d 35/10

U.S. Cl. 260—287

2 Claims

New tetrahydroisoquinoline derivatives having in particular anti-tussive activity, consisting of compounds of formula



in which R and R' , which may be the same or different, represent hydrogen or a lower alkyl group of 1-8 carbon atoms and R'' is hydrogen or hydroxy group, or a mutual salt of the cis and trans forms of this compound when $R''=H$.

3,654,280

L-N ALLYLIC-3-HYDROXY-6-OXOMORPHINANS

Yoshiro Sawa, Ahiya-shi, Hyogo, Ryoza Maeda, Osaka-shi, Osaka, and Haruhiko Tada, Toyonaka-shi, Osaka, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,917

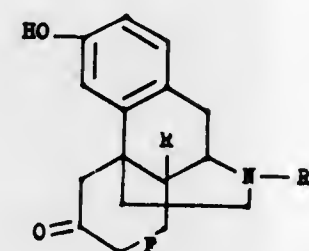
Claims priority, application Japan, Mar. 21, 1968, 43/18,385

Int. Cl. C07d 43/32

U.S. Cl. 260—285

4 Claims

An L-3-hydroxy-6-oxomorphinan compound represented by the formula:



wherein R represents a hydrogen atom or a hydroxyl group, R_1 represents an allyl group, a γ,γ -dimethylallyl group or a cyclopropylmethyl group and F represents the presence or absence of a double bond, being useful as a narcotic antagonist, is prepared by introducing the substituent at the N-position.

3,654,281

3-SUBSTITUTED-2,3,4,5,6,7,8,12b-OCTAHYDRO-(1H)-[1,4]DIAZEPINO[7,1-a]ISOQUINOLINES

Thomas Alfred Montzka, Manlius, and John Daniel Matiskella, Liverpool, N.Y., assignors to Bristol-Myers Company, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 862,161, Sept. 24, 1969. This application July 24, 1970, Ser. No. 58,169

Int. Cl. C07d 57/02

U.S. Cl. 260—286 R

18 Claims

3-phenethyl-2,3,4,5,6,7,8,12b-octahydro-(1H)-[1,4]diazepino[7,1-a]isoquinolines and derivatives thereof are compounds possessing interesting pharmacological activities, i.e., analgetic properties.

3,654,284

13-SUBSTITUTED DIBENZO[b,g]QUINOLIZINES

John T. Suh, Mequon, and Richard A. Schnettler, Milwaukee, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,647

Int. Cl. C07d 39/12

U.S. Cl. 260—289 R

8 Claims

The compounds are 13-substituted dibenzo[b,g]quinolizines which are useful as central nervous system depressants and agents to control aggressive antisocial behavior in animals. The compounds also may be used as inter-

mediates in the preparation of pickling agents, mothproofing agents and wood preservatives. Representative of compounds disclosed are 2,3-dimethoxy-13-hydroxy-13-phenyl-5,7,12,13-tetrahydro-12aH-dibenzo[b,g]quinolizine and 2,3-dimethoxy-13-hydroxy-13-(3,4-dichlorophenyl)-5,7,12,13-tetrahydro-12aH-dibenzo[b,g]quinolizine.

3,654,285

PROCESS FOR THE MANUFACTURE OF β -PICOLINE

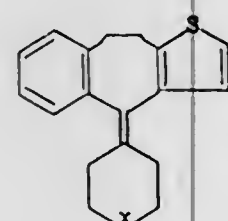
Enrico Catalucci, Visp, Switzerland, assignor to Lonza Ltd., Basel, Switzerland
No Drawing. Filed Jan. 2, 1970, Ser. No. 448
Claims priority, application Switzerland, Jan. 3, 1969, 4/69
Int. Cl. C07d 31/04

U.S. Cl. 260—290 P 9 Claims
 β -Picoline is produced in high yield by reacting a 1,1,3-trialkoxyp propane with an excess of ammonia at high temperature in a liquid aqueous phase without the need for any catalyst.

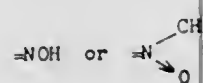
3,654,286

PIPERIDYLIDENE SUBSTITUTED CYCLO-HEPTA[1,2-b]THIOPHENES
Jean-Michel Bastian, Birsfelden, and Gustav Schwarb, Allschwil, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland
No Drawing. Filed Jan. 28, 1970, Ser. No. 6,586
Claims priority, application Switzerland, Feb. 7, 1969, 1,872/69
Int. Cl. C07d 29/36

U.S. Cl. 260—293.57 1 Claim
The invention concerns novel compounds of the formula:



wherein X is



The compounds are antaminics.

3,654,287

SPIROINDANYLPIPERIDINES
Stanley J. Dykstra, Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind.
No Drawing. Filed Aug. 26, 1970, Ser. No. 67,242
Int. Cl. C07d 29/28

U.S. Cl. 260—293.62 7 Claims
A class of compounds comprised of 3-phenylspiroindanylpiperidines having substituents on the piperidine nitrogen selected from the group consisting of hydrogen, lower alkyl, benzyl, phenethyl, dialkylaminoethyl, and alkoxy carbonyl, have been discovered. These compounds are useful as an antitumor, analgesic and local anesthetic agents. One method of preparation is by heating 1,1-bis-(2-dialkylaminoethyl)-3-phenylindenes to eliminate trialkylamines. Subsequent dealkylation provides 3-phenylspiro[indene-1,4'-piperidine] which is reacted with an ester having the Formula RX wherein X is a reactive leaving group and R is the desired piperidine substituent. The 3-phenylspiroindanylpiperidines are converted to the corresponding 3-phenylspiroindanylpiperidines in the presence of hydrogen. Illustrative of the embodiments are 3-

phenylspiro[indan-1,4'-piperidine] hydrochloride and 1'-(2-dimethylaminoethyl)-3-phenylspiro[indan-1,4'-piperidine] dihydrochloride.

3,654,288

2-(2-PIPERIDYL)ACETAMIDES
Joseph Hellerbach, Basel, Switzerland, assignor to Hoffmann-La Roche, Inc., Nutley, N.J.
No Drawing. Original application Mar. 28, 1967, Ser. No. 626,387, now Patent No. 3,515,725, dated June 2, 1970. Divided and this application Mar. 6, 1970, Ser. No. 17,321
Claims priority, application Switzerland, Apr. 6, 1966, 5,052/66
Int. Cl. C07d 29/30

U.S. Cl. 260—293.76 3 Claims
2,3a-diazahydrindanone and 3H-pyrido[1,2-c]pyrimidin-3-one derivatives useful as analgesics, antiplogistics, anti-allergics and anti-inflammatory agents.

3,654,289

CERTAIN DERIVATIVES OF 5-H[4,3-b] AND 9-H[3,4-b]-1,2,3,4-TETRAHYDROPYRIDOINDOLES
Gerard Y. Paris, Duvernay, Quebec, and David L. Garmaise, Montreal, Quebec, Canada, assignors to Abbott Laboratories, Chicago, Ill.
No Drawing. Filed Apr. 9, 1970, Ser. No. 27,116
Int. Cl. C07d 31/42, 31/44

U.S. Cl. 260—295 C 7 Claims
A new series of closely related compounds, the β - and γ -carbolines, carrying simple substituents in specific positions of the molecule were found to be highly effective against *T. cruzi* in very low concentrations.

3,654,290

INTERMEDIATES FOR 5-(PYRIDYLALKYL)PYRIDOINDOLE DERIVATIVES
Leo Berger, Montclair, and Alfred John Corraze, Wayne, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Original application Sept. 10, 1968, Ser. No. 758,712. Divided and this application Mar. 27, 1970, Ser. No. 23,438
The portion of the term of the patent subsequent to Dec. 16, 1986, has been disclaimed
Int. Cl. C07d 31/42

U.S. Cl. 260—296 R 17 Claims
5-(pyridylalkyl)pyridoindole derivatives having anti-allergic activity, prepared by the condensation of the correspondingly substituted 4-piperidones and N-amino-N-arylaminoalkylpyridines, are described.

3,654,291

CERTAIN 3-AMINO-2(1H)-PYRIDONES
Bruce E. Witzel and Tsung-Ying Shen, Westfield, Patricia M. Graham, Mountainside, Robert L. Clark, Woodbridge, and Arsenio A. Pessolano, Colonia, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Nov. 12, 1969, Ser. No. 876,059
Int. Cl. C07d 31/42

U.S. Cl. 260—296 R 7 Claims
Novel primary and tertiary aminopyridones useful as antiinflammatory, analgesic and antipyretic agents.

3,654,292

MANUFACTURE OF 3,5-DICHLORO-2,6-DIFLUORO-4-HYDROXYPYRIDINE AND SALTS THEREOF
Robert Roberts, Runcorn, England, assignor to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Oct. 9, 1969, Ser. No. 865,162
Int. Cl. C07d 31/30

U.S. Cl. 260—297 R 3 Claims
A process for the manufacture of 3,5-dichloro-2,6-difluoro-4-hydroxypyridine or salt thereof which comprises

the step of interacting 3,5-dichloro-2,4,6-trifluoropyridine and an aqueous solution of a carbonate or bicarbonate of sodium or potassium. The compounds produced by the aforementioned process are known herbicidal agents.

3,654,293

2- AND 4-(3,4,4-TRIFLUORO-3-BUTENYLTHIO)PYRIDINES
Mervin E. Brokke, Richmond, Calif., assignor to Stauffer Chemical Company, New York, N.Y.
No Drawing. Original application Sept. 27, 1965, Ser. No. 490,664. Divided and this application Nov. 20, 1969, Ser. No. 877,539
Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 G 2 Claims
The 2- and 4-(3,4,4-trifluoro-3-butenyl-thio)pyridines of this invention are prepared by reacting the appropriate thiol compound, namely (2- or 4-pyridinethiol), with 3,4,4-trifluoro-3-butenyl bromide in the presence of a hydrogen halide acceptor, (tertiary amine). The compounds of this invention are effective nematocides.

3,654,294

CERTAIN ISOTHIAZOLYLACETYLENE-MERCAPTIDES
Raymond Urgel Lemieux and Rintje Raap, Edmonton, Alberta, Canada, assignors to R & L Molecular Research Ltd., Edmonton, Alberta, Canada
No Drawing. Original application July 27, 1967, Ser. No. 656,351, now Patent No. 3,464,999, dated Sept. 2, 1969. Divided and this application June 17, 1969, Ser. No. 834,137
Int. Cl. C07d 91/12

U.S. Cl. 260—302 A 8 Claims
Various substituted carboxylic acids such as 5-isothiazolylacetic acid are valuable intermediates in the preparation of new and novel antibacterial agents. A new process for the preparation of these acids has been devised, a typical example of which is the reaction of the product from the reaction of isothiazole with butyl lithium with acetic anhydride to produce 5-acetylisothiazole. The 5-acetylisothiazole is reacted with carbethoxyhydrazine to produce the corresponding hydrazone. The resultant hydrazone is treated with thionyl chloride to produce 4-(5'-isothiazolyl)-1,2,3-thiadiazole, which in turn is converted to 1-methylthio-2-(5'-isothiazolyl)-ethyne by treatment first with butyl lithium and then dimethylsulfate. Hydrolysis of this product produces 5-isothiazolylacetic acid. Condensation of this acid with 6-aminopenicillanic acid (6-APA) or 7-aminocephalosporanic acid (7-ACA) produces the corresponding 6-(5'-isothiazolylacetamido) derivatives of penicillanic and cephalosporanic acids. This application claims the alkali metal alkynylmercaptide intermediates and the process for their preparation.

3,654,295

PROCESS FOR THE PRODUCTION OF 2-HALO-5-NITROTHIAZOLES
Erich Däbritz and Karl Heinrich Mayer, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed July 28, 1969, Ser. No. 845,487
Claims priority, application Germany, Aug. 10, 1968, P 17 95 106.3
Int. Cl. C07d 91/32

U.S. Cl. 260—302 R 2 Claims
In the manufacture of a 2-halo-5-nitrothiazole by the diazotisation of 2-amino-5-nitrothiazole with a hydrohalic acid, the reaction is carried out in the absence of a catalyst and in a dilute aqueous solution of the acid, preferably at a temperature of -10° to 10° C.

3,654,296

2-CHLOROBENZOTHIAZOLECARBOXAMIDES
William A. Bolhofer, Frederick, Pa., assignor to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Jan. 10, 1969, Ser. No. 790,458
Int. Cl. C07d 91/44

U.S. Cl. 260—304 15 Claims
2-chlorobenzothiazolecarboxamides, useful new agents for inhibiting gastric acid secretion, are prepared by reacting 2-chlorobenzothiazolecarbonyl halide with an amino compound of the general formula R_1-NH-R_2 where R_1 and R_2 are hydrogen, alkyl, cycloalkyl, alkenyl, hydroxyalkyl, alkoxyalkyl, dialkylaminoalkyl, aryl, aralkyl or with a 5 or 6-membered heterocyclic compound formulated by joining R_1 and R_2 with or without the inclusion of hetero atoms such as O, N, S.

3,654,297

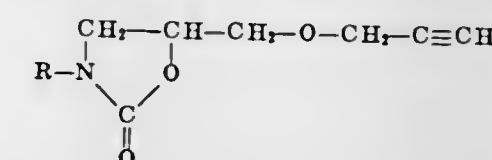
PROCESS FOR OXIDIZING 2-MERCAPTO-BENZOTHIAZOLE
George Constantine Goulardis, Brooklyn, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Feb. 10, 1969, Ser. No. 798,138
Int. Cl. C07d 91/48

U.S. Cl. 260—306.5 6 Claims
A process for oxidizing 2-mercaptobenzothiazole by heating an organic solution thereof, containing less than 15% water in the presence of a free-oxygen containing gas and a catalytic amount of a cobalt phthalocyanine sulfonate at a temperature between 25° C. and 200° C. The product 2,2'-dithiobisbenzothiazole is produced in significant amounts by conducting the reaction at a temperature of from about 50° C. to 80° C., while the product 2,2'-thiobisbenzothiazole is produced in significant amounts when the reaction temperature is from about 130° C. to 180° C.

3,654,298

ACETYLENIC DERIVATIVES OF 2-OXAZOLIDINONES AND PROCESS OF PREPARATION
Colette A. Douzon, Paris, Gérard J. Huguet, Malesherbes, Claude I. Fauran and Guy M. Raynaud, Paris, and Claude J. Gouret, Meudon, France, assignors to Delalande S.A., Hauts-de-Seine, France
No Drawing. Filed Oct. 14, 1968, Ser. No. 767,473
Claims priority, application Great Britain, Oct. 20, 1967, 47,886/67
Int. Cl. C07d 85/28

U.S. Cl. 260—307 C 3 Claims
Compounds of the formula



in which R is:

- a saturated, straight or branched-chain aliphatic radical having 1 to 6 carbon atoms;
- an arylaliphatic radical selected from the group consisting of benzyl and benzhydryl;
- a radical selected from the group consisting of phenyl and phenyl substituted by one or more of the following radicals:
 - halogen,
 - alkoxy having 1 to 4 carbon atoms,
 - aliphatic having 1 to 5 carbon atoms,
 - a nitrogen containing group selected from the group consisting of nitro and acetamido, trifluoromethyl, acyl of formula $-CO-R_3$ in which R_3 is an aliphatic radical having 1 to 4 carbon atoms,

a radical selected from the group consisting of $-\text{COOR}_4$ and $-\text{CH}_2\text{COOR}_4$, in which R_4 is hydrogen or an alkyl radical having 1 to 4 carbon atoms,

a radical selected from the group consisting of hydroxyl and $-\text{OCOR}_5$, wherein R_5 is an alkyl radical having 1 or 2 carbon atoms, an α - or β -naphthyl radical.

The compounds have myorelaxing, sedative, analgesic, anti-inflammatory, antipyretic, tranquilizing and anticonvulsive properties.

3,654,299

NITROIMIDAZOLYL ANTIMICROBIAL AGENTS
Goro Asato, Titusville, and Gerald Berkelhammer, Princeton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 8, 1969, Ser. No. 883,237
Int. Cl. C07d 49/36

U.S. Cl. 260—309 11 Claims
Substituted nitroimidazoles are prepared, for example, by reacting 2-cyano-1-substituted-5-nitroimidazole with hydroxylamine to produce the corresponding 1-substituted-5-nitro-2-imidazolecarboxamidoxime. The latter compound may be reacted with a loweralkyl haloformate to produce 1-substituted-5-nitro-2-imidazolecarboxamidoxime, O-(loweralkyl carbonates). Other compounds are also described. The compounds are useful for controlling protozoan and bacterial infections. They are also useful as herbicides and as intermediates in preparing other nitroimidazolyl heterocycles useful for controlling microorganisms in warm-blooded animals.

3,654,300

IMIDAZOLINE PHOSPHORAMIDES
Derek Redmore, Ballwin, Mo., assignor to Petrolite Corporation, Wilmington, Del.

No Drawing. Original application Nov. 25, 1966, Ser. No. 596,798, now Patent No. 3,524,908. Divided and this application Apr. 7, 1970, Ser. No. 26,439
Int. Cl. C07d 49/34

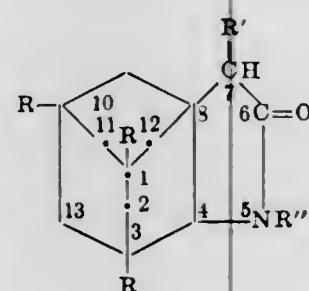
U.S. Cl. 260—309.6 6 Claims
Phosphoramides formed from imidazolines and esters of phosphorous acids, such as dialkyl or dialkynyl phosphites, useful in preventing corrosion of iron, steel and ferrous alloys in oil wells producing oils or oil-brine mixtures and also in the clarification of water containing suspended matter.

3,654,301

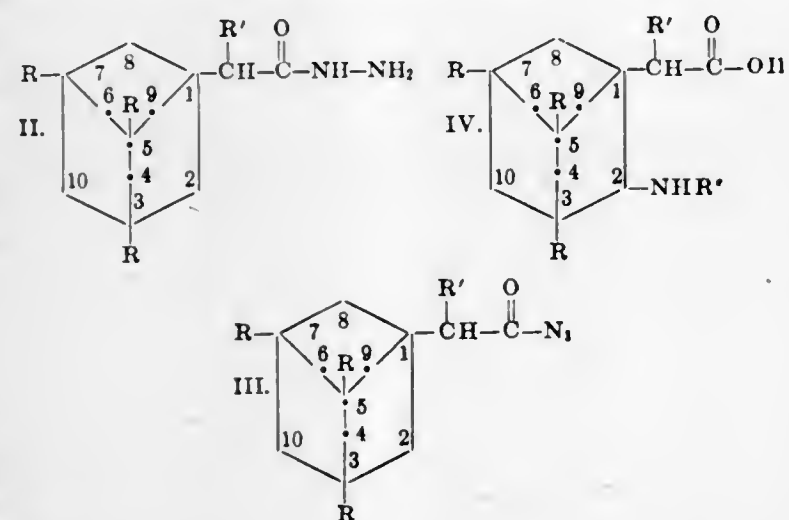
ADAMANTANOPYRROLE COMPOUNDS
Jiban Kumar Chakrabarti, Frimley, England, assignor to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed May 1, 1969, Ser. No. 821,112
Claims priority, application Great Britain, May 21, 1968, 24,089/68
Int. Cl. C07d 27/30

U.S. Cl. 260—325 2 Claims
Adamantanopyrrole compounds of the formula:



and intermediates for the synthesis of these compounds, the intermediates being of the formulae:



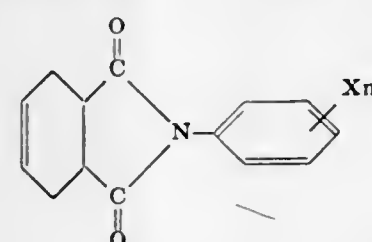
The adamantanopyrrole compounds are useful as anti-inflammatory agents and as CNS depressants.

3,654,302

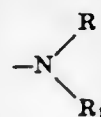
TETRAHYDROPHTHALANILS

Herbert Schwartz, 1963 N. Maurice River Parkway, Vineland, N.J. 08360, and Joseph B. Skaptason, 12700 Prospect Ave., Rte. 30, Kansas City, Mo. 64146
No Drawing. Continuation-in-part of application Ser. No. 539,266, Apr. 1, 1966, now Patent No. 3,507,904. This application Jan. 30, 1970, Ser. No. 7,223
Int. Cl. C07d 27/52

U.S. Cl. 260—326 17 Claims
Tetrahydrophthalanils of the formula



wherein X is at least one member of the group consisting of halogen, lower alkyl and lower alkoxy of 1 to 7 carbon atoms, halogenated lower alkyl of 1 to 7 carbon atoms, sulfamoyl, lower alkylendioxy of 1 to 4 carbon atoms and



wherein R and R_1 are selected from the group consisting of hydrogen and lower alkyl of 1 to 7 carbon atoms and n is an integer of 1 to 5 which compounds possess interesting pesticidal herbicidal activities.

3,654,303

5-BROMO-4-OXO-4,5,6,7-TETRAHYDROINDOLES AND METHODS OF PREPARING SAME

William Alan Remers, Suffern, N.Y., and Martin Joseph Weiss, Oradell, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Jan. 6, 1970, Ser. No. 1,043
Int. Cl. C07d 27/54

U.S. Cl. 260—326.12 R 7 Claims
This disclosure describes compounds of the class of 5-bromo-4-oxo-4,5,6,7-tetrahydroindoles useful as antifungal agents.

3,654,304

ALKYL 1,1a,2,6b-TETRAHYDROCYCLOPROP[b]INDOLE-1-CARBOXYLATES AND ACIDS
William John Welstead, Jr., Richmond, Va., assignor to A. H. Robins Company, Incorporated, Richmond, Va.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,897
Int. Cl. C07d 27/36

U.S. Cl. 260—326.3 8 Claims
Alkyl 2-substituted-1,1a,2,6b-tetrahydrocycloprop[b]indole-1-carboxylates and the corresponding acids are disclosed. The compounds are prepared by reacting 1-acyl- and 1-carbamoyl-indoles with alkyl diazoacetates at 50–70° C. Two isomeric alkyl-2-substituted-1,1a,2,6b-tetrahydrocycloprop[b]indole-1-carboxylates are formed and are separated by column chromatography. The esters are designated as exo and endo isomers on the basis of their nuclear magnetic resonance spectra. The acids are prepared by basic hydrolysis of the esters.

3,654,305

5-AZASPIRO[2.4]HEPTANES

Victor Frederick German, Richmond, Va., assignor to A. H. Robins Company, Incorporated, Richmond, Va.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,896
Int. Cl. C07d 27/04

U.S. Cl. 260—326.5 R 7 Claims
5-azaspiro[2.4]heptanes prepared by metal hydride reduction of 5-azaspiro[2.4]heptane-4,6-diones having anti-depressant activity are described.

3,654,306

5-AZASPIRO[2.4]HEPTANE-4,6-DIONES

Victor Frederick German, Richmond, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,904
Int. Cl. C07d 27/10

U.S. Cl. 260—326.5 FM 10 Claims
5-azaspiro[2.4]heptane-4,6-diones useful as diuretics and intermediates for 5-azaspiro[2.4]heptanes are described. The compounds are prepared by a series of reactions starting from dialkyl itaconates and itaconic anhydride with substituted diazomethanes.

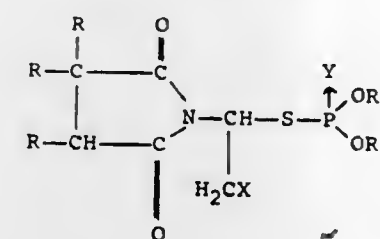
3,654,307

O,O-DIALKYL S-[2-HALO-1-(N-SUCCINIMIDO)ETHYL] PHOSPHOROTHIOATES AND PHOSPHORODITHIOATES AND INSECTICIDAL COMPOSITIONS CONTAINING THEM

Joel D. Jamison, 705 Abbey Road, Wilmington, Del. 19808

No Drawing. Continuation-in-part of application Ser. No. 603,747, Dec. 22, 1966. This application June 19, 1969, Ser. No. 835,909
Int. Cl. C07d 27/10

U.S. Cl. 260—326.5 A 16 Claims
Disclosed are O,O-dialkyl S-[2-halo-1-(N-succinimido)ethyl]phosphorothioates and phosphorodithioates of the structural formula:



wherein each R is selected from the group consisting of the hydrogen and R' radicals with the maximum number

of R radicals that can be R' radicals being two, X is a halo radical, Y is selected from the group consisting of the oxo and thioxo radicals, and each R' is a C_1-C_7 alkyl radical. These compounds are useful as insecticides.

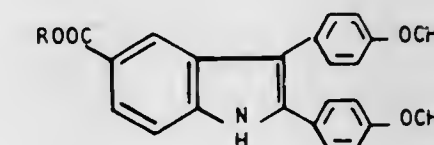
3,654,308

2,3-BIS(p-METHOXYPHENYL)-INDOLE-5-CARBOXYLIC ACID DERIVATIVES

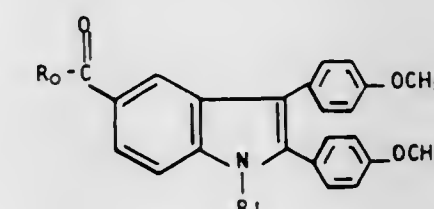
Jacob Szmuszkovicz, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Original application Jan. 27, 1969, Ser. No. 794,402, now Patent No. 3,565,912. Divided and this application Aug. 19, 1970, Ser. No. 65,315
Int. Cl. C07d 27/56

U.S. Cl. 260—326.13 R 3 Claims
Intermediates having the formula:



wherein $R=H$, C_2H_5 or $-\text{CH}_2-\text{CH}_2\text{OH}$ are used to produce anti-inflammatory indoles of the formula:



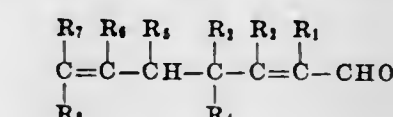
wherein R_0 is hydrogen or lower-alkyl and R' is hydrogen, lower-alkyl or lower-alkanoyl.

3,654,309

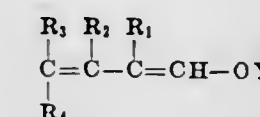
PROCESS FOR THE PREPARATION OF UNSATURATED ALDEHYDES

Alan Francis Thomas, Vernier, Geneva, Switzerland, assignor to Firmenich & Cie, Geneva, Switzerland
No Drawing. Filed May 22, 1968, Ser. No. 731,277
Claims priority, application Switzerland, May 26, 1967, 7,511/67; Sept. 29, 1967, 13,652/67; May 10, 1968, 6,972/68
Int. Cl. C07d 63/12, 5/16; C07c 45/00

U.S. Cl. 260—332.3 R 24 Claims
A process for preparation of α,β -olefinically unsaturated carbonyl compounds of formula

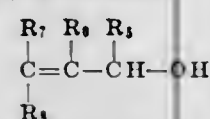


by condensing, with a condensing agent at 60° to 400° C., a butadienyl ether (or a substance which generates such ether) of formula



wherein Y is a linear or branched C_1-C_4 alkyl radical, or a benzyl, p-nitrobenzyl or furfuryl radical and R_1, R_2, R_3 and R_4 each is hydrogen or a linear or branched C_1-C_6 alkyl radical, with an allyl alcohol containing at least

three carbon atoms and at least four carbon atoms less than the end product, of formula



wherein R_5 , R_6 , R_7 and R_8 each is hydrogen, or

- a linear or branched C_1-C_8 alkyl radical, or
- a linear or branched C_2-C_8 olefinically unsaturated hydrocarbon radical containing at most two double bonds, or
- R_5 , R_6 and one of R_7 and R_8 each is as defined in (a) or (b) above and the other of R_7 and R_8 is an ethyl radical substituted on its terminal carbon atom with:

- an unsubstituted or mono- or di-methyl-substituted C_5 or C_6 olefinically unsaturated cycloaliphatic group containing at most two double bonds one of which is in the α -position relative to said terminal carbon atom, or
- an unsubstituted or mono- or di-methyl-substituted C_7 olefinically unsaturated bridged cycloaliphatic group containing a double bond in the α -position relative to said terminal carbon atom, or
- a 2- or 3-furyl or a 2- or 3-thienyl group, and two of the above-defined radicals R_5 , R_6 , R_7 and R_8 may be linked to each other (except R_5 to R_8) to form:

- a C_5 or C_6 olefinically unsaturated cycloaliphatic ring which contains at most two double bonds and which may be substituted with C_1-C_3 alkyl or alkenyl groups, or
- a C_8 olefinically unsaturated bridged cycloaliphatic ring which contains one double bond and which may be substituted with one or two methyl groups, or
- a furan or thiophene ring which may be substituted with a methyl group.

Allyl alcohols and unsaturated hydrocarbons are also prepared by reducing the carbonyl compounds obtained as aforesaid.

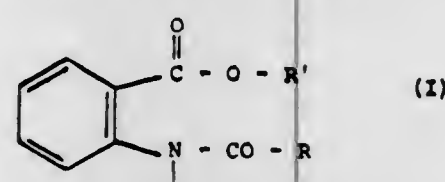
Compounds obtained in the foregoing three categories have valuable odoriferous and/or flavoring properties and are useful in the manufacture of perfumes, perfumed products, foodstuffs and beverages. In many cases, the compounds are also useful as intermediates for synthesizing other odoriferous and/or flavoring compounds.

3,654,310

ANTHRANILIC ACID DERIVATIVES

Pierre J. Queval, Sainte-Genevieve-des-Bois, and Bernard L. M. Falconnet, Le Vesinet, France, assignors to Serdex-Societe d'Etudes de Recherches de Diffusion et d'Exploitation, Levallois-Perret, France
No Drawing. Filed June 24, 1969, Ser. No. 836,132
Claims priority, application France, June 28, 1968, 157,061

Int. Cl. A61k 27/00; C07d 63/12, 63/14
U.S. Cl. 260—332.2 C 6 Claims
Anthranilic acid derivatives of formula:



in which R is a thienyl group optionally substituted with halogen and R' is hydrogen or an alkaline-earth metal, having inflammatory, antalgic and anti-pyretic activity.

3,654,311

POLYCYCLIC DIOLS AND PROCESS FOR PREPARING THE SAME

Arsene Isard, St. Genis, Laval, and Francis Weiss, Pierre Benite, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Original application Jan. 4, 1968, Ser. No. 695,572. Divided and this application May 25, 1970, Ser. No. 48,682
Claims priority, application France, Jan. 6, 1967, 90,194

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

1 Claim

4-hydroxy-1-methylol-6-oxa (3.2.1)-bicyclo-octane, 4-hydroxy-1-methylol-6-oxa (3.2.1.1^{3,8})-tricyclo-nonane, and 4-hydroxy-1-methylol-6,8-dioxo (3.2.1)-bicyclo-octane are prepared by reacting in the presence of a catalyst such as tungstic acid, a peracid with a cyclic diol such as 1,1-dimethylol-3-cyclohexene, 2,2-dimethylol-5-norbornene, 2,2-dimethylol-3,4-dihydro (2H) pyrane. The peracid may be prepared in situ by reacting hydrogen peroxide with a carboxylic acid.

3,654,312

NOVEL 6-OXO-7,8,9,10-TETRAHYDRO-6H-DIBENZO[b,d]PYRANS

Harry G. Pars, Lexington, and Felix E. Granchelli, Arlington, Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

No Drawing. Continuation-in-part of application Ser. No. 642,187, May 29, 1967. This application May 21, 1970, Ser. No. 39,539

Int. Cl. C07d 7/26

U.S. Cl. 260—343.2 R

3 Claims

A series of novel 7,8,9,10-tetrahydro-6H-dibenzo[b,d]pyrans and 7,8,9,10,11,12-hexahydro-6H-dibenzo[b,d]pyrans having C.N.S. and cardiovascular activity and 6-oxo-7,8,9,10-tetrahydro-6H-dibenzo[b,d]pyrans used as intermediates in the preparation thereof.

3,654,313

2-OXONAPHTHO-(2,1-b)-FURAN-6- α -CARBOXYLIC ACID DERIVATIVES

Howard Jones, Holmdel, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,320

Int. Cl. C07d 5/34

U.S. Cl. 260—343.3

2 Claims

2-oxonaphtho(2,1-b)furan-6- α -carboxylic acid derivatives useful as anti-inflammatory agents.

3,654,314

TETRACHLORINATED CHROMOGENIC COMPOUNDS

Sheldon Farber and Arthur John Wright, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

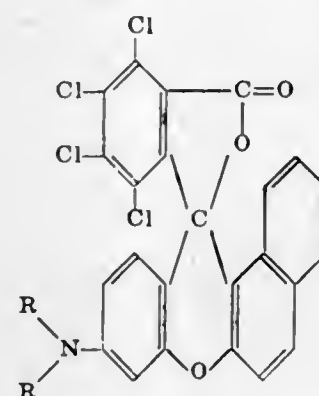
No Drawing. Filed Nov. 3, 1970, Ser. No. 86,644

Int. Cl. C07d 5/34

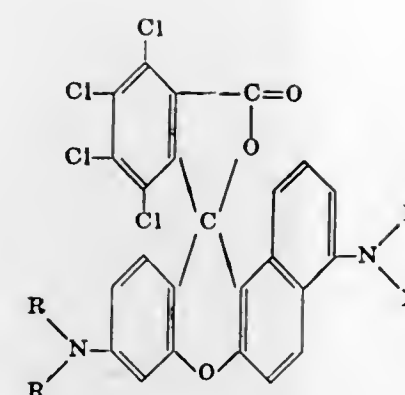
U.S. Cl. 260—343.3

2 Claims

A chromogenic material of normally colorless form is disclosed having the structural formula:



or



wherein each R is hydrogen or an alkyl radical having 1 to 4 carbon atoms.

3,654,315

ORGANIC PSEUDO PERESTERS

Yun Ger Chang and Phillip S. Bailey, Austin, Tex., assignors to Reichhold Chemicals, Inc., White Plains, N.Y.

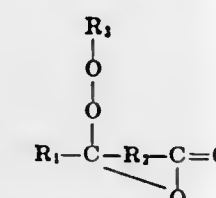
No Drawing. Continuation-in-part of application Ser. No. 585,777, Oct. 11, 1966. This application June 3, 1969, Ser. No. 830,112

Int. Cl. C07d 5/06, 5/34

U.S. Cl. 260—343.3

15 Claims

Organic pseudo peresters of the general formula:



wherein R_1 is an alkyl group or an alkaryl group (aryl substituted alkyl) preferably containing no more than 12 carbon atoms or an aryl group with or without substituents; R_2 can be part of an aromatic nucleus with or without substituents or can be part of an alicyclic ring system or have the formula $(CH_2)_n$ wherein n is an integer preferably in the range 2 to 4 and R_3 is an alkyl or alkaryl group preferably a tertiary alkyl or alkaryl group having utility as cross-linking agents, catalysts or initiators in polymerization reactions such as styrene vinyl acetate polyethylene and methyl methacrylate.

3,654,316

METHOD OF PREPARING COMENIC ACID AND DERIVATIVES THEREOF

Shunichiro Oga and Kazuo Asano, Osaka, and Katsumi Imada, Kyoto, Japan, assignors to Dalichi Selyaku Company, Ltd., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 784,171, Dec. 16, 1968. This application Oct. 16, 1969, Ser. No. 867,059

Claims priority, application Japan, Dec. 15, 1967, 42/80,050

Int. Cl. C07d 7/16

U.S. Cl. 260—345.7

18 Claims

A method for preparing a compound selected from the group consisting of comenic acid and its metal salt, which comprises heating an aqueous solution of a member se-

lected from the group consisting of 2,5-diketo-gluconic acid and its metal salt selected from the group consisting of alkaline earth metal salts and alkali metal salts.

3,654,317

EPOXIDATION PROCESS

John F. Harrod, Mont St. Hilaire, Quebec, Allan R. Knight, Petrolia, Ontario, and John S. McIntyre, Sarnia, Ontario, Canada, assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 19, 1970, Ser. No. 4,037

Int. Cl. C07d 1/08, 1/12

U.S. Cl. 260—348.5 L

6 Claims

A process for producing epoxides comprising oxidizing in the liquid phase an olefin via an organic hydroperoxide in the presence of at least one of $Mo(CO)_6$ and $W(CO)_6$ as a catalyst, wherein a solution of the olefin and the catalyst have been heated to a temperature of from 50° C. to the reflux temperature of the olefin for at least 5 minutes prior to the epoxidation. The resulting activated catalyst allows epoxidation reactions at lower temperatures or shorter contact times, thereby lowering hydroperoxide losses through decomposition.

3,654,318

METHOD OF PREPARING ETHYLENE OXIDE

John F. Kucirka, Northampton, Pa., assignor to Air Products and Chemicals Inc., Philadelphia, Pa.

No Drawing. Application July 11, 1969, Ser. No. 841,691, now Patent No. 3,565,828, dated Feb. 23, 1971, which is a continuation-in-part of application Ser. No. 699,027, Jan. 19, 1968, now Patent No. 3,472,787. Divided and this application June 23, 1970, Ser. No. 59,769

Int. Cl. C07d 1/14

U.S. Cl. 260—348.5 R

2 Claims

A catalyst composition, conveniently designated as silver aluminate monohydrate, functions as a catalyst for the synthesis of ethylene oxide from oxygen and ethylene. The catalyst had 65±5% silver, a pore volume of 0.6 to 1.5 cc./g., and a surface area of 100–600 m²/g. The catalyst is so active that acceptable conversions are obtained below 192° C., the critical temperature of ethylene oxide.

3,654,319

ANTHRAQUINONE DYESTUFFS

Rutger Neeff, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 3, 1967, Ser. No. 635,648

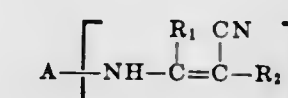
Claims priority, application Germany, May 3, 1966, F 49,089

Int. Cl. C09b 1/26, 1/50

U.S. Cl. 260—376

12 Claims

Anthraquinone dyestuffs of the formula



in which A is a substituted or unsubstituted anthraquinone radical; R_1 is H, substituted or unsubstituted hydrocarbon;

R_2 is CN or a carboxylic acid ester radical; and n is a number from 1 to 4; and their preparation by condensation of N-anthraquinonyl-N'-amidinium salts with cyanoacetic acid esters or malonic dinitrile in the presence of acid-binding agents, e.g. alkali metal oxide, hydroxides carbonates, are disclosed.

3,654,320

ORGANIC PROCESSES

Donald Emory Ayer, John C. Babcock, and J. Allan Campbell, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

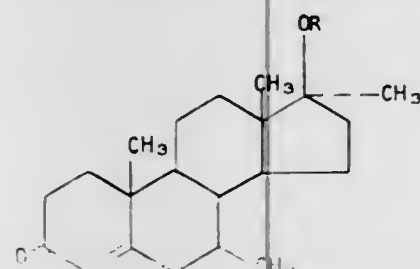
No Drawing. Filed Mar. 24, 1970, Ser. No. 22,382

Int. Cl. C07c 169/20

U.S. Cl. 260—397.4

36 Claims

This invention relates to novel processes for preparing the known useful compounds of the formula



wherein R is selected from the group consisting of hydrogen and the acyl radical of a hydrocarbon carboxylic acid containing from one through twelve carbon atoms. It also relates to novel intermediates obtained in the course of carrying out the aforesaid novel processes. Two alternative methods for producing the compounds embraced by the above formula (designated Process A and Process B) can be employed and are described below. The systemic administration of the compounds of the above formula produces a favorable anabolic effect in humans and animals due to their favorable anabolic:androgenic ratio. These compounds are also useful as gonadotropin inhibitors.

3,654,321

17 α -METHYLENECYCLOPROPYL- AND 17 α -SPIROPENTYL STEROIDS AND PROCESS

John H. Fried, Palo Alto, Calif., and Pierre Crabbe, Mexico City, Mexico, assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Aug. 4, 1970, Ser. No. 60,943

Int. Cl. C07c 169/20

U.S. Cl. 260—397.4

19 Claims

17 α -methylene cyclopropyl and 17 α -spiropentyl steroids of the androstane, estrane, and estrogen series which are novel estrogenic, anti-androgenic, progestational, and anti-fertility agents, and a process for the preparation of such compounds.

3,654,322

REACTION OF A CARBOXYLIC ACID ANHYDRIDE WITH AN ETHYLENICALLY UNSATURATED HYDROCARBON

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed June 10, 1969, Ser. No. 831,981

Int. Cl. C07c 51/54

U.S. Cl. 260—398

16 Claims

A carboxylic acid anhydride is contacted with an ethylenically unsaturated hydrocarbon under liquid phase conditions in the presence of a Group VIII noble metal catalyst at temperatures between 100° and 300° C. and pressures sufficient to maintain liquid phase conditions. The ethylenically unsaturated hydrocarbon reacts with the anhydride to replace the hydrocarbon group of the anhydride. The reaction is especially useful in converting branched-chain anhydrides to straight-chain anhydrides.

3,654,323

SULFONE-ESTER COMPOUNDS

John R. Clark, Nutley, and Claire Bluestein, Glen Rock, N.J., assignors to Witco Chemical Corporation, New York, N.Y.

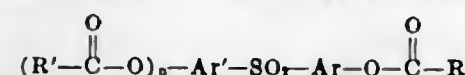
No Drawing. Filed Oct. 24, 1969, Ser. No. 869,362

Int. Cl. C07c 143/90

U.S. Cl. 260—400

6 Claims

Sulfone-ester compounds of the general formula



where n is 0 or 1, Ar and Ar' represent aryl radicals, and R and R' represent long chain aliphatic radicals.

3,654,324

SYNTHESIS OF METHYL STERULATE

Walter J. Gensler, Belmont, Mass., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 31, 1970, Ser. No. 24,339

Int. Cl. C07c 69/74, 61/18

U.S. Cl. 260—410.9 R

2 Claims

This invention relates to the preparation of methyl sterulate and the preparation of a new intermediate, the diacid chloride of 9,10-(carboxymethano)-9-octadecenoic acid. Methyl stearolate and diazoacetic ester react in the presence of copper bronze to form methyl 9,10-carbethoxymethano-9-octadecenoate (70%). Saponification followed by treatment with oxalyl chloride gives the corresponding bis-acid chloride. Exposure to anhydrous zinc chloride at room temperature leads to loss of carbon monoxide and to generation of a cyclopropenium ion-acid chloride intermediate. After esterification with methanol, the resulting cyclopropenium ion-ester is reduced with sodium borohydride to give methyl sterulate. A number of procedures established the identity and homogeneity of the product. The overall yield is in the order of 30%.

3,654,325

METHOD OF MANUFACTURING COTTONSEED OIL

Irina Andreevna Bashkutskaia, Ruziezshaya ulitsa 2, kv. 3; and Alla Borisovna Belova, Novo-Izmailovsky prospekt 19, kv. 57, both of Leningrad, U.S.S.R.; Semen Timofeevich Borshev, Ulitsa Karla Libknekhta 51; and Valentin Ivanovich Vlasov, Stroltelnaya ulitsa 1, kv. 41, both of Kokand, U.S.S.R.; Vasily Markovich Govor, Ulitsa Imeni Usmana Jusupova 83; and Boris Idelevich Grinvald, Ulitsa Chminkentskaya 5, both of Tashkent, U.S.S.R.; Jury Alexeevich Zhabin, Ulitsa Pravdy 51, Kokand, U.S.S.R.; Yanina Andreevna Koneva, Ulitsa 40 let Oktyabrya 9, kv. 1; and Valentina Nikolaevna Popova, Kzhar Kurganskaya ulitsa 19, kv. 10, both of Tashkent, U.S.S.R.; Vladimir Petrovich Rzhikhin, Ulitsa Tjushina 3, kv. 5, Leningrad, U.S.S.R.; Vitaly Broneslavovich Rubnikov, Ulitsa Litvinova 22; and Grigory Vladimirovich Rozenshtein, Ulitsa Pravdy 39, both of Kokand, U.S.S.R.; Alexandr Georgievich Sergeev, Ulitsa Tjushina 3, kv. 6; and Basya Yakovlevna Sterlin, Drezdenskaya ulitsa 20, kv. 29, both of Leningrad, U.S.S.R.; Ussyaslav Iosifovich Trosko, Ulitsa Khalkabad 10; and Ravia Davlyatovna Sharipova, Massiv Chilarzar 1, kvartal 59, kv. 4, both of Tashkent, U.S.S.R.; Ivan Vasilievich Gavrilenco, Sofiskaya naberezhnaya 33, korpus 3, kv. 97, Leningrad, U.S.S.R.; Semen Fedorovich Kiporenko, Dmitrovskoe shosse 5/1, kv. 67, Moscow, U.S.S.R.; and Anatoly Grigorievich Neschadim, Prospekt Slavy 19, korpus 1, kv. 199, Leningrad, U.S.S.R.

No Drawing. Filed Apr. 23, 1969, Ser. No. 828,412

Int. Cl. C09f 5/02

U.S. Cl. 260—412.4

6 Claims

A method of manufacturing cottonseed oil, which comprises removing 60–80% of gossypol from the cottonseed into the cottonseed oil, followed by separating the gossypol from the cottonseed oil by a specific reagent, wherein

the cottonseed is conditioned and decorticated, the meats are crushed, heated and processed to obtain the cottonseed oil containing up to 2% of gossypol and the solvent cake containing from 0.2 to 0.4% of combined gossypol and up to 0.01% of free gossypol, provision being made for subjecting the cottonseed oil and solutions thereof to treatment with an aromatic amino acid, such as anthranilic acid.

3,654,326

5,9-DIOXODECANOIC ACIDS AND METHODS FOR THEIR PREPARATION

Michael Rosenberger, Bloomfield, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed July 22, 1970, Ser. No. 57,362

Int. Cl. C08h 17/36

U.S. Cl. 260—413

6 Claims

5,9-dioxodecanoic acid or the 3-alkyl substituted analogs thereof are prepared from 4-optionally substituted alkyl - 6 - (4,4-ethylenedioxy-pentyl)-tetrahydropyran-2-ols by chromic acid oxidation utilizing two alternative procedures. The product, 5,9-dioxodecanoic acid or its 3-alkyl substituted analogs, are useful as a starting material in the total synthesis of optically active medicinally valuable steroids.

3,654,327

METHODS OF CONVERTING COCOA BUTTER TO FREE ACIDS

Charles S. Castner, Reading, Pa., assignor to Schuyler Development Corporation

No Drawing. Filed May 4, 1970, Ser. No. 34,602

Int. Cl. C11c 1/02

U.S. Cl. 260—418

5 Claims

A method of converting cocoa butter to free acids is provided by the steps of melting the cocoa butter, reacting the melted cocoa butter with caustic at elevated temperature to complete hydrolysis and then reacting the resultant hydrolyzed cocoa butter with an acid to a maintained pH of 6.6 to 6.8 with agitation and washing and recovering the resultant reaction product.

3,654,328

POLYMERIC METAL DIALKARYLDITHIOPHOSPHATES

Thomas V. Liston, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Mar. 19, 1970, Ser. No. 21,209

Int. Cl. C07f 3/06

U.S. Cl. 260—429.9

5 Claims

Polymeric metal dialkaryldithiophosphates are produced by the reaction of an alkylene-di-p-phenol, phosphorus pentasulfide, and a Group II metal compound. Calcium, barium, and especially zinc are the preferred Group II metal. These polymeric materials show excellent thermal stability in the thermogravimetric test.

3,654,329

ZINC DITHIOPHOSPHATES

Luigi Imparato, Rome, Enzo Rossi, San Donato Milanese, and Sergio Del Ross, La Spezia, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

No Drawing. Filed Dec. 3, 1968, Ser. No. 780,906

Claims priority, application Italy, Dec. 6, 1967,

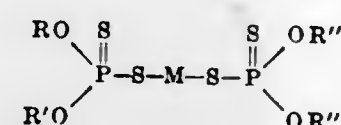
23,582/67

Int. Cl. C07f 3/06

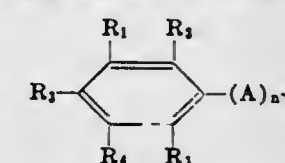
U.S. Cl. 260—429.9

6 Claims

Anti-oxidants are disclosed having the formula:



wherein M is calcium, barium, nickel, cadmium, lead or zinc and R, R', R'' and R''' are substituted or unsubstituted hydrocarbon radicals, at least one having the formula:



wherein A is a bivalent hydrocarbon radical and n is zero or a whole number from 1 to 20 and at least one of said R_1 , R_2 , R_3 , R_4 and R_5 groups is a hydroxy group sterically hindered by another of said groups which is an alkyl group. The remaining groups are hydrogen or alkyl.

3,654,330

TETRAACETONITRILITHIUM HEXAFLUOROPHOSPHATE, TETRAACETONITRILITHIUM HEXAFLUOROARSENATE AND METHOD FOR THE PREPARATION THEREOF

Robert A. Wiesboeck, Atlanta, Ga., assignor to United States Steel Corporation

No Drawing. Continuation-in-part of application Ser. No. 829,111, May 29, 1969. This application May 1, 1970, Ser. No. 33,883

Int. Cl. C07f 9/66

U.S. Cl. 260—440

5 Claims

Tetraacetone-nitrilithium hexafluorophosphate and tetraacetone-nitrilithium hexafluoroarsenate, new compounds, and their preparation from lithium fluoride and PF_5 or previously prepared LiPF_6 with excess CH_3CN , and LiAsF_6 with excess CH_3CN , respectively, are disclosed. Tetraacetone-nitrilithium hexafluorophosphate and tetraacetone-nitrilithium hexafluoroarsenate are useful for the production of high purity exceptionally active LiPF_6 and LiAsF_6 . The preparations of these new compositions are also disclosed.

3,654,331

DIANILINO ALUMINUM CHLORIDE

Oskar E. H. Klopfer, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Dec. 10, 1968, Ser. No. 782,706

Int. Cl. C07f 5/06

U.S. Cl. 260—448 R

1 Claim

Aromatic amines having a hydrogen atom on at least one nuclear carbon atom ortho to an amine group (e.g., aniline) are selectively orthoalkylated by adding a catalytic amount of an alkyl aluminum halide such as diethyl aluminum chloride to the aromatic amine and then heating the resultant mixture to about 100–500° C. in the presence of an olefin. The process may also be carried out in the added presence of an aluminum anilide.

3,654,332

ORGANOFUNCTIONAL-SILICON MATERIALS

Abe Berger, Schenectady, N.Y., assignor to General Electric Company

No Drawing. Continuation-in-part of application Ser. No. 691,928, Dec. 20, 1967. This application July 18, 1969, Ser. No. 843,213

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 N

9 Claims

Certain bis(organofunctional-alkyl)silanes are provided. These materials have the formula:

(1) QQ'SiYY'

where Q is an organofunctional radical; Q' is an organofunctional radical or a silalkylene group having an organofunctional radical; Y is a halide substituent; and Y' is a halide substituent or a monovalent hydrocarbon radical, free of aliphatic unsaturation. The materials are useful as glass sizings, fabric stiffeners, metal protectants, and as intermediates for the production of various useful organopolysiloxanes.

3,654,333

3,4,4-TRIFLUORO-3-BUTENYLTHIO METHYLIDENE COMPOUNDS AND THEIR UTILITY

Mervin E. Brokke, Richmond, and Thomas B. Williamson, Santa Clara, Calif., and George E. Lukes, deceased, late of El Cerrito, Calif., by Wayne C. Jaeschke, special administrator, Walnut Creek, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Application May 27, 1968, Ser. No. 735,495, now Patent No. 3,510,503, dated May 5, 1970, which is a continuation-in-part of application Ser. No. 491,508, Sept. 27, 1965. Divided and this application Dec. 18, 1969, Ser. No. 888,114

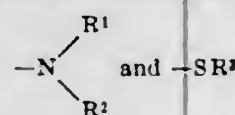
Int. Cl. C07c 119/00

U.S. Cl. 260—453 R

Compounds of the formula



wherein X is a member selected from the group consisting of oxygen, sulfur, imino, phenylimino, chlorophenylimino, alkylimino containing from 1 to 8 carbon atoms, inclusive, and alkenylimino containing 2 to 4 carbon atoms, inclusive, R is selected from the group



wherein R¹ and R², individually, are selected from the group consisting of hydrogen, alkyl containing from 1 to 10 carbon atoms, inclusive, hydroxyalkyl containing from 1 to 4 carbon atoms, inclusive, alkenyl containing from 2 to 4 carbon atoms, inclusive, cycloalkyl containing from 4 to 6 carbon atoms, inclusive, phenyl, and R¹ and R² jointly are a divalent alkylene radical containing 4 to 6 carbon atoms, inclusive, and R³ is selected from the group lower alkyl, chlorophenyl lower alkyl, and 3,4,4-trifluoro-3-butenyl. The above compounds are effective herbicides and nematocides.

3,654,334

PREPARATION OF ORGANIC THIOCYANATES AND SULFONATES FROM SULFONYL HALIDES OR CYANIDES

Richard Garth Pews, Fred P. Corson, and Edwin B. Nyquist, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,397

Int. Cl. C07c 161/02

U.S. Cl. 260—454

Organic thiocyanates are prepared by reacting the appropriate sulfonyl halide or sulfonyl cyanide in the liquid phase with a cyanide salt under essentially anhydrous reaction conditions to obtain the corresponding thiocyanate and sulfonate.

3,654,335

PROCESS FOR THE PREPARATION OF POLYHALOALKYL CHLOROSULFATES

David E. Young, Denville, Lowell R. Anderson, Parsippany, and William B. Fox, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Nov. 29, 1968, Ser. No. 780,261

Int. Cl. C07c 143/68

U.S. Cl. 260—456 R

Chlorosulfates of the formula:



wherein n is 1 or 2; R may be an open chain YZ-perhaloalkyl group when n is 1 or an open-chain YZ-perhaloalkylene group containing at least three carbon atoms when n is 2, wherein Y and Z are substituents on the R moiety and are the same or different electronegative groups; may be prepared by reacting hypochlorites of the formula R—(OCl)_n wherein R and n are as defined above, with sulfur dioxide at a temperature below about 0° C.

The chlorosulfate products are a known class of compounds and are useful as intermediates for the preparation of halogenated ketones, carboxylic acids, esters, thioesters, amides, aldehydes and polyesters.

3,654,336

PREPARATION OF ISOPROPENYL-PHENYLISOCYANATES

Heinrich Krimm, Krefeld-Bochum, Hans Josef Buysch, Krefeld, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Aug. 8, 1968, Ser. No. 751,041 Claims priority, application Germany, Aug. 17, 1967, F 53,257

Int. Cl. C07c 119/04

U.S. Cl. 260—453 PH

4 Claims

Isopropenyl-phenylisocyanates useful in preparing synthetic resins by the polyaddition reaction are prepared by reacting aminophenyl dimethyl carbinols with phosgene at an elevated temperature.

3,654,337

PREPARATION OF DIHYDROCARBYL CARBONATES FROM MONOALCOHOLS AND TRIHALOMETHANES

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Aug. 17, 1970, Ser. No. 64,555

Int. Cl. C07c 69/00

U.S. Cl. 260—463

10 Claims

A method for the preparation of dihydrocarbyl carbonates from a trihalomethane is disclosed. In the process, a trihalomethane is contacted with a saturated aliphatic or alicyclic monoalcohol having from 1 to 20 carbon atoms in the presence of mercuric oxide or a mercuric salt and water at a temperature of from 0° to about 250° C. and a pressure sufficient to maintain liquid phase conditions to oxidize the trihalomethane to the dihydrocarbyl carbonate.

3,654,338

HALOFORMIC ACID ESTER ISOCYANATES

Heinrich Krimm, Krefeld-Bochum, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation-in-part of application Ser. No. 531,020, Mar. 2, 1966. This application Mar. 20, 1969, Ser. No. 809,010

F 45,411

Int. Cl. C07c 119/04; C08g 22/04

U.S. Cl. 260—463

7 Claims

Haloformic acid ester isocyanates are prepared by reacting a primary amino alcohol with phosgene.

3,654,339

METHOD FOR THE PRODUCTION OF SUBSTITUTED CYANOBUTYRIC ACIDS

Helmut aus der Fünfen, Mondorf, and Hermann Richtzenhain, Schwelmbach, Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

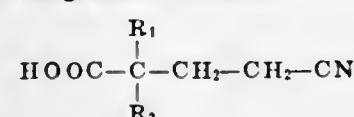
No Drawing. Filed Aug. 28, 1969, Ser. No. 853,920 Claims priority, application Germany, Sept. 4, 1968, P 17 93 347.0

Int. Cl. C07c 121/40

U.S. Cl. 260—464

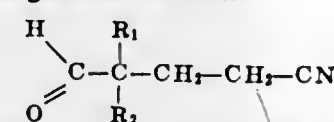
3 Claims

Method for the production of substituted 4-cyanobutyric acids of the general formula:



in which R₁ and R₂ either signify alkyl groups with 1-4 C-atoms, or in which R₁ and R₂ together with the carbon

atom to which they are attached form a carbocyclic ring, by oxidation of corresponding substituted 4-cyanobutyric aldehydes of the general formula:



(II)

in which R₁ and R₂ have the meaning indicated above, in which the oxidation is carried out with halogen in the presence of water.

3,654,340

CYANOACRYLATE MONOMER PROCESS

Elden H. Banitt, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 641,142, May 25, 1967, which is a continuation-in-part of application Ser. No. 595,324, Nov. 18, 1966. This application Aug. 27, 1970, Ser. No. 67,635

Int. Cl. C07c 121/48, 121/30, 121/52

U.S. Cl. 260—465.4

6 Claims

A new step in the condensation of formaldehyde and esters of 2-cyanoacetic acid to produce 2-cyanoacrylate esters which consists essentially of catalyzing the reaction by means of a mixture of an acid and the salt of a primary or secondary amine with the same or stronger acid. To be effective, the catalytic mixture should have a pH value of 5 or less when exact amounts of its components are dissolved in 25 ml. of water. If the catalytic mixture is to include an acid which is not readily soluble in water (e.g. organic acids), then the pH is measured in 25 ml. of an ethanol-water mixture and subsequently corrected as described in J. Am. Chem. Soc., 75, 576 (1953).

3,654,341

CERTAIN DIFLUORAMINO NITRILE DERIVATIVES

Robert J. Koshar, Lincoln Township, Washington County, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

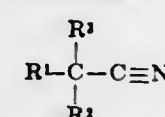
No Drawing. Filed Aug. 5, 1963, Ser. No. 300,956

Int. Cl. C07c 121/42

U.S. Cl. 260—465.5 R

15 Claims

2. A compound of the formula



in which R¹ is a member of the group consisting of —F, —NF₂ and —C≡N; R² is a member of the group consisting of —NH₂, —NFH and —NF₂; R³ is a member of the group consisting of —NFH and —NF₂, and when R¹ is —C≡N, R³ taken together with R² is additionally —NF; and when R³ is —NF₂, R² is selected from the group consisting of —NH₂ and —NF₂.

3,654,342

FLAME-RETARDANT AGENTS FOR THERMOPLASTIC PRODUCTS

Helen Currier Gillham, Princeton, and Allan Ellis Sherr, Martinsville, N.J., and Harvey Gerald Klein, New York, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

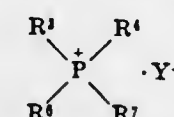
No Drawing. Application Aug. 13, 1965, Ser. No. 479,599, which is a continuation-in-part of application Ser. No. 296,364, July 19, 1963. Divided and this application Aug. 19, 1968, Ser. No. 753,739

Int. Cl. C07c 121/28

U.S. Cl. 260—465.8

1 Claim

Compounds useful as flame-retarding agents and having the formula



wherein R⁴ is carboxyalkenyl, carboalkoxyalkenyl or 2-cyanoethyl, R⁵, R⁶ and R⁷, are, individually, alkyl; alkenyl; cyano, hydroxy, or carboxy substituted alkyl; aryl; aralkyl; vinyl, halo, polyhalo, or nitro ar-substituted aralkyl; dialkylaminoalkyl or carboalkoxyalkyl radicals and Y is bromine or chlorine, R⁵, R⁶ and R⁷ being 2-cyanoethyl and Y being bromine when R⁴ is 2-cyanoethyl and at least one of R⁵, R⁶ and R⁷ being cyano substituted alkyl when R⁴ is carboxyalkenyl or carboalkoxyalkenyl, are disclosed.

3,654,343

SYNTHESIS OF SUBSTITUTED DIBENZO[a,c]AZONINES AND INTERMEDIATES

Arnold Brossi, Verona, and Benjamin Pecherer, Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Feb. 17, 1967, Ser. No. 616,803, now Patent No. 3,452,295, dated July 22, 1969. Divided and this application Apr. 10, 1969, Ser. No. 815,232

Int. Cl. C07c 65/14, 69/76

U.S. Cl. 260—473 R

1 Claim

Alkoxy-substituted 6-amino-5H-dibenzo[a,c]cycloheptene-7-carbonitriles and their preparation which carbonitriles are useful as intermediates in a step-wise synthesis of 3,4',5',5'-tetramethoxy-dibenzo[d,f]azonine and analogs.

3,654,344

SULFONIUM HALIDES AND DERIVATIVES THEREOF

Kenneth Wayne Ratts, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

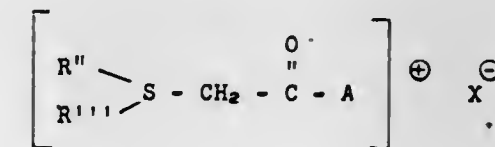
No Drawing. Division of application Ser. No. 682,544, Nov. 13, 1967, now Patent No. 3,547,994, which is a division of application Ser. No. 467,750, June 28, 1965, now Patent No. 3,478,154. This application Feb. 5, 1970, Ser. No. 9,051

Int. Cl. C07c 149/20

U.S. Cl. 260—481 R

3 Claims

Sulfonium halides of the general formula



wherein X is chloro, bromo or iodo, wherein R'' and R''' are like or unlike lower alkyl, and wherein A is lower alkoxy. These compounds are useful intermediates for insecticides.

3,654,345

PREPARATION OF UNSATURATED ESTERS

Christian Robert Jentsch, Hamburg, Germany, assignor to The British Petroleum Company Limited, London, England

No Drawing. Filed May 21, 1969, Ser. No. 826,693 Claims priority, application Great Britain, June 17, 1968, 28,733/68

Int. Cl. C07c 69/54

U.S. Cl. 260—486 R

13 Claims

Methyl acrylate is prepared by reacting methanol with methyl acetate at elevated temperature in the presence of oxygen and a catalyst comprising silver or copper carried on an alumino-silicate support which has been treated with a base before the silver or copper is deposited.

3,654,346

POLY-ESTER-AMIDE-ACIDS

Richard L. Godar and Theodore Spanos III, St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del.

No Drawing. Filed June 3, 1968, Ser. No. 733,788
Int. Cl. C07c 101/26

U.S. Cl. 260—482 R

5 Claims

The reaction products of (1) an alkyl or alkenyl succinic acid or an anhydride thereof (also referred to as ASAA) with (2) a polyol, preferably a diol and (3) an alkanolamine (the reaction products referred to as "Poly-Ester-Amide-Acids"). In the preferred embodiment (1) ASAA is reacted first with (2) a diol which is then reacted with (3) an alkanol amine which is then reacted with (4) ASAA; and to the uses for these products, particularly as rust and corrosion inhibitors.

3,654,347

ETHYLENICALLY UNSATURATED, HYDROXY-CONTAINING LACTONE PRODUCTS

Harrison S. Kincaid, Moorestown, and Fritz Hostettler, Verona, N.J., and Harry Vineyard, South Charleston, W. Va., assignors to Union Carbide Corporation

No Drawing. Filed May 3, 1968, Ser. No. 726,578
Int. Cl. C07c 69/66

U.S. Cl. 260—484 R

10 Claims

Monohydroxyl- and dihydroxyl-containing polylactones possessing at least one pendant polymerizable ethylenic group are prepared by reacting a lactone having from 4 to 6 carbon atoms in the ring, with an organic ethylenically unsaturated, hydroxy-containing initiator such as allyl alcohol, 1,1,1-trimethylolpropane monoallyl ether, etc. The resulting unsaturated polylactones are useful in preparing siloxane surfactants, unsaturated polyurethane gum stocks which can be cured to highly useful vulcanizates, etc.

3,654,348

N-HALOGENATED SULFONIC ACIDS AND ALKALI METAL SALTS THEREOF

Peter Robson and Frederick Edward Hardy, Newcastle-upon-Tyne, England, assignors to The Procter & Gamble Company, Cincinnati, Ohio

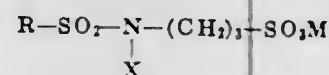
No Drawing. Filed Oct. 9, 1968, Ser. No. 766,326
Claims priority, application Great Britain, Oct. 11, 1967, 46,407/67; Apr. 9, 1968, 16,954/68

Int. Cl. C07c 143/56

U.S. Cl. 260—508

9 Claims

N-halogenated compounds having the general formula



wherein R is an alkyl, aryl or substituted aryl group, X is bromine or chlorine, and M is an alkali metal, are useful as bleaching agents and as disinfectants.

3,654,349

SUBSTITUTED INDENYL ACETIC ACIDS

Tsung-Ying Shen, Westfield, N.J., Richard B. Greenwald, Framingham, Mass., and Howard Jones, Matawan, Bruce O. Linn, Somerville, and Bruce E. Witzel, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 848,736, Aug. 8, 1969. This application May 1, 1970, Ser. No. 33,891

Int. Cl. C07c 63/50

U.S. Cl. 260—515 M

15 Claims

New substituted indenyl acetic acids and nontoxic pharmaceutically acceptable amides, esters and salts derived therefrom. The substituted indenyl acetic acids

disclosed herein have anti-inflammatory, anti-pyretic and analgesic activity. Also included herein are methods of preparing said indenyl acetic acid compounds, pharmaceutical compositions having said indenyl acetic acid compounds as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

3,654,350

PURIFICATION OF TEREPHTHALIC ACID

Enrique R. Witt and Jorge A. Blay, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Jan. 14, 1970, Ser. No. 2,962

Int. Cl. C07c 51/42

U.S. Cl. 260—525

10 Claims

Disclosed herein are several processes for purifying terephthalic acid (TPA). The primary inventive concept disclosed herein exists in the use of a minor amount of water to suppress color formation.

A substantially homogeneous admixture of TPA, a small amount of water, and preferably an agent, e.g. acetic acid, to promote destruction of 4-carboxybenzaldehyde (CBA) is heated to the melting point of the admixture for a time sufficient to reduce the concentration of CBA to the desired level.

3,654,351

PURIFICATION OF AROMATIC POLYCARBOXYLIC ACIDS BY RECRYSTALLIZATION

Enrique Roberto Witt, Corpus Christi, Tex., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed Nov. 18, 1969, Ser. No. 877,842

Int. Cl. C07c 51/42

U.S. Cl. 260—525

11 Claims

A process for purifying crystalline aromatic polycarboxylic acids by recrystallization from liquid mixtures of 0 to 92% by weight water and 8 to 100 percent by weight of a phenol. For example terephthalic acid may be purified by recrystallization from a liquid mixture containing 30% phenol and 70% water.

3,654,352

PURIFICATION OF TEREPHTHALIC OR ISOPHTHALIC ACID

Enrique R. Witt, William J. Humphrey, and Arthur W. Schnitzer, Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Apr. 2, 1969, Ser. No. 812,859

Int. Cl. C07c 51/42, 51/48

U.S. Cl. 260—525

11 Claims

A process for the purification of terephthalic and/or isophthalic acid by recrystallization of the impure acid from the solvent in the presence of a compound having the



radical.

3,654,353

METHOD OF TREATING SPENT PULP LIQUORS
Gerrit G. de Haas, Longview, Leslie H. Clark, Kelso, and Charles J. Lang, Longview, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.

Filed Oct. 23, 1964, Ser. No. 406,087

Int. Cl. C07c 53/10

U.S. Cl. 260—527 R

5 Claims

A method of recovering volatile, condensable organic acids, particularly acetic acid, present in the vapor stream obtained during evaporation of spent pulping liquor by injecting into the vapor stream a finely divided basic material, such as sodium hydroxide, to convert the acids

in the vapor stream to their non-volatile salts. The salts are subsequently separated from the residual vapor stream, primarily water vapor, by entrainment.

3,654,354

PROCESS FOR THE OXIDATION OF UNSATURATED HYDROCARBONS

Jean Blanc, Pau, France, assignor to Societe Nationale des Petroles d'Aquitaine, Paris, France

No Drawing. Filed June 4, 1968, Ser. No. 734,233
Claims priority, application France, June 5, 1967, 109,172

Int. Cl. C07c 57/04

U.S. Cl. 260—533 N

10 Claims

Oxidation of ethylenically unsaturated hydrocarbons by passage over a supported catalyst, the active substituent of which is phospho-vanado-molybdic acid or an ammonium, antimony or tellurium salt of such acid.

3,654,355

PROCESS OF PREPARING ADIPIC ACID BY THE NITRIC ACID OXIDATION OF CYCLOHEXANE

Werner H. Mueller, Gulf Breeze, and Charles R. Campbell and John J. Hicks, Jr., Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,239

Int. Cl. C07c 55/04, 55/14

U.S. Cl. 260—533 C

8 Claims

In processes for the production of adipic acid by the oxidation of cyclohexane in the liquid phase with aqueous nitric acid at temperatures between 70° and 130° C. wherein a vanadium catalyst is employed and wherein the oxidation is conducted in the presence of an organic nitro-compound which is a solvent for the cyclohexane, substantial increases in the yield and production rate of adipic acid and substantial decreases in the formation of nitrated by-products are attained without a substantial increase in nitric acid consumption by introducing from about 0.2 to 5.0 moles of nitric oxide into the reacting mixture per mole of cyclohexane introduced.

3,654,356

OXIDATION OF p-TOLUIC ACID TO TEREPHTHALIC ACID

John W. Ager, Princeton, N.J., assignor to FMC Corporation, New York, N.Y.

No Drawing. Filed Apr. 1, 1970, Ser. No. 24,799

Int. Cl. C07c 63/02

U.S. Cl. 260—524 R

2 Claims

p-Toluic acid is oxidized to terephthalic acid by elemental oxygen at mildly elevated temperatures and pressures in the presence of a catalyst consisting of copper chloride, potassium chloride, hydrochloric acid and a rare-earth chloride of the group consisting of cerium, praseodymium and neodymium; cobalt chloride is an optional additional ingredient.

3,654,357

BICYCLIC SULFONYLTHIOUREA DERIVATIVES

Hermann Bretschneider, Innsbruck, Klaus Grassmayr, Sistrans, near Innsbruck, and Kraft Hobenlohe-Oehringen, Innsbruck, Austria, and Andre Grussner, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,141
Claims priority, application Switzerland, Apr. 26, 1968, 6,285/68

Int. Cl. C07c 157/00

U.S. Cl. 260—552 R

4 Claims

Bicyclic sulfonylurea derivatives and intermediates thereof have been prepared by various processes, for example, from the corresponding thiourea derivatives. The bicyclic sulfonylurea end products are useful as hypoglycemic agents.

3,654,358

OXIDATION OF HALOGENATED ETHYLENES

Gaines C. Jeffrey, Houston, Tex., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 672,955, Oct. 5, 1967. This application Apr. 24, 1970, Ser. No. 31,752

Int. Cl. C07c 51/58

U.S. Cl. 260—544 Y

5 Claims

This invention relates to the oxidation of halogenated ethylenes in the presence of a chemical initiator.

3,654,359

PROCESS FOR SYNTHESIZING SULFIMINIUM CHLORIDE

Eugene P. Gosselink, Colerain Township, Hamilton County, and Robert G. Laughlin, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Oct. 20, 1969, Ser. No. 867,924

Int. Cl. C07c 145/00

U.S. Cl. 260—551 S

8 Claims

Dialkyl sulfiminium chloride is prepared in high yield and purity by reacting chloramine with dialkyl sulfide under special conditions to avoid formation of dialkyl sulfimine which is unstable. Embodiments of this invention are (A) the use of specific solvents, (B) the use of carbon dioxide as an acidic buffer, and (C) both (A) and (B) together.

3,654,360

N-BENZOYL-2-AMINOMETHYLCYCLO-HEXANOL

Gabor Bernath and Kalman Kovacs, Szeged, and Eva Palosi, Peter Gorog and Laszlo Szporny, Budapest, Hungary, assignors to Richter Gedeon Vegyészeti Gyár Rt.

No Drawing. Filed Sept. 10, 1968, Ser. No. 758,682

Claims priority, application Hungary, Sept. 11, 1967, RI-328

Int. Cl. C07c 103/38

U.S. Cl. 260—558 R

3 Claims

The invention concerns N-cycloalkylmethyl carboxylic amides which may be used in the treatment of epilepsy in view of their marked sedative action on the CNS.

3,654,361

TRIS(DIFLUORAMINO) ACETAMIDE

Douglas H. Dybvig, St. Paul, and Robert J. Koshar, Lincoln Township, Washington County, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Aug. 30, 1965, Ser. No. 484,788

Int. Cl. C07c 103/18

U.S. Cl. 260—561 A

2 Claims

1. Tris(difluoramino)acetamide.

3,654,362

S-(3,4,4-TRIFLUORO-3-BUTENYL) N-SUBSTITUTED ISOTHIUREA COMPOUNDS AND THEIR UTILITY

Mervin E. Brokke, Richmond, and Thomas B. Williamson, Santa Clara, Calif., and George E. Lukes, deceased, late of El Cerrito, Calif., by Wayne C. Jaeschke, special administrator, Walnut Creek, Calif., assignors to Stauffer Chemical Company, New York, N.Y.

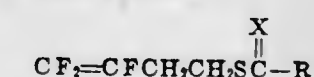
No Drawing. Application May 27, 1968, Ser. No. 735,495, now Patent No. 3,510,503, dated May 5, 1970, which is a continuation-in-part of application Ser. No. 491,508, Sept. 27, 1965. Divided and this application Dec. 18, 1969, Ser. No. 888,113

Int. Cl. C07c 119/00

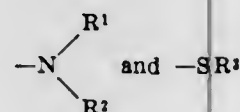
U.S. Cl. 260—564 E

2 Claims

Compounds of the formula



wherein X is a member selected from the group consisting of oxygen, sulfur, imino, phenylimino, chlorophenylimino, alkylimino containing from 1 to 8 carbon atoms, inclusive, and alkenylimino containing 2 to 4 carbon atoms, inclusive, R is selected from the group



wherein R¹ and R², individually, are selected from the group consisting of hydrogen, alkyl containing from 1 to 10 carbon atoms, inclusive, hydroxyalkyl containing from 1 to 4 carbon atoms, inclusive, alkenyl containing from 2 to 4 carbon atoms, inclusive, cycloalkyl containing from 4 to 6 carbon atoms, inclusive, phenyl, and R¹ and R² jointly are a divalent alkylene radical containing 4 to 6 carbon atoms, inclusive, and R³ is selected from the group lower alkyl, chlorophenyl lower alkyl, and 3,4,4-trifluoro-3-butenyl. The above compounds are effective herbicides and nematocides.

3,654,363

PROCESS OF MONO- AND DI-NITRATING p-PHENYLENE DIAMINE COMPOUNDS

Franz J. Pum, Stamford, Conn., and Richard W. Schnetzinger, New Rochelle, N.Y., assignors to Revlon, Inc.
No Drawing. Filed Oct. 9, 1969, Ser. No. 865,190
Int. Cl. C07c 87/54

U.S. Cl. 260—577

6 Claims

2-nitro- and 2,6-dinitro-N₁N₄-dialkyl-p-phenylenediamines are obtained by nitrating an N₁N₄-diacyl-N₁N₄-dialkyl-p-phenylenediamine with a mixture of sulfuric acid and fuming nitric acid at about 35–80° C. (preferably 47–52° C.) and removing the acyl groups by treatment with alcoholic HCl. These compounds are useful intermediates in the preparation N₁N₄-trisubstituted nitro or dinitro-p-phenylenediamines which are useful hair dyes.

3,654,364

BIS-(CHLORO-NITRO PHENOXY)-DIALKYL-KETONES

Walter Meckel, Dusseldorf, and Klaus König, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Nov. 6, 1969, Ser. No. 874,684
Claims priority, application Germany, Nov. 15, 1968, P 18 09 172.0
Int. Cl. C07c 93/14

U.S. Cl. 260—571

2 Claims

Novel aromatic diamines containing ether groups and having chlorine atoms in the o-position to the amino groups are useful to prepare polyurethane elastomers therefrom with an organic diisocyanate and an organic compound containing at least two hydroxyl groups and having a molecular weight of from about 800 to about 5000.

3,654,365

PROCESS FOR THE PREPARATION OF PARA-AMINOPHENOL

Henri Daunis, Vienne, and Philippe Perras, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Jan. 29, 1969, Ser. No. 795,052
Claims priority, application France, Jan. 30, 1968, 138,001
Int. Cl. C07c 91/44

U.S. Cl. 260—575

11 Claims

para-Aminophenol is made in good yield by hydrogenation of nitrobenzene in the presence of a strong

acid and a platinum catalyst at a hydrogen pressure above one atmosphere.

3,654,366

PREPARATION OF 3,6-DIAMINOPSEUDOCUMENE

Joseph Green, London, and Stanley G. Brooks, Epsom Downs, England, assignors to Vitamins Limited, London, England
No Drawing. Filed July 17, 1968, Ser. No. 745,367
Claims priority, application Great Britain, Aug. 2, 1967, 35,546/67; Apr. 18, 1968, 18,296/68
Int. Cl. C07c 85/00, 85/10

U.S. Cl. 260—580

7 Claims

3,6-diaminopseudocumene and acid addition salts thereof are prepared by suspending 3,6-dinitro-5-halogenopseudocumene in an aqueous medium and thereafter reacting it with hydrogen in the presence of a hydrogenation catalyst. 2,3,5-trimethylquinol is also produced from pseudocumene by producing 3,6-diaminopseudocumene as an intermediate according to the above process and oxidizing and reducing it to produce the desired 2,3,5-trimethylquinol.

3,654,367

USE OF STANNANE AS A REDUCING AGENT IN THE REDUCTION OF NITRO COMPOUNDS TO AMINES

Gerald H. Reifenberg, Hightstown, and William J. Considine, Somerset, N.J., assignors to M & T Chemicals Inc., New York, N.Y.
No Drawing. Filed July 3, 1968, Ser. No. 742,164
Int. Cl. C07c 1/26, 29/14, 85/10

U.S. Cl. 260—580

4 Claims

The method of this invention for reducing organic substrates (organic nitro compounds) comprises reacting as reactants stannane, SnH₄, and an organic substrate (organic nitro compounds), maintaining said reactants together in a reaction mixture, and separating said reduced substrate (amines) from said reaction mixture.

3,654,368

N,N-DIALKYL-α-AMINOACETYLENE THIOETHERS

Heinz G. Viehe, Linkebeek, and Serge V. Delavarenne, Wemmel, Belgium, assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 624,135, Mar. 20, 1967. This application Feb. 24, 1970, Ser. No. 14,719
Int. Cl. C07c 87/06, 149/24

U.S. Cl. 260—583 EE

3 Claims

N,N-disubstituted α-aminoacetylene thioethers (ynamine thioethers) are prepared by the reaction of N,N-disubstituted alkali amides and dihalovinylthioethers. The thioethers are useful as water accepting agents in condensation reactions.

3,654,369

FLUORINATION PROCESS FOR PREPARING CERTAIN DIFLUORAMINO COMPOUNDS

Donald L. Esmay, Coon Rapids, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
No Drawing. Continuation-in-part of application Ser. No. 531,629, Feb. 21, 1966. This application Sept. 11, 1967, Ser. No. 668,293
Int. Cl. C07c 87/22

U.S. Cl. 260—583 NH

8 Claims

Fluorination process especially adapted for the production of highly fluorinated oxidant compounds comprising the steps of forming an adduct between ammonia and a substituted fluorimino compound in solution in an inert solvent at relatively low temperatures, removing substantially all of the solvent, then adding to the reaction

mixture an inert fluorocarbon solvent, followed by direct fluorination by contacting the adduct-solvent mixture with fluorine at a temperature less than 0° C. The process produces improved yields in larger scale reactions.

3,654,370

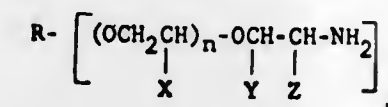
PROCESS FOR PREPARING POLYOXYALKYLENE POLYAMINES

Ernest L. Yeakey, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.
No Drawing. Continuation-in-part of application Ser. No. 602,167, Dec. 16, 1966. This application Aug. 28, 1970, Ser. No. 67,970
Int. Cl. C07c 85/06

U.S. Cl. 260—584 B

8 Claims

Polyoxyalkylene polyamines having the formula:



are prepared by treating the corresponding polyoxyalkylene polyols with ammonia and hydrogen over a catalyst prepared by the reduction of a mixture of the oxides of nickel, copper and chromium. These polyamines are useful as curing agents for epoxy resins, as plasticizers, as cross-linking agents or binders for textiles and as an intermediates in the preparation of polyureas. The polyoxyalkylene polyols may be obtained by the addition of one or more alkylene oxides to an aliphatic polyhydric alcohol.

3,654,371

PROCESS FOR THE MANUFACTURE OF CYCLODEC-5-EN-1-ONE

Albert Schneider, Domat-Ems, Grisons, and Werner Hurschler, Chur Grisons, Switzerland, assignors to Inventa A.G. für Forschung und Patentverwertung, Zurich, Switzerland
No Drawing. Filed Sept. 6, 1967, Ser. No. 665,744
Claims priority, application Switzerland, Sept. 8, 1966, 12,969/66
Int. Cl. C07c 49/44

U.S. Cl. 260—586 A

6 Claims

A process for the dehydration of cyclodecanol-(6)-one(1) to cyclodec-5-en-1-one. The dehydration is carried out with a catalyst system consisting of gaseous ammonia and a special, activated calcium sulfate.

3,654,372

1,1-BIS(TRIFLUOROMETHYL)-2-(TRIPHENYLPHOSPHORANYLIDENE)ETHYLENE

Gail H. Birum, Kirkwood, Mo., and Clifford N. Matthews, Wilmette, Ill., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 605,592, Dec. 29, 1966, now Patent No. 3,488,408. This application Dec. 29, 1969, Ser. No. 888,890
Int. Cl. A01n 9/36; C07f 9/50, 9/54

U.S. Cl. 260—606.5 P

3 Claims

1,1-bis(trifluoromethyl)-2-(triphenylphosphoranylidene)ethylene, and acid adducts thereof. The compounds are useful intermediates for other chemical compositions and they can also be used as pest controlling agents, textile auxiliaries, additives for petroleum products, means for flame proofing polymers, ion exchangers and the like.

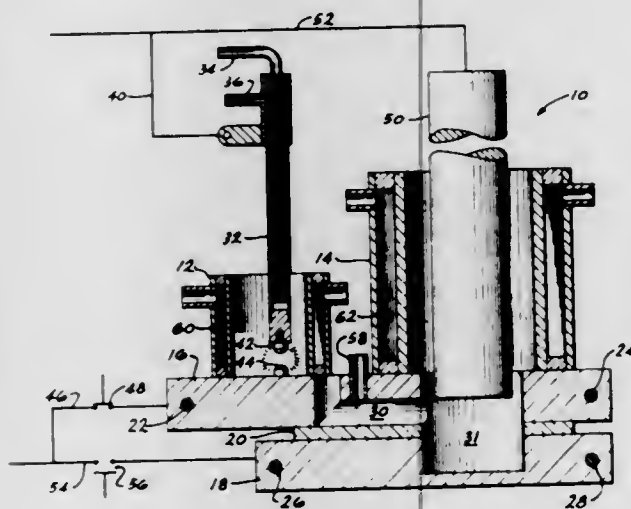
ELECTRICAL

3,654,373 APPARATUS FOR INITIATING THE HEAT GENERATION PHASE OF AN ELECTROSLAG REFINING PROCESS

Dennis E. Savor, Hixson, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 10, 1970, Ser. No. 96,837

Int. Cl. H05b 3/60
U.S. Cl. 13-9

1 Claim



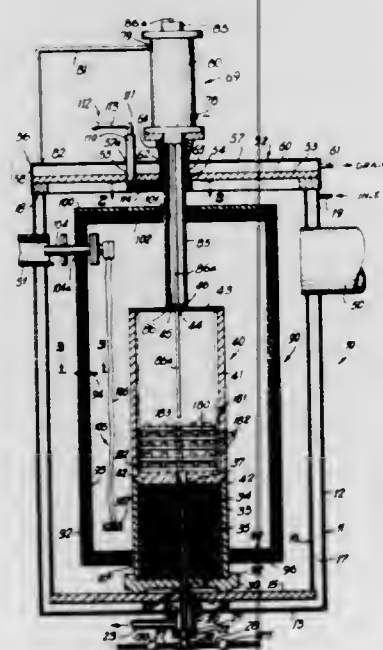
Apparatus for initiating the electroslag refining process including a slag melting mold and a metal refining mold, a passageway joining the lower portion of the two molds, and means for introducing inert gas into the passageway.

3,654,374 APPARATUS FOR AND METHOD OF DE-WAXING, PRESINTERING AND SINTERING POWDERED METAL COMPACTS

Gerard Scheyer, Morris Plains, N.J., assignor to Adamas Carbide Corporation, Kenilworth, N.J.
Filed July 25, 1969, Ser. No. 844,972

Int. Cl. F28b 7/06, 11/02
U.S. Cl. 13-31

19 Claims



In this apparatus a de-waxing operation is performed in hydrogen, and the same vessel is used for vacuum sintering

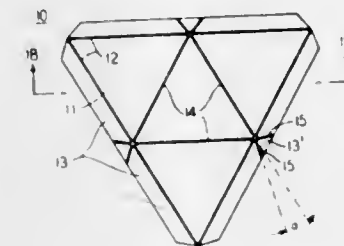
without moving of the part to be heat treated, and in one continuous operation.

3,654,375 STRUCTURAL UNIT AND ASSEMBLY

John H. Geiger, 57 North Maple Ave., Basking Ridge, N.J.
Filed Mar. 20, 1970, Ser. No. 21,231

Int. Cl. A63h 33/04
U.S. Cl. 35-72

5 Claims



A pliable structural unit which is combinable with other similar units to form a geometric assembly with multiple faces contributed by the various units.

Each unit is formed from a sheet of pliable material marked to indicate how it can be folded to serve as a single polygonal face of an assembly, or provide a multiplicity of faces. The marking is illustratively made by score lines which delimit and appear on the faces of the units and tabs. Such lines facilitate the desired folds, indicate removable material on the tabs, and limit the degree of transverse bulge for units forming single faces. The tabs permit fastening to similar tabs of other units. Fastening may take place using ordinary adhesives and standard fasteners such as paper clips.

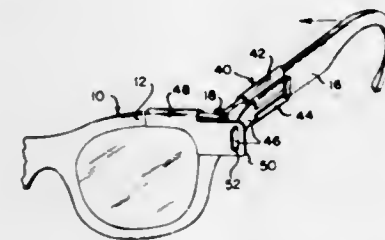
3,654,376 PRESSURE MEANS FOR USE WITH EYEGGLASS FRAMES

Thomas J. Lyons, Sr., 152 Home St., Pittsburgh, Pa.

Filed Apr. 15, 1969, Ser. No. 816,220

Int. Cl. G02c 5/16
U.S. Cl. 351-113

6 Claims



Pressure means for use with eyeglass frames, including a main support body which snugly fits over the temple portion of the frame, and an elongated spring member held by the support body and shaped to engage the end piece of the frame front when the temple is substantially fully open such that the spring is placed in tension and a pressure is exerted on the temple to urge it towards its closed position.

3,654,377 ELECTRICAL LEADS FOR CRYOGENIC DEVICES

Robert B. Fleming, Scotia, and Carl H. Rosner, Schenectady, both of N.Y., assignors to General Electric Company
Filed Dec. 15, 1969, Ser. No. 885,225

Int. Cl. H01b 7/34
U.S. Cl. 174-15

6 Claims

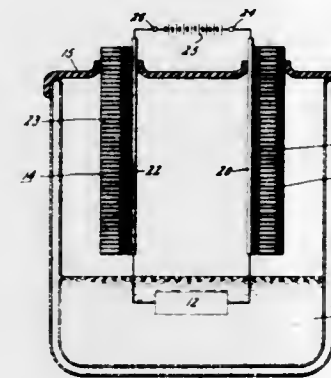
Heat which is conducted into the cryogenic environment of a cryogenic liquid or gas along an electrical lead of a

APRIL 4, 1972

ELECTRICAL

301

device immersed therein is shunted into a stack of perforated plates, each spaced from adjacent plates by insulating separators, and each of which is conductively connected by a



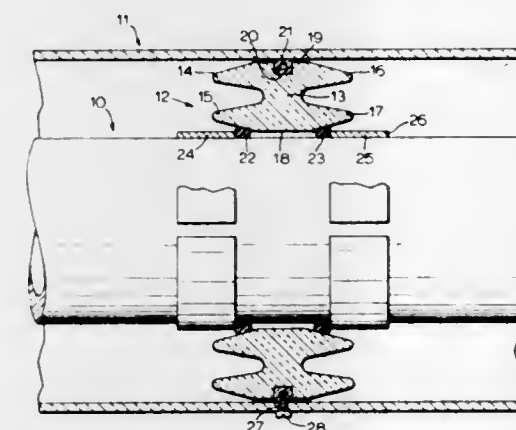
respective tap to the lead. Vapor evaporated from the bath is passed through the plates which absorb the heat that would otherwise pass through the lead into the bath, thereby reducing the boil-off of liquid from the bath.

3,654,378 BUS DUCT ASSEMBLY

Robert H. Rehder, Peterborough, Ontario, Canada, assignor to Canadian General Electric Company Limited, Toronto, Ontario, Canada
Filed Mar. 12, 1971, Ser. No. 123,668

Int. Cl. H01b 9/04
U.S. Cl. 174-16 B

4 Claims



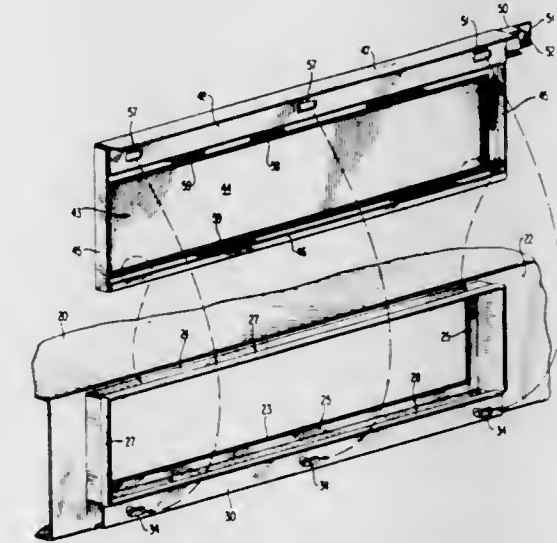
In isolated phase bus duct, a circular bus bar is supported coaxially inside a circular housing by means of a number of annular insulators spaced along the length of the bus inside the housing. Each insulator is in the form of a collar having a mid ring portion with annular skirts on both ends. The insulator surrounds the bus and extends radially outward from it to the housing. An elastomeric ring surrounds the bus at either end of the insulator and is compressed lightly between the bus and the inner sloping surface of the inner skirt on the insulator by means of a number of tabs secured to the bus. The outer periphery of the insulator has an annular groove which contains an elastomeric ring compressed lightly between the insulator and the housing. These rings cushion the assembly and allow the bus to move towards its position of zero forces from short circuit currents. This reduces the short circuit stresses imposed on the assembly.

3,654,379 SECURITY CLOSURE FOR ELECTRICALLY SHIELDED CABLE RACEWAY

Donald Howard Rodgers, Smithsburg, Md., assignor to The Danzer Metal Works Co., Inc., Hagerstown, Md.
Filed Oct. 22, 1970, Ser. No. 82,972

Int. Cl. H05k 9/00
U.S. Cl. 174-35 GC

11 Claims



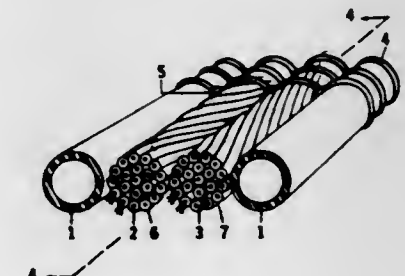
A shielded raceway duct is provided in one wall thereof with an access opening surrounded by an adapter collar having a shielding gasket abutment flange. A cover unit has interlocking hinged engagement with the collar and contains an RF energy tight gasket engageable with said flange of the adapter. The adapter carries a side extension which supports spaced quick release fasteners and the cover carries an overlying housing extension having openings to receive the heads of the fasteners. A locking member slidable within the housing extension of the cover is shiftable between positions where the fastener heads are exposed for manipulation and where they are covered and rendered inaccessible. The locking member is securely lockable to the cover in the fastener covering position.

3,654,380 WOVEN CABLE WITH OPPOSITELY-TWISTED CONDUCTOR GROUPS AND FLUID TUBES

Odes D. Tatum, and Edgar A. Ross, both of Greenville, S.C., assignors to Southern Weaving Company, Greenville, S.C.
Filed Sept. 1, 1970, Ser. No. 68,612

Int. Cl. F16l 1/12; H01b 7/08, 11/02
U.S. Cl. 174-47

10 Claims



A woven cable including two bundles of twisted insulated wires. The wires in the two bundles are twisted in opposite directions. The bundles are bound together in side-by-side relationship by means of warp and weft threads. Two hollow flexible plastic tubes are bound together with the wire bundles in order to form a cable which carries both electrical signals and fluids for use in fluid-pressure controlled systems. The reverse twisting of the wires in the bundles prevents the cable from curling or becoming distorted into other undesirable shapes.

3,654,381

WOVEN FLAT CONDUCTOR

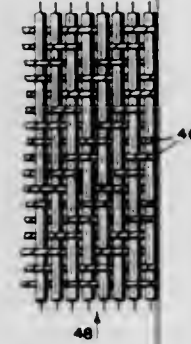
Albert R. Copp, Hudson, Mass., assignor to Surprenant, Inc., Jaffrey, N.H.

Filed June 26, 1970, Ser. No. 50,227

Int. Cl. H01b 7/08

U.S. Cl. 174-117 F

7 Claims



A woven flat cable. The cable is woven with a warp consisting solely of conductors. The conductors are fed through a warp feeding unit to be woven on a shuttle, needle or other loom under constant tension. Each cable may comprise diverse conductors, may be woven differently and may be printed after it is woven.

3,654,382

GROMMET CONSTRUCTION

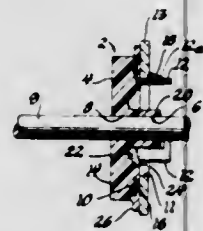
Phillip L. Rubright, Berkley, Mich., assignor to Arco Industries Corporation, Detroit, Mich.

Filed June 1, 1970, Ser. No. 42,331

Int. Cl. F16l 5/00; H01b 17/26

U.S. Cl. 174-153 G

8 Claims



An improvement in the grommet construction shown in U.S. Pat. No. 3,182,119 wherein an elastomeric body is formed with an opening having a sealing surface for engaging a member to be supported by the grommet with a base member of non-elastomeric material embedded in the elastomeric body and having a plurality of integral fingers projecting from one side of the elastomeric body for retaining the grommet on a panel having an opening to be sealed by the grommet. In the improvement, each of the fingers has a resilient locking tang struck therefrom which extends outwardly from the respective finger and projects away from the outer end of the respective finger toward the elastomeric body, the tang being resiliently deflectable toward its respective finger when the finger is inserted in a panel opening until the free end clears the opening and snaps into engagement with the opposite side of the panel from the elastomeric body to secure the grommet to the panel and hold the elastomeric body in sealing engagement with the panel.

3,654,383

SELF-SUPPORTING ELECTRIC FENCE POST INSULATOR

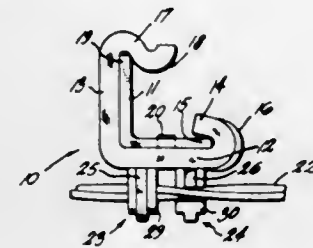
Robert M. Wilson, Battle Creek, Mich., assignor to Dare Products, Incorporated, Battle Creek, Mich.

Filed June 4, 1970, Ser. No. 43,468

Int. Cl. H01b 17/16; A01k 3/00

U.S. Cl. 174-163 F

11 Claims



An integral wraparound self-supporting electric fence post insulator is provided integrally molded of an electrically insulating material. The insulator is provided with integral hooks or clamps for attaching to the face edges of a fence post as, for example, a fence post having either an angle-shaped or T-shaped cross-section. An outer face of the insulator is provided with a pair of laterally spaced apart hooks, one having its jaw disposed upwardly and the other having its jaw disposed downwardly. The insulator may be readily mounted on a fence post by engaging its hooks or clamp edges around the free edges of the fence post. A fence wire which is to be electrically charged is then placed in the channel defined by the two hooks, where it will be permanently retained in a condition insulated from the fence post.

3,654,384

APPARATUS FOR MODIFYING ELECTRICAL SIGNALS

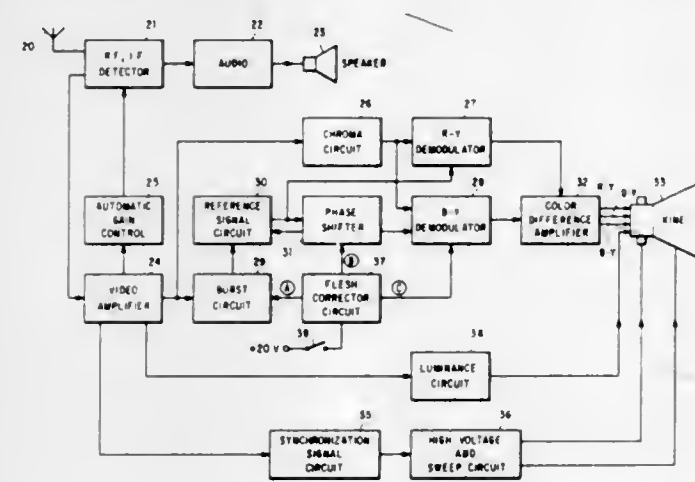
John M. Kresock, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.

Filed May 25, 1970, Ser. No. 40,239

Int. Cl. H04n 9/12

U.S. Cl. 178-5.4 HE

13 Claims



A circuit for color television which demodulates the chroma signal along two demodulator axes, that improvement where one demodulation axis is given a predetermined added lead angle and the second demodulation axis is given a predetermined added lag angle so that their separation is greater. Also in the improvement, the gain of the one demodulator is made relatively substantially less than the gain of the second demodulator. By changing the relative phase separation of the two demodulation axes and changing the relative gains of the two demodulators, colors demodulated from the chroma signal will be shifted, in the flesh range, toward a predetermined flesh color thereby providing desired flesh tone over a wide variety of transmitting conditions. The adjustments may also be made to the transmitting equipment to obtain the desired above advantage.

3,654,385

COLOR TELEVISION SYSTEM

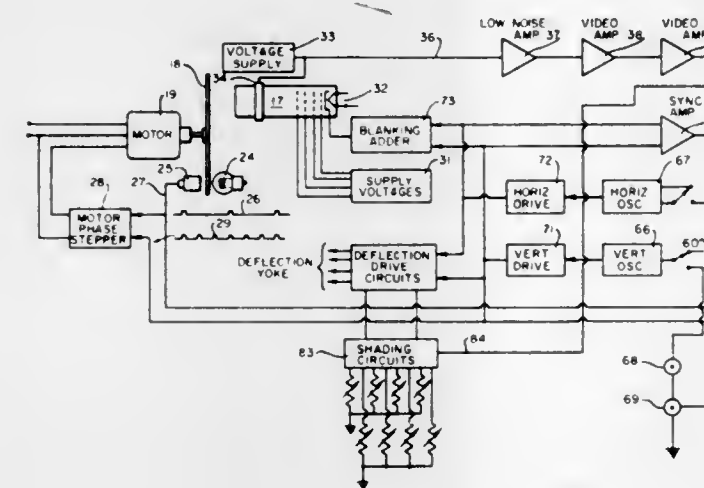
Harry David Flagle, Studio City, Calif., assignor to Video West, Inc., Beverly Hills, Calif.

Filed July 7, 1969, Ser. No. 839,175

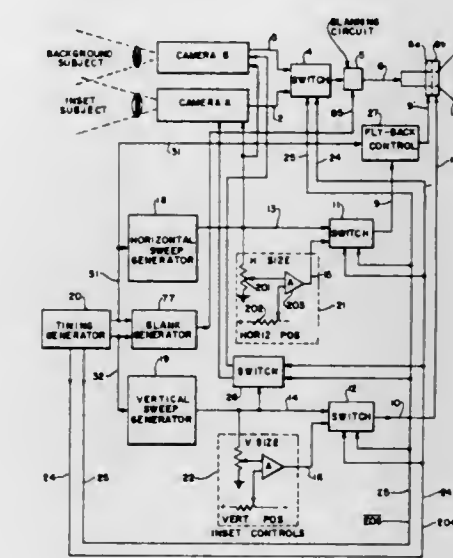
Int. Cl. H04n 9/34

U.S. Cl. 178-5.4 SY

7 Claims



tially overlapping areas of a kinescope screen by means of scanning signals synchronized with those of the video signal



generation but of unlike horizontal and/or vertical amplitude on the successive fields.

3,654,387

VIDEO TAPE RECORDER SYNCHRONIZING SYSTEM

Kenneth Louth, Auburn, Calif., assignor to RCA Corporation, New York, N.Y.

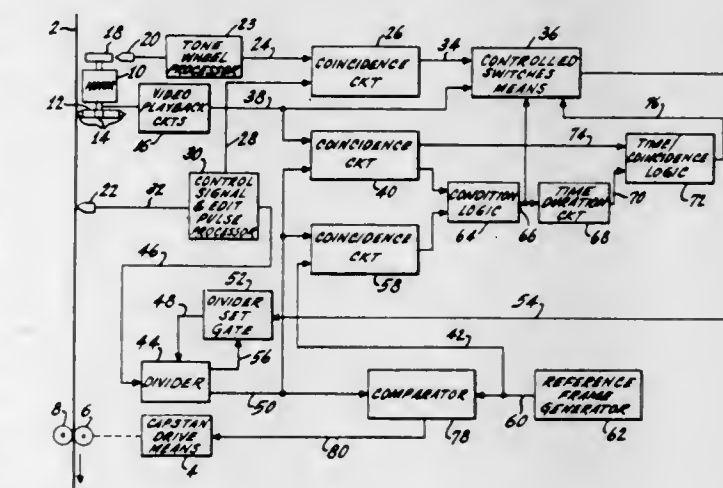
Filed June 23, 1969, Ser. No. 835,396

Claims priority, application Great Britain, Mar. 21, 1969, 14,947/69

Int. Cl. G11b 15/28, 15/52; H04n 5/78

U.S. Cl. 178-6.6 P

7 Claims



A color television system employing a camera tube with a rotating disc or drum serving to filter the light impinging on the tube to sequentially provide red, green and blue images or fields of the object being viewed to the tube. The rotating member is driven by a synchronous motor at a rate which provides images at 120 c.p.s. rate. The camera tube circuit includes means for decreasing the lag of the tube whereby it operates with minimum mixing of the colors between fields. A motor control keeps the rotating member in phase with the vertical synchronizing pulses. The output signal from the camera tube is amplified and applied to separate circuits for independently adjusting the gain of the color field signals produced by the camera. The signals are gated to provide sequential fields and synchronizing signals added. The synchronizing signals include horizontal and vertical pulses and a high frequency burst to mark the beginning of a selected color field signal. The composite signal can be recorded and reproduced by a conventional black and white television recorder. A switching and control circuit serves to control the tri-color tube of a conventional receiver to sequentially display the color fields at a 40 c.p.s. rate. Persistence of vision melds or blends the fields to give the effect of a color image. The receiver may be used to receive conventional NTSC color signals.

3,654,386

DUAL RASTER TELEVISION SYSTEM

Matthew C. Baum, Washington Township, Westwood County, N.J., assignor to Farrand Optical Co., Inc., Bronx, N.Y.

Filed Apr. 6, 1970, Ser. No. 26,035

Int. Cl. H04n 5/100

U.S. Cl. 178-6

4 Claims

A television system includes one or more cameras generating signals of non-identical scenes on successive fields of a scanning pattern including line interlace. The video signals from these fields are presented over non-coincident but par-

There is disclosed a technique for use in a recorder-reproducer system to provide synchronization between video information playback of the system and a local video information source. In the arrangement provided, a synchronizing signal which is produced from a first control track signal of the system, is phase compared with a reference signal from the local source. The first control track signal is one which can have one of many phase relationships with respect to the reference signal, only one of which is the desired one. A second signal from the control track and a signal extracted from the video signal are recovered from the record medium. Both of these signals can provide information as to the desired phase relation between the synchronizing signal and the reference signal. Means are provided for examining the recovered signals, for selecting the one that best defines at that time the desired phase relationship and for utilizing that signal to control the production of the synchronizing signal.

3,654,396

TELEPHONE SCREENING SYSTEM

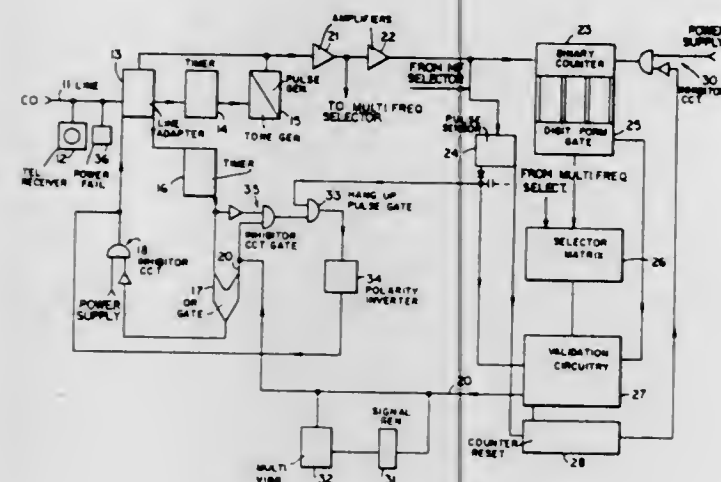
Nicolaas Biezeveld, 17 Coronet Ave., Mill Valley, Calif.

Filed Oct. 24, 1969, Ser. No. 869,209

Int. Cl. H04m 3/38

U.S. Cl. 179-18 D

10 Claims



A system for screening incoming telephone calls for use in a conventional telephone system of telephone calling and receiving stations and central office equipment in which a line adapter receives at a telephone station, signals initiated by a calling station and establishes a communication path between the telephone receiving station and calling station. Logic circuitry for receiving and processing additional signals initiated by the calling station identifies such additional signals, compares the additional signals with a program code for validation, and actuates an indicator if the additional signals are validated.

3,654,397

SYSTEM FOR PRODUCING AN ELECTRICAL OUTPUT SIGNAL IN CORRESPONDENCE WITH A MAGNETIC RECORDING

Saburo Uemura, Kanagawa, and Yoshitaka Hashimoto, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

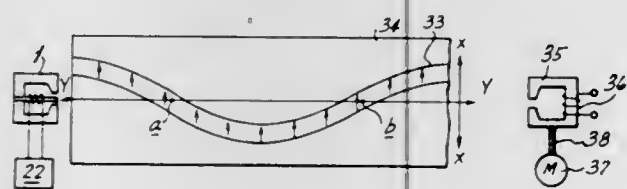
Filed Mar. 20, 1970, Ser. No. 21,285

Claims priority, application Japan, Apr. 9, 1969, 44/27844

Int. Cl. G11b 5/30, 5/08

U.S. Cl. 179-100.2CF

15 Claims



In a magnetic field detecting system having a dual-gap, magnetic flux responsive head and a magnetic flux generating source magnetized in directions across the gaps of the head, the source and head are moved relative to each other in a direction at right angles to the direction of magnetization, and such magnetization has a pattern that varies along the source considered in the direction of relative movement so that the output of the head may provide a signal of any desired wavelength limited only by the magnetization pattern.

3,654,398

DEVICE TO KEEP A CAPSTAN IN PHASE WHEN SWITCHING MODES

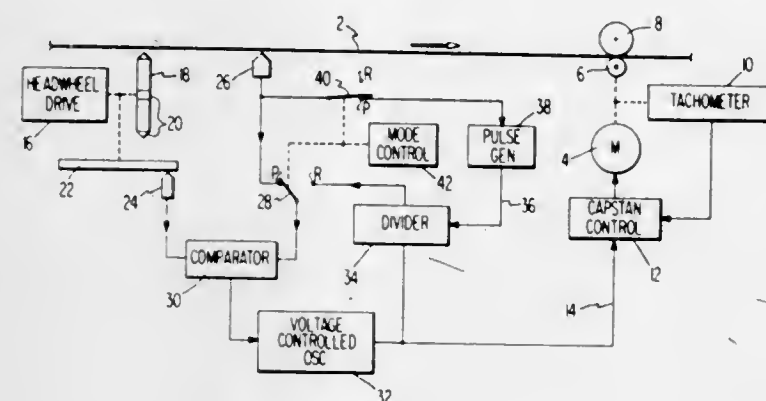
Kenneth Louth, Menlo Park, Calif., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,467

Int. Cl. G11b 27/08

U.S. Cl. 179-100.2 B

5 Claims



A capstan control useful in a recorder reproducer system in the performance of splicing operations, for example. The capstan is controlled for playback and record in response to the error comparison of a tonewheel signal and a selectable one of two other control signals. The control signals are made to be phase correlated to minimize disturbances of the capstan operation when the system is switched between the playback and record modes.

3,654,399

SOUND EFFECT GENERATOR WITH ROTATING MAGNETIC DISK

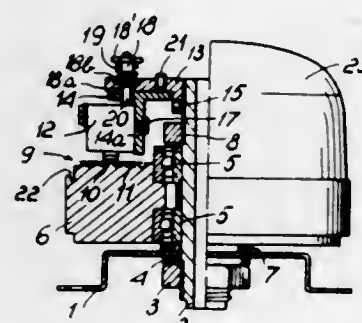
Sergio Montanari, Via Innerio 22, Bologna, Italy

Filed May 8, 1970, Ser. No. 35,678

Int. Cl. G10h 3/04; G11b 5/82

U.S. Cl. 179-100.2 A

2 Claims



A sound effects generator using the playback of signals from an enclosed rotating magnetic disk to produce the sound. Features include a magnetic disk glued to a ventilated groove on a rotating flywheel, and an adjustable head.

3,654,400

WEB HANDLING APPARATUS

Bernard L. Dickens, Cherry Hill; Leonard J. Kudla, Haddon Heights; Arch C. Luther, Jr., and Bruno F. Melchionni, both of Cherry Hill, all of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 17, 1969, Ser. No. 807,839

Int. Cl. G11b 15/66, 23/10

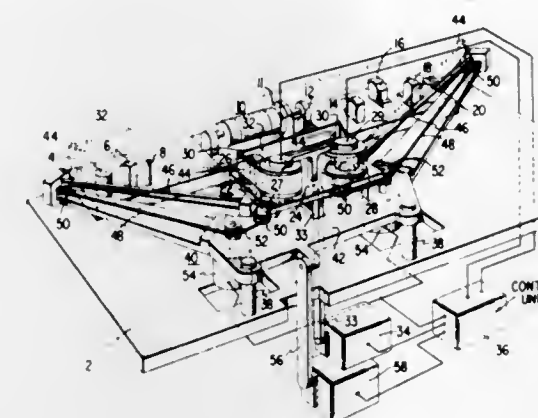
U.S. Cl. 179-100.2 T

9 Claims

Apparatus for automatically disposing a record web for operation by the transport of a recorder-reproducer system. The web is first formed into a given shape which approxi-

mates the shape of the operating path defined by the transport elements. The web is then interlaced with the elements

aids in its evaluation. This element may be either the slit aperture itself or a collecting lens which directs the emanating radiation to the slit aperture.



3,654,402

TRANSDUCER FOR CONVERTING ACOUSTIC VIBRATIONS INTO ELECTRICAL OSCILLATIONS, AND VICE VERSA, IN THE FORM OF A DIAPHRAGM COATED WITH AT LEAST ONE LAYER OF A PIEZOELECTRIC MATERIAL

Jan Roos, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed Sept. 25, 1969, Ser. No. 861,028

Claims priority, application Netherlands, Sept. 30, 1968, 6813996

Int. Cl. H04r 17/02

U.S. Cl. 179-110 A

3 Claims

of the transport. To retract the web, the reverse sequence is utilized.

3,654,401

PLAYBACK SYSTEM WITH RADIATION GUIDE MEMBER HAVING A SLIDE PORTION EXTENDING INTO THE GROOVE

Gerhard Dickopp; Helmut Batsch, and Eduard Schuller, all of Berlin, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt, Germany

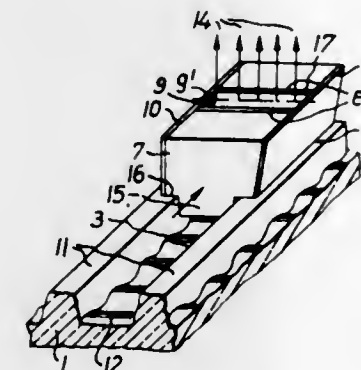
Filed May 28, 1970, Ser. No. 41,281

Claims priority, application Germany, May 29, 1969, P 19 27 408.9

Int. Cl. G11b 3/34; H04r 23/00

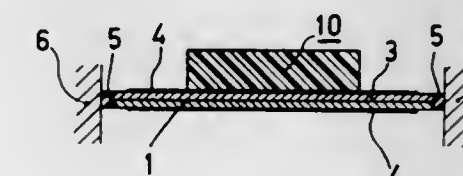
U.S. Cl. 179-100.41L

19 Claims



An improved system for reproducing signals stored on a recording medium in the form of undulations corresponding to the signals, the undulations generally being formed as a spiral groove. The undulations on the recording medium are moved past a suitable radiation source, such as a light source, and the density of the radiation emanating from the undulations, which is a function of the curvature of the undulation, is detected by a suitable radiation detecting means after it passes through a suitable slit aperture arranged at a predetermined distance from the recording medium surface so that variations in the density are a function of the undulations. The undulations may be either frequency or phase modulated with respect to the signal and their amplitude can be modified as a function of their recorded wavelength in such a manner that the curved surface portions of the undulations have nearly the same focal length for all occurring wavelengths.

The tracking of the playback system is improved by providing a radiation guide member which slides along the raised portions of the surface of the recording medium and has a slide member which extends into the particular groove or portion thereof being scanned. Formed within the guide member is an element which is optically effective for the type of radiation utilized to collect the emanating radiation and



3,654,403

ELECTROSTATIC SPEAKER

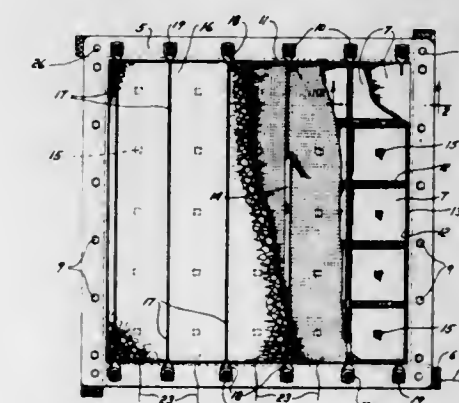
Lloyd J. Bobb, deceased, Glenside, Pa., assignor to Chester C. Pond, Doylestown, Pa. and Lucy M. Bobb, executrix, part interest to each

Filed May 1, 1969, Ser. No. 820,888

Int. Cl. H04r 19/02

U.S. Cl. 179-111 R

6 Claims



An electrostatic speaker incorporating one and preferably two flexible membranes each with a conductive coating, mounted in a frame comprising clamping surfaces for engaging the membranes and electrical contact means and for maintaining the membranes under tension, with one or more perforated backing plates in spaced position adjacent each membrane but mounted independently of the clamping engagement of the frame with the membranes, and with acoustically transparent spongy cellular damping slabs in pressure engagement with the backing plates.

3,654,404

HEADSET CRADLE

Kenneth J. Hutchings, Soquel, Calif., assignor to Pacific Plantronics, Inc., Santa Cruz, Calif.

Filed Apr. 1, 1970, Ser. No. 24,496

Int. Cl. H04m 1/06

U.S. Cl. 179-146 R

5 Claims



A cradle for supporting and positioning a communications headset on a telephone housing. The cradle includes a spring metal clip for releasably engaging a wall of the telephone housing to position the cradle so that a headset is safely held when not in use. The component elements of the headset, such as the voice tube, acoustic tube, earpiece, and cable are held by the cradle in a position free from damage and soiling.

3,654,405

HANDSET REST ATTACHMENT DEVICE FOR WALL TELEPHONES

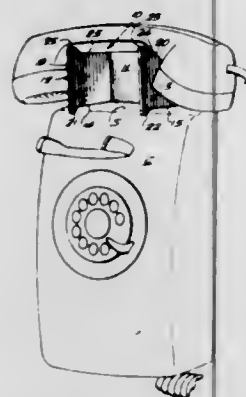
Marvin M. Hanson, and Jose Baltar, both of 4152 E. 10th Ln., Hialeah, Fla.

Filed June 12, 1970, Ser. No. 45,610

Int. Cl. H04m 1/04

U.S. Cl. 179-146

5 Claims



An attachment device for resting the handset portion of a wall-hung telephone equipment is described, comprising a unitary structure having a back wall portion and two spaced-apart, forwardly-extending wall portions the upper edges of which are formed with recesses for cradling the handset therebetween. The back wall portion is formed along its lower edge with a downwardly-extending lip which is adapted to be pressed down between the wall-hung telephone equipment cover and the mounting wall to secure the device in place without the use of cement, attachment screws or the like.

3,654,406

DEVICE FOR ADJUSTABLY MOUNTING A MICROPHONE ON A HEADSET

Karl Reinthaler, Wien, Austria, assignor to AKG Akustische U. Kino-Geräte Gesellschaft m.b.H., Vienna, Austria

Filed Nov. 5, 1970, Ser. No. 87,243

Claims priority, application Austria, Nov. 7, 1969, 10504/69

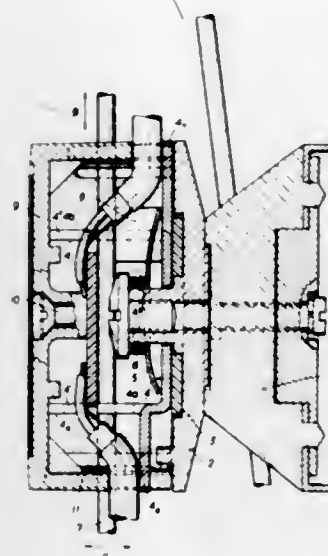
Int. Cl. H04m 1/05

U.S. Cl. 179-152

7 Claims

A U-shaped supporting pedestal is rotatably and frictionally secured at its bight portion to a support member at-

tached to the earphone of a headset. The limbs of the pedestal extend outwardly from the support member and are slotted to receive an elongated microphone arm which is longitudinally displaceable through the slots. Further, the arm



can be positioned by rotating the pedestal on the support member and by laterally displacing the arm within the slot in one limb while it is held in frictional engagement within the slot in the other limb.

3,654,407

COMPRESSION SWITCH

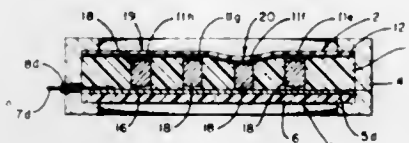
Theodore S. Kepner, Sunnyvale, and Michael F. Miller, Los Altos, both of Calif., assignors to Sylvania Electric Products Inc., Mountain View, Calif.

Filed June 8, 1970, Ser. No. 44,218

Int. Cl. H01h 3/14

U.S. Cl. 200-86 R

1 Claim



This matrix switch comprises rigid and flexible printed circuit boards oriented such that separated sets of parallel strip conductors on the boards extend transversely of each other, i.e., in a grid pattern. The boards are stacked such that the conductors of each set are spaced apart by a sponge rubber pad having an aperture therethrough at each crossover point on the grid of conductors. Each aperture contains a conductive element with a height less than that of the pad and having convexly curved surfaces adjacent the conductors. The switch is closed by manual pressure on the flexible board at a selected crossover point to compress the pad until the crossed conductors engage the aligned element and close the switch at that point.

3,654,408

DIFFERENTIAL-MOTION TIMER

James M. Meek, 1600 Atwood Road, Silver Spring, Md.

Filed Apr. 30, 1970, Ser. No. 33,457

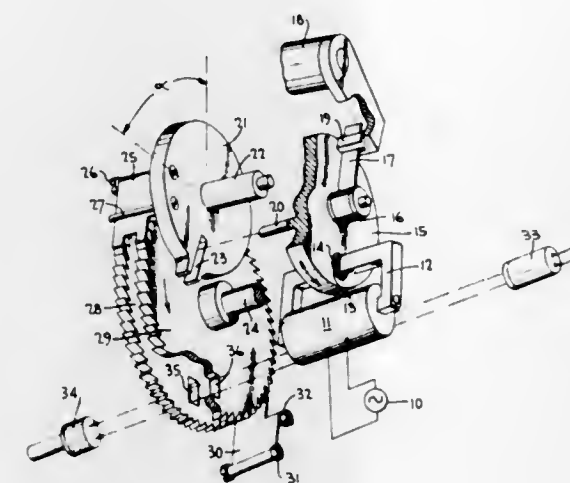
Int. Cl. H01h 43/18

U.S. Cl. 200-33 R

11 Claims

A differential-motion timer. Reciprocating motion of a predetermined frequency and angular displacement is converted into unidirectional rotary motion by means of at least two ratchet wheels coaxially aligned and independently free-wheeling and each having a different number of notches. Each of the ratchet wheels is driven by a ratchet drive which

is connected to the reciprocating element. Accordingly, each ratchet wheel can convert reciprocating motion to unidirectional rotary motion, the speed of the rotary motion being, on the average, proportional to the driver frequency. Since each of the ratchet wheels has a different number of notches, it follows that each of the wheels will be driven at a



slightly different speed by the single ratchet driver. This difference speed is the timing motion and the relative angular positions of the wheels correspond to the elapsed time. A switch is actuated whenever certain preselected corresponding points on each of the ratchet wheels arrive at predetermined positions.

3,654,409

METAL-CLAD HIGH VOLTAGE CIRCUIT BREAKER APPARATUS

Claus Kessler, Berlin, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

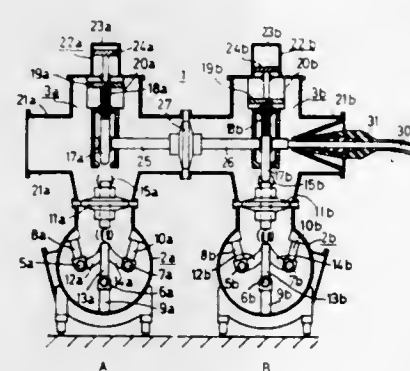
Filed Nov. 9, 1970, Ser. No. 87,834

Claims priority, application Germany, Nov. 14, 1969, P 19 58 837.5

Int. Cl. H01h 31/00

U.S. Cl. 200-48 R

9 Claims



An output line has two branches, each of which is provided with a corresponding circuit breaker. The high voltage circuit breaker apparatus is housed in a metal covered housing which is divided into a plurality of areas which are provided with an insulating medium of higher grade than air at atmospheric pressure. Each of the circuit breakers is in direct electrical contact with a corresponding one of the bus bars and with the other circuit breaker. The circuit breakers are separated from each other by a partition in the housing and each bus bar is separated from the corresponding circuit breaker by a partition in the housing. The output line is electrically connected directly to a circuit breaker.

3,654,410

PIVOTED INERTIA SWITCH SELF-ORIENTING ALONG A LINE OF DECELERATION IN A PRESCRIBED ANGULAR PATTERN

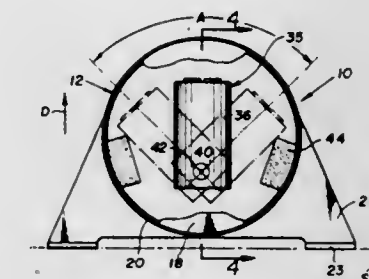
James R. Miller, Huntington, N.Y., assignor to Aerodyne Controls Corporation, Farmingdale, N.Y.

Filed Dec. 8, 1970, Ser. No. 96,108

Int. Cl. H01h 35/14

U.S. Cl. 200-61.45 R

10 Claims



An inertia switch assembly includes a support in the form of a casing in which an inertia switch body is mounted for free swinging in an angular pattern so that the switch body aligns itself with the direction of an applied force. Inertia means in the switch body responds slower to the applied force than the switch body. The inertia means include a conductive member which contacts terminal pins pivotally supporting the switch body.

3,654,411

BREAK-AWAY SWITCH

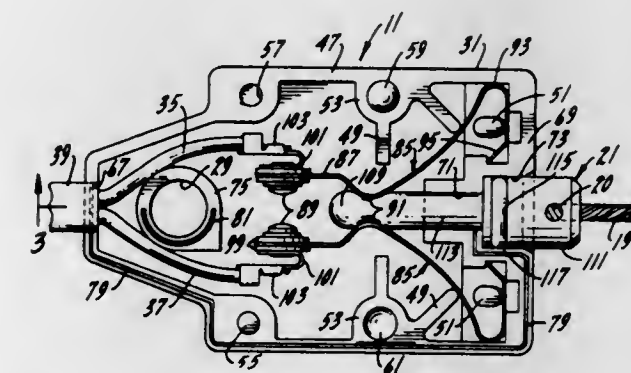
Joseph F. Wöhrlich, Warren, and Donald L. Endsley, Marion, both of Ind., assignors to United Filtration Corporation, Chicago, Ill.

Filed Nov. 23, 1970, Ser. No. 91,941

Int. Cl. H01h 27/04

U.S. Cl. 200-61.19

3 Claims



A break-away safety switch suitable for installation in the electrical system of a trailer for use in completing an electrical circuit to apply the brakes of the vehicle or to actuate an alarm. The switch is contained in a compact waterproof housing of low silhouette which is pivotally mounted on a trailer. The housing is formed of a pair of identical half sections of plastic which are fused together along a longitudinal mating periphery to seal the housing and thereby prevent corrosion of the electrical switch parts located therein. The wiring and break-away plunger enter the housing through openings located in the opposite ends thereof. The plunger is equipped with an O-ring to seal its opening into the housing. The electrical contacts of the switch are mounted on individual springs which are biased towards each other and held apart by the plunger.

3,654,412

MOTOR VEHICLE PRESSURE ACTUATED DEFORMATION RESPONSIVE SWITCH WITH PISTON ACTUATOR AND VENT OPENING

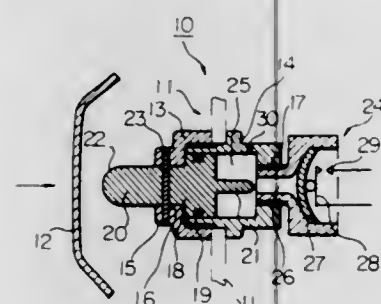
Takashi Haruna, Yokosuka, and Hitoshi Sato, Yokohama,
both of Japan, assignors to Nissan Motor Company
Limited, Yokohama, Japan

Filed Feb. 10, 1971, Ser. No. 122,881

Int. Cl. H01h 35/34, 35/14; B60r 27/00

U.S. Cl. 200-832

6 Claims



A trigger switch mechanism adapted to actuate motor vehicle safety devices in response to deformation of a particular portion of the vehicle body resulting from a collision of the motor vehicle with an obstruction. The mechanism comprises a cylinder mounted inside the particular portion of the vehicle body. A slidable piston is mounted within the cylinder and has a rod integrally formed therein. The rod extends axially from the piston and terminates at a suitable distance from the particular portion of the vehicle body. Deformation of the particular portion of the vehicle body exerts a force on the piston tending to move it in one direction. A shear pin is provided in the cylinder to prevent such piston movement until the force exceeds a predetermined magnitude. A pressure-sensitive switch is provided to close a circuit leading to the safety devices when the pressure within the cylinder chamber exceeds a predetermined level caused by the movement of the piston. A vent opening is provided in the cylinder so that the pressure within the same cannot exceed the predetermined level in the event of only a slight collision. The piston has another rod extending axially from the piston in the other direction. When the displacement of the piston exceeds a predetermined magnitude, the rod acts directly on the pressure-sensitive switch to close it.

3,654,413

BI-DIRECTIONAL SELECTOR SWITCH WITH SLIDABLE PAWL TRANSVERSE TO PLUNGER AXIS AND RATCHET WHEEL PLANE

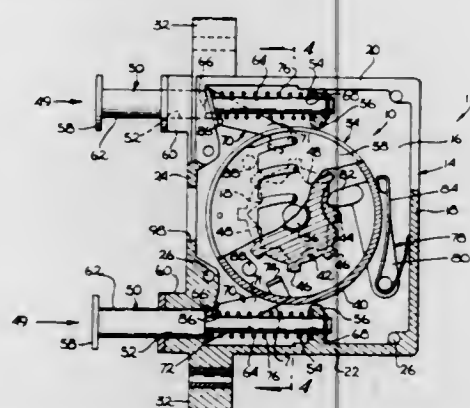
Lewis W. Jordan, Newhall, and Leon A. Cernlway, Burbank,
both of Calif., assignors to Janco Corporation, Burbank,
Calif.

Filed Feb. 12, 1970, Ser. No. 10,738

Int. Cl. H01h 13/58

U.S. Cl. 200-156

11 Claims



A bi-directional rotary ratchet mechanism and rotary stepping switch embodying the mechanism. The ratchet

mechanism has a pair of actuating plungers straddling a ratchet wheel and each rockably mounting a spring-loaded wheel actuator or pawl which rotates under spring action into driving engagement with the ratchet wheel to step the latter in one direction of rotation upon movement of the respective plunger through a wheel driving stroke. During the return stroke of the plunger to its normal position, the pawl engages an interior surface of the ratchet housing which rotates the pawl outwardly away from the ratchet wheel against spring action to a position where the pawl clears the wheel for stepping rotation in the opposite direction by the other plunger and pawl. The rotary stepping switch has electrical contacts mounted on the ratchet wheel and housing so that stepping rotation of the wheel through its stepping positions results in successive closure of the switch contacts.

3,654,414

INDICATOR SWITCH ASSEMBLY

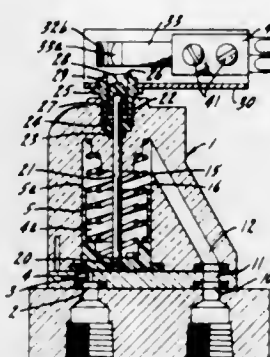
Walter J. Kudlaty, Elmhurst, Ill., assignor to Marvel Engineering Company, Chicago, Ill.

Continuation application Ser. No. 771,924, Oct. 30, 1968, now abandoned. This application July 7, 1970, Ser. No. 56,151

Int. Cl. H01h 9/16

U.S. Cl. 200-167 R

2 Claims



An indicator switch assembly for filters wherein a piston responsive to differential pressures within the filter housing is movable to indicate the differential between said pressures and to move a finger member between a pair of closed switch arms to separate the same and break the circuit therebetween, continued movement of said finger member being effective to close at least one of said switch arms with a third switch arm to create a circuit therebetween.

3,654,415

PENDANT HOIST CONTROL DEVICE

Harold V. Hawkins; Ralph A. Dick, both of Williamsville, N.Y., and Edgar A. Bongort, Southfield, Mich., assignors to Columbus McKinnon Corporation, Tonawanda, N.Y.

Filed Sept. 24, 1970, Ser. No. 75,087

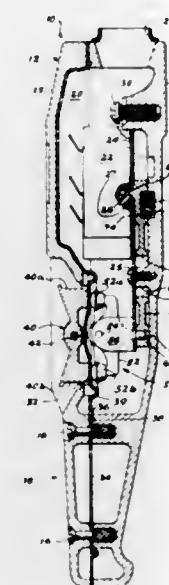
Int. Cl. H01h 9/06, 9/04

U.S. Cl. 200-168 G

9 Claims

The hoist control features a casing of pistol grip like construction, which serves to enclose electrical switches, and an externally mounted rocker operator for controlling operation

of the switches. Rocker movement is transmitted to the switches through a moisture sealing diaphragm and a switch the air exhaust end of the cavity, such filter means having a reservoir to collect condensation so that a large volume of



actuating means arranged within the casing for movement in response to rocker induced movement of the diaphragm.

3,654,416

SEALED TILT SWITCH

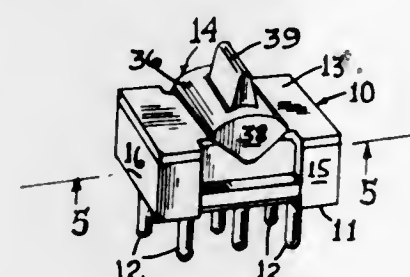
Walter L. Cherry, and Michael F. Bedocs, both of Highland Park, Ill., assignors to Cherry Electrical Products Corporation, Highland Park, Ill.

Filed Oct. 23, 1970, Ser. No. 83,498

Int. Cl. H01h 9/04

U.S. Cl. 200-168 G

9 Claims



A sealed switch housing including an external tiltable switch actuating member adapted to be operatively connected to an internal switch actuator, with the actuating member and actuator arranged upon a cover utilized to close and seal a switch components compartment. Means are provided whereby the cover is positionable in sealing relation upon the peripheral edges of the compartment after the external actuating member and internal actuator are connected together to either side of the cover, with the cover and compartment providing complementary elements that form rotatable bearing seats for bearing members provided by the internal switch actuator.

3,654,417

MICROWAVE OVEN INCLUDING AIR FLOW SYSTEM Wallace R. Javes, and Vernon E. Cassibo, both of Minneapolis, Minn., assignors to Litton Precision Products, Inc., Beverly Hills, Calif.

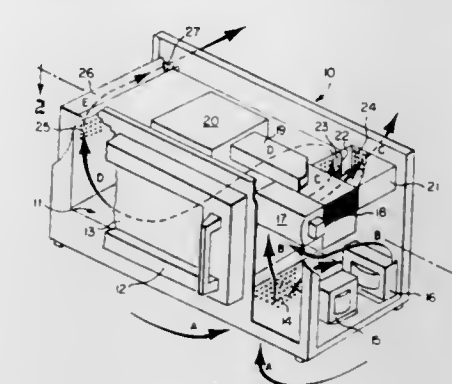
Filed Oct. 30, 1970, Ser. No. 85,539

Int. Cl. H05b 9/06

U.S. Cl. 219-10.55

3 Claims

An improved air flow system for a microwave oven which includes blower means for providing a heated air flow, a portion of this heated air flow is directed into the cavity of a microwave oven by duct means. Filter means is located on



condensation-laden air is not exhausted from the microwave oven at any one time.

3,654,418

METHOD AND APPARATUS FOR THE MANUFACTURE OF WIRE RINGS

John Wyatt Meacher, Gerrards Cross, and David Stanley Pile, Garston, both of England, assignors to The Westminster Engineering Company Limited, Harrow, Middlesex, England

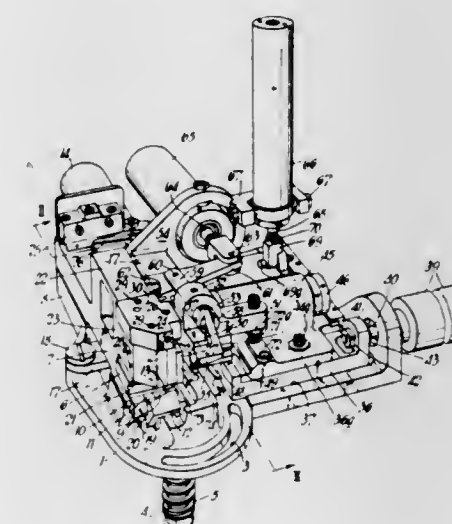
Filed Apr. 13, 1970, Ser. No. 27,805

Claims priority, application Great Britain, Apr. 18, 1969, 19,839/69

Int. Cl. B23k 11/00

U.S. Cl. 219-56

9 Claims



The invention relates to a method and apparatus for the manufacture of wire rings. The Specification discloses a method of manufacturing a wire ring by feeding a length of wire past a first welding electrode and forming said wire to take up a ring shape with a free end having its axis displaced from the axis of the section of said wire passing said first welding electrode. The free end of the wire is clamped to a second welding electrode, the wire passing the first welding electrode is clamped to that electrode and the wire is cut between the electrodes. Relative movement of the electrodes then takes place to bring the free end and the cut end of the wire together with their axes substantially aligned and the free end and the cut end are then butt welded together. This method may be performed by a butt welding attachment designed for fitting to existing wire ring forming machines or a wire ring forming machine may be built to include necessary welding apparatus. The invention enables wire rings to be formed without the need for a handling operation between the ring forming and the welding steps.

3,654,419

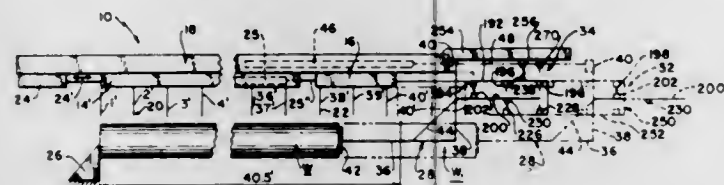
TRACK WELDING APPARATUS

Hugo H. Ovando, Napa, Calif., assignor to Kaiser Steel Corporation, Oakland, Calif.

Filed Mar. 10, 1971, Ser. No. 122,789
Int. Cl. B23k 9/12

U.S. Cl. 219-60 R

12 Claims



Improved adjustable fixture for pipe tack welding apparatus whereby the apparatus can tack weld a pipe section that has a length greater than the length of the apparatus itself by simple adjustment of a fixture together with a sensing device for controlling adjustment of the fixture.

3,654,420

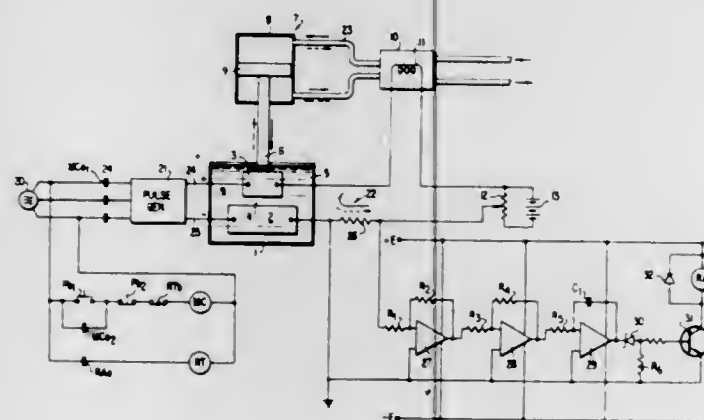
APPARATUS FOR SHAPING A WORKPIECE BY ELECTRICAL DISCHARGE WITH DETECTION MEANS FOR STOPPING THE SHAPING OPERATION UNDER ABNORMAL CONDITIONS

Nagao Saito, Yokichi Kuji, and Sinji Arai, all of Nagoya, Japan, assignors to Mitsubishi Electric Corporation, Tokyo, Japan

Filed Aug. 14, 1970, Ser. No. 63,760
Int. Cl. B23p 1/08, 1/14

U.S. Cl. 219-69 S

7 Claims



An apparatus for shaping a workpiece by electrical discharge in a gap between the workpiece and a shaping electrode. An oil pressure servo-mechanism is used to maintain the gap at a constant value. The shaping process takes place within a tank filled with an inflammable liquid. Under abnormal conditions, an undesirable deposit, such as carbon, may form and build up on the workpiece surface and thereby cause the electrode to move away from the workpiece during a shaping process instead of closer thereto. Means, such as a mechanical switching arrangement or electrical circuitry, are provided for detecting time delay the abnormal condition and for enabling the shaping operation to thereby be stopped.

3,654,421

GOUGER ATTACHMENT FOR CONVENTIONAL ELECTRODE HOLDER

Foy J. Streetman, P.O. Box 395, Plains, Tex., and John D. Armistead, 2232 Auburn, Space 19, Lubbock, Tex.

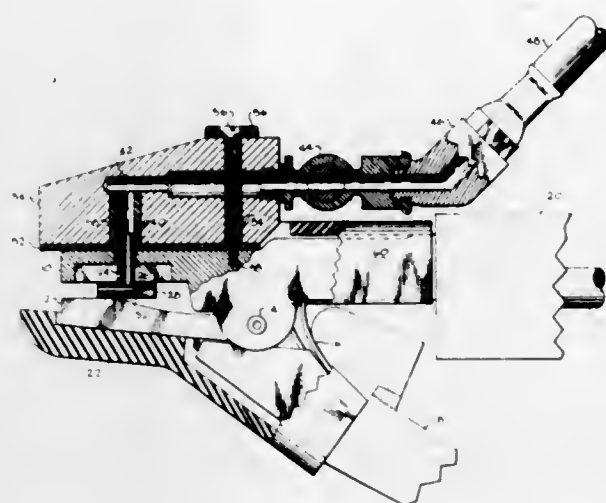
Filed Sept. 22, 1970, Ser. No. 74,401
Int. Cl. B23k 9/32

U.S. Cl. 219-70

8 Claims

An attachment is provided for a conventional electrical welding electrode holder. The attachment substitutes a nozzle for the conventional electrode tooth member so that compressed air is blown along the electrode to blow away molten

metal. The attachment converts a standard electrode holder to a gouging device.



metal. The attachment converts a standard electrode holder to a gouging device.

3,654,422

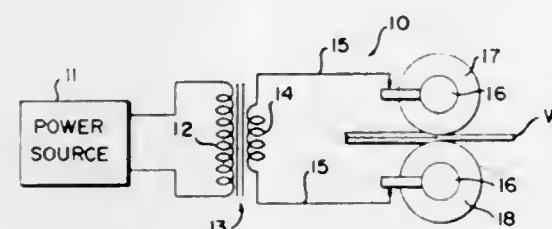
SQUARE WAVE RESISTANCE WELDING

Paul M. Erlandson, Palos Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed July 26, 1966, Ser. No. 568,022
Int. Cl. B23k 11/06

U.S. Cl. 219-81

2 Claims



A method and apparatus for resistance welding of lapped workpieces using square wave power, wherein the power to the weld is supplied in the form of controlled bursts of waveforms through opposed welding electrodes.

3,654,423

PERCUSSIVE WELDER

Delbert L. Phillips, 4 Malibu Cove Colony, Malibu, Calif., and Lewis Clark Feightner, 19800 Lassen St., Chatsworth, Calif.

Original application Mar. 25, 1968, Ser. No. 715,773.
Divided and this application June 1, 1970, Ser. No. 54,074
Int. Cl. B23k 9/22, 9/06; H05b 31/30

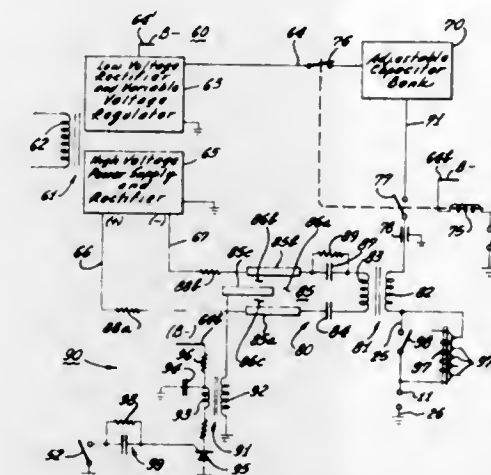
U.S. Cl. 219-95

5 Claims

One of two small workpieces that are to be welded together is slidably mounted in a fixed workholder and the other is firmly gripped by a movable workholder. To carry out an operating cycle, the movable workholder is reciprocated by two lobes of a cam that makes one revolution when momentarily connected to a relatively large mass that rotates at constant velocity. Initially the first slidable workpiece is placed at random at a position that is advanced slightly from the position desired for the welding operation but the first reciprocation of the second workpiece is against the slidable workpiece to retract it precisely to the desired position for a welding operation. In carrying out the second reciprocation, the two workpieces are charged by

capacitance and as the gap between the two workpieces narrows a high frequency pulse triggers an arc between the two

efficiently carrying out relatively light welding operations. A single elongated rail supports a carriage for movement parallel to the path which is to receive the weld, and this rail is received in bores of supporting leg structures. The rail has teeth, and one of the leg structures, at least, has a swingable lever provided with teeth meshing with those of the rail for



workpieces and the continued advance of the second workpiece crowds the two workpieces together for final fusion.

3,654,424

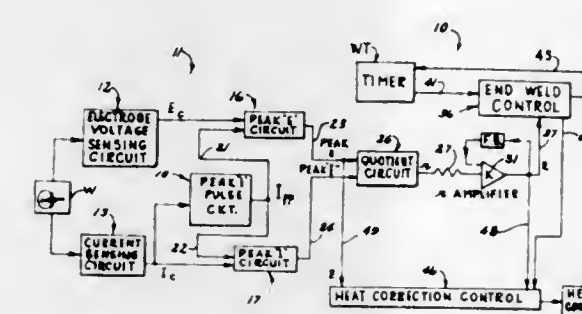
QUOTIENT CIRCUIT

Peter W. Vanderhelst, Livonia, Mich., assignor to Robotron Corporation, Detroit, Mich.

Division of Ser. No. 650,714, July 3, 1967, Pat. No. 3,573,421
Filed Mar. 23, 1970, Ser. No. 24,928
Int. Cl. B23k 11/24

U.S. Cl. 219-110

11 Claims



A resistance drop feedback welding control circuit is disclosed which includes apparatus for detecting the effective instantaneous resistance across the welding position of a resistance welding machine from the electrode voltage and welding current. A method of detecting the effective instantaneous resistance from the electrode voltage and welding current is also disclosed. Means are provided for producing pulses in concurrence with peaks of the welding current waveform. Further means controlled by these pulses sample the electrode voltage and welding current at the welding current peaks. A quotient circuit produces a high frequency pulse train in which the pulse amplitude is proportional to the peak electrode voltage amplitude and the pulse duration is inversely proportional to the peak amplitude of the welding current. The quotient circuit includes means for averaging the amplitude of the high frequency pulse train to provide a d.c. output portional in magnitude to the contact resistance at the welding position.

3,654,425

AUTOMATIC WELDING APPARATUS WITH PATH FOLLOWER

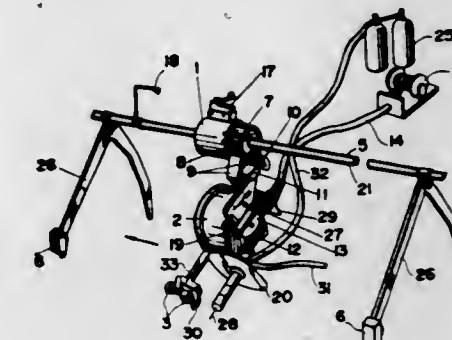
Hirokazu Nomura, Michio Mimura, and Yoshiyuki Ono, all of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed June 9, 1970, Ser. No. 45,092
Claims priority, application Japan, Sept. 29, 1969, 44/92038
Int. Cl. B23k 9/12

U.S. Cl. 219-125 PL

11 Claims

An automatic welding apparatus wherein a relatively small portable assembly can be situated at a selected location for



releasably locking the latter and the supporting leg structure with respect thereto.

The carriage has adjustably fixed thereto a bracket which slidably supports a structure which carries a welding unit, a wire feeder for feeding welding wire to the unit, and guide rollers for guiding the unit along the path as the carriage is driven along the rail.

3,654,426

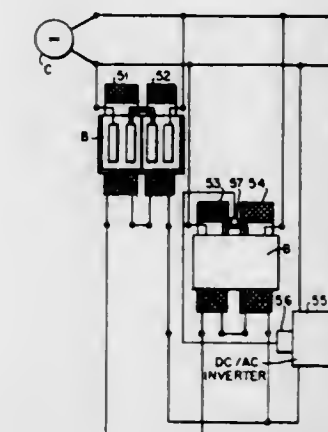
METHOD AND MEANS FOR PREHEATING ELECTRIC ACCUMULATORS SUCH AS LEAD-ACID STORAGE BATTERIES

Jurgen Brinkmann, and Wieland Gehrke, both of Berenbostel, Germany, assignors to Varta Aktiengesellschaft, Frankfurt/Main, Germany

Filed Apr. 13, 1970, Ser. No. 27,752
Claims priority, application Germany, Apr. 12, 1969, P 19 18 726.9
Int. Cl. H05b 1/00

U.S. Cl. 219-209

22 Claims



Storage batteries, particularly those of the lead-acid type, are preheated electrically by subjecting the electrode plates of the battery to an inductive alternating field which induces electric current in the plates. The frequency of the inductive field preferably is within the range from about 250 Hz. to 1,500 Hz. The intensity of the field is reduced or the heating field is terminated upon a sufficient rise in plate temperature.

3,654,427

ELECTRIC HEATED SOLDERING TOOL

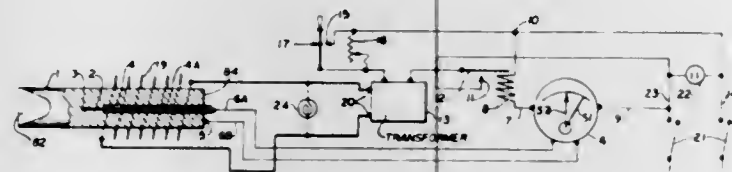
Alexander Schoenwald, 142 Harvard St. Rear, Grove City, Pa.

Continuation-in-part of application Ser. No. 672,847, Oct. 4, 1967, now abandoned. This application Sept. 28, 1970, Ser. No. 75,879

Int. Cl. H05b 3/02; B23k 1/02; H01h 47/26

U.S. Cl. 219—241

2 Claims



An electrically heated soldering iron includes an electrical heating coil surrounding a heating element core. A metal soldering iron tip has screw threads formed on its rear end portion for releasably attaching the tip to the heating element core in heat transfer relationship. An elongated metal rod of a different metal than the tip has an end portion thereof received in a bore formed in the rear end portion of the tip. An electrical conductor is secured to the tip in spaced relationship to the rod. Both the rod and conductor extend axially rearward from the tip and make electrical contact with electrical connections within a hollow handle attached to the heating element core. The tip defines the only connection between the rod and the electrical conductor so that the tip itself forms a part of a thermocouple with the rod and electrical conductor.

3,654,428

APPARATUS FOR HEATING AND CONDITIONING HAIR CURLING ROLLERS

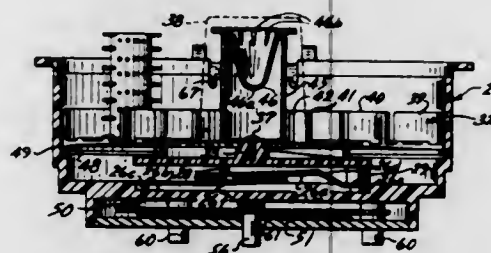
Henry J. Talge, Kansas City, Mo.; Samuel L. McNair, Shawnee Mission, and Marvin W. Litman, Prairie Village, both of Kans., assignors to The Songrand Corporation

Filed May 25, 1970, Ser. No. 40,219

Int. Cl. H05b 3/60; A45d 4/06

U.S. Cl. 219—288

12 Claims



A circular pan-like base is fitted with a rotatable impermeable support tray on which hair curling rollers can be deposited in upended position. Electric heat means at the bottom of the base operates to boil water causing steam to arise around the tray. The top of the base is covered by a hinged cover having an inside pattern of radial striations for collecting and guiding condensate back toward the periphery of the unit where it can drain by gravity back into the water below the tray. A dispensing chamber for hair conditioning composition is located on the tray and the tray is provided with drain passages for carrying condensate and conditioning medium deposited on the tray to the rim for discharge into the water below. Steam venting means and liquid level control means both designed to inhibit collection of condensate on the exterior of the unit are provided.

3,654,429

HEATING ARRANGEMENT

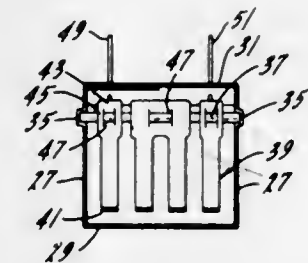
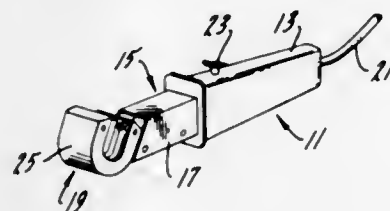
Ronald A. Strachan, Sycamore, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill.

Filed July 27, 1970, Ser. No. 58,288

Int. Cl. H05b 3/00; H01c 3/00

U.S. Cl. 219—346

3 Claims



A hand tool for heat shrinking material having an elongated shield of generally U-shaped cross-section defining a trough for receiving a work piece. A resistance heater element is positioned inside the shield. The resistance heating element is constructed of U-shaped strips having flat, radiating surfaces positioned generally parallel to a work piece positioned in the trough. The U-shaped strips are integrally connected to each other at the ends of the strips alternately on opposite sides of the U's to form a continuous electrical path through the resistance heating element. The strips are supported on insulated rods mounted in cups formed in the end walls of the shield.

3,654,430

RAILROAD CAR THAWING DEVICE UTILIZING DISPOSABLE REFLECTOR SHEETS

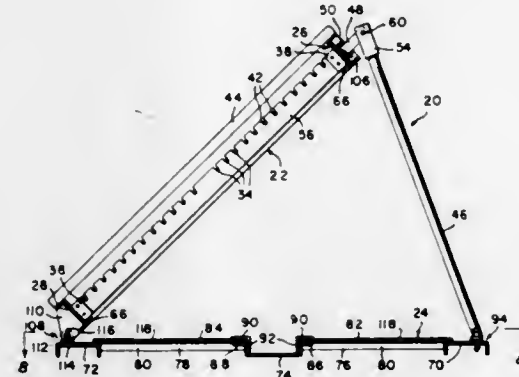
Frank L. Thayer, Lafayette Hills, Pa., assignor to Johnson-March Corporation, Philadelphia, Pa.

Continuation of application Ser. No. 552,121, May 23, 1966, now abandoned. This application Nov. 29, 1968, Ser. No. 784,528

Int. Cl. H05b 1/00

U.S. Cl. 219—347

2 Claims



A heating device for thawing railroad cars includes a heater and an elongated support for a disposable reflective member. The heater comprises a plurality of electric heating elements disposed in substantial coplanar relationship in an elongated heater panel. The support includes at least one

planar plate which includes a supporting surface which is adjacent the panel of heating elements. The supporting plate includes means for removably securing thereto a reflective member comprised of at least one thin disposable sheet of material having a reflective surface. The sheet and supporting surface of the plate are elongated and substantially coextensive with the heating elements. The sheets act to reflect heat towards the railroad car and are readily removable when the reflective surface becomes soiled or tarnished for replacement by a fresh, clean sheet. In an embodiment designed for use beneath a railroad car the heater panel is horizontally disposed and is pivotally mounted relative to the supporting plate to provide access to the disposable sheets. In another embodiment, the supporting plate is removable from the heating device for replacement of the disposable reflective sheet.

3,654,431

BUNSEN BURNER SIMULATING FLAMELESS ELECTRIC HEATER

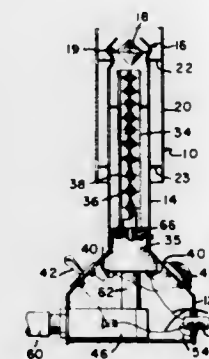
David N. Brooks, West Peabody; Clyde L. Paulauskas, Beverly, both of Mass., and Ronald E. Edlin, Stratham, N.H., assignors to Sylvania Electric Products Inc.

Filed Aug. 19, 1970, Ser. No. 65,190

Int. Cl. F24h 3/04; F23d 3/40

U.S. Cl. 219—373

2 Claims



A flameless electric heater having a resistance wire heater coil insulated from and positioned within a vertical tubular stack. A constant air flow is directed over the coil establishing a hot air zone at the exit point of the stack. The electric power source to the heater is controlled by a cutoff device that is actuated when the air flow drops below a predetermined pressure, thus preventing overheating and burn-out of the coil of the heater.

3,654,432

ELECTRICALLY HEATED CATALYTIC AIR PURIFIER

Mogens Dyre, Als Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

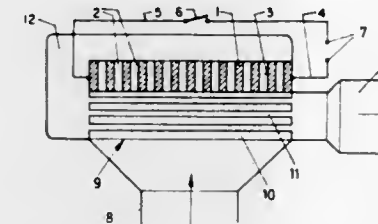
Filed July 13, 1970, Ser. No. 54,486

Claims priority, application Germany, July 3, 1969, P 19 33 828.4

Int. Cl. B01j 9/20; F24h 3/04; F28f 13/06

U.S. Cl. 219—374

1 Claim



The invention relates to air-treatment equipment for removing impurities from the air, particularly substances having an odor or taste and bacterial spores. The equipment in-

cludes a heating element, maintained at a high temperature, over which the air passes or is directed and this causes air borne particles to break down into odorless substances. The equipment includes a heat exchanger arrangement which serves to reduce the temperature of the heated air returned to the room or space from which the air was withdrawn. The heating element of the heating unit is made of electrically conducting silicon carbide having a thin coating of catalyst material.

3,654,433

DIFFERENTIAL CHANGE REGISTER

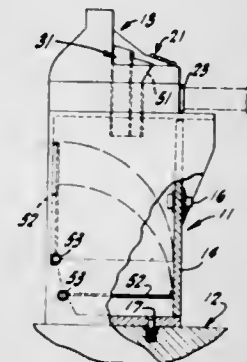
Phyllis E. Mendoza, 208 Anza Vista Ave., San Francisco, Calif.

Filed Sept. 24, 1969, Ser. No. 860,573

Int. Cl. E05g 1/00; G06c 29/00

U.S. Cl. 235—7 A

7 Claims



Apparatus for registering payment received, payment owed and indicating the change difference. The apparatus includes a locked receptacle for deposit of payments received and a change unit for payment of change difference. The change unit is openable for each transaction, while the receptacle is of the vault type adapted for permanent attachment to the floor or the like and which cannot be opened by a cashier operating the apparatus.

3,654,434

PHOTO SENSOR ARRAY CHECKING METHOD AND APPARATUS

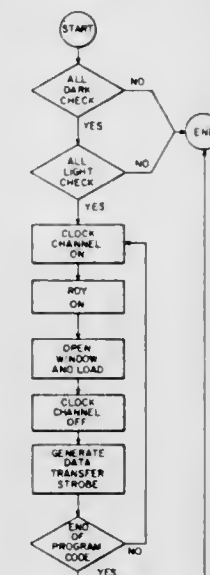
Herbert W. Forman, Falmouth, and Everett W. Muse, Burlington, both of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed June 16, 1970, Ser. No. 46,715

Int. Cl. G06k 7/016

U.S. Cl. 235—61.11 E

10 Claims



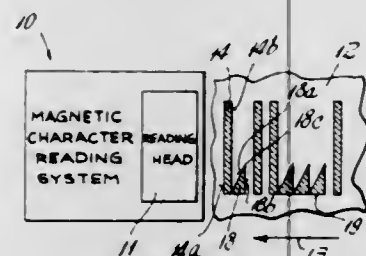
In a mark sense card reader having photo detectors and photo amplifiers, a system for checking the operation of all

channels of the device by reading a dark, then light portion on the leading edge of a card to be read, in order to allow sensed data to be strobed from a register to an external device.

3,654,435

MAGNETICALLY READABLE BAR AND CODE
Angelo Vaccaro, Port Washington, N.Y., assignor to Columbia Controls Research Corporation, Glen Cove, N.Y.
Filed June 2, 1970, Ser. No. 42,738
Int. Cl. G06k 19/06
U.S. Cl. 235-61.12 M

7 Claims



A code formed of bars having one type of bar for one piece of information and another type of bar for another piece of information with the bars being formed of magnetizable material and in which the ratio of the amplitude of the electromagnetic wave produced by the leading edges of both types of bars being moved past a character reading system is substantially increased by slanting or inclining the leading edge of one type of bar with respect to the movement while maintaining the leading edge of the other type of bar perpendicular to the movement.

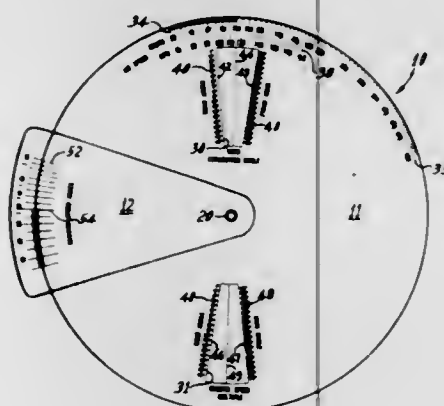
3,654,436

AIR NAVIGATION COMPUTER FOR WINDAGE PROBLEMS

Richard E. Sansom, Jr., 843 Alderman Road, Apt. 241, Jacksonville, Fla.
Filed Oct. 15, 1970, Ser. No. 80,954
Int. Cl. G06c 27/00

U.S. Cl. 235-78

11 Claims



A computer including a pair of discs and cursor rotatably connected with a first logarithmic scale representing variations in wind speed on the lower disc and a second logarithmic scale representing variations in air speed on the

upper disc. The upper disc includes a window through which is read indicia on the lower disc representing the wind correction angle solutions for each of the various combinations of the first and second logarithmic scales whereby the wind correction angle solution is indexed and read adjacent the appropriate wind angle on the scale of wind angles adjacent such window when an air speed is aligned with a wind speed. The upper member includes another window through which is read indicia on the lower disc representing the ground speed multiple solutions for each of the various combinations of the first and second logarithmic scales whereby the ground speed multiple solution is indexed and read adjacent the appropriate wind angle on the other scale of wind angles adjacent such other window when an air speed is aligned with a wind speed. The cursor includes a logarithmic scale representing variations of ground speed multiples corresponding to indicia solutions on the lower disc, the cursor scale having an index cooperating with a selected air speed on the second logarithmic scale whereby the ground speed is read on the second logarithmic scale adjacent the appropriate ground speed multiple on the cursor.

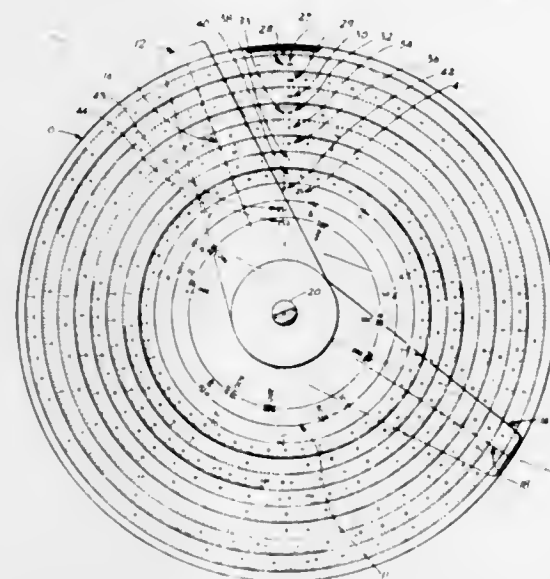
3,654,437

OCTAL/DECIMAL CALCULATOR

Philip J. Wyatt; Albert S. Trundle, and Judith B. Bruckner, all of Santa Barbara, Calif., assignors to Science Spectrum, Santa Barbara, Calif.
Filed July 3, 1969, Ser. No. 838,833
Int. Cl. G06g 1/02

U.S. Cl. 235-84

18 Claims



A calculating device comprising a base member, a plurality of graduated scales arranged on the base member, and indicator means cooperating with the scales for performing a variety of calculations. The scales are graduated in octal base numbers and decimal base numbers for use in making conventional arithmetic and algebraic operations in both octal and decimal bases and for converting between these bases.

3,654,438

HEXADECIMAL/DECIMAL CALCULATOR

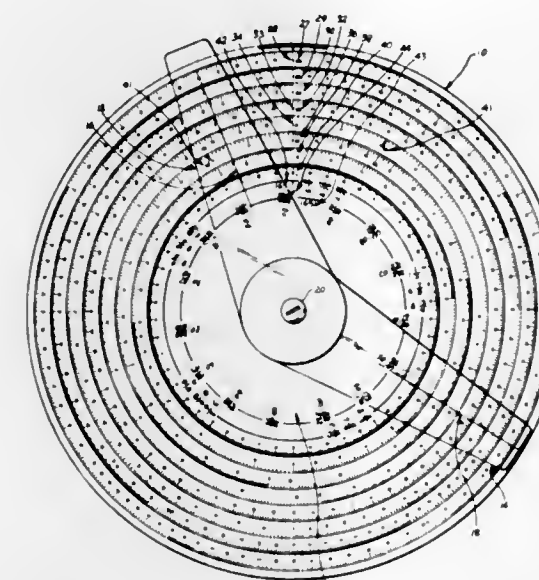
Philip J. Wyatt; Albert S. Trundle, and Judith B. Bruckner, all of Santa Barbara, Calif., assignors to Science Spectrum, Santa Barbara, Calif.
Filed July 9, 1969, Ser. No. 840,251
Int. Cl. G06g 1/02

U.S. Cl. 235-84

16 Claims

A calculating device comprising a base member, a plurality of graduated scales arranged on the base member, and in-

indicator means cooperating with the scales for performing a variety of calculations. The scales are graduated in hexadecimal base numbers and decimal base numbers for use in



making conventional arithmetic and algebraic operations in both hexadecimal and decimal bases and for converting between these bases.

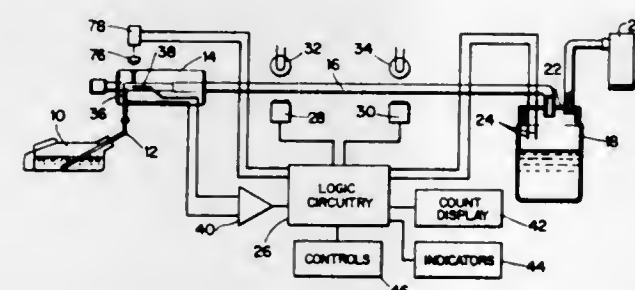
3,654,439

PARTICLE COUNTING APPARATUS HAVING AUTOMATIC DISPLAY AND THRESHOLD SETTING

Weems E. Estelle, Southport, and Pasquale M. Petrucci, Orange, both of Conn., assignors to General Science Corp., Bridgeport, Conn.
Filed Apr. 28, 1970, Ser. No. 32,583
Int. Cl. H03k 21/18

U.S. Cl. 235-92 PC

5 Claims



Particle counting apparatus especially adapted for blood cell counting and which is essentially automatic in operation. Coded sample flasks are employed in conjunction with a counter display to automatically set the appropriate decimal point for corresponding red or white count magnitude and to also provide automatic threshold settings for red and white cell counts.

3,654,440
COUNTER

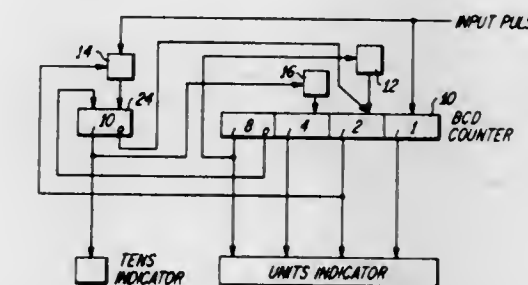
George Draper Hanchett, Summit, N.J., assignor to RCA Corporation

Filed July 7, 1970, Ser. No. 52,949
Int. Cl. H03k 21/16

U.S. Cl. 235-92 PE

8 Claims

Multiple stage counter for counting to a value which is less than the total number of states the stages can assume. When the desired maximum count is reached, the counter switches directly back to its minimum count. During the switching



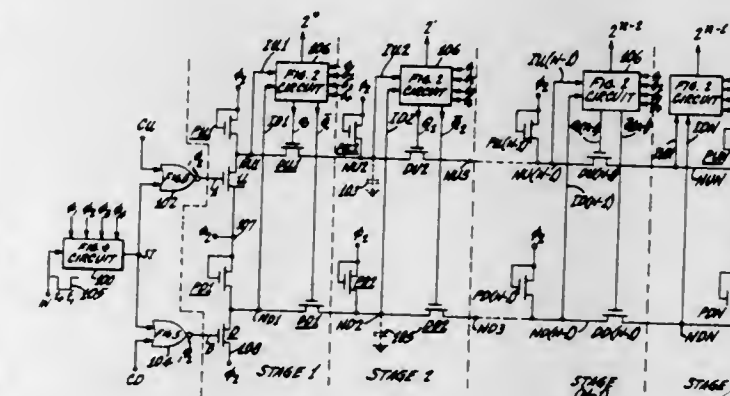
ous condition of one of the counter stages prevent another counter stage from assuming an undesired state.

3,654,441

FOUR-PHASE HIGH SPEED COUNTER

Ulpalananda Bharali, Raritan, N.J., assignor to RCA Corporation
Filed Nov. 16, 1970, Ser. No. 89,600
Int. Cl. G06m 1/14; H03k 23/08
U.S. Cl. 235-92 LG

5 Claims



In response to each pulse to be counted, the bit stored in each stage of the counter is sensed. In the case of up-counting, when the j least significant bits are 1 and the $j+1$ least significant bit is a 0, the stages storing these $j+1$ bits are caused concurrently to change state, and where j is any integer which is less than n , and n is the number of stages in the counter. In the case of down-counting, the same procedure is followed for the complementary case. The counter may be implemented with metal oxide semiconductor (MOS) field-effect transistors.

3,654,442

AUTOMATIC SYSTEM FOR MONITORING A PHYSICAL QUANTITY

Didier Leonard, Boulogne, and Rene Pautrat, Chelles, both of France, assignors to Thomson CSF.
Filed Jan. 22, 1968, Ser. No. 699,642
Int. Cl. G06m 11/04

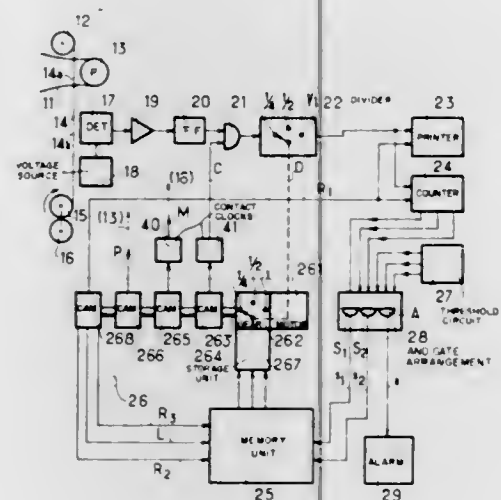
U.S. Cl. 235-92 PC

16 Claims

System for automatically monitoring a physical quantity by periodic sampling wherein the interval between samplings and the duration of the samplings is varied according to a predetermined ratio each time the magnitude of the measured physical quantity transgresses a threshold value. A timer is provided with individual cams for periodically controlling the sampling interval and the measuring interval and a timer motor drives the cams at a controllable speed. A control arrangement having the threshold values stored therein

monitors the measured values and adjusts the speed of the timer motor by a factor k each time the measured value

attack which is then used to derive a measure of the mass of the vehicle, which mass measure is then used to determine true airframe angle-of-attack.



3,654,444

ADAPTIVE CONTROLLER

Ismail Macit Gurol, Farmington, Mich., assignor to GSE, Incorporated, Detroit, Mich.

Filed Dec. 4, 1969, Ser. No. 882,133

Int. Cl. G06g 7/66

U.S. Cl. 235—151.1

10 Claims



transgresses a threshold value, thereby adjusting both the sampling time and the measuring time of the system.

3,654,443

ANGLE-OF-ATTACK COMPUTER

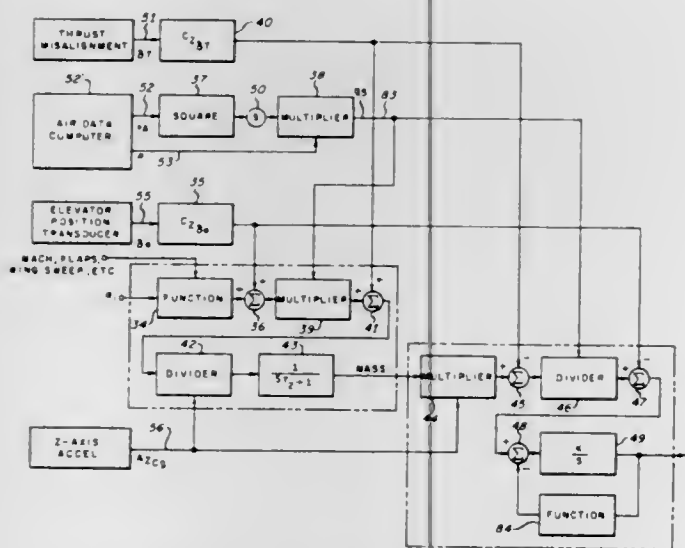
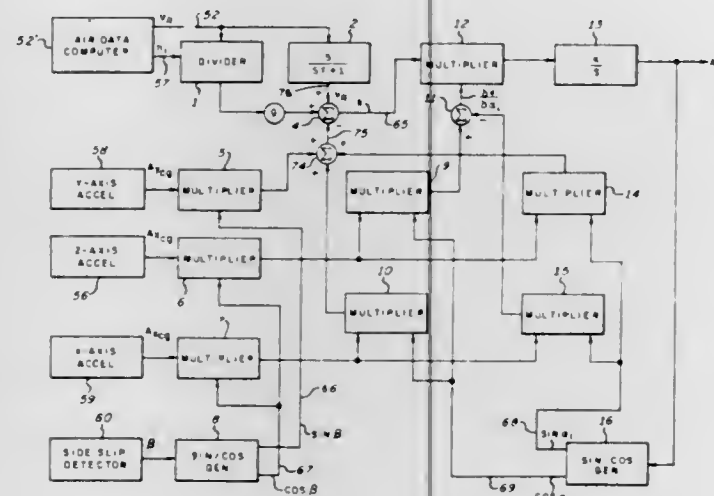
Joe B. Dendy, and Kent G. Transier, both of Phoenix, Ariz., assignors to Sperry Rand Corporation, Great Neck, N.Y.

Filed Nov. 3, 1969, Ser. No. 873,287

Int. Cl. G06g 7/18, 7/32

U.S. Cl. 235—150.2

13 Claims



An angle-of-attack computer using closed loop computation techniques wherein various on-board sensor outputs are combined to determine a first or initial measure of angle-of-

The invention relates to a method and apparatus for determining at least one unknown parameter of a biological fluid, for example a blood sample.

3,654,445

METHOD AND APPARATUS FOR DETERMINING AT LEAST ONE UNKNOWN DATA OF A BIOLOGICAL FLUID

Stig Glerup Mikkelsen, Herlev; Peter Ring, Klampenborg, and Soren Peter Weis Stranddorf, Hareskov, all of Denmark, assignors to Radiometer A/S, Copenhagen, Denmark

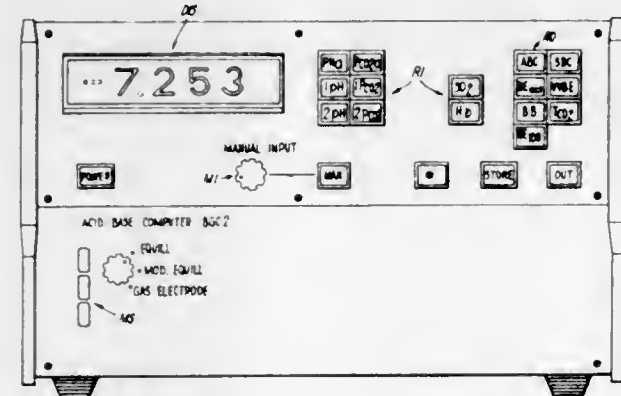
Filed Jan. 8, 1970, Ser. No. 1,332

Claims priority, application Great Britain, Jan. 9, 1969, 1,444/69

Int. Cl. G06g 7/32

U.S. Cl. 235—151.3

33 Claims



The apparatus comprises equipment for reading known or measured data of the biological fluid into an analog computer—either by using digital or analog values of the known data—and with the analog computer being programmed to process the read-in data to produce therefrom a plurality of variable voltages which represent curves of different configuration in a hypothetical coordinate system and memorizing the magnitude of these voltages when they assume a value equal to a corresponding point of intersection between the curves of the hypothetical coordinate system, and including means for reading out the memorized values in analog or digital form.

Specifically, with respect to the biological fluid being a blood sample, the data to be read in are in the form of two correlated values of pH and PCO₂ and the method comprises the steps of producing two voltages which vary as a function of time and processing these voltages to assume in time sequence values corresponding to voltage values being analog with the two correlated sets of data and at the same time building up variable voltages which represent curves of a predetermined configuration in the hypothetical coordinate system, points of which are expression of the desired, unknown data, and after comparison memorizing the different voltages when they become equal and reading out the memorized values in analog or digital form.

3,654,446

METHOD AND APPARATUS FOR THE MEASUREMENT AND DISPLAY OF ERROR VALUES OF PRECISION MACHINE TOOLS, ELECTRONIC INSTRUMENTS, ETC.

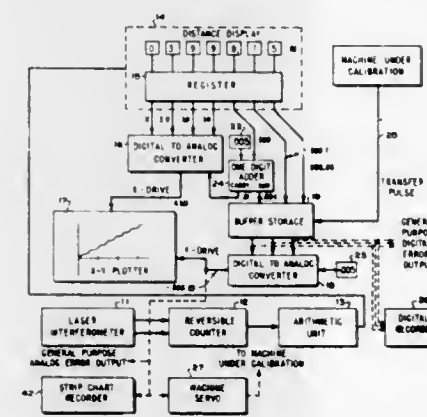
Gary B. Gordon, Cupertino, and Jonathan D. Garman, Sunnyvale, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 3, 1970, Ser. No. 25,520

Int. Cl. G06f 15/46; H03k 13/02

U.S. Cl. 235—151.3

33 Claims



A system for measuring and plotting a sequence of error values, for example the positioning errors of machine tools as a function of distance along an axis of travel, the output frequency errors in voltage controlled oscillators, and the like is described. The system for positioning error plotting comprises a laser interferometer for measuring the actual distance of movement of the machine and a novel and simple calculator system including a pair of digital-to-analog converters coupled to the interferometer for determining from this laser interferometer measurement both the desired (or assumed) distance of movement of the machine and the error distance between the actual distance and the desired distance. By assuming the desired position of the machine, complex interconnections to its controller are avoided. The calculated error distance and distance at which the error occurred are plotted on an X-Y recorder. A similar technique is described for the calibration of voltage controlled oscillators.

3,654,447
ELECTRONIC INSTRUMENTATION SYSTEM FOR CATALYTIC CYANOGEN CHLORIDE TRIMERIZATION

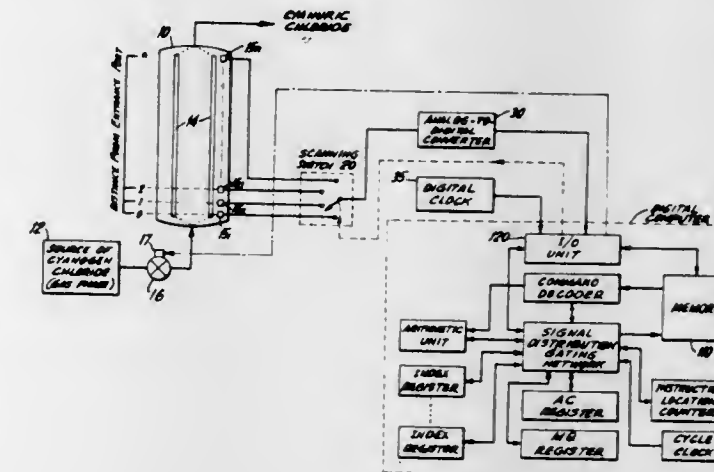
Claude G. Bradley, Baton Rouge, La., assignor to Gelgy Chemical Corporation, Greenburgh, N.Y.

Filed Apr. 23, 1970, Ser. No. 31,267

Int. Cl. G06g 7/58

U.S. Cl. 235—151.12

18 Claims



Cyanogen chloride is trimerized to form cyanuric chloride in an exothermic reaction performed in a reaction chamber by passing the cyanogen chloride through tubes packed with an activated carbon catalyst. A plurality of spaced temperature responsive transducers are disposed within the reaction chamber, and supply analog output temperature information which is converted to digital form and registered in a digital computer.

The computer determines the continuous temperature-reaction distance function by employing a regression program to fix coefficients for a predetermined temperature distribution function employing linear, square, and exponential component terms. Information characterizing the operational status of the reaction, such as the peak temperature value and its location, is determined from the temperature function.

3,654,448

INSTRUCTION EXECUTION AND RE-EXECUTION WITH IN-LINE BRANCH SEQUENCES

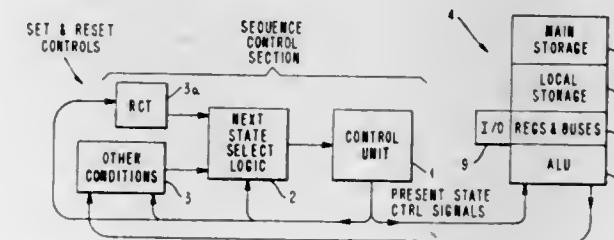
Donald C. Hitt, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 19, 1970, Ser. No. 47,693

Int. Cl. G06f 9/00, 11/00

U.S. Cl. 235—153

14 Claims



Instruction re-execution for error recovery is enhanced by function skipping conditional branches in the execution control sequence. Branches continuing the main execution stream control execution and re-execution of basic functions and ancillary verification and saving functions required for error recovery. The latter functions are organized for rapid execution so as not to unduly lessen the execution throughput rate of the system. Ancillary functions include checking of particular basic function result signals and associated ancillary function control signals, 'scratchpad' sav-

ing of the particular function result signals in fast access general purpose buffer storage and setting of re-execution branch conditions to signal for skipping of basic functions when re-executing instructions after basic function result signals have been saved. Function skipping branches are taken therefor only in late re-execution; i.e. only when the re-execution branch condition for function skipping has been set prior to occurrence of error in execution. In the function skipping branch previously saved basic function result signals required for continued execution are obtained directly from fast access buffer storage, thereby eliminating original operand signal handling and arithmetic or logic processes of the skipped function. This is especially useful as the associated operand signals may no longer be available at re-execution time. The re-execution branch condition for function skipping is reset at conclusion of each instruction execution control sequence. Foregoing control organization has the advantage that verified and properly saved basic function results need not be reprocessed and recalculated during error recovery. Also by virtue of the standardized organization of the branch the controls may be adapted piecemeal to a variety of different system recovery functions with minimal cost/performance degradation.

3,654,449

CALCULATOR INPUT MEANS TO BYPASS CONVENTIONAL KEYBOARD INPUT

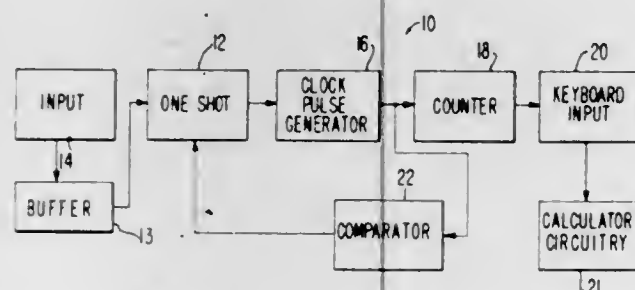
Kenneth D. Boyce, Mountain View, Calif., assignor to Diversified Electronics Co., Inc., Sunnyvale, Calif.

Filed Nov. 5, 1970, Ser. No. 87,034

Int. Cl. G06f 7/48

U.S. Cl. 235—156

34 Claims



Apparatus for use with a electronic calculator of the type having a keyboard input wherein the apparatus comprises means for receiving input pulses and for generating a number of output pulses for each input pulse, respectively, with one of the output pulses being used to actuate the numeral portion of the electronic calculator while another output pulse is used to actuate the portion of the calculator having to do with an arithmetic function, such as add or subtract. The apparatus further includes a device for deactuating the output pulse generating means after a predetermined number of output pulses have been generated. The input device of the apparatus can be a count probe, an architect's probe, an engineer's probe or planimeter.

3,654,450

DIGITAL SIGNAL GENERATOR SYNTHESIZER

Joseph A. Webb, 503 Fairdale, Friendswood, Tex.

Filed Apr. 3, 1970, Ser. No. 25,348

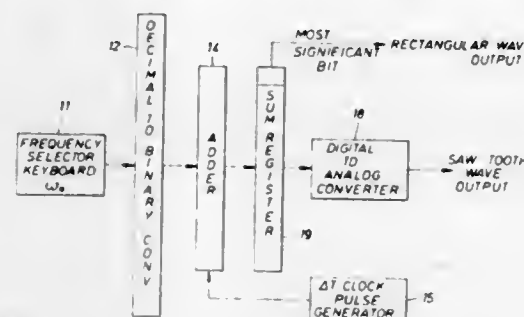
Int. Cl. G06f 15/34

U.S. Cl. 235—197

20 Claims

Illustrative embodiments of the present invention shown and described include digital logic systems for generating signal waveforms of desired types. A relatively few digital logic modules are connected to generate a variety of desired

waveshapes in a linear manner. Apparatus for generating rectangular waves, saw-tooth waves, sine waves, and sine



waves having amplitude, pulse, frequency and phase modulation applied to them are disclosed.

3,654,451

FLOODLIGHT

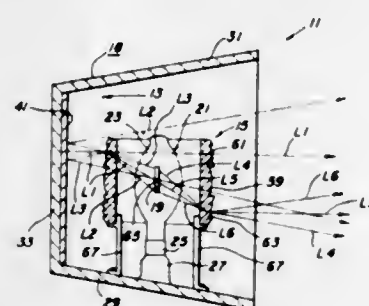
George N. Starr, Memphis, Tenn., assignor to American Electric Manufacturing Corporation, Southaven, Miss.

Continuation-in-part of application Ser. No. 693,220, Dec. 18, 1967, now abandoned. This application Sept. 18, 1969, Ser. No. 865,227

Int. Cl. F21p 5/00

U.S. Cl. 240—3

11 Claims



A floodlight for providing a high efficiency rectangular beam of light having a narrow beam in the vertical dimension. The floodlight includes a vertically elongated light source, a reflector spaced behind and to the opposite sides of the light source, and a sleeve-like refractor or Fresnel lens around the light source for refracting the rays of light from the light source into horizontal rays of light to provide the substantially rectangular beam of light. In a modified arrangement, there is provided an auxiliary reflector for reflecting the upwardly and downwardly emitted rays from the light source into substantially horizontally extending rays of light. Also, there is included an alternate embodiment in which the glass envelope of the lamp of which the light source is a part is formed into a condensing lens instead of having a separate Fresnel lens. In addition, there is included another embodiment in which the refractor is provided in the interior thereof with a plurality of vertical prisms, with a part of the prisms refracting the light rearwardly onto a reflector for reflection into a center portion of the beam pattern and with the remaining part of the prisms refracting the light to either side of the center portion of the beam pattern.

3,654,452

INSTRUMENT BOARD IN A MOTOR VEHICLE

Egon Frey, Stuttgart-Degerloch, and Horst Kaiser, Sindelfingen, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 30, 1969, Ser. No. 872,714

Claims priority, application Germany, Nov. 2, 1968, P 18 06 718.0

Int. Cl. B60q 3/04

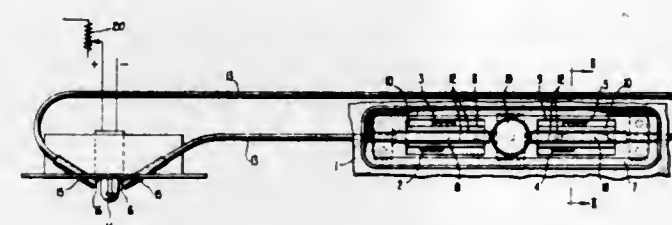
U.S. Cl. 240—8.16

22 Claims

An instrument panel for a motor vehicle in or at which instruments, actuating levers, and/or actuating knobs are ar-

ranged and in which one of the instruments is adapted to be illuminated by an incandescent lamp; light-conducting cables conduct the light from the incandescent lamp to one or

which illuminates a predetermined area with the direct light from the light source and the reflected light from the reflector.



several of the other instruments, actuating levers or actuating knobs, and a light-distributing body is connected to each light-conducting cable at the remote place to be illuminated.

3,654,453

LUMINAIRE

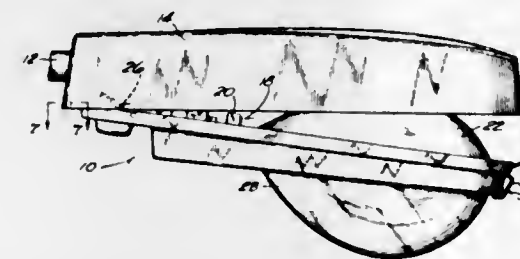
Edward R. Jablonski, South Milwaukee, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Oct. 2, 1970, Ser. No. 77,445

Int. Cl. F21s 1/10

U.S. Cl. 240—25

14 Claims



A luminaire has a deck assembly pivotally mounted on a housing by a separable connection to allow removal of the deck assembly from the luminaire. A refractor assembly is pivotally connected to the deck assembly, also by a separable connection for movement with or independent of the deck assembly. A selectively operable latch has a latched position holding the housing, deck assembly, and the refractor assembly, as a unit, an intermediate position holding the deck and refractor assemblies together but releasing them for movement relative to the housing, and an open position wherein the refractor assembly is released for movement relative to the deck assembly. A releasable connection separate from the latch is also provided between the housing and deck assembly. Selective access to all interior elements of the luminaire is thus provided.

3,654,454

LIGHTING DEVICE

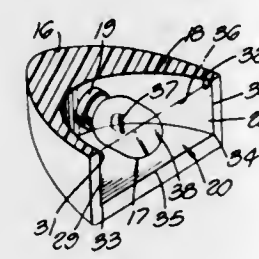
Bobby G. Olesen, 12051 Skyway Drive, Santa Ana, Calif.

Filed Aug. 1, 1969, Ser. No. 846,765

Int. Cl. F21v 7/08

U.S. Cl. 240—41.35 E

8 Claims



A lighting unit includes a light source and a curved reflector. The lighting unit provides a rectangular light pattern

3,654,455
LUMINAIRE

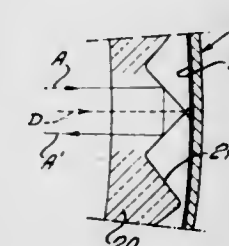
Joel Siegel, Brooklyn, N.Y., assignor to Holophane Company, Inc., New York, N.Y.

Filed Aug. 20, 1969, Ser. No. 851,671

Int. Cl. F21v 13/04, 5/00, 7/10

U.S. Cl. 240—93

8 Claims



A luminaire is provided which achieves very low brightness of a ribbed prismatic reflector wall as seen at normal viewing angles by the utilization of a housing which is blackened for at least a portion thereof.

3,654,456

APPARATUS FOR CONTROLLING CAR SPEED AT COUPLING

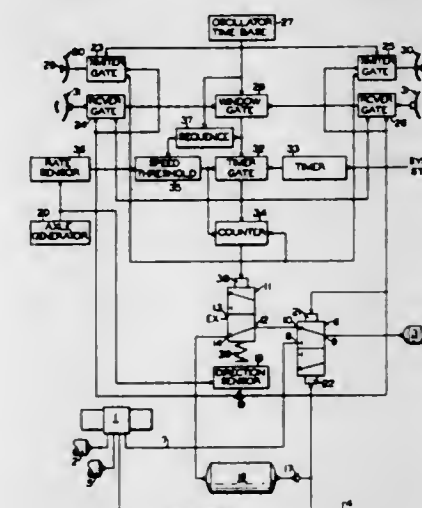
Ronald A. Sarbach, Columbus, Ohio, assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Oct. 15, 1970, Ser. No. 80,939

Int. Cl. B61l 3/00; B61b 1/00

U.S. Cl. 246—182 B

11 Claims



An automatic railway vehicle control system is provided by establishing local brake control of a free moving vehicle in a classification yard in accordance with the speed of the vehicle and the detection of a target car with which the moving car is to be coupled to thereby limit the coupling impact forces between the vehicles. Reception of reflected sonic signals within a predetermined period following emission of energy waves by a periodically sounded whistle provides an indication of a moving car being within a preselected distance of a target car. Should the moving vehicle be monitored as exceeding a preselected safe coupling speed upon reception of a predetermined number of the reflected signals, the system will function to effect a brake application which will remain in effect until the vehicle speed is reduced below the preselected safe coupling speed, at which point the system is reset, releasing brakes and allowing the car to roll into a soft coupling with the target car. Fore and aft sonic transmitters and receivers are provided on each car to permit

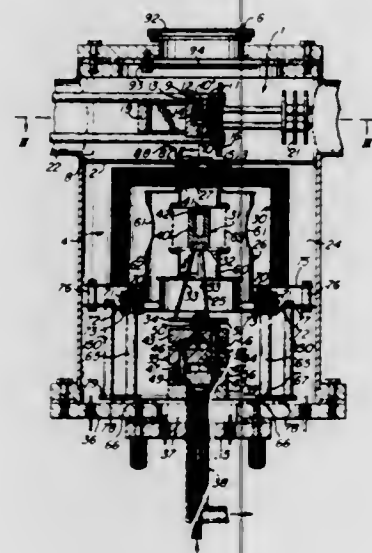
universal car positioning. The system is adapted to control a cut of cars being classified, as well as individual car classification.

3,654,457

ION SOURCE DEVICE EQUIPPED WITH SAMPLE HEATING MEANS FOR USE IN MASS SPECTROMETER
Masayoshi Yano, and Tamotsu Noda, both of Katsuta-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 11, 1969, Ser. No. 798,363
Claims priority, application Japan, Feb. 12, 1968, 43/9545
Int. Cl. H01j 39/34

U.S. Cl. 250-41.9 S

15 Claims



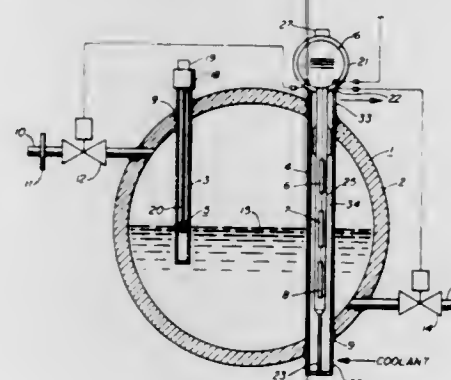
An ion source for a mass spectrometer having a sample cell containing a sample, a mesh filament surrounding the sample cell and a radiant heat shield surrounding the mesh filament, in which the sample cell is heated to a high temperature by being bombarded with thermoelectrons emitted from the filament so that the sample in the cell is vaporized and led toward the ion source to be ionized. In the device, the sample cell and the radiant heat shield are maintained at a high potential and a low potential, respectively, relative to the potential at the filament so that the thermoelectrons emitted from the filament can be accelerated toward the sample cell.

3,654,458

MEANS FOR DETECTION AND CONTROL OF LIQUID LEVEL IN A VESSEL
Bill S. Burrus, and John B. Rosso, both of Tulsa, Okla., assignors to Combustion Engineering, Inc., New York, N.Y.
Filed Jan. 6, 1969, Ser. No. 789,179
Int. Cl. G01n 23/10

U.S. Cl. 250-43.5 FL

3 Claims



A vessel has a source and detectors of radiation emplaced within containers extended through its walls so the level of a

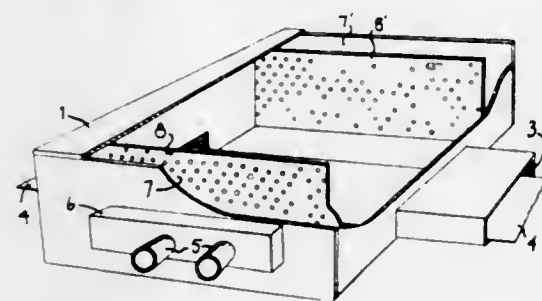
fluid within the vessel will be detected by interference of the fluid with the reception of the radiation by the detectors.

3,654,459

CONTROLLED ATMOSPHERE CHAMBER FOR TREATING PRODUCTS WITH IONIZING RADIATION
George E. Coleman, Elmhurst, Ill., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Aug. 18, 1969, Ser. No. 850,927
Int. Cl. H01j 37/30

U.S. Cl. 250-49.5 TE

16 Claims



Apparatus which permits treatment of products with ionizing radiation in a controlled atmosphere comprises a chamber having inlet and outlet openings for the passage of a product to be treated, a radiation-permeable window in one surface, and at least one gas reservoir within the chamber separated by a foraminous panel. Gas is introduced into the reservoir, passes through the foraminous panel and over and around the path of travel of the workpiece to be treated.

3,654,460

AUTOMATIC SAMPLE CHANGER FOR A GONIOMETER WITH MEANS TO ACCOMMODATE SAMPLES OF DIFFERENT THICKNESSES

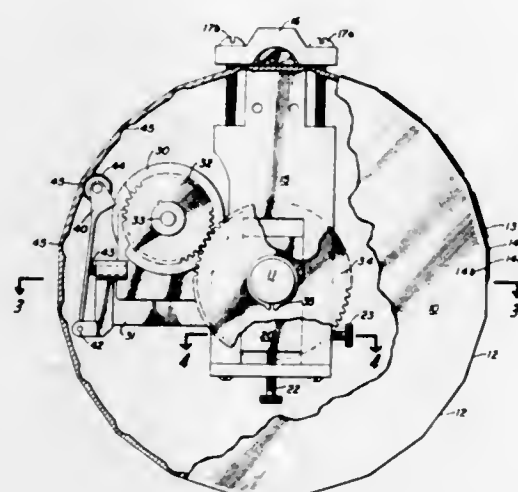
Charles E. Payton, and Waldo C. Patterson, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Feb. 12, 1969, Ser. No. 799,154

Int. Cl. H01j 37/20; G01n 23/20

U.S. Cl. 250-51.5

4 Claims



A sample holder for a goniometer consisting of a drum having a plurality of flats on the circumference of the drum adapted to position the samples properly with respect to an X-ray source and its detector. The drum contains accurate indexing means and an adjustable means for properly positioning the samples vertically to account for a variation in the thickness of a set of samples.

3,654,461

ELECTROTHERMOGRAPHIC IMAGE RECORDING PROCESS

Andre Jan Conix, Hove-Antwerp, and Paul Maria Cassiers, Mortsel-Antwerp, both of Belgium, assignors to Gevaert Photo-Producten N.V., Mortsel, Belgium

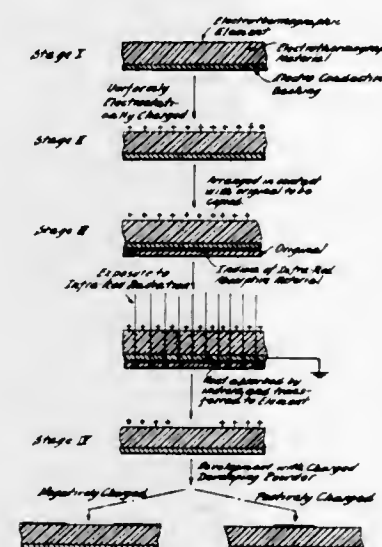
Filed Dec. 5, 1960, Ser. No. 73,518

Claims priority, application Great Britain, Dec. 4, 1959, 41,351/59

Int. Cl. G03g 13/00

U.S. Cl. 250-65 ZE

7 Claims



A process of electrothermographic reproduction utilizing an electrothermographic material which undergoes a decrease in electrical resistance as the temperature thereof is increased, the rate of decrease changing to a significantly higher rate at a temperature above room temperature. Preferably a span of not more than 20° C. separates the temperature at which the rate change occurs and the temperature at which the resistance of the material reaches a minimum level. Preferred electrothermographic materials are crystalline polymers having a first order transition point and amorphous polymers having a second order transition point, which transition points are above room temperature.

3,654,462

APPARATUS FOR THERMOGRAPHIC DUPLICATION OF A RADIATION ABSORBENT PICTURE

Sven Bertil Kvarnegard, Enebyberg, Sweden, assignor to Aktiebolaget Carl Lampa, Stockholm, Sweden

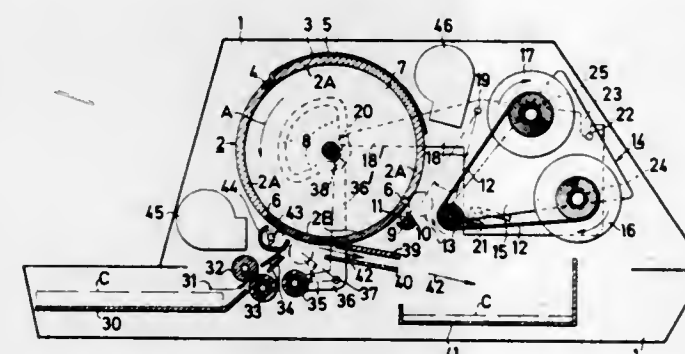
Filed Mar. 4, 1969, Ser. No. 804,073

Claims priority, application Sweden, Mar. 20, 1968, 3726/68

Int. Cl. B41m 5/002

U.S. Cl. 250-65

12 Claims



An apparatus for thermographic series-duplication of an original bearing heat radiation-absorbent indicia comprises a rotary drum having means for mounting the original on a first imprint of the external surface thereof, at least one source of infrared radiation mounted outside the drum for successively irradiating the original during the rotation of the drum, a first roller for pressing a web coated with a fusible dye into temporary contact with the original subsequent to its irradiation

to cause the original to pick up dye from the web in accordance with its heated indicia pattern, and a second roller for pressing a copy sheet into temporary contact with the original subsequent to its contact with the coated web to cause the copy sheet to pick up an imprint of the dye image from the original, the drum being adapted to start and stop in a predetermined angular position in which said source of infrared radiation with irradiate a second part of the external surface of the drum which is spaced from said first part thereof in a manner to prevent excessive heat transfer between the two parts.

3,654,463

PHOSPHORESCENT DEVICES

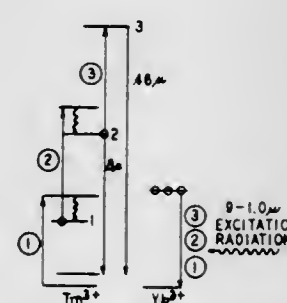
Joseph Edward Geusic, Berkeley Heights; Frederick William Ostermayer, Jr., New Providence, and Le Grand Gerard Van Ultert, Morris Township, Morris County, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 19, 1970, Ser. No. 4,006

Int. Cl. F21k 2/00

U.S. Cl. 250-71 R

3 Claims



Incoherent light sources depending on phosphors which may simultaneously emit at more than one wavelength are provided with multiple dielectric coatings to suppress a portion of the emission and thereby enhance the remainder. The use of such coatings with frequency up-converting phosphors as well as down-converting phosphors is described.

3,654,464

RESONANT SCATTERING OF GAMMA RAYS AS SELECTIVE MEANS FOR DETERMINING AN ELEMENT OF INTEREST

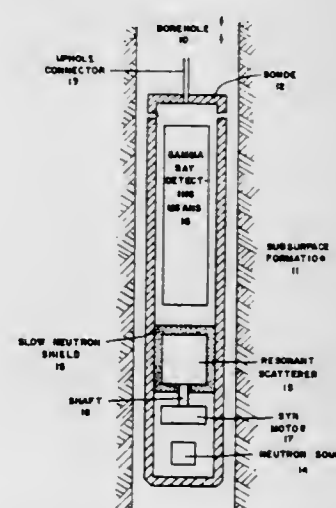
Walter H. Johnson, Jr., Cambridge, Mass., and William C. Pritchett, Dallas, Tex., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Continuation of application Ser. No. 591,543, Nov. 11, 1966, now abandoned. This application Jan. 22, 1970, Ser. No. 6,021

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 R

3 Claims



A radioactive logging method and apparatus for quantitatively determining an element of interest in subsurface for-

mations traversed by a borehole. Earth formations are bombarded with fast neutrons causing the various elements to emit characteristic gamma rays. These gammas strike resonant scatter material which is specially selected to elastically scatter only those gammas derived from the element of interest. The scattered gammas thus obtained are detected with a scintillator and a photomultiplier.

3,654,465

SCANNING APPARATUS FOR ISOTOPE DIAGNOSIS
Winfried Platz, Erlangen, and Erich Kampf, Nurnberg, both of Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

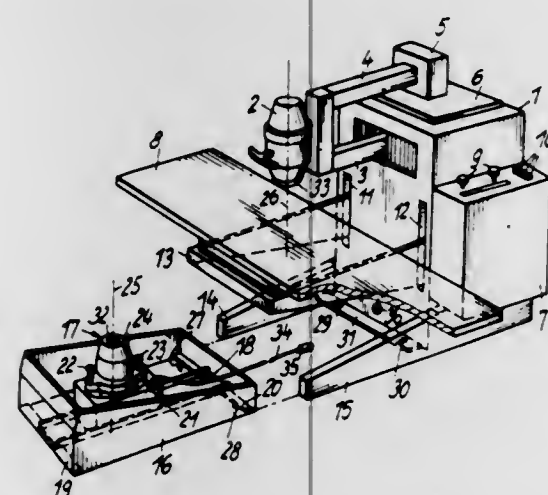
Filed May 26, 1969, Ser. No. 869,406

Claims priority, application Germany, June 1, 1968, G 67 52 486.1

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 S

1 Claim



An apparatus for isotope diagnosis to determine the distribution of radioactive substances in a body. The apparatus incorporates two radiation detectors connected for synchronous scanning of an examination zone of the body, one of the detectors being mounted in an accessory accessory which is adapted for connection to the housing of the other detector.

3,654,466

NARROW BAND ELECTROMAGNETIC, PYROELECTRIC RADIATION DEVICES USING PIEZOELECTRIC DETECTORS

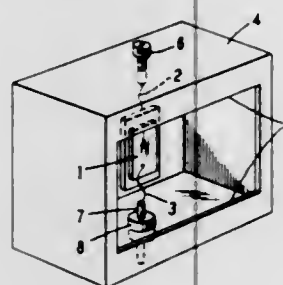
Richard Lee Abrams, Morris Township, Morris County, and Alastair Malcolm Glass, Murray Hill, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 7, 1970, Ser. No. 35,131

Int. Cl. G01j 5/10

U.S. Cl. 250-83.3 H

12 Claims



Radiation detection is accomplished by sensing the piezoelectric response to the expansion and contraction in a crystal element due to the heating effect of the carrier energy

to be sensed. Sensitivity to a subcarrier is enhanced by utilizing a frequency (of interrupted or continuous wave subcarrier) corresponding with a mechanical resonance frequency of the crystal element. The device is analogous to a conventional resonant r.f. detector element. Uses to which such prior art devices are applied may also be served with the class of inventive devices. Such uses include frequency standards, channel selectors, etc.

3,654,467

TRANSPLUTONIUM NEUTRON ACTIVATION LOGGING TECHNIQUE

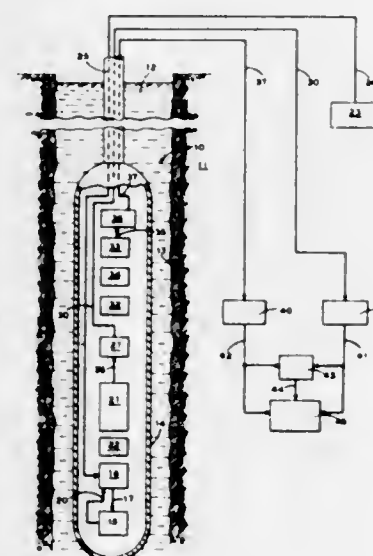
Jay Tittman; William B. Nelligan, both of Danbury; John S. Wahl, and Harold Sherman, both of Ridgefield, all of Conn., assignors to Schlumberger Technology Corporation, New York, N.Y.

Filed May 12, 1969, Ser. No. 823,665

Int. Cl. G01t 3/00

U.S. Cl. 250-83.1

5 Claims



A typical embodiment of the invention enables neutrons of low average energy that characteristically are emitted from californium 252 (Cf^{252}) to react with, or fail to react with, nuclei within an earth formation, depending on the energy threshold for the reaction in question. The neutron activation induced by means of the Cf^{252} source is compared with the response induced in the formation through neutrons of higher average energies from other sources. The activation comparison permits the identification of elements and minerals in the formation to be determined accurately.

3,654,468

RADIATION MEASUREMENT SYSTEM WITH MOSFET ELECTROMETER CIRCUIT WHICH IS PROTECTED AGAINST VOLTAGE TRANSIENTS

Franklin Bong-See Shah, Columbus, Ohio, assignor to Industrial Nucleonics Corporation

Filed Mar. 11, 1970, Ser. No. 18,644

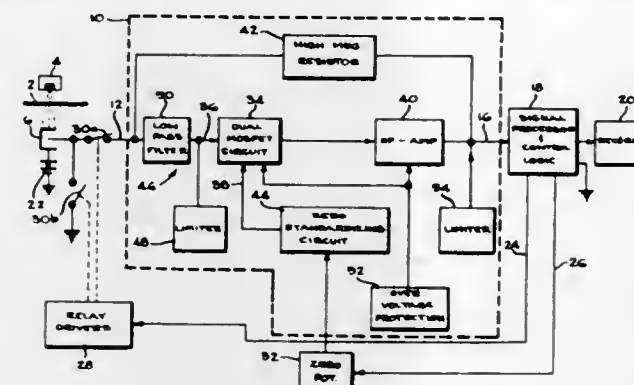
Int. Cl. G01t 1/17

U.S. Cl. 250-83.3 R

14 Claims

A radiation measurement system includes an electrometer circuit employing a metal-oxide-semiconductor device as an active element for amplifying a minute d.c. input signal from a radiation detector to provide an appreciable signal output voltage. The electrometer comprises means for preventing

undesired voltage transients which may be applied with the input signal from puncturing the metal-oxide-semiconductor



device, without impairing its ability to amplify the minute d.c. input signal.

3,654,469

MATRIX-FORM PROPORTIONAL-MODE RADIATION DETECTOR

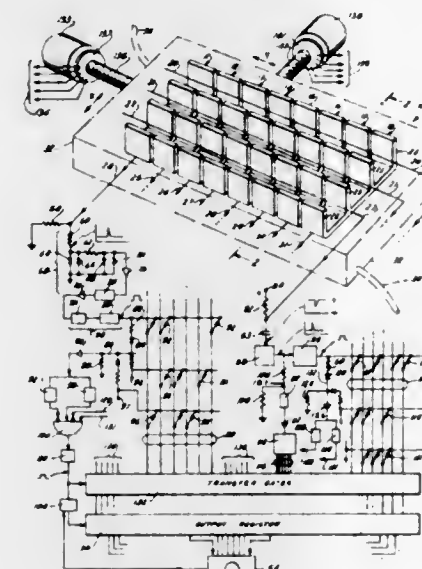
Frederick W. Kantor, 523 West 112th St. Apt. 32, New York, N.Y.

Filed May 16, 1969, Ser. No. 825,337

Int. Cl. G01t 1/18

U.S. Cl. 250-83.6 R

22 Claims



A matrix-form radiation detector, operating in the proportional gas mode, is provided for indicating the x and y coordinates of each ionizing event caused by the radiation. This information is utilized to form an image of the radiation pattern being detected. The detector has a plurality of cathodes arranged in columns and rows. The cathodes in each column are connected to one another, and those in each row are electrically isolated from one another. A plurality of anode wires is provided. Each cathode substantially encircles one of the anode wires, and each wire passes through all of the cathodes in a given row. Encoding circuitry and other means are provided for encoding the address of each ionizing event, and for storing and/or displaying the encoded information.

3,654,470

COMPENSATED DENSITY LOGGING SYSTEM HAVING A FILTER ONLY ON THE SHORT-SPACED DETECTOR
Billy F. Wilson, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Dec. 9, 1969, Ser. No. 883,539

Int. Cl. G01v 5/00

U.S. Cl. 250-83.6 W

9 Claims

A well logging instrument having a gamma ray source, a short-spaced gamma ray detector, and a long-spaced gamma

ray detector is coupled through a logging cable to surface electronics. A cadmium filter is used to alter the response of the short-spaced detector. This filter causes the relationship between the counting rates measured by the long-spaced detector and the short-spaced detector as the mud cake



thickness is varied to be a straight line rather than a curved line when plotted on log-log graph paper. Filters composed of tin, silver, copper, nickel or iron, individually or in combinations, may be used in place of cadmium. Such straight line relationships are useful in determining true formation densities from the two counting rates.

3,654,471

REFLECTOR DEVICE

Hans Erik Nilsson, Stockholm, Sweden, assignor to A. B. Infrarodteknik, Stockholm, Sweden

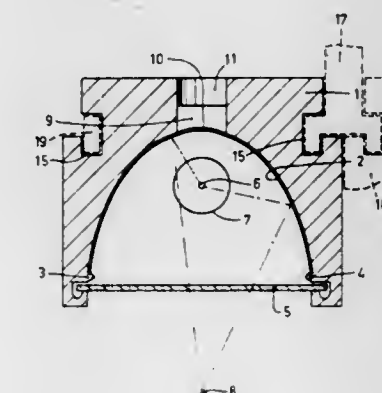
Filed Nov. 6, 1969, Ser. No. 874,571

Claims priority, application Sweden, Nov. 13, 1968, 15424/68

Int. Cl. H01j 35/00

U.S. Cl. 250-85

5 Claims



A device for reflecting electromagnetic radiation from an elongated radiation source comprising a profiled holder formed as a body having a cavity that provides a supporting surface for a reflecting metal strip. The supporting surface is shaped to partially surround said radiation source and the surface defines a groove preferably arranged behind the radiation source. The reflecting metal strip is secured to the holder by stop members integral with the body of the holder which elastically deflect the reflecting metal strip against the supporting surface. The width of the reflecting metal strip is chosen so that the reflecting metal strip is kept permanently flexed into the groove under elastic deformation in its mounted position throughout the operating temperature range.

3,654,472

APPARATUS FOR SELECTIVELY EXAMINING RADIOACTIVE SAMPLES

Jan Sjouke Hof, Waalre, and Gerardus Otten, Emmasingel, Eindhoven, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

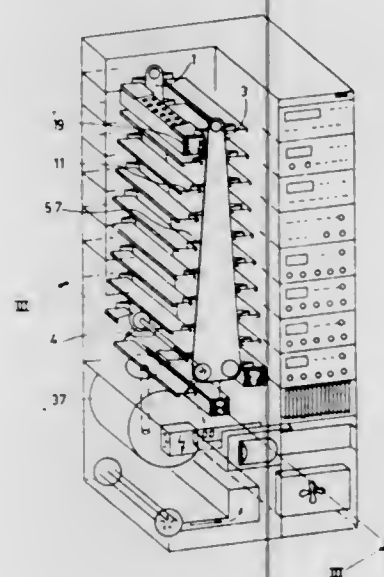
Filed Sept. 3, 1968, Ser. No. 756,998

Claims priority, application Netherlands, Sept. 2, 1967, 6712087

Int. Cl. G01t 7/02, 7/08

U.S. Cl. 250-106

6 Claims



An apparatus having a series of movable trays for holding a plurality of radioactive samples, and for transporting each tray and each sample carried thereon to a shielded detection unit for examination.

3,654,473

PHASE MODULATION LASER COMMUNICATION SYSTEM

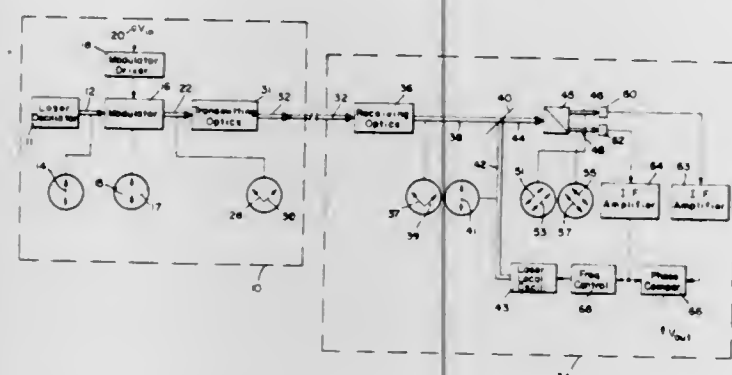
Thomas A. Nussmeier, Thousand Oaks, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 28, 1969, Ser. No. 819,865

Int. Cl. H04b 9/00

U.S. Cl. 250-199

4 Claims



In the disclosed laser communication system, at a transmitter a linearly polarized laser carrier beam is phase modulated with an informational signal such that when the resultant beam is resolved into two linearly polarized component beams in mutually perpendicular planes the respective component beams are shifted forwardly and backwardly in phase by an amount proportional to the informational signal. In a receiver the received phase modulated beam is combined with a local oscillator laser beam which is linearly polarized in a plane parallel to the plane of polarization of the carrier beam, and the resultant beam is separated into a pair of linearly polarized laser beams in respective planes

parallel to the planes of the aforementioned transmitter component beams. These linearly polarized laser beams are converted into respective intermediate frequency electrical signals, and a reproduction of the informational signal is obtained by phase comparing these electrical signals.

3,654,474

PHOTOCHROMIC TIME DELAY UNIT

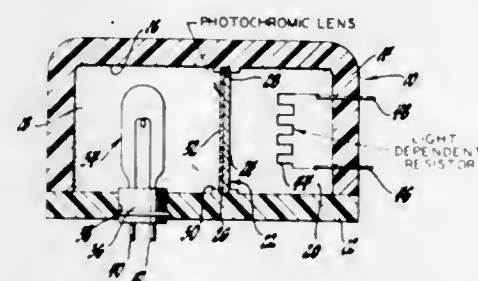
James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed May 15, 1970, Ser. No. 37,594

Int. Cl. H01j 39/12

U.S. Cl. 250-206

1 Claim



In preferred form, a time delay circuit including a light dependent variable resistance device having a housing divided into two compartments. A light source is located in one of the compartments and a light dependent resistor having a high dark resistance and a lower resistance when exposed to light is located in the other compartment. A photochromic lens is interposed between the light and the light dependent resistor to produce a timed control of the resistance value of the device. The device is connected in circuit with an electrical load by means of a single switch and a network that will simultaneously energize the light, the light dependent resistor, and load.

3,654,475

LIGHT SENSING DEVICE HAVING A POLYHEDRAL REFLECTOR AND A PHOTOMULTIPLIER WITH SEGMENTED PHOTOCATHODE

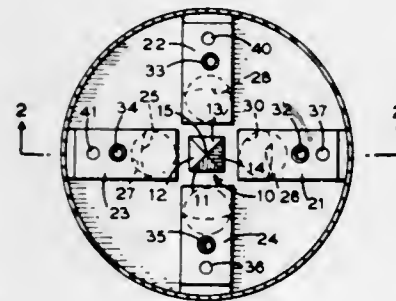
Henri L. Montpas, Yardley, Pa., assignor to Weston Instruments, Inc., Newark, N.J.

Filed Feb. 16, 1970, Ser. No. 11,529

Int. Cl. G01j 1/20; H01j 39/12

U.S. Cl. 250-203

2 Claims



An illustrative embodiment of the invention combines a light position sensitive photoelectric device with a light beam splitting structure in order to indicate the position of the light source relative to the device's photocathode. Primary reflecting surfaces are used to split the incoming beam of light and thereby provide improved light transmission properties.

3,654,476

SOLID-STATE TELEVISION CAMERA DEVICES

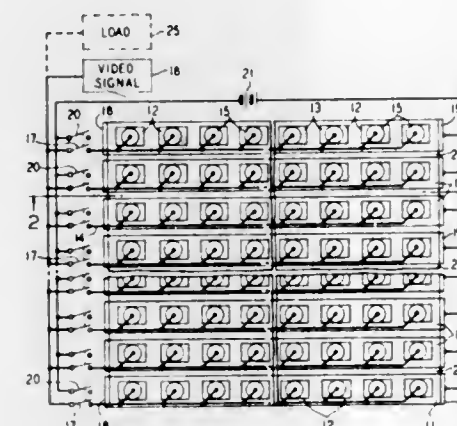
Basil W. Hakki, Scotch Plains, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Original application May 15, 1967, Ser. No. 638,417, now Patent No. 3,536,830. Divided and this application Oct. 24, 1969, Ser. No. 871,371

Int. Cl. H01l 15/00

U.S. Cl. 250-211 J

6 Claims



Solid-state display and light-sensitive devices are described which comprise a plurality of strips of semiconductor material each having a bulk negative conductivity and containing a plurality of light elements along one surface. A sufficiently high DC voltage is sequentially applied to the strips to excite traveling electric field domains which in turn sequentially excite the light elements. In the display devices, the light elements are light-emitting diodes, the light output of which is modulated by an applied video signal, while in the light sensitive devices, they are light sensitive diodes from which a variable voltage is taken as an output video signal.

3,654,477

OBSTACLE DETECTION SYSTEM FOR USE BY BLIND COMPRISING PLURAL RANGING CHANNELS MOUNTED ON SPECTACLE FRAMES

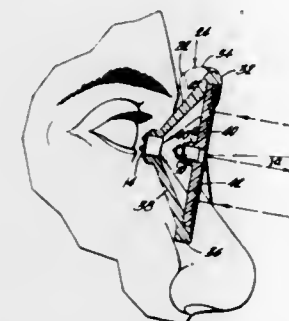
J. Malvern Benjamin, Jr., Philadelphia, Pa., assignor to Bionic Instruments, Inc., Bala Cynwyd, Pa.

Filed June 2, 1970, Ser. No. 42,796

Int. Cl. G06m 7/00; H01j 5/02, 39/12

U.S. Cl. 250-217 SS

5 Claims



In an obstacle detection device for the blind a coherent light source is pulsed on to produce a pulse of light which is reflected by an obstacle. The reflected light is received adjacent the coherent light source and the time between the transmission and reception of the pulse is used to measure the relatively short distances involved. Solid state lasers and photopickups in such a system can be included in eye-glasses to be accommodated in the space between the lens area and the wearer's eye. Other embodiments include hand-held systems, such as a flashlight-like device, or typhlo cane combinations. A tactile stimulator directed to a sensitive body area supported on the same frame employs material which changes shape when temperature exceeds a critical level and

returns to its original shape when cooled below that temperature such that internal resistance of the material under the effect of AC current constantly cyclically changes above and below the critical temperature.

3,654,478

RADIATION SENSITIVE CARD READER WITH COMPENSATION FOR OPTICAL CONTAMINATION OF THE SYSTEM

Zyoichi Fuwa, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

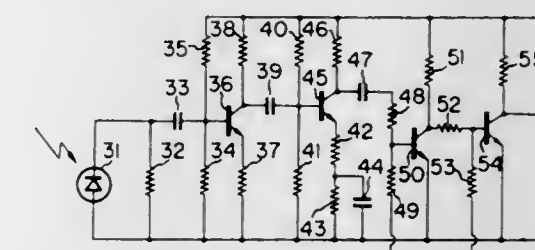
Filed Feb. 9, 1970, Ser. No. 9,608

Claims priority, application Japan, Feb. 14, 1969, 44/10829

Int. Cl. G08c 9/06

U.S. Cl. 250-219 DC

7 Claims



A card reader having a light source for illuminating cards and photoelectric cells for read-out. The photoelectric cells are so arranged that they read out the space between the adjacent columns of a card when it is at rest and read out the information on the card when it is being advanced. A load resistance is coupled to each of the photoelectric cells in such a manner that the logarithm of the brightness or luminance of the light intercepted by the photoelectric cell is substantially in proportion to the output voltage. Means for eliminating DC components such as capacitors are used in coupling photoelectric cells to an amplifier for amplifying the output signals of the photoelectric cells and in coupling the stages of the amplifier to each other. The card reader is stable in operation without being adversely affected by the contamination of the optical system of the photoelectric cells, the brightness of the card, the ambient temperature variation, etc.

3,654,479

MONITORING APPARATUS

Jean-Michel Catherlin, Savigny-sur-Orge, France, assignor to Compagnie Generale D'Electricite, Paris, France

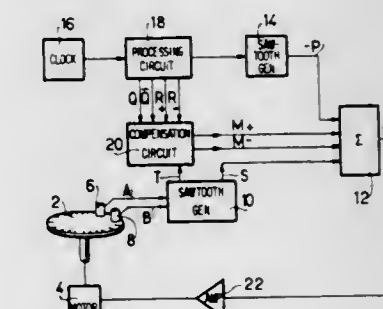
Filed Sept. 24, 1970, Ser. No. 75,065

Claims priority, application France, Sept. 25, 1969, 693284

Int. Cl. G01d 5/34

U.S. Cl. 250-231 SE

9 Claims



An apparatus for producing an output signal which is representative of the phase shift between two signals. Two input signals are used to generate a sawtooth signal which is compared to a reference sawtooth signal. The instantaneous amplitude difference between the sawtooth generated by the input and the reference sawtooth is proportional to the phase difference of these signals and an output representative of

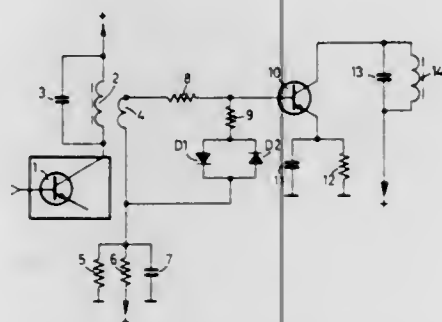
3,654,488 CIRCUIT ARRANGEMENT FOR LIMITING AMPLITUDE MODULATION IN A FREQUENCY MODULATED SIGNAL

Karl Traub, Furth, and Gunther Benecke, Nurnberg, both of Germany, assignors to Grundig E.M.V. Elektro-Mechanische Versuchsanstalt, Furth/Bayern, Germany
Filed Nov. 18, 1970, Ser. No. 90,615

Claims priority, application Germany, Nov. 22, 1969, P 19 58 749.6

Int. Cl. H03k 5/08; H04b 1/10
U.S. Cl. 307-237

2 Claims



A first transistor stage has a tuned output circuit. A coil coupled to the tuned output circuit has, in parallel with it, a series circuit of a resistance and a pair of diodes connected in parallel but with opposite polarity. Terminal of the resistance not connected to the pair of diodes may be connected to the top of the coupling coil via a resistance and is connected to the base of the subsequent transistor stage.

3,654,489 PULSE GENERATOR FOR A VARIABLE LOAD

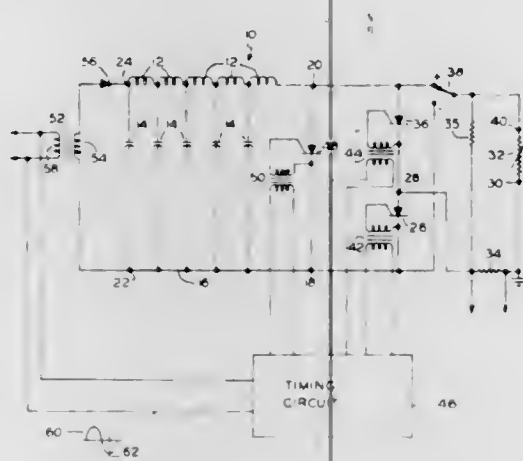
James H. Knapton, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed July 28, 1970, Ser. No. 58,883

Int. Cl. H03k 3/57, 17/72

U.S. Cl. 307-252 W

13 Claims



A transmission line is charged by means of a floating power supply and is discharged through a silicon controlled rectifier into a variable load. A second silicon controlled rectifier, disposed in shunt relation with the line, is employed for insuring pulse termination.

3,654,490 GATE CIRCUIT WITH TTL INPUT AND COMPLIMENTARY OUTPUTS

David T. Kan, Santa Clara, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed June 17, 1970, Ser. No. 47,084

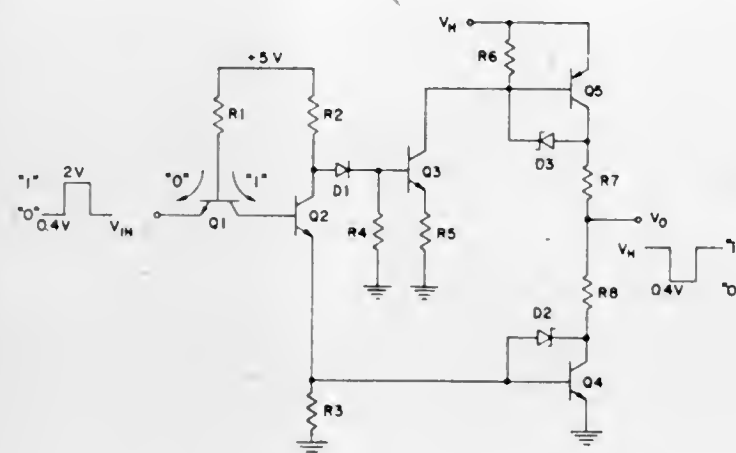
Int. Cl. H03k 17/60

U.S. Cl. 307-255

5 Claims

A gate circuit having a TTL input characteristic with the input transistor forming in effect two steering diodes driving

a phase splitter which has its collector and emitter respectively driving two complementary output transistors. The collectors of the output transistors coupled together form the



output terminal of the gate circuit and the emitter of one of the output transistors is coupled to a high voltage supply. This output transistor is also coupled to the phase splitter through an inverting current source.

3,654,491 CHIRP PULSE GENERATING CIRCUITS

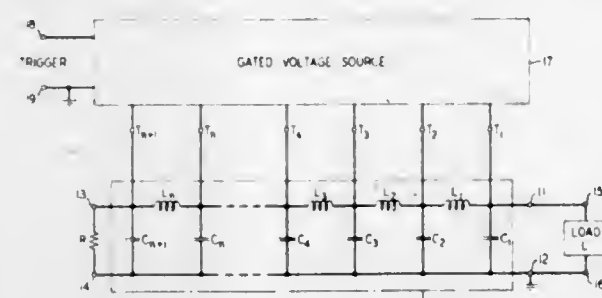
Ronald Lee Earp, Burlington, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 12, 1970, Ser. No. 18,888

Int. Cl. H03k 3/53, 3/80; H03h 7/32

U.S. Cl. 307-262

18 Claims



Chirp pulse generating circuits using constant-K, incrementally time dispersive delay lines are disclosed. Gated sources place predetermined amounts of energy in elements of the lines. When this energy discharges, Chirp pulse output signals are produced.

3,654,492 CODE COMMUNICATION FRAME SYNCHRONIZATION SYSTEM

James M. Clark, Cedar Grove, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Aug. 24, 1970, Ser. No. 66,520

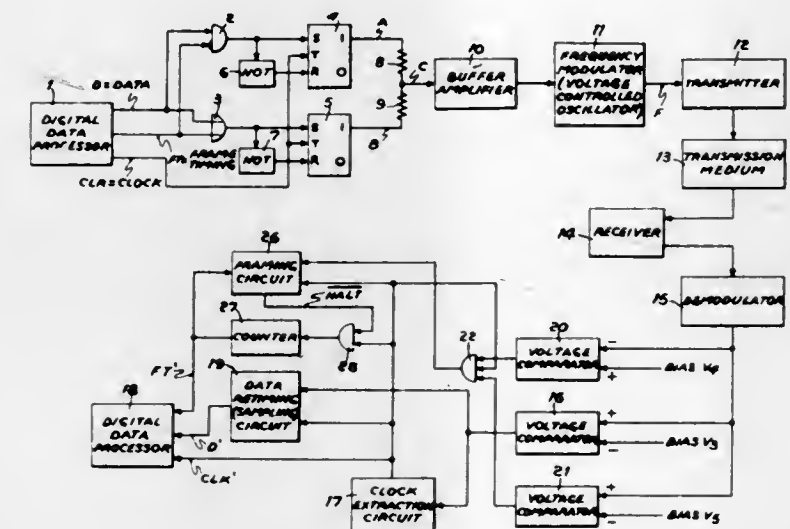
Int. Cl. H03k 5/00

U.S. Cl. 307-269

11 Claims

Logic circuitry converts binary intelligence into a first amplitude for a binary "1" and a second amplitude for a binary "0." This same logic circuitry converts a frame timing signal into a third amplitude half way between the first and second amplitudes. These three amplitudes are converted into, for instance, three distinct frequencies with the frequency corresponding to the third amplitude being disposed half way between the frequencies corresponding to the first and second amplitudes. After transmission, the three amplitudes are recovered. A first voltage comparator having a reference voltage equal to the third amplitude recovers the binary intelligence from which a local clock is generated with the local

clock pulses being delayed to be centered in the binary digits. A pair of voltage comparators having reference voltages straddling the third amplitude, but less than the first amplitude and greater than the second amplitude and a sam-



pling gate responding to the outputs of the pair of voltage comparators and the local clock pulses recover the frame timing signal to enable frame synchronization of the receiver with the transmitter.

3,654,493 BISTABLE LOGIC CIRCUITS UTILIZING A CHARGE STORED DURING A CLOCK PULSE TO CHANGE THE OPERATING STATE ON THE TRAILING EDGE OF THE CLOCK PULSE

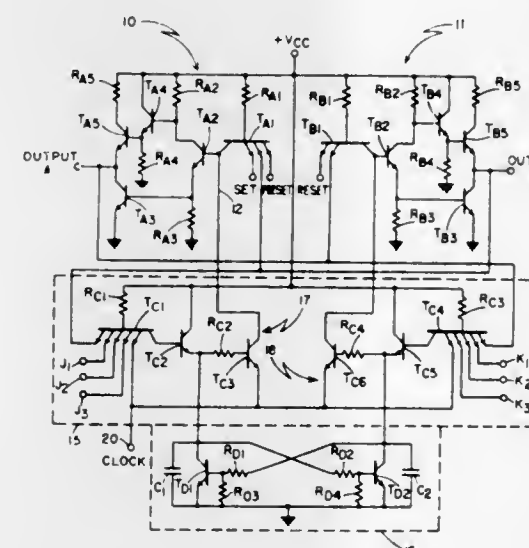
John J. Kardash, South Acton, Mass., assignor to Sylvania Electric Products Inc.

Filed June 21, 1965, Ser. No. 465,580

Int. Cl. H03k 3/286, 17/00

U.S. Cl. 307-289

15 Claims



Bistable circuit having a steering circuit with two capacitances, two charging transistors, and two switching transistors. During a clock pulse, if input conditions are met, the appropriate charging transistor conducts and permits its associated capacitance to be charged. During the trailing edge of the clock pulse, the stored charge causes the appropriate switching transistor to conduct and switch the operating state of the bistable circuit.

3,654,494 CAPACITOR TYPE TIMING CIRCUIT UTILIZING ENERGIZED VOLTAGE COMPARATOR

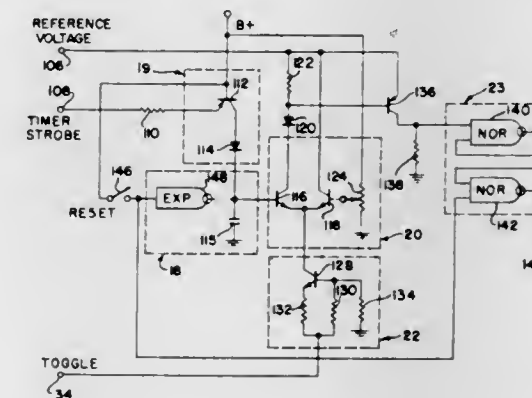
Peter G. Bartlett; Larry K. Clark, both of Davenport, Iowa, and Frank W. Hill, Moline, Ill., assignors to Gulf & Western Industries, New York, N.Y.

Filed Aug. 20, 1968, Ser. No. 812,475

Int. Cl. H03k 17/28

U.S. Cl. 307-293

5 Claims



There is provided a strobed timing circuit which includes a timing capacitor connected across a voltage source for charging at a predetermined rate, and a comparator circuit for providing an output signal when the voltage across the capacitor reaches a set-in value. The comparator circuit is turned on for relatively short intervals of time to measure the voltage across the capacitor to thereby provide a comparator circuit with an apparently high input impedance.

3,654,495 PULSE PRODUCING CIRCUIT

Hajime Shinoda, Tokyo, and Takao Tsuchiya, Kanagawa-ken, both of Japan, assignors to Sony Corporation, Tokyo, Japan

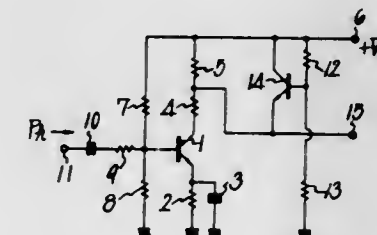
Filed Mar. 29, 1971, Ser. No. 128,866

Claims priority, application Japan, Apr. 2, 1970, 45/28083

Int. Cl. H03k 17/28

U.S. Cl. 307-293

16 Claims



A transistor circuit for producing delayed pulses includes a transistor normally biased to conduct. An incoming pulse increases conductivity and charges an RC circuit to change the bias condition. The trailing edge of the incoming pulse drives the transistor to cut-off to form the leading edge of the delayed pulse. The lagging edge of the delayed pulse occurs when the RC circuit discharges enough to allow the transistor to return to normal conductivity.

3,654,496 ELECTRIC TIMER WITH NONVOLATILE MEMORY

Friedrich W. Flad, Rockville, Md., assignor to The United States of America as represented by the Secretary of the Army

Continuation-in-part of application Ser. No. 845,001, July 25, 1969. This application Apr. 30, 1970, Ser. No. 33,458

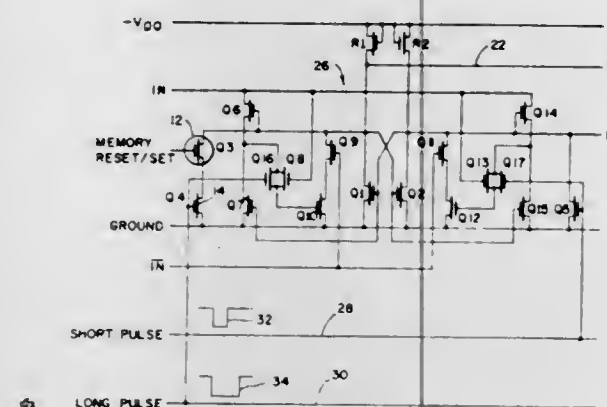
Int. Cl. H03k 19/08

U.S. Cl. 307-304

12 Claims

Disclosed is an electronic digital timer with a nonvolatile memory particularly adapted for use in the fuze of an artil-

lery projectile. The timer comprises a main counter in the form of a series of integrated circuit flip-flops, each having its own memory. A predetermined count is set into the memo-



ries in the form of MNOS transistors and complemented in the counter when power is restored. A fuze oscillator actuates the counter through a frequency divider and scaler. A setter is used to set and monitor the timer.

3,654,497

SEMICONDUCTOR LASERS UTILIZING INTERNAL SATURABLE ABSORBERS

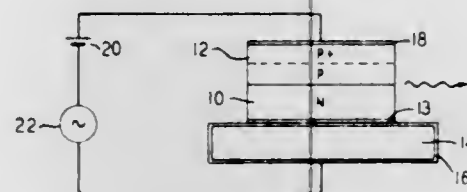
John C. Dymet; Thomas L. Paoli, both of Chatham, and Jose' E. Ripper, North Plainfield, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 1, 1969, Ser. No. 881,185

Int. Cl. H01s 3/18; H03k 19/08, 19/02, 19/30

U.S. Cl. 307—312

13 Claims



Trapping centers are controllably introduced into a junction laser by diffusing a P-region to within at least 1.5μ of the junction. The centers, which act as saturable absorbers, produce bistable regions of operation in c.w. junction lasers operating above the delay transition temperature, the laser being either on or off depending on its previous history of operation. Optical logic and memory devices, as well as methods for fabrication, are discussed.

3,654,498

SEMICONDUCTOR DEVICE HAVING AN INTEGRATED PULSE GATE CIRCUIT AND METHOD OF MANUFACTURING SAID DEVICE

Claude Chapron, Caen, France, assignor to U.S. Philips Corporation, New York, N.Y.

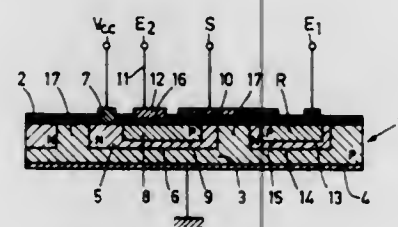
Filed Mar. 19, 1970, Ser. No. 21,165

Claims priority, application France, Mar. 24, 1969, 6908560

Int. Cl. H011 19/00

U.S. Cl. 307—303

7 Claims



A semiconductor device having an integrated pulse gate circuit which device comprises a preferably grounded first re-

gion of a first conductivity type in which an island of the second conductivity type is provided which is preferably applied to the highest supply voltage, in which island, according to the invention, a surface zone of the first conductivity type is provided. This surface forms a plate of a capacitor which is connected on the other side to the trigger input. The surface zone is furthermore d.c. connected to the output of the pulse gate and to a resistor, the other side of which is connected to the condition input. As a result of this the drawback of the capacitance of the p-n junction between the first region and the island varying with the voltage in an undesirable sense is avoided.

3,654,499

CHARGE COUPLED MEMORY WITH STORAGE SITES

George Elwood Smith, Murray Hill, N.J., assignor to Bell Telephone Laboratories, Incorporated, Berkeley Heights, N.J.

Filed June 24, 1970, Ser. No. 49,462

Int. Cl. G11c 19/00, 7/00; H03k 25/02

U.S. Cl. 307—304

30 Claims



The specification describes a variety of charge coupled memory devices most of which are "read-only" memories in which the charge capacity of selected sites is permanently or semipermanently fixed. If charge is accumulated in these sites to the equilibrium amount and then shifted to an output site, the signal will reflect the programmed capacity of the sites.

3,654,500

APPARATUS FOR CONVERTING BULK WAVES TO RAYLEIGH WAVES AT MICROWAVE FREQUENCIES

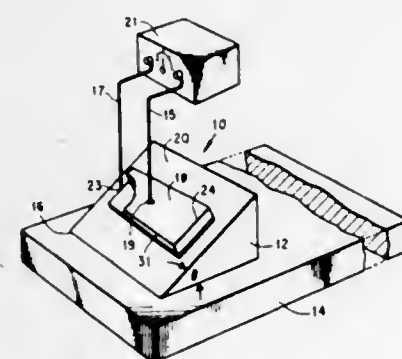
Lewis T. Claiborne, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed June 11, 1970, Ser. No. 45,453

Int. Cl. H01v 7/00

U.S. Cl. 310—8.3

6 Claims



Chalcogenide glass is deposited on a nonpiezoelectric substrate by vapor deposition techniques to form thereon a wedge of chalcogenide glass, the sloping surface of the wedge being disposed at a preselected angle with the surface of the substrate. The interface between the substrate and the chalcogenide glass thus deposited is substantially free from defects that generate acoustical interference at high frequencies. A piezoelectric transducer is then evaporated onto the surface of the wedge. A microwave frequency signal applied to the transducer generates bulk waves in the chalcogenide glass wedge. These bulk waves propagate through the wedge

and impinge the substrate at regularly spaced intervals, thereby generating Rayleigh (surface) waves in the substrate.

3,654,501

FLOWING LIQUID ELECTROSTATIC GENERATORS

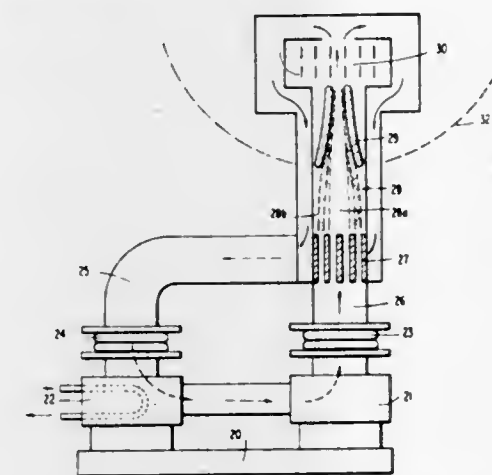
Philip E. Secker, Anglesey, North Wales, Great Britain, assignor to KDI Corporation

Filed Mar. 23, 1970, Ser. No. 21,742

Int. Cl. H02n 3/00

U.S. Cl. 310—10

2 Claims



Radial charge migration in the field emitting injector/collector interspace region of flowing liquid electrostatic generators is significantly reduced by forming a sheath of uncharged liquid with a high axial velocity concentric with the charged liquid leaving the injector, thereby sweeping to the collector any charge carriers which undergo radial charge migration.

3,654,502

ULTRASONIC TOOL

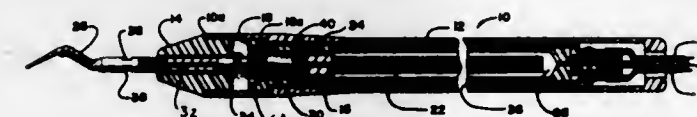
Dello Carmona; Harvey Diamond, and Joachim Maliga, all of Brooklyn, N.Y., assignors to Countronic Corp., Brooklyn, N.Y.

Filed June 24, 1970, Ser. No. 49,247

Int. Cl. H01v 9/00

U.S. Cl. 310—26

8 Claims



An ultrasonic tool disclosed in a dental instrument embodiment. The tool includes a working tool tip attached to the front of a velocity transformer and a stack of magnetostrictive plates attached to the rear of the velocity transformer. Each magnetostrictive plate is supported solely at its front end, the rear end of each plate being free from connection to either other plates or to any support structures. The water flow through in a continuous axial direction through an axial fluid conduit in the transformer. A spring and hexagonal flange arrangement on the transformer provides multiple radial positioning of the work tool.

3,654,503

SYNCHRONOUS MOTORS WITH FIELD STARTING RESISTOR ARRANGEMENT

Eugene C. Whitney, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1970, Ser. No. 75,218

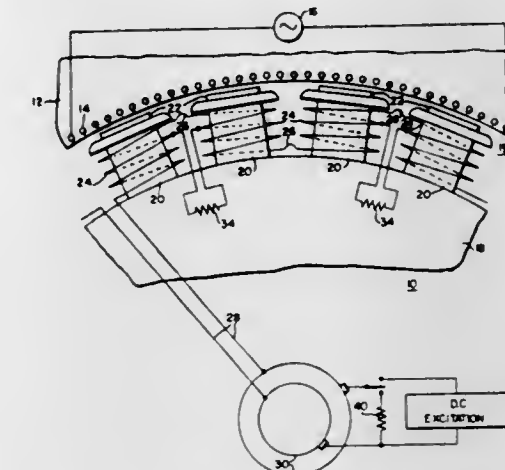
Int. Cl. H02k 19/00

U.S. Cl. 310—162

6 Claims

A synchronous motor is provided with starting resistors connected on each field coil or between pairs of field coils so

as to confine the induced field current to only the portion of the field coils nearest the air gap. This results in less flux leakage and increases the contribution to pull-in torque of



the field coils near synchronous speed so the machine can be brought into synchronism with a higher load torque than otherwise.

3,654,504

BRUSH MECHANISM

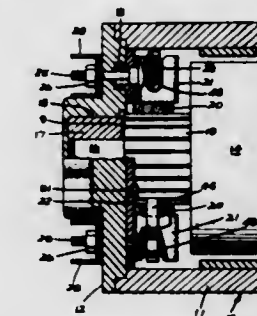
Robert A. Susdorf, and Fredrick J. Armstrong, both of Fort Wayne, Ind., assignors to General Electric Company

Filed Mar. 29, 1971, Ser. No. 128,873

Int. Cl. H02k 13/00

U.S. Cl. 310—239

11 Claims



A brush mechanism for a dynamoelectric machine including an insulating mounting plate or yoke having locating means adapted to position two or more brush boxes. Brush boxes are accurately positioned and permanently mounted to the yoke prior to the mounting of the mechanism to the machine. The yoke also includes means for accurately positioning the mechanism on the machine housing. Each brush box is a one piece stamped and formed member fabricated of steel material and includes an integral spring post to which is mounted a spring for biasing the brush against the peripheral surface of the commutator of the machine.

3,654,505

BLACK ENAMEL GLASS FOR CATHODE-RAY TUBE

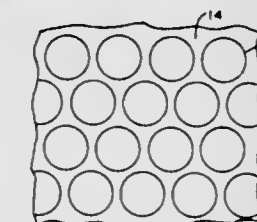
Earl K. Davis, Tempe; Kent W. Hansen, Scottsdale, both of Ariz., and Yemmanur Jayachandra, Melrose Park, Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed June 5, 1970, Ser. No. 50,405

Int. Cl. H01j 31/20; H01k 1/26; H01j 29/18

U.S. Cl. 313—92 B

1 Claim



A faceplate of a color cathode ray tube has a black enamel glass with holes interspaced therethrough. Color phosphor

areas are positioned within the holes in the black enamel glass.

3,654,506

HIGH PRESSURE MERCURY VAPOR DISCHARGE LAMP WITH METAL HALIDE ADDITIVE

Bernhard Kuhl, Gelselgastelg, and Alexander Dobruskin, Taufkirchen, both of Germany, assignors to Patent-Treuhand-Gesellschaft, für elektrische Glühlampen mbH, Munich, Germany

Filed July 27, 1970, Ser. No. 58,292

Claims priority, application Germany, Aug. 8, 1969, P 19 40 539.1

Int. Cl. H01j 61/12

U.S. Cl. 313-184

6 Claims



High pressure mercury vapor discharge lamp without outer jacket and with a wall loading of between 10 and 100 W/cm² preferably 20-60 W/cm² and a medium arc length corresponding to a load per cm of arc length of between 100 and 1000 W/cm, preferably 150-850 W/cm. Additives of thallium halide and halides of rare-earth metals, preferably of thulium and holmium, in a ratio of weight of halogen to metal between 2 and 10. Color temperature is 6,000° K, index of color rendition 92.

3,654,507

DISPLAY PANEL WITH KEEP ALIVE CELLS

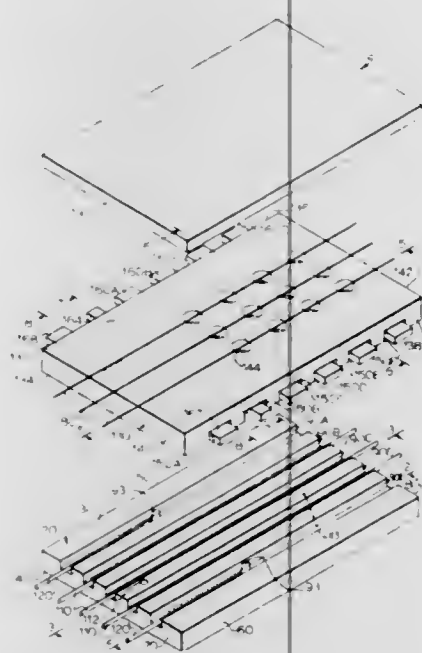
Bernard Caras, Princeton, N.J., and James A. Ogle, Paoli, Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed Jan. 29, 1970, Ser. No. 6,838

Int. Cl. H01j 61/54

U.S. Cl. 313-198

11 Claims



A display panel includes a plurality of rows and columns of display cells and anode and cathode electrodes associated

therewith for causing glow discharge. The panel includes auxiliary starter or reset cells for facilitating the turn-on of the display cells and several keep-alive cells, including at least one uniquely located and constructed keep-alive cell, for facilitating the operation of the reset cells.

3,654,508

DISPLAY PANEL HAVING A PLURALITY OF DISPLAY REGISTERS

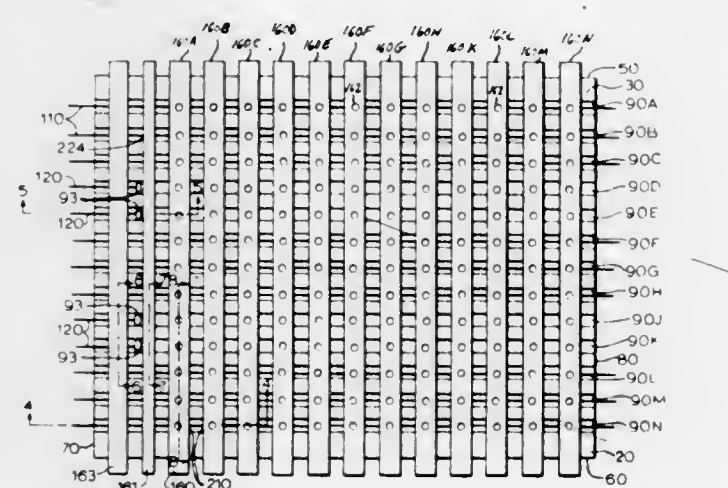
Bernard Caras, Princeton, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 19, 1970, Ser. No. 21,125

Int. Cl. H01j 61/54

U.S. Cl. 313-198

7 Claims



A display panel includes a plurality of display cells arrayed in rows and columns, with electrodes coupled to the cells in such a way that a plurality of rows of characters can be displayed, with blank spaces being provided between the rows of characters. Electrodes may be provided in these blank spaces to perform an auxiliary function such as a keep-alive function.

3,654,509

DIELECTRICALLY SUPPORTED HELIX DERIVED SLOW WAVE CIRCUIT

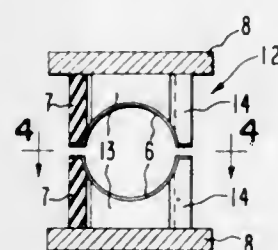
Allan W. Scott, and Yukio Hiramatsu, both of Los Altos, Calif., assignors to Varian Associates, Palo Alto, Calif.

Filed Dec. 14, 1970, Ser. No. 97,687

Int. Cl. H01j 25/34

U.S. Cl. 315-3.5

9 Claims



A dielectrically supported helix derived slow wave circuit and microwave tube using same is disclosed. A topologically equivalent ring and bar slow wave circuit is supported from mutually opposed concave trough-shaped surfaces of a serpentine-shaped dielectric support structure, as of ceramic. The outer edges of the serpentine support structure are bonded to the inner surface of a metallic barrel structure surrounding the slow wave circuit. An array of metallic fins extend from the barrel into a region adjacent the slow wave circuit and in between adjacent ring portions of the ring and bar circuit for decreasing the dispersiveness of the ring and bar circuit at the low frequency end of the operating range

whereby the useful bandwidth of the tube is greatly increased.

3,654,510

DIRECT DRIVE VERTICAL DEFLECTION SYSTEM UTILIZING A STORAGE CAPACITOR AND DISCHARGE TUBE IN PLACE OF AN OUTPUT TRANSFORMER

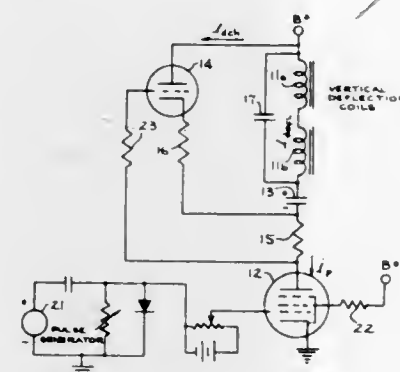
William R. Sander, Owensboro, Ky., assignor to General Electric Company

Filed Nov. 14, 1969, Ser. No. 876,669

Int. Cl. H01j 29/76

U.S. Cl. 315-29

12 Claims



An efficient, comparatively inexpensive, direct-drive vertical deflection system for a television picture tube has been provided. The system employs a storage capacitor and a discharge tube in place of the usual vertical output transformer. The vertical output power tube controls the current supplied to the vertical deflection coils to sweep the lower half of the television picture tube screen. During the period while the lower half of the picture tube screen is being swept, energy is stored in a capacitor connected in series with the vertical deflection coils. The energy stored in this capacitor then supplies the current used to sweep the upper half of the screen. This current is made available through the discharge tube at a controlled rate and flows in an opposite direction through the deflection coils so as to cause the electron beam to be swept from the top of the screen to the middle. A high efficiency is obtained by reason of the storage capacitor and discharge tube because energy which normally would be dissipated in the output power tube is used to supply current for the upper half of the sweep.

3,654,511

RC COMPOSITE TYPE CIRCUIT COMPONENT WITH DISCHARGE GAP

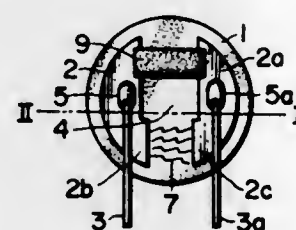
Shoichi Iwaya, Akita, Japan, assignor to TDK Electronics Company Ltd., Tokyo, Japan

Continuation-in-part of application Ser. No. 717,602, Apr. 1, 1968. This application Sept. 25, 1970, Ser. No. 75,648

Int. Cl. H01j 17/36

U.S. Cl. 315-59

7 Claims



A resistance-capacitor-discharge gap electric circuit component wherein the electrodes are respectively formed on both sides of a dielectric sheet and one of said electrodes is divided into two portions. The divided portions are symmetrical and provided on the respectively faced position with a space between them. The electrodes are printed on the

dielectric sheet with electrically conductive material made of the mixture of 3 to 7 per cent, by weight, of the glass powder colloidal state having low melting point and fine silver powder, mixed with several per cent of organic solvent, such as toluol, tetraline, or cator oil.

A discharge gap, which is narrower than the above mentioned interval, is formed between said two divided portions of the electrode, and said two divided portions are bridged with a resistance. A sheet of electrode is provided on the rear side of the dielectric sheet at the corresponding position of the discharge gap and the electrodes on the front side of the sheet.

When a higher voltage than required is applied between the two divided portions, discharge is carried out through said resistance, but when such a high voltage as might break down the resistance or the electrodes is applied between said two divided portions, discharge is carried out through said discharge gap, and said resistance and the electrodes escape damage.

3,654,512

LAMP WITH SUPPORT FOR FILAMENT TO EXTEND LIFE OF FILAMENT AND ENVELOPE FILLED WITH KRYPTON AND/OR XENON

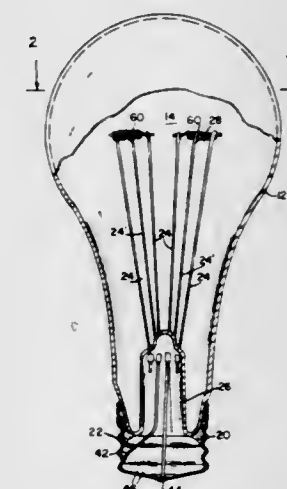
Joseph Spiteri, Erie, Pa., assignor to Truck-Lite Company, Inc., Jamestown, N.Y.

Continuation-in-part of application Ser. No. 785,909, Dec. 23, 1968. This application May 14, 1970, Ser. No. 37,183

Int. Cl. H01j 7/44

U.S. Cl. 315-64

1 Claim



The specification discloses a lighting system which uses a low voltage lamp filament of a certain increased length to which a predetermined reduced voltage is applied, which is less than the rated voltage of the lamp. The lamp filaments are each supported at their ends on rods and a rod having an insulating grommet is supported between each pair of rods which support the ends of the filament to support the intermediate part of the filament. Thus the center rod support acts on the filament as a support for two parts of a cantilever beam.

3,654,513

ARC HEATER APPARATUS AND METHOD FOR PRODUCING A DIFFUSE ARC DISCHARGE

Joel B. Hammer, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 30, 1969, Ser. No. 846,158

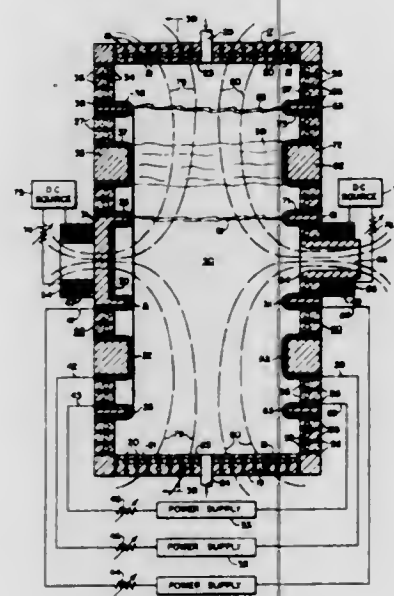
Int. Cl. H01j 17/26

U.S. Cl. 315-111

12 Claims

An arc heater has three sets of substantially equally axially spaced annular electrodes of progressively increasing diameters coaxially mounted with respect to each other and electrically insulated from each other. Near the electrodes there are mounted magnetic field coils which set up magnetic fields

which cause the arcs to move substantially continuously around the electrodes, the arcs being produced by connecting oppositely disposed electrodes of each set to terminals of opposite polarity of a source of potential. The arc between the pair of electrodes of smallest diameter and the arc



between the pair of electrodes of largest diameter prevent loss of heat to the walls of the pressure vessel from the arc between the pair of electrodes of intermediate diameter; the last named arc may be of high current and have a diffused mode of operation, resulting in increased heating efficiency of gas admitted to the arc heater.

3,654,514

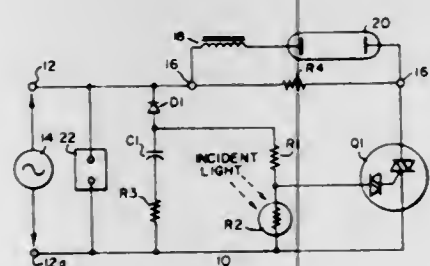
SOLID-STATE PHOTOCONTROL APPARATUS FOR LIGHTING LOADS

George A. Kappenhagen, Northfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Oct. 12, 1970, Ser. No. 80,081

Int. Cl. H05b 37/02, 39/04

U.S. Cl. 315-156

10 Claims



A simple solid-state photocontrol apparatus for controlling the operation of lighting loads comprises a series-connected rectifier and RC combination which generates a DC potential. A series-connected photocontrol element and a fixed resistor connect to the generated DC potential and under nighttime conditions, an increased potential is developed across the photocontrol element. The gate circuit of an AC symmetrical switch is connected intermediate the fixed resistor and the photocontrol element, and when the voltage applied to the gate circuit reaches a predetermined value as nighttime approaches, the AC symmetrical switch conducts to operate the lighting load. The symmetrical switch remains conducting until the resistance of the photocontrol element again decreases due to daytime conditions.

3,654,515

LEAKAGE CURRENT INTERRUPTING APPARATUS

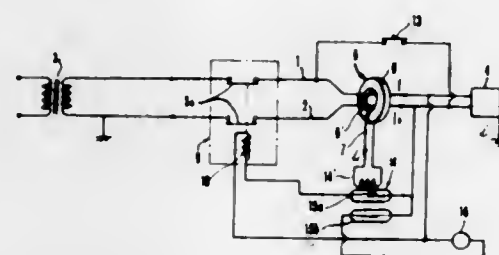
Tomio Kato, and Hifumi Nitta, both of Kawasaki, Japan, assignors to Chubu Seiki Kabushiki Kaisha, Aichi-ken, Japan
Filed June 9, 1970, Ser. No. 44,722

Claims priority, application Japan, June 26, 1969, 44/60126; 44/60127; Jan. 23, 1970, 45/6534

Int. Cl. H02h 3/28

U.S. Cl. 317-18 D

1 Claim



In a leakage current interrupting apparatus for feeder lines a zero-phase current transformer is associated with the feeder lines to trip a circuit interrupter through a control means responsive to the secondary voltage of the zero-phase current transformer. The control means is comprised by a magnetic reed relay or a unidirectional three-terminal element such as a silicon controlled rectifier element.

3,654,516

CHANGE OF CURRENT OR VOLTAGE ACUTATED PROTECTING RELAY

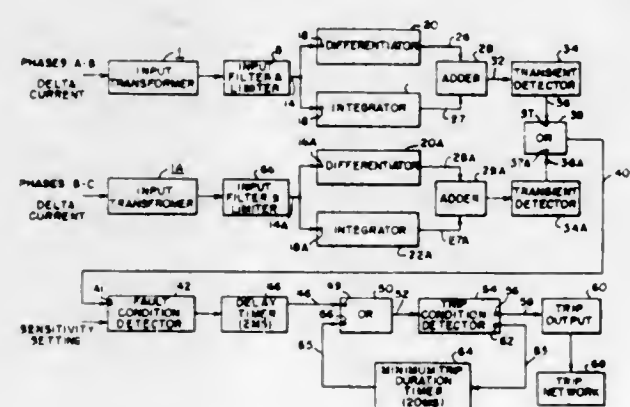
Maurizio Traversi, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 6,243, Jan. 27, 1970, now abandoned. This application Apr. 7, 1971, Ser. No. 131,990

Int. Cl. H02h 3/26

U.S. Cl. 317-27 R

15 Claims



A control device responsive to a change in magnitude and/or phase of an alternating potential sine wave signal in which a first quantity derived by integrating the signal is compared with a second quantity derived by differentiating the signal.

3,654,517

BUS COUPLER PROTECTION CIRCUIT

John Thomas Mahoney, Naperville, and Garold Stephen Tjaden, West Chicago, both of Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Sept. 3, 1970, Ser. No. 69,368

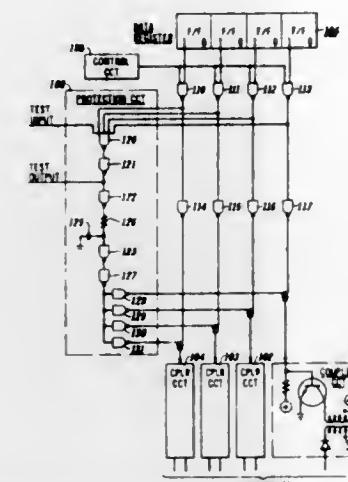
Int. Cl. H01h 47/18

U.S. Cl. 317-33 R

9 Claims

A protection circuit for data bus transmission coupling circuits is provided to protect the coupling circuits from injury due to the application of abnormally long duration pulses.

The protection circuit is responsive to data pulses to be transmitted via the coupling circuits and generates inhibit



signals to inhibit the coupling circuits upon the occurrence of data pulses of greater than a prescribed duration.

3,654,518

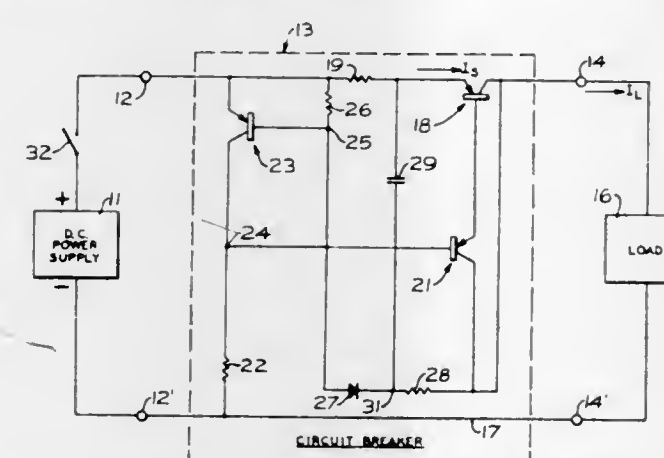
FAST ACTING SOLID STATE CIRCUIT BREAKER

Weldon L. Phelps, Dunlap, and Kerwyn B. Smith, Decatur, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.
Filed Sept. 17, 1970, Ser. No. 73,098

Int. Cl. H02h 3/08

U.S. Cl. 317-33 R

2 Claims



A circuit breaker includes a voltage sensing resistor and a transistor for transmitting current from a DC power source to a load. Conduction through the transistor is controlled by additional solid state circuit elements which respond to an increased voltage drop across the resistor by stopping conduction through the transistor with a regenerative feedback action whereby the current from the source to the load is cut off abruptly in response to an increase of the load current above a predetermined level. The circuit breaker has no moving contacts or the like and resets automatically when the circuit from the power supply to the load is opened by switch means or the like. The circuit breaker dissipates very little power in either the open or closed condition and the components may be included with the load circuit itself whereby the circuit breaker cannot readily be bypassed by a jumper connection or the like.

3,654,519

CIRCUIT BREAKER INCLUDING IMPROVED OVERCURRENT PROTECTIVE CIRCUIT

William H. South, McKeesport, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 18, 1971, Ser. No. 116,496

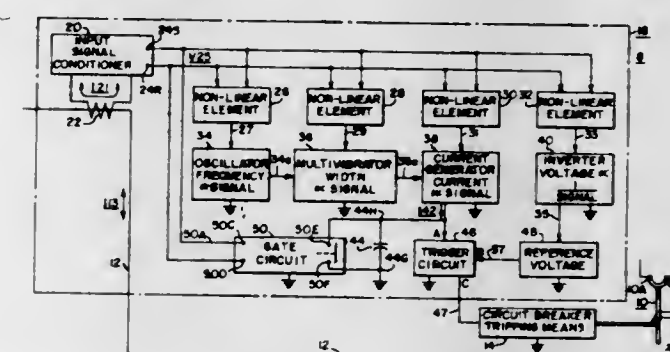
Int. Cl. H01h 47/18

U.S. Cl. 317-36 TD

16 Claims

An overcurrent protective circuit or means comprising static solid state non-linear elements connected in parallel

with an input signal conditioning means such that an overload current in a protected circuit is sensed by the input signal conditioning means and then converted into a signal which is applied simultaneously to each of the non-linear elements. An output current which is directly proportional to or varies with the value of overcurrent in the protected circuit is generated by each non-linear element after the overload current exceeds predetermined values which may be different for the respective non-linear elements. The output from each of the non-linear elements, is supplied to a corresponding associated modulating means such as an oscillator, multivibrator or current generator. These modulating means combine



to generate a current signal that is proportional to the overload current in the protected circuit raised to some power N where N is related to the number of modulating means. This current is then applied to charge a capacitor which effectively integrates the current with respect to time. Integration converts the charging current into a voltage signal which is directly proportional to the Nth power of the overload current in the protected circuit. The voltage signal is then compared with a reference or threshold voltage in a trigger circuit and when it exceeds the reference voltage, a signal is generated by the trigger circuit which actuates a circuit breaker tripping means causing the circuit breaker protecting the aforementioned circuit to open or trip.

3,654,520

HIGH VOLTAGE SURGE DIVERTER

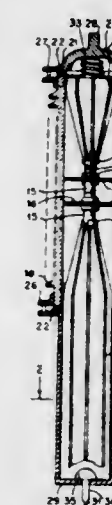
Peter Graneau, Concord, Mass., assignor to Interpace Corporation, Parsippany, N.J.

Filed Apr. 20, 1971, Ser. No. 135,588

Int. Cl. H02h 9/06

U.S. Cl. 317-61

5 Claims



A new technique for diverting high-voltage surges due to lightning or switching operations from a power line to ground. The surge diverting discharge takes place across the surface of solid dielectric insulators placed in an evacuated space inside a dielectric tube. Metallic ion shields are provided which intercept the discharge path and uphold a voltage between the electrodes of the diverter. The device has a

more stable triggering level than prior art lightning arresters and it prevents the flow of power followthrough currents.

3,654,521

ELECTRONIC CARD MODULE THERMAL CLIP

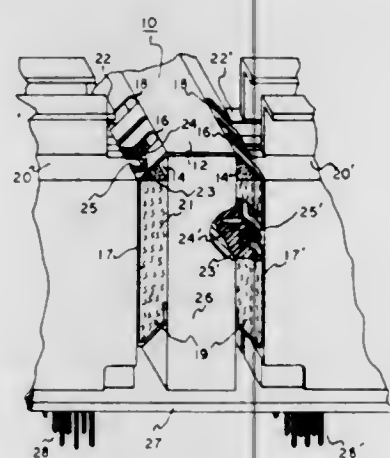
Rush V. LaSelle, Pittsfield, Mass., assignor to General Electric Company

Filed Jan. 13, 1971, Ser. No. 106,135

Int. Cl. H05k 7/20; H02b 1/04

U.S. Cl. 317-100

10 Claims



A thermal clip is provided for an electronic card module which physically supports as well as conducts heat away from the module. The clip has a slotted construction and is fashioned from a metal sheet so as to have a hollow interior cavity which contains a metal-filled elastomeric material that is in physical contact with edge elements of the module. The clip member is supported by metal frame means which houses a plurality of modules and said frame can have a hollow interior for passage of a gaseous coolant to help conduct heat away from the modules. Additional heat removal can be provided in the form of a cold plate which carries liquid coolant and contacts the support frame for the modules.

3,654,522

SECURITY CONTROL DEVICE

Gordon S. Isserstedt, 106 Poplar Plains Road, Toronto 7, Ontario, Canada

Continuation of application Ser. No. 693,039, Nov. 28, 1967, now abandoned, which is a continuation-in-part of

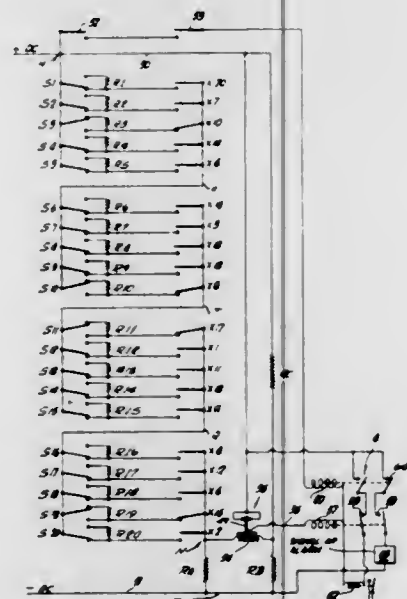
application Ser. No. 533,682, Mar. 11, 1966, now abandoned.

This application July 9, 1970, Ser. No. 53,643

Int. Cl. H04q; H01h 47/00

U.S. Cl. 317-134

23 Claims



A circuit switched from a first state to a second state only when a correct combination of switches in the circuit are ac-

tuated, and a series of unique mating arrangements of switch selectors for actuating a correct combination of switches, the circuit being switched to its second state only when a mating arrangement of switch selectors on a pair of security devices such as punched or embossed credit cards, keys, dial combinations or the like is sensed, and preferably giving a warning signal when a non-mating arrangement is sensed. A multiplicity of different combinations of mating pairs of security devices is possible, enabling identification of each individual user of the circuit.

3,654,523

WET ELECTROLYTIC CAPACITORS

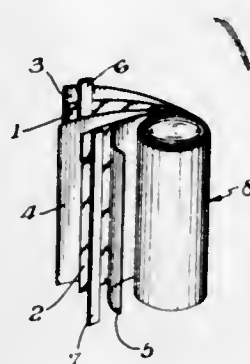
Mark Markarian, and Francis J. Gamari, both of Williamstown, Mass., assignors to Sprague Electric Company, North Adams, Mass.

Filed July 17, 1970, Ser. No. 55,867

Int. Cl. H01g 9/04

U.S. Cl. 317-230

8 Claims



A tantalum anode foil having a dielectric film formed thereon and an aluminum cathode foil with an aluminum oxide film thereon are in capacitive relationship with an electrolyte having an extended temperature range of compatibility with aluminum from between -55° to 125° C.

3,654,524

ELECTROLYTIC BOOK CAPACITOR

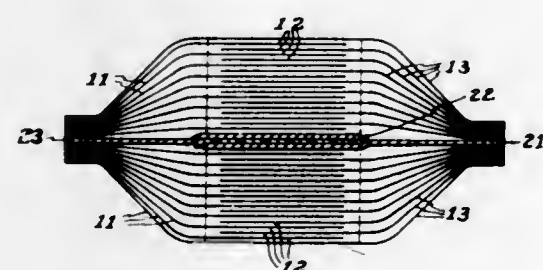
Henry F. Puppolo, North Adams, and Mark Markarian, Williamstown, both of Mass., assignors to Sprague Electric Company, North Adams, Mass.

Continuation-in-part of application Ser. No. 19,192, Mar. 13, 1970. This application Apr. 28, 1971, Ser. No. 138,029

Int. Cl. H01g 9/04

U.S. Cl. 317-230

4 Claims



An electrolytic book capacitor having three rolled and flattened foil units welded to each side of a stripline which consists of two conductive plates separated by an insulative layer. Each rolled foil unit has extended anode and cathode foils separated from each other by paper spacers. The anode foils are connected both electrically and physically to each other and to their respective stripline plate and the cathode foils are connected to each other and to the cathode stripline plate.

3,654,525

ELECTROCHEMILUMINESCENT DEVICE INCLUDING ONE OF NAPHTHACENE, PERYLENE AND 5, 6, 11, 12-TETRAPHENYL-NAPHTHACENE IN APROTIC SOLVENT

Donald Leonard Maricle, Ridgefield, and Michael McKay Rauhut, Norwalk, both of Conn.

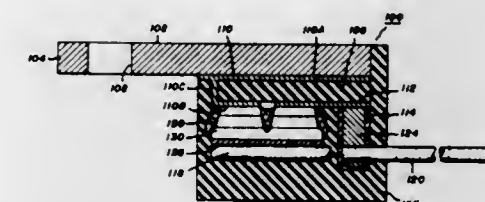
Continuation-in-part of application Ser. No. 382,408, July 13, 1964, now abandoned. This application Oct. 23, 1965, Ser. No. 504,111

Int. Cl. H01g 9/00; B01k 3/00

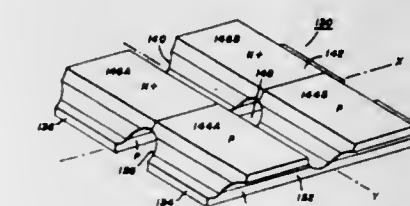
U.S. Cl. 317-230

1 Claim

1. An electroluminescent device including a container having disposed therein a pair of electrodes and a solution of a polynuclear condensed aromatic hydrocarbon in an aprotic solvent, the said aromatic hydrocarbon being selected from the group consisting of naphthacene, perylene and 5, 6, 11, 12-tetraphenyl-naphthacene, the said electrodes and container being chemically inert with respect to said solution.



ment. The semiconductive element is thermally coupled to a tab mounted heat sink through an electrically insulative sub-



3,654,526

METALLIZATION SYSTEM FOR SEMICONDUCTORS

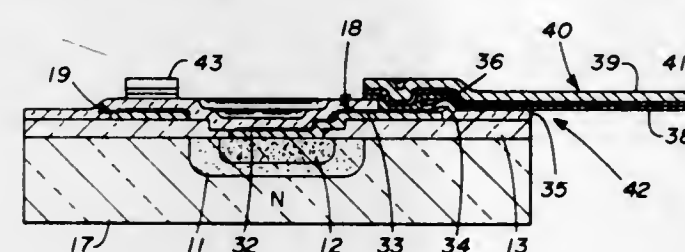
James A. Cunningham, Houston; Clyde R. Fuller, Plano; Robert C. Hooper, and Robert H. Wakefield, both of Houston, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 19, 1970, Ser. No. 38,817

Int. Cl. H01l 5/02

U.S. Cl. 317-234 R

5 Claims



A metallization system for semiconductor devices includes a first layer of aluminum a part of which is in ohmic contact with a silicon substrate and devices thereon, the other part of which overlies an insulating layer. A second layer of molybdenum is deposited on the aluminum layer. The aluminum and molybdenum are photoetched into a predetermined pattern which ohmically contacts the silicon and overlies an insulating layer, usually of silicon dioxide. Thereafter a variety of techniques and lead systems can be used. For example, a second layer of insulating material can be applied over the first level aluminum-molybdenum metallization system and the first layer of insulating material. The second level of insulating material can then be selectively etched to expose predetermined portions of the first level lead system. Thereafter, beam leads can be attached to the first level metallization system; or bonding pads can be formed in ohmic contact with the first level metallization system. Alternatively, a second level metallization system can be utilized where it becomes necessary to conductively connect various components on the semiconductor device by lead cross-overs. A third layer of insulating material can then be applied on top of the second level metallization system. After selective etching of the second level insulating material, beam leads, bonding pads or even a third level metallization system can be applied.

3,654,527

UNITARY FULL WAVE INVERTER

Joseph A. McCann, Auburn, N.Y., assignor to General Electric Company

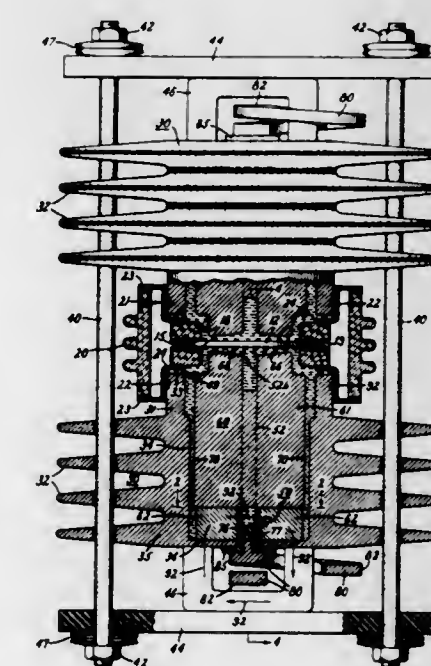
Filed July 27, 1970, Ser. No. 58,272

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

9 Claims

A semiconductor device is provided with four diodes integrated into a single monocrystalline semiconductive ele-



A rectifier assembly comprises (a) a wafer primarily of semiconductor material having a pair of faces at opposite sides thereof and (b) a pair of liquid-metal cooling systems respectively located at opposite sides of the wafer. Each cooling system comprises a heat sink adjacent the wafer and a fluid circuit comprising a first passage extending through the heat sink and a second passage extending along a face of the wafer and feeding the first passage. Each cooling system further comprises, electrically in series with the wafer, an electromagnetic pump that is effective when energized by current through the rectifier assembly to force liquid metal coolant to flow around said fluid circuit, extracting heat from said wafer while flowing through said second passage and releasing heat to said heat sink when flowing through said first passage.

3,654,529

LOOSE CONTACT PRESS PACK

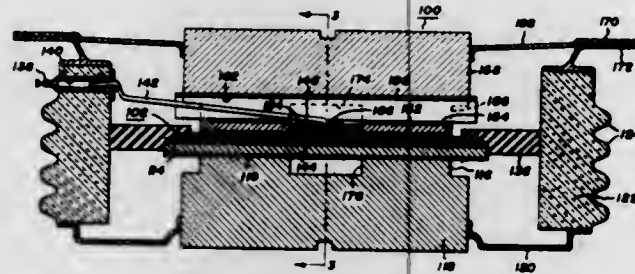
Donald E. Lord, Skaneateles, N.Y., assignor to General Electric Company

Continuation of application Ser. No. 796,137, Feb. 3, 1969, now abandoned. This application Apr. 5, 1971, Ser. No. 131,403

Int. Cl. H011 3/00, 5/00

U.S. Cl. 317-234 R

3 Claims



A backup plate having a low thermal coefficient of expansion is loosely interposed between a terminal member of a device housing and a semiconductive element container therein. A thin protective layer is interposed between the backup plate and semiconductive element and overlies a surface of the element adjacent a diffused junction. A resilient annular junction passivant ring centers the semiconductive element within the housing, protects the semiconductive element against laterally transmitted mechanical shocks, and locates the backup plate.

3,654,530

INTEGRATED CLAMPING CIRCUIT

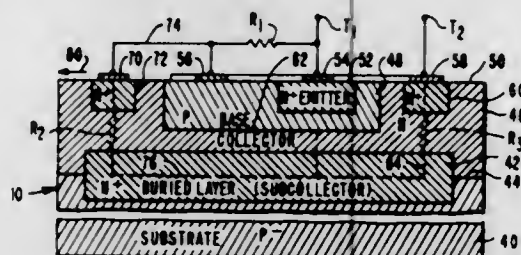
Robert H. F. Lloyd, Sunnyvale, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 752,348, Aug. 13, 1968, now abandoned. This application June 22, 1970, Ser. No. 48,942

Int. Cl. H011 19/00

U.S. Cl. 317-235 R

2 Claims



An integrated clamping circuit is provided in which the bulk collector resistance of a transistor is coupled to the base contact by a second collector contact to bias the collector-base junction in response to a potential difference between the base and main collector contacts. The level of collector-base junction bias is determined in part by the size of the auxiliary collector contact and its location relative to a heavily doped buried layer in the collector. The biased transistor conducts in a manner so as to clamp the voltage at the output terminal of an associated electronic device for load current above a threshold value.

3,654,531

ELECTRONIC SWITCH UTILIZING A SEMICONDUCTOR WITH DEEP IMPURITY LEVELS

Robert H. Krambeck, North Plainfield; Peter T. Panousis, New Providence, and Robert J. Strain, Plainfield, all of N.J., assignors to Bell Telephone Laboratories Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Oct. 24, 1969, Ser. No. 869,180

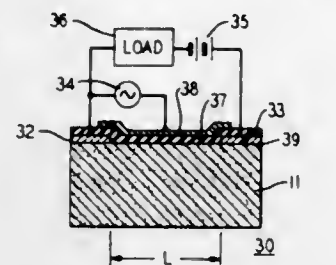
Int. Cl. H011 1/00

U.S. Cl. 317-235 P

6 Claims

An electronic two-terminal switch is furnished by a metal-semiconductor-metal (MSM) layered structure, in which

both of the metal layers form ohmic contacts with the semiconductor. The semiconductor is a single crystal, advantageously of silicon, characterized by a concentration of shallow impurity levels (typically donors) which is less than



the concentration of deep impurity levels ("traps"). A three-terminal switch can be made therefrom in a planar semiconductor structure, by further providing the structure with a control electrode which is located between the ohmic contacts and which is insulated from the semiconductor.

3,654,532

MULTILAYER PLASTIC CHIP CAPACITOR

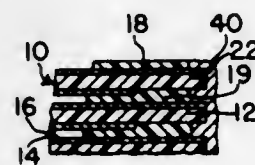
Charles C. Rayburn, Falls Church, Va., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed May 25, 1970, Ser. No. 40,012

Int. Cl. H01g 1/14

U.S. Cl. 317-258

2 Claims



Multilayer chip capacitors and method of making whereby two-side metalized plastic strip material is wound in annular hoop form and opposite sides of hoop are pressed together to bond layers together. The metalized plastic strip is pre-coated with a very thin coating of a heat sealable material such as plastic which functions as a capacitor dielectric and also as a bonding agent. The marginal edges of the pressed hoop are sprayed with molten aluminum at high velocity which makes contact with the edges of the thin metalized layers and penetrates the plastic coating to also provide contact with marginal portions of the metalized electrode coatings. The flattened hoop is then sliced into a plurality of capacitors which can be made to have any value desired over a large range by cutting them to a particular width. Values can be controlled very precisely by first cutting and testing one capacitor and then altering the width of later cut capacitors relative to the tested one. The uncut capacitors can be stored and cut to value as needed.

3,654,533

ELECTRICAL CAPACITOR

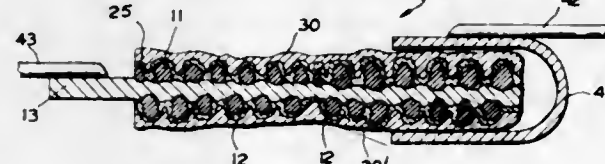
Paolo della Porta; Tiziano A. Giorgi; Bruno Kindl, and Mario Zucchini, all of Milan, Italy, assignors to S.A.E.S. Getters S.p.A., Milan, Italy

Continuation-in-part of application Ser. No. 527,906, Feb. 16, 1966, now abandoned. This application May 1, 1970, Ser. No. 33,828

Int. Cl. H01b 1/01

U.S. Cl. 317-258

9 Claims



A capacitor comprising two capacitor plates and a dielectric between them. One plate is formed of an electrically con-

3,654,534

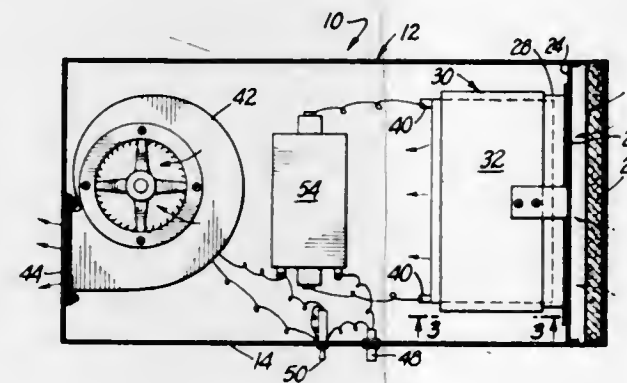
AIR NEUTRALIZATION

Ronald S. Fischer, 4636 N. Pick Road, El Monte, Calif. Filed Feb. 9, 1971, Ser. No. 113,929

Int. Cl. A611 1/00, 9/00

U.S. Cl. 317-262 AE

6 Claims



A gas such as common air may be treated so as to be electrically "neutralized" by passing the gas through the space between charged electrodes. These electrodes are changed by an AC current having a sinusoidal wave form which creates a field having an intensity in the space of at least 8 microamps per square inch. The gas being treated is passed through this space at a rate such that the gas is between the electrodes during a complete cycle of the AC current or during an even multiple of such a complete cycle. As the gas passes through the electrodes, various charges carried by or within the gas are removed from it.

3,654,535

MOTOR OPERATED CIRCUIT BREAKER CONTROL

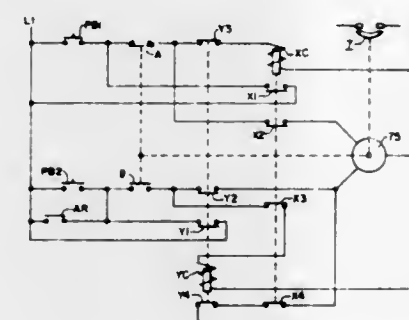
Allen J. Hendry, and Alfred E. Maier, both of Beaver Falls, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 27, 1970, Ser. No. 23,198

Int. Cl. H02p 1/08

U.S. Cl. 318-267

14 Claims



A motor operating device for reciprocating a circuit breaker handle structure between operating positions comprises a reversible motor, an opening relay, a closing relay and limit switch means operable to interrupt the motor circuit and to deenergize the energized relay. The limit switch means comprises a pair of mechanically interlocked molded-case circuit breakers with each of the circuit breakers being in series with a separate one of the reversible motor windings and in series with a separate one of the relay coils. Each of the relays is a four pole relay with one pole controlling the associated seal-in circuit; one pole controlling the associated motor energizing circuit; one pole providing an electrical interlock with a pole of the other relay; and one pole cooperating with a pole of the other relay to provide a dynamic braking circuit. The motor operated circuit breaker is also

manually operable, and the control circuit is automatically prepared for an electrical operation to either the reset position or the closed position following a manual operation to the open position.

3,654,536

SYSTEM FOR STOPPING A SINGLE PHASE WOUND COMMUTATOR MOTOR AT A FIXED POSITION

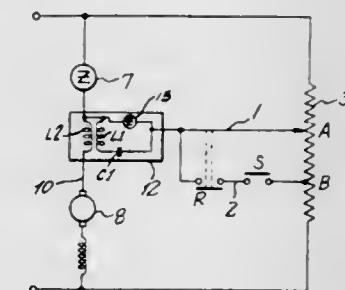
Ataka Miura, Kodaira-shi, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed June 18, 1968, Ser. No. 738,054

Claims priority, application Japan, June 19, 1967, 42/38802 Int. Cl. H02p 3/02

U.S. Cl. 318-466

3 Claims



In a phase control system of a motor using a semiconductor switching element such as a symmetrical semiconductor switching element or a semiconductor commutating control element, a series circuit of two switches is provided between a trigger circuit and a predetermined point of a resistor connected in parallel to a main circuit. A first switch will become ON when the current flowing to the motor is stopped, and a second switch is in the form of a drum by the motor so as to be made OFF at every rotation of the same. Thus, the motor is re-rotated at a low speed when the first switch becomes ON, and the motor is stopped at a predetermined position when the second switch is made OFF.

ERRATUM

For Class 321-8 see: Patent No. 3,654,540

3,654,537

HIGH EFFICIENCY POWER SUPPLY FOR CHARGING CAPACITORS IN STEPS

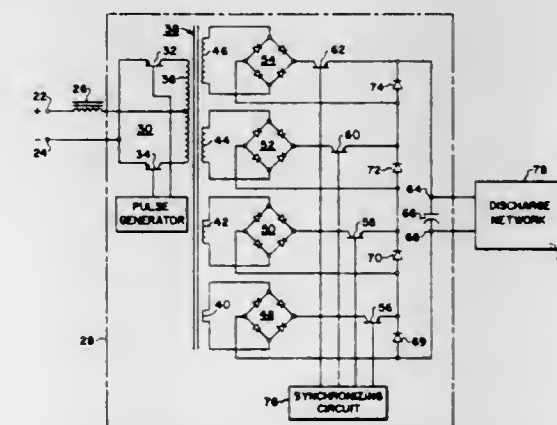
David W. Coffey, Westminster, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 29, 1970, Ser. No. 32,923

Int. Cl. H02m 3/24

U.S. Cl. 320-1

5 Claims



A system for direct current resonant charging of capacitors in which the size and weight of the power supply and an inductive choke for limiting surge currents can be materially

reduced by charging the capacitor in successive steps, each of a higher voltage level than the preceding step. This reduces the current surge from the supply during each step and also reduces the size of the required choke.

3,654,538

BATTERY BOOSTER CIRCUIT CONTAINING VOLTAGE SENSING MEANS

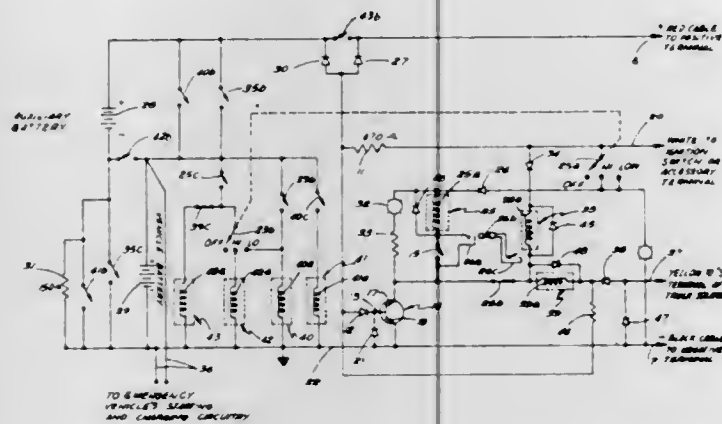
Joseph Gardberg, 585 W. 51st Street, Hialeah, Fla.

Filed Jan. 19, 1970, Ser. No. 3,866

Int. Cl. H02J 7/00

U.S. Cl. 320-7

6 Claims



A battery booster circuit for use in conjunction with an emergence or road service vehicle for aiding stalled or disabled vehicles in which a first and a second battery carried by said road service vehicle are so connected that both batteries will be charging or discharging at any given time at substantially the same rate and in which current amplifying means are employed in a voltage sensing circuit to determine that correct polarity connections exist between the batteries of the service vehicle and between the booster charger system and the battery of the stalled or disabled vehicle, said voltage sensing means being operative even where the battery of the stalled or disabled vehicle has no appreciable voltage.

3,654,539

AC-DC CONVERTER

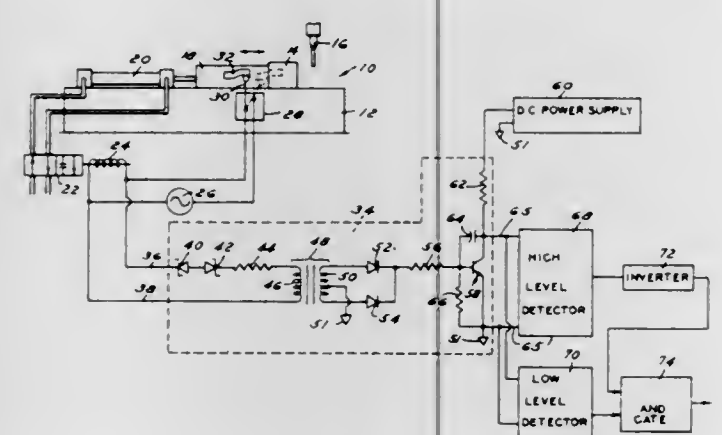
Earl J. Schnur, Lake Orion, and Angelo N. Vinch, Warren, both of Mich., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 11, 1972, Ser. No. 114,502

Int. Cl. H02m 7/00; H03k 5/20

U.S. Cl. 321-8 R

18 Claims



An AC-DC converter for converting relatively large AC voltages to relatively small DC voltages. The AC input circuitry of the converter comprises two Zener diodes back-to-back in series with a resistor and the primary of a transformer. The circuitry in the transformer secondary supplies spaced pulses of similar polarity to a transistor circuit. The

transistor circuit includes a capacitor and resistors whose values may be varied to vary the response of the converter. The output of the converter is taken across the collector-emitter of the transistor.

3,654,540

MAGNETOSTRICTIVE DRIVE CIRCUIT FEEDBACK COIL

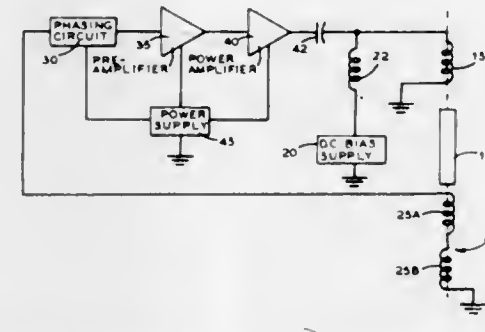
William M. Honig, New York; Richard H. Paschke, Medford, and Jacob Haggag, Howard Beach, all of N.Y., assignors to Cavitron Corporation, Long Island City, N.Y.

Filed Jan. 15, 1971, Ser. No. 106,675

Int. Cl. H01v 9/00

U.S. Cl. 318-118

6 Claims



A feedback coil is placed in surrounding relation to a magnetostrictive member which is vibrating under the influence of a drive coil being energized by a power amplifier. Ideally, the voltage induced in the feedback coil should be proportional only to the vibrational amplitude of the magnetostrictive member. The induced voltage is fed back to the input of the power amplifier insuring that the member is vibrating at one of its resonant frequencies. The feedback coil is designed so that there is no transformer coupling between the feedback and drive coils. The feedback coil can be positioned along the length of the device in one of two ways, so as to maximize the induced voltage. Each way relies on a different magnetostrictive effect.

3,654,541

THYRISTOR STATE SENSOR

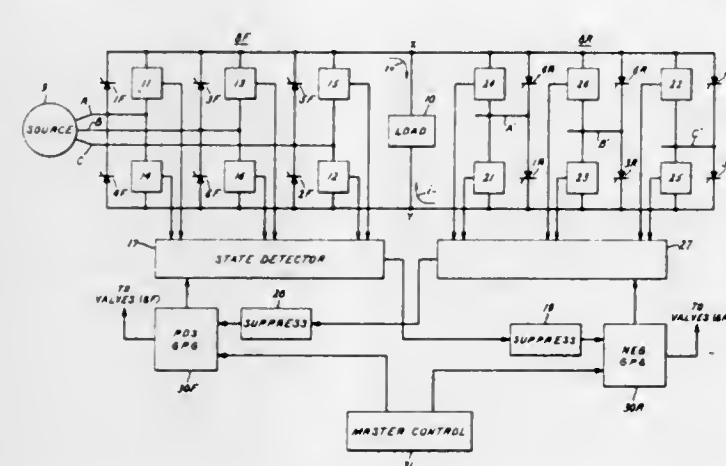
Fred W. Kelley, Jr., Medla, Pa., and Georges R. E. Lezan, Cherry Hill, N.J., assignors to General Electric Company

Filed June 26, 1969, Ser. No. 836,765

Int. Cl. H02m 1/18; H02p 1/22

U.S. Cl. 321-13

15 Claims



To sense when a thyristor is conducting, voltage detecting means is connected in parallel with the thyristor for emitting an indicating signal whenever the instantaneous magnitude of voltage across the thyristor exceeds a predetermined threshold level which is higher than the voltage drop across the thyristor when conducting, and logic means is provided for producing a predetermined output signal in response to

the absence of said indicating signal and, concurrently, the act of either triggering the thyristor or producing the output signal.

3,654,542

DEVICE FOR SIMULTANEOUSLY CONTROLLING INTERCONNECT SEMICONDUCTOR ARRANGEMENTS

Jean Chapt, Fontenay-Aux-Roses, France, assignor to Compagnie Generale D'Electricite, Paris, France

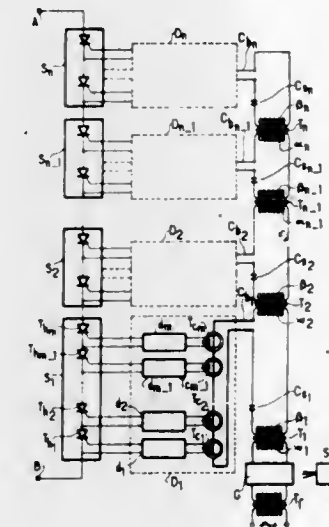
Filed May 28, 1970, Ser. No. 41,301

Claims priority, application France, May 29, 1969, 6917613

Int. Cl. H02m 7/00

U.S. Cl. 321-27 R

15 Claims



The control of semiconductor elements is ensured by a sinusoidal signal generator supplying control circuits adjusted to the frequency of the said generator. The control of a great number of elements in series is ensured by means of a cascade of transformers each having a secondary winding which is used as a signal source.

3,654,543

PULSE TRANSFORMER FOR FIRING THYRISTORS

Tokio Isogai, Eiichi Isikawa, Hisashi Yuza, Takasi Tahara, Takao Miyashita, and Norio Ikemoto, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

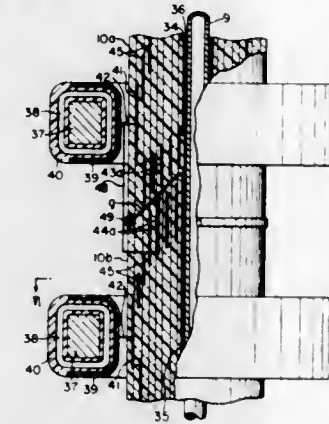
Filed Nov. 2, 1970, Ser. No. 86,028

Claims priority, application Japan, Nov. 5, 1969, 44/88096

Int. Cl. H02m 7/24

U.S. Cl. 321-27 R

14 Claims



An improved structure of a pulse transformer for simultaneously firing all the gates of a multiplicity of series-connected or series- and parallel-connected thyristors as is the case with a converter in dc transmission equipment, having a greater insulation strength and a good resistivity to external shocks. Specifically, since the converter used at high tension renders the line voltage of each thyristor higher, a molded insulating cylinder is disposed between a primary conductor and secondary conductor units of the transformer, whereby

potential distributions between the secondary transformer units and the insulating cylinder and between the secondary transformer units adjacent to one another can be improved by providing conductive layers embedded in the insulating cylinder, and the pulse transformer can be made of a dry tape and small in size.

3,654,544

THERMAL EQUILIBRIUM REGULATOR FOR A THERMOELECTRIC POWER SOURCE

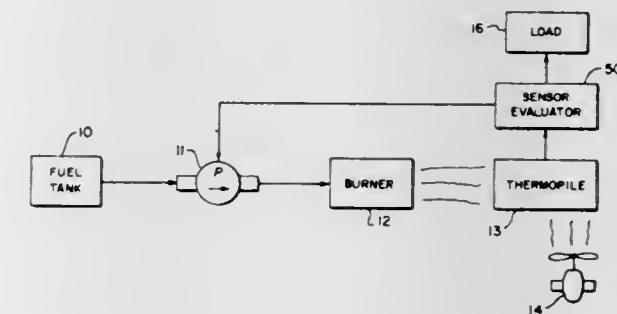
Joseph P. Angello, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 13, 1970, Ser. No. 2,614

Int. Cl. H02n 3/00

U.S. Cl. 322-2

5 Claims



This invention relates to an automatic device used to control a desired amount of fuel injected into the combustion system of a thermoelectric power source. The electrical output capability of the thermopile is sensed and this signal is used to control the speed of an electrically driven fuel pump thereby maintaining the thermopile in a condition of thermal equilibrium, regardless of liquid fuel type used or load condition imposed.

3,654,545

SEMICONDUCTOR STRAIN GAUGE AMPLIFIER

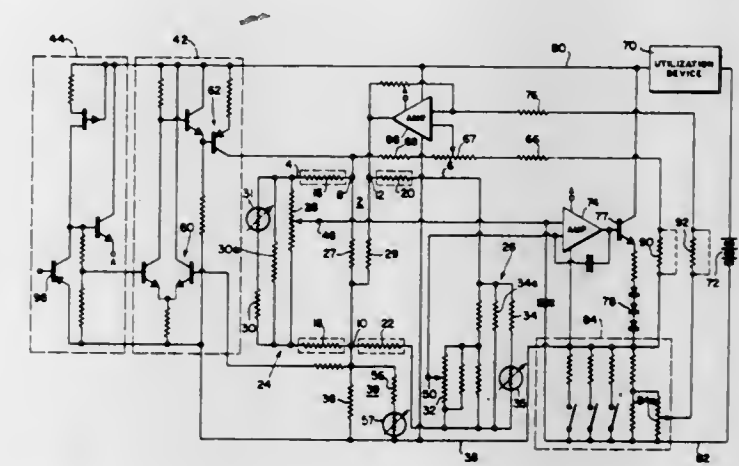
Anthony M. Demark, Philadelphia, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 11, 1970, Ser. No. 62,868

Int. Cl. G01r 17/12

U.S. Cl. 323-75 B

7 Claims



A semiconductor strain gauge amplifier apparatus having a temperature compensated bridge circuit for neutralizing the adverse affect of the ambient temperature variations upon the initial offset, sensitivity and span of the bridge, and thereby, providing temperature compensation over a wide range of operating temperatures.

3,654,546

METHOD AND APPARATUS FOR REGULATING VOLTAGE BY UTILIZING THE STABLE OSCILLATION STATE OF A PARAMETRIC DEVICE

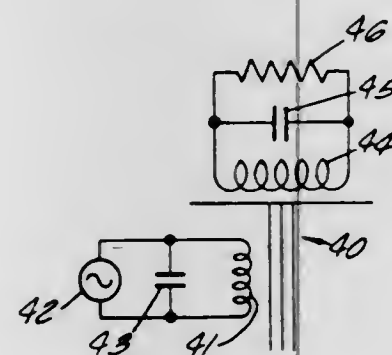
Leslie Kent Wanlass, Newport Beach, Calif., assignor to Wanlass Electric Company, Santa Ana, Calif.

Continuation-in-part of application Ser. No. 589,780, Oct. 26, 1966, now abandoned. This application May 5, 1969, Ser. No. 821,933

Int. Cl. G05f 1/32, 7/00

U.S. Cl. 323-6

26 Claims



A method of regulating voltage by transferring energy from an unregulated voltage source to a parametric device to maintain it in its stable oscillating state. A method of filtering employing the same parametric principles is also disclosed, as are parametric devices in which a capacitor is coupled to an inductor to form a resonant circuit, the inductance of the inductor being varied electrically at twice the frequency to which the resonant circuit is tuned.

3,654,547

ALTERNATING CURRENT ATTENUATOR CIRCUIT

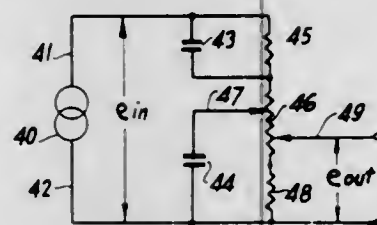
Loebe Julie, New York, N.Y., assignor to Julie Research Laboratories, Inc., New York, N.Y.

Filed July 22, 1970, Ser. No. 57,068

Int. Cl. G05f 3/04

U.S. Cl. 323-74

2 Claims



An attenuator for alternating current is designed to provide a precise loss over a wide band of frequencies. The attenuator comprises two resistors, a voltage divider and two fixed capacitors connected in a circuit. The high frequency adjustment is obtained by changing the variable arm of the divider.

3,654,548

FINAL TEST ARRANGEMENT FOR COLOR CATHODE-RAY TUBE

John G. Pecorari, and Michael S. Tamkin, both of Chicago, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Nov. 24, 1969, Ser. No. 879,013

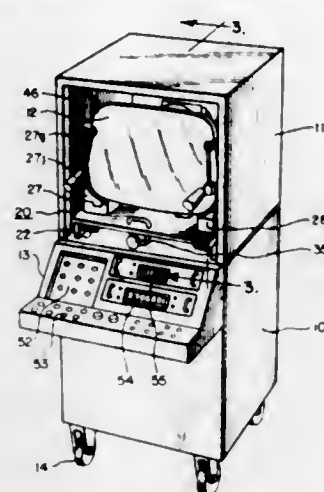
Int. Cl. G01r 31/02

U.S. Cl. 324-20

5 Claims

A test cart has an upper compartment into which a shadow mask color tube is loaded, being received in a movable workholder with the tube axis aligned with a horizontal reference axis. The workholder carries the tube into proper operating relation with respect to the usual accessories such as deflec-

tion yoke, convergence assembly, blue lateral, purity coil and tube socket. Various electrical systems are housed in the lower compartment of the cart, supplying energizing potentials and electrical signals necessary to test the tube in an en-



vironment closely simulating that of a color television receiver. A digital voltmeter is controlled by a function switching deck for convenient measurement of the operating characteristics of the tube under test.

3,654,549

APPARATUS FOR INDUCTIVELY MONITORING THE MOVEMENT OF A PISTON WITHIN A CYLINDER OF AN INJECTION MOLDING MACHINE

Ludwig Maurer, Emmendingen, Germany, and Jurg Von Ruti, Villars-sur-Glane, Switzerland, assignors to Maurer & Co., Zug, Switzerland

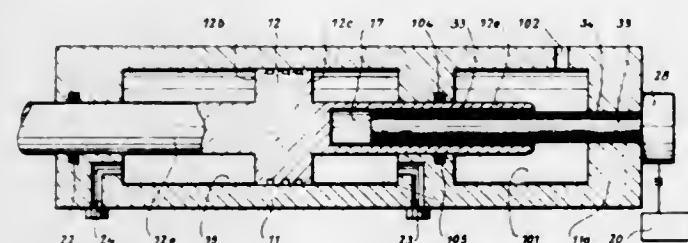
Filed Dec. 30, 1968, Ser. No. 787,803

Claims priority, application Germany, Dec. 30, 1967, P 16 23 787.9

Int. Cl. G01r 33/00

U.S. Cl. 324-34 D

4 Claims



A method and apparatus wherein the movement of a cylinder and piston, one with respect to the other, is measured. The measurement is carried out by way of a transducer which converts the relative movement into an electrical magnitude. The transducer includes a piston component fixed to the piston so as to move therewith, this piston being formed in the interior of the cylinder with an axial bore. The transducer also has a cylinder component which is maintained at a location which does not change with respect to the cylinder and which extends at least in part into the bore of the piston, this latter component of the transducer being coaxial with the piston.

3,654,550

KELVIN DOUBLE BRIDGE WITH ZENER DIODE FAILURE CIRCUIT

Robert C. Ward, Winston-Salem, N.C., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Oct. 26, 1970, Ser. No. 84,035

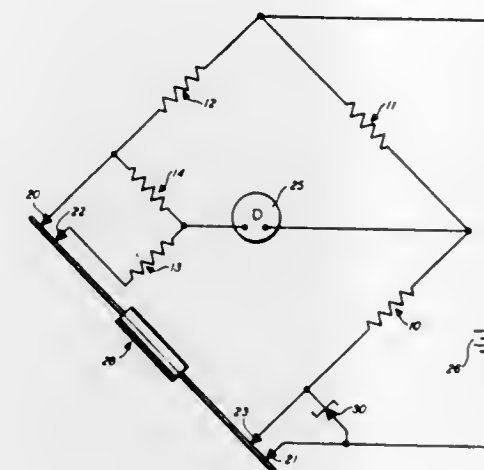
Int. Cl. G01r 27/02

U.S. Cl. 324-62 R

2 Claims

In a Kelvin four-terminal double bridge circuit with a detector, an avalanche or Zener diode or similar voltage

responsive device is connected across a current terminal to an adjoining voltage terminal. The avalanche diode has a breakdown voltage sufficiently smaller than the bridge supply voltage to conduct and cause a definitive change in the detector if the current terminal fails to engage a resistance under test.



voltage to conduct and cause a definitive change in the detector if the current terminal fails to engage a resistance under test.

3,654,551

APERTURE VESSEL FOR FLUID-SUSPENSION PARTICLE ANALYZER

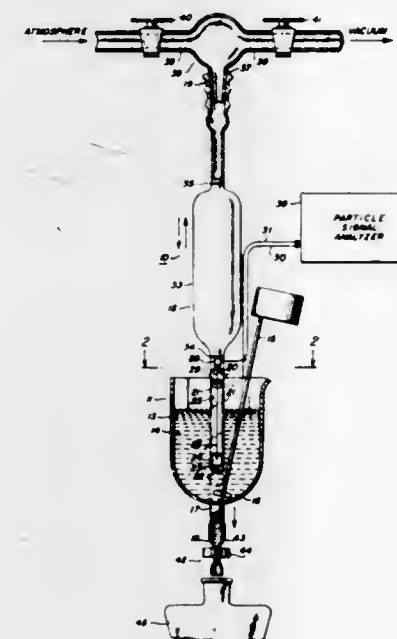
Dean A. Flinchbaugh, Bethlehem, Pa., assignor to Bethlehem Steel Corporation

Filed Mar. 4, 1970, Ser. No. 16,509

Int. Cl. G01n 27/00

U.S. Cl. 324-71 CP

9 Claims



Improved aperture vessel is provided for processing a sample of fluid-suspended particles through an aperture during the study of particle characteristics such as size distribution. Vessel may be used with commercially available particle analyzers such as the Coulter electronic, electro-optical and similar types of particle analyzing apparatus. Vessel construction permits a large fraction of sample suspension to be drawn from a sample beaker, through a particle aperture and an aperture chamber, and then into a calibrated volume-measuring bulb. The aperture chamber has an open bottom which, together with a series of associated valves, enables full recovery of the sample suspension fluid as well as both suspended and unsuspended particles after passing through the aperture. This aliquot is recovered in a transfer flask and recycled into the sample beaker. Since the study procedure is

3,654,552

SMALL FRAMES FOR ROTARY OR MOVING COILS OF ELECTRICAL MEASURING INSTRUMENTS

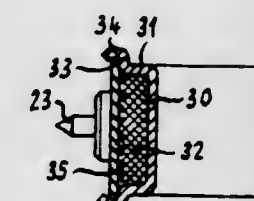
Alfred Sauser, Solothurn, Switzerland, assignor to Sauser AG, Solothurn, Switzerland

Continuation of application Ser. No. 741,454, July 1, 1968, now abandoned. This application Aug. 5, 1970, Ser. No. 61,452

Int. Cl. G01r 1/00

U.S. Cl. 324-154 R

10 Claims



A small frame means for the moving coil of electrical measuring instruments, comprising a substantially rectangular-shaped coil winding body member formed of metal. A support member for spiral spring means and an indicator means is provided at the central region of two oppositely situated sides of the coil winding body member. Bearing needle means forming an axis of rotation cooperate with the support member. The coil winding body member and said support member cooperate with one another to enclose the coil windings, one of said members being substantially U-shaped and the other of said members being substantially flat. Furthermore, the invention contemplates the provision of means for providing an upset connection between the coil winding body member and the support member, with said support member being substantially centered at said coil winding body member.

3,654,553

REMOTELY SENSING OPTICAL TACHOMETER

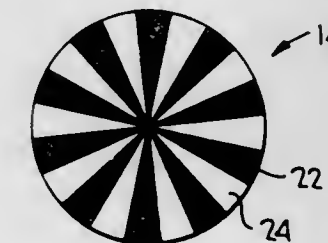
Donald J. Mary, Hyattsville, and Harry J. Davis, Wheaton, both of Md., assignors to The United States of America as represented by the Secretary of the Army

Filed July 1, 1970, Ser. No. 51,461

Int. Cl. G01p 3/48

U.S. Cl. 324-175

12 Claims



A remotely sensing optical tachometer for measuring the spin rate of a rotating member. The invention provides a simple optical system for measuring the spin and/or rate of change of spin, of, for example, an artillery shell or test projectile. The system provides a real-time readout of the spin rate, and requires no instrumentation aboard the projectile except for a small plane mirror that is attached obliquely to one end of the spinning projectile. The system directs a collimated beam of light that is reflected off the plane mirror back into the system where it traverses a stationary reticle

that has alternating transparent and opaque sectors thereon. The frequency with which the light passes through the transparent portions of the reticle provides a direct indication of the spin rate of the rotating member. The signal may be detected by a photo tube, amplified, and displayed on an oscilloscope, or recorded on magnetic tape, or be processed through a frequency-to-DC converter.

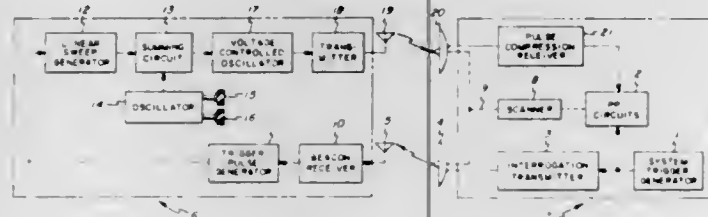
3,654,554

SECURE PULSE COMPRESSION CODING SYSTEM
Charles E. Cook, Farmingdale, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y.

Filed Jan. 29, 1963, Ser. No. 255,718
Int. Cl. H04b 1/66

U.S. Cl. 325-43

13 Claims



A pulse compression coding system comprising a transmitter providing first and second frequency swept signals of coextensive range and opposite sweep sense, each angle modulated in accordance with the amplitude and frequency of respective sinusoidal modulating signals for producing various carrier and sideband components, and a receiver including pulse compression filter means connected to the output of first and second mixers which respectively retain and invert the sweep sense of the received angle modulated signals whereby a pulse representative of each angle modulated component of the frequency swept signals is provided at the output of the filter means.

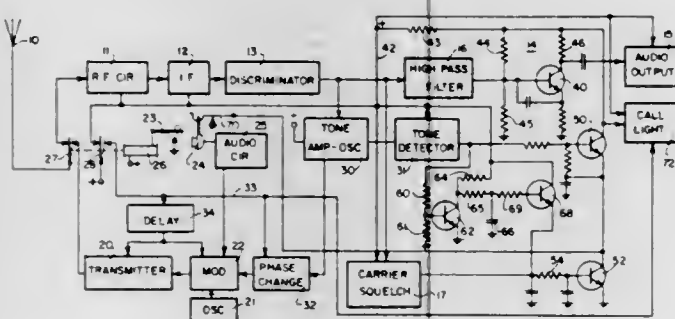
3,654,555

CARRIER AND TONE SQUELCH CIRCUIT WITH ELIMINATION OF NOISE AT END OF TRANSMISSION
George H. Ryan, Crystal Lake, and Ross W. Randolph, McHenry, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 19, 1970, Ser. No. 65,089
Int. Cl. H04b 1/10

U.S. Cl. 325-348

8 Claims

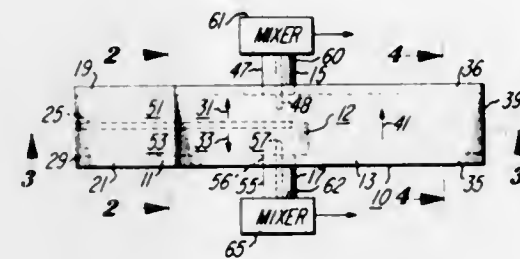


Squelch circuit for radio receiver operating in response to a carrier wave and in response to a coded tone, and wherein a reverse burst is used at the end of the tone to rapidly stop the resonant device. The circuit responding to the tone is coupled to the carrier squelch circuit and holds the same inoperative for a short period of time following the tone, to eliminate the noise burst which otherwise occurs.

3,654,556
MICROWAVE HYBRID COMPRISING TROUGH WAVEGUIDE AND BALANCED MIXER UTILIZING SAME

Cheng Paul Wen, Trenton, N.J., assignor to RCA Corporation
Filed Dec. 24, 1970, Ser. No. 101,278
Int. Cl. H04b 1/26; H01p 5/12
U.S. Cl. 325-446

9 Claims



A microwave hybrid made up of a section of trough waveguide, rectangular waveguide and coaxial transmission lines is provided. The rectangular waveguide and the trough waveguide are joined end to end. The side walls of the trough waveguide form a continuous structure with the broad walls of the rectangular waveguide. The bottom wall of the trough waveguide forms a continuous structure with a narrow wall of the rectangular waveguide. Near the junction region of the trough waveguide and the rectangular section are coupled a pair of coaxial transmission lines with the inner conductor of one of the coaxial transmission lines extending through a first of the side walls of the trough waveguide and the inner conductor of the other coaxial transmission line extending through the second opposite side wall of the trough waveguide.

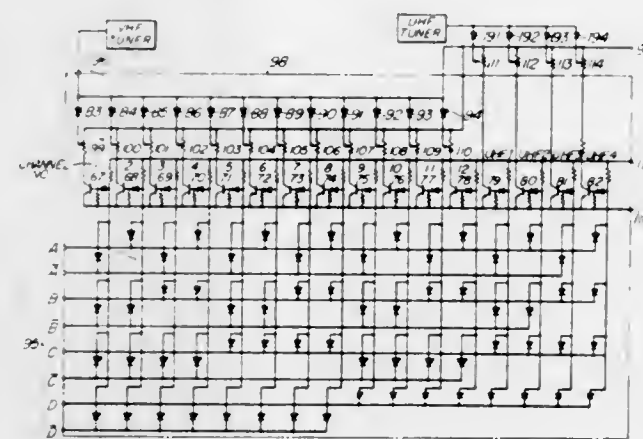
3,654,557

SYSTEM FOR SELECTING CHANNEL

Yoichi Sakamoto, Toyonaka, and Eisuke Ichinohe, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma-shi, Osaka, Japan
Filed Apr. 6, 1970, Ser. No. 25,628
Claims priority, application Japan, Apr. 14, 1969, 44/30692
Int. Cl. H04b 1/26

U.S. Cl. 325-465

11 Claims



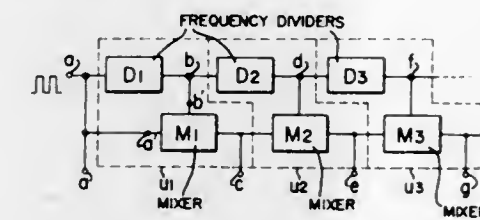
A system for selecting stations or channels for television broadcasting, wherein a signal from a binary signal generator is fed to a channel selection circuit for driving the same to select a channel circuit so as to obtain a corresponding DC voltage for impression on variable capacitance diodes to change the tuning condition. Mechanically operated parts such as mechanical switches are eliminated to facilitate fabrication of a totally electronic integrated circuit. Unnecessary channels may be automatically skipped, and the channel selection may be made in either a forward or reverse direction.

3,654,558
FREQUENCY DIVIDER CIRCUIT FOR PRODUCING A SUBSTANTIALLY SAWTOOTH WAVE
Norio Tomisawa, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan

Filed Feb. 2, 1970, Ser. No. 7,837
Claims priority, application Japan, Feb. 3, 1969, 44/8067
Int. Cl. H03k 21/00

U.S. Cl. 328-35

3 Claims



A tone signal source especially for electronic musical instruments having a plurality of output terminals for producing a nearly sawtooth wave output signal is composed of a plurality of frequency divider units each comprising a frequency divider circuit and a mixing circuit connected in such a manner that all of the frequency divider circuits included in the frequency dividing units are connected in cascade, and one of the input terminals of each mixing circuit is connected to an input terminal of the circuit or to the output terminal of the preceding mixing circuit, and the other input terminal thereof is connected to the output of the frequency divider circuit belonging to the output of the frequency divider circuit belonging to the same frequency dividing unit, so that a plurality of the output signals can be obtained from the output terminals of these mixing circuits.

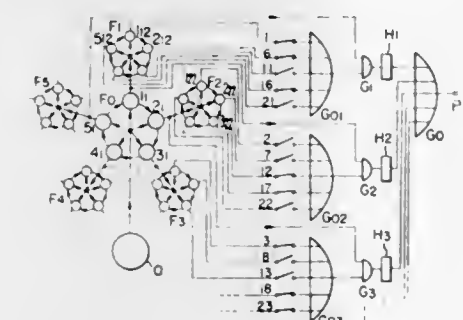
3,654,559

WORD GENERATING APPARATUS

Kazuo Yamane, Tokyo, and Hiromi Maruyama, Asaka, both of Japan, assignors to Takeda Riken Industry Company Limited, Tokyo, Japan
Filed Mar. 31, 1970, Ser. No. 24,209
Claims priority, application Japan, Apr. 1, 1969, 44/24392; Feb. 24, 1970, 45/15185
Int. Cl. H03k 3/64

U.S. Cl. 328-61

2 Claims



This disclosure includes embodiments of apparatus for generating patterns of pulses comprising fixed or random series of pulses of predetermined bit lengths using a first register driven by pulses at the pattern clock rate, and the stages of the first register being coupled each to drive at least one other register having multiple output stages, and the latter being coupled to gating means to be gated with outputs from said first register. Random series of pulse patterns are generated in an embodiment including switching of the outputs of the other registers to the gating means, which switching is controlled by random signals generated in another register.

3,654,560

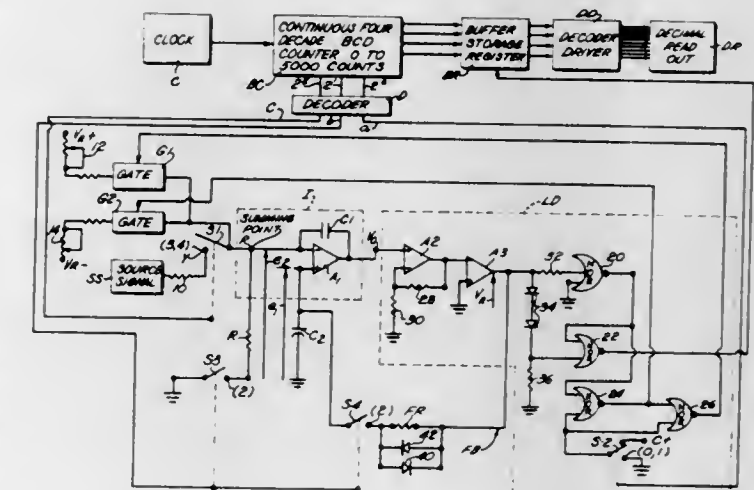
DRIFT COMPENSATED CIRCUIT

Pieter G. Cath, Cleveland, Ohio, and Maurice S. Klapfish, Cambridge, Mass., assignors to Kelthley Instruments, Inc., Solon, Ohio

Filed June 26, 1970, Ser. No. 50,213
Int. Cl. G06g 7/18; H03k 5/00

U.S. Cl. 328-127

13 Claims



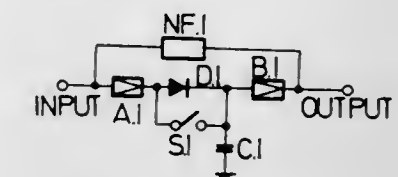
A drift compensated dual slope analog to digital converter is provided wherein an integrator is coupled to a signal level crossing detector. Circuitry is provided for compensating for offset drift voltages of both the integrator and signal level crossing detector.

3,654,561

APPARATUS FOR MEASURING A PEAK VALUE AND A PEAK-TO-PEAK VALUE OF AN ELECTRICAL SIGNAL
Mitsuru Egawa, and Tomoteru Takano, both of Tokyo, Japan, assignors to Tokyo Seimitsu Co., Ltd., Tokyo, Japan
Filed Mar. 10, 1970, Ser. No. 18,037
Int. Cl. H03k 17/00

U.S. Cl. 328-151

8 Claims



Apparatus for measuring a peak value and a peak-to-peak value of an electrical signal provides one or a plurality of high gain DC amplifier, diode, capacitor, high input impedance DC amplifier and feedback circuit, thereby carrying out a measurement extending over a wide amplitude range of an input measuring signal. By providing one or plural switching circuit, the operation of the measurement can be ceased and the measured peak value or peak-to-peak value can be stored in the capacitor to the next measuring period. Further, various modified apparatuses can measure a positive peak value, a negative peak value and a peak-to-peak value.

3,654,562

SELECTIVELY SAMPLING RECEIVED SIGNALS

Robert A. Reilly, Jr., North Caldwell; James P. Van Etten, Nutley, and Joseph Helnen, West Caldwell, all of N.J., assignors to International Telephone and Telegraph Corporation, Nutley, N.J.

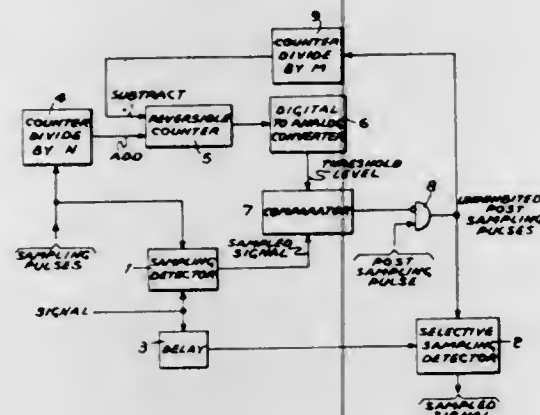
Filed July 29, 1970, Ser. No. 59,231
Int. Cl. H03k 17/00

U.S. Cl. 328-151

7 Claims

This is an apparatus and method for selecting a constant percentage of all sampled signals of a desired amplitude. This

is accomplished by sampling the signal, establishing an initial threshold level, comparing the sampled signal with the threshold level, selecting the sampled signal when the



threshold level exceeds the sampled signal, and adjusting the threshold level so that the constant percentage of all sampled signals are selected.

3,654,563

ACTIVE FILTER CIRCUIT HAVING NONLINEAR PROPERTIES

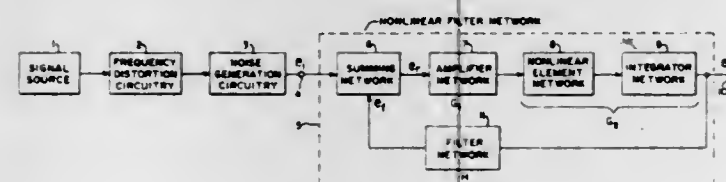
Joseph P. Hesler, Liverpool; Robert J. McFadyen, and Fritz H. Schlereth, both of Syracuse, all of N.Y., assignors to General Electric Company

Filed Oct. 15, 1965, Ser. No. 496,372

Int. Cl. H03f 21/00

U.S. Cl. 328-167

5 Claims



An active filter for improving both frequency and noise characteristics of an incoming signal. The filter is a closed loop circuit having a nonlinear network and an integrating network in the feedthrough path and a filter network in the feedback path. In the presence of a rapidly changing input signal the circuit closed loop response peaks over a relatively wide band of higher frequencies for accepting high frequency components of the input signal, while in the presence of noise the closed loop response exhibits a restricted bandwidth.

3,654,564

RECEIVER INCLUDING AN N-PHASE DEMODULATOR

Feliz Daniel Tisl, Zurich, Switzerland, and Frank De Jager, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed June 4, 1970, Ser. No. 43,341

Claims priority, application Netherlands, June 7, 1969, 6908714

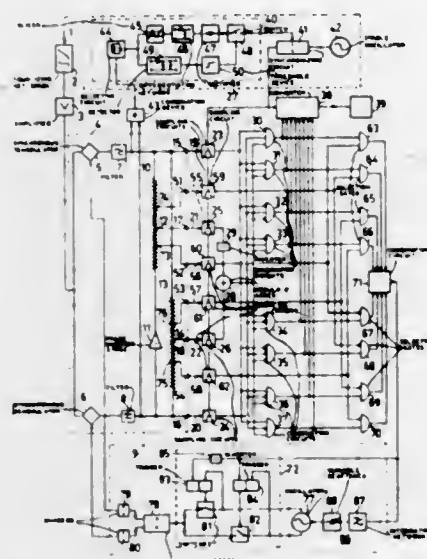
Int. Cl. H03d 3/18

U.S. Cl. 329-122

5 Claims

The invention relates to a receiver for the reception of information pulse signals transmitted by means of n -phase modulation wherein the original information pulses coincide with different pulses from a series of equidistant clock pulses, the receiver including an n -phase demodulator which is provided with a plurality of parallel arranged synchronous demodulators which are fed by carriers having mutually different reference phases originating from a local carrier

generator which is stabilised in phase on the carrier associated with the received signals, signal channels being connected to the outputs of the n -phase demodulator including sampling circuits controlled by a local clock pulse generator the output signal of which sampling circuits characterizes the phase of the received carrier relative to the relevant reference phase of the local carrier at the instants of the local clock pulses, the receiver furthermore being provided with combination circuits connected to the sampling circuits, which combination circuits characterize each of the n -possi-



ble phase sectors of the transmitted signals in a phase diagram by means of a separate combination of the outputs of the signal channels.

Such receivers are advantageously used in transmission systems which transmit an optimum quantity of information in the available frequency band. To stabilise the local carrier generator on the carrier at the transmitter end, the carrier frequency is transmitted, for example, in conventional manner from the transmitter to the receiver through a separate transmission path or with the aid of a pilot signal added to the information pulse signals to be transmitted.

3,654,565

TRAVELING WAVE TUBE

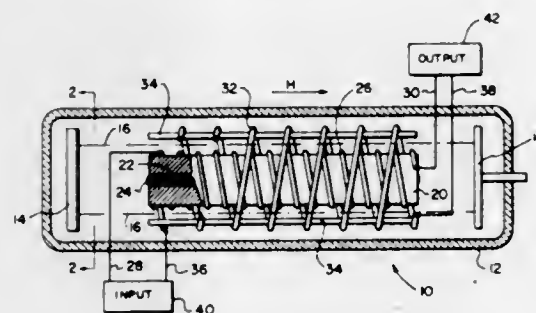
Louis J. Jasper, Jr., Neptune City, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Apr. 28, 1970, Ser. No. 32,685

Int. Cl. H03f 3/58

U.S. Cl. 330-43

11 Claims



A traveling wave tube amplifier having an axial annular electron stream and a pair of counterwound axially aligned and radially spaced helices positioned intermediate the electron beam source and the collector electrode. The innermost helix is wound on the outer surface of a cylindrical ferrite which in turn is biased by means of a current-carrying wire loop passing through the axial bore of the ferrite cylinder. The RF input to the amplifier is at the electron source end and is applied to both counterwound coils, either in-phase or

180° out-of-phase. The annular electron stream passes through the annular spacing between both helices and interacts with a prescribed mode, preferably the fundamental mode of RF wave energy propagated axially along the ferrite cylinder.

3,654,566

VIDEO CROSS BAR DISTRIBUTOR

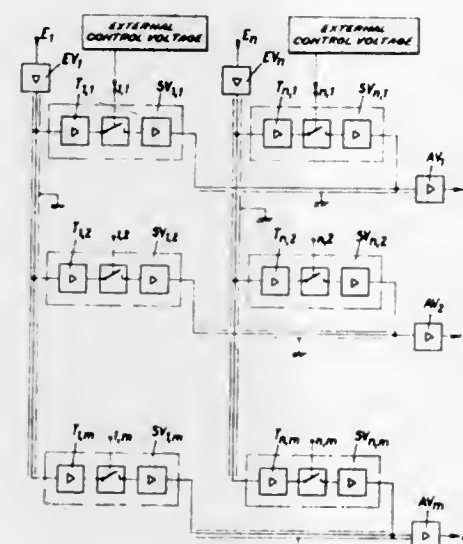
Hans Wellhausen, and Georg S. Licht, both of Hamburg, Germany, assignors to GmbH Fernseh, Darmstadt, Germany

Filed Nov. 6, 1969, Ser. No. 874,601

Int. Cl. H03f 3/68

U.S. Cl. 330-124

10 Claims



At the intersection of shielded input cross bars and shielded output cross bars variable gain amplifiers are provided whose gain is externally changeable from zero to a maximum. The variable gain amplifiers comprise a buffer stage designed to keep the input impedance constant regardless of gain changes, and a switching amplifier stage having the variable gain and having an output impedance which is low when the amplifier gain exceeds zero and high when the gain is zero. A mounting arrangement for mounting the components involved is also disclosed.

3,654,567

VAPOR DISCHARGE CELL

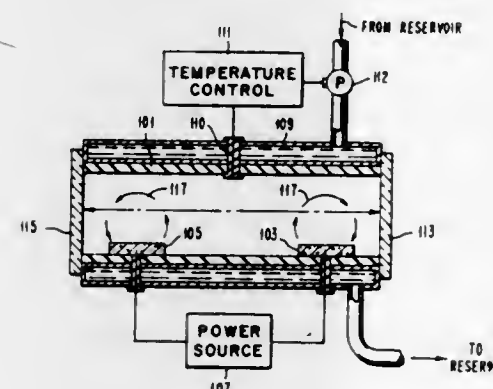
Rodney T. Hodgson, Somers, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1970, Ser. No. 103,240

Int. Cl. H01s 3/02

U.S. Cl. 331-94.5

7 Claims



An electrical discharge cell having a plural wick heat pipe for preventing contamination without depleting the supply of vapor source material.

3,654,568

ROTATING LIQUID-COOLED LASER CELL

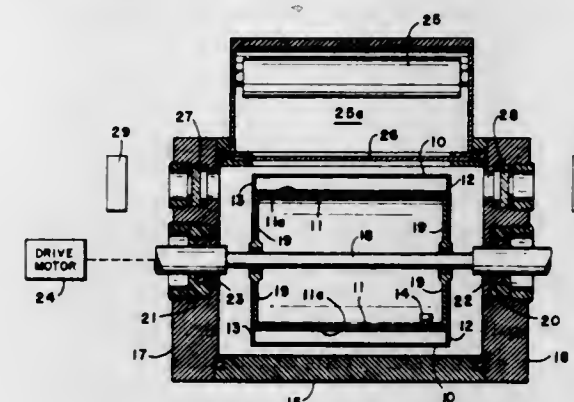
Erhard J. Schlitschek, Garching, Munich, Germany, assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 29, 1971, Ser. No. 110,904

Int. Cl. H01s 3/04, 3/09, 3/20

U.S. Cl. 331-94.5

6 Claims



A liquid laser assembly for receiving a liquid laser composition is rotatably driven while being cooled by a surrounding liquid medium. A liquid laser composition is contained within the annular volume between inner and outer concentric cylinders and enclosing end walls. The rotatable assembly is mounted and supported within an enclosure and has a member extending through an enclosure wall for being driven by an appropriate drive means. A liquid cooling medium which surrounds the annular volume containing the liquid laser composition is circulated in and out of the enclosure through appropriate input and output ports for flow through a heat exchanger and circulating pump. The improved cooling of the liquid laser composition realized without circulating the laser composition itself significantly increases and enhances the efficiency of the laser operation.

3,654,569

AERODYNAMIC WINDOW

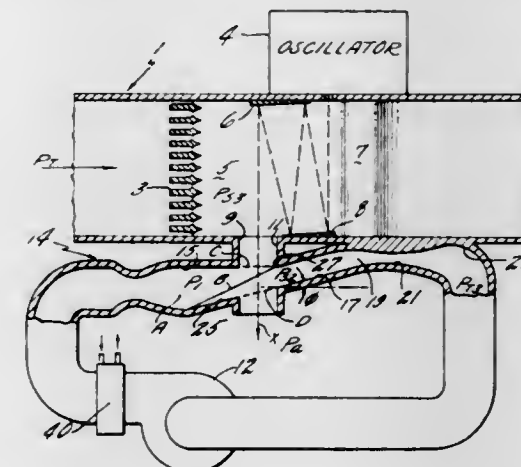
George F. Hausmann, Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed Dec. 23, 1968, Ser. No. 786,485

Int. Cl. H01s 3/05, 3/08

U.S. Cl. 331-94.5

10 Claims



A gas dynamic laser emits an output beam from a low pressure region downstream of a nozzle section through which gases are expanded which contain the constituents necessary to obtain a lasing action. A gas dynamic laser employs the principles of kinetic relaxation of excited states of specific gas species to effect a population inversion of the excited states to obtain lasing action. An oscillator directs a low beam into said low pressure lasing region, and through an

optic arrangement the beam is amplified and directed out of an opening in the gas dynamic laser. Under normal circumstances the provision of such an opening would incur a flow of air from the ambient pressure to the low pressure within the laser cavity. The opening is connected to an aerodynamic window. The window has an unobstructed passage leading from the low pressure region of the gas dynamic laser to its exterior in which pressures are set up permitting passage of the laser beam, yet preventing or minimizing the low of exterior air into the cavity. The pressures are set up by an intersecting passageway having a pump supplying high pressure fluid and a nozzle construction which provides the proper predetermined pressures.

3,654,570

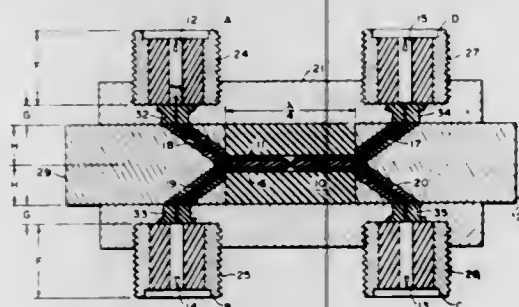
COAXIAL HYBRID JUNCTION DEVICE HAVING IMPEDANCE MATCHED TERMINATIONS

Calvin J. Thomas, 11 Sloane Drive, Framington, Mass.
Continuation-in-part of application Ser. No. 790,990, Jan. 14, 1969, now abandoned. This application Aug. 3, 1970, Ser. No. 60,385

Int. Cl. H01p 5/12; H03h 7/38

U.S. Cl. 333-11

2 Claims



A coaxial hybrid junction device employs an outer conductor through which extends a pair of center conductors which are side by side for a distance of approximately a quarter wavelength. The outer conductor is lined for the quarter wavelength distance by an insulative sleeve having a central longitudinal aperture in which the side by side center conductors are situated. The insulative sleeve is thick compared to the insulation between the center conductors. Coaxial connectors are mounted on the outer conductor. Each end of a center conductor is connected to the center pin of a different connector. A portion of the center conductor between the sleeve and the connector pin extends through a slanting channel in a plug to form a coaxial line that provides an electrically smooth path for coupling signals into and out of the hybrid junction by maintaining the characteristic impedance of the coaxial line substantially constant from the connector to the hybrid junction.

3,654,571

BROADBAND END COUPLING

Friedrich Rucker, Kirschenhardthof, and Gunter Morz, Ludwigsborg, both of Germany, assignors to Licentia-Patent-Verwaltungs-GmbH, Frankfurt am Main, Germany

Filed Sept. 18, 1970, Ser. No. 73,337

Claims priority, application Germany, Sept. 19, 1969, P 19 47 495.4

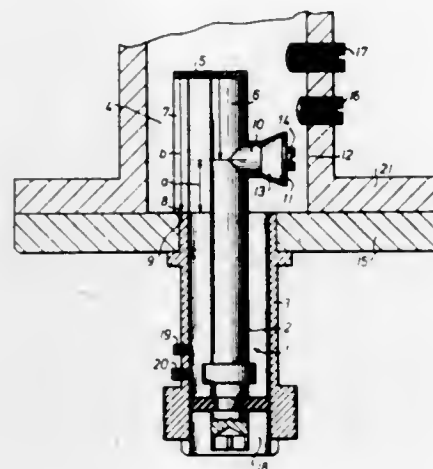
Int. Cl. H01p 1/16; H03n 7/38

U.S. Cl. 333-21 R

8 Claims

A broadband end coupling arrangement for coupling a coaxial transmission line into a waveguide. The coupling is achieved by providing the center conductor of the coaxial line, which extends axially into the waveguide, with a transverse coupling pin the face of which forms an adjustable capacitor with the oppositely disposed waveguide wall, and by providing at least one bar which is parallel to the center conductor and connected at one of its ends to the free end of

the center conductor via a crossbar and at its other end to the outer conductor of the coaxial line so that the length of



the coupling loop from the coupling loop to the outer conductor via the crossbar and the additional bar is approximately $\frac{1}{4}\lambda$.

3,654,572

WAVEGUIDE STRUCTURE

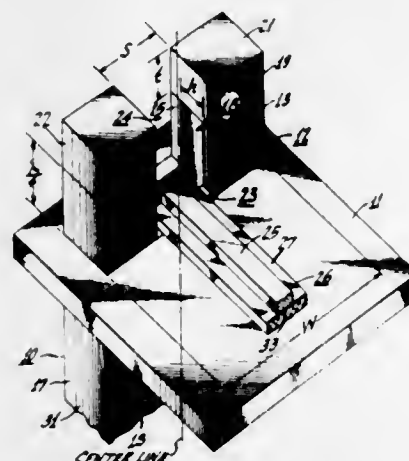
Louis Sebastian Napoll, Hamilton Square, N.J., assignor to RCA Corporation

Filed Nov. 5, 1970, Ser. No. 87,211

Int. Cl. H01p 3/08, 3/12, 5/08

U.S. Cl. 333-21 R

6 Claims



A waveguide structure is described wherein a section of waveguide is effectively shorted at one end thereof by a pair of conductive plates. Each of the plates is adjacent to a narrow wall of the waveguide section and extends from broad wall to broad wall across the aperture of the waveguide. The edge of one of the plates remote from the edge adjacent to a narrow wall is closely spaced from the remote edge of the other plate to form a gap between the edges midway between the narrow walls. The thickness of the plates and the spacing of the gap between the plates is arranged so that no appreciable radiation occurs due to the gap at the reflective end.

3,654,573

MICROWAVE TRANSMISSION LINE TERMINATION

Bobby Eagle Graham, Greensboro, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed June 29, 1970, Ser. No. 50,560

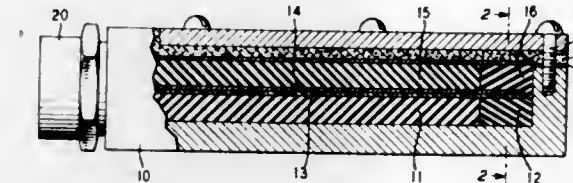
Int. Cl. H01p 1/26, 3/08

U.S. Cl. 333-22 R

5 Claims

A power dissipating termination for microwave transmission lines is disclosed. Nontapered, high-loss dielectric

material replaces the relatively lossless dielectric material immediately preceding the end of a two-conductor line. The



high-loss material has a dimensional configuration which results in a substantially nonreflective termination.

3,654,574

ACOUSTIC-WAVE TRANSMITTING SYSTEM HAVING CURVILINEAR TRANSDUCERS

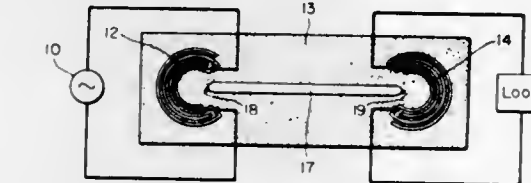
Fleming Dias, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Aug. 18, 1970, Ser. No. 64,710

Int. Cl. H03h 7/30, 9/30

U.S. Cl. 333-30

3 Claims



The system comprises a substrate capable of propagating acoustic surface waves. Disposed near opposite ends of the substrate are an input transducer that responds to an input signal for launching acoustic surface waves and an output transducer that responds to those waves for developing an output signal which is fed to a load. Extending lengthwise down the center of the wave-propagating surface is an acoustic wave guide that concentrates acoustic surface waves along a propagation path between the two transducers. Each of the transducers includes a pair of interleaved combs of conductive electrodes coupled piezoelectrically to the substrate. Adjacent teeth in the combs are spaced apart by one-half the acoustic wavelength and are curved concavely toward the adjacent end of the strip.

3,654,575

WAVE TRANSMISSION TIME DEVICE

Johannes Meyer Cluwen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

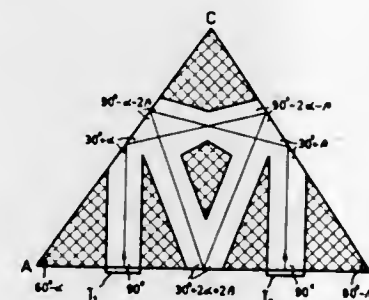
Filed Dec. 2, 1969, Ser. No. 881,461

Claims priority, application Netherlands, Dec. 6, 1968, 6817492

Int. Cl. H03b 7/30, 9/30

U.S. Cl. 333-30

10 Claims



A wave transmission time device, for example an ultrasonic delay line, having a triangular delay body in order to avoid angular tolerances.

3,654,576 RECIPROCAL PHASE SHIFTER EXHIBITING NEGATIVE PHASE SHIFT

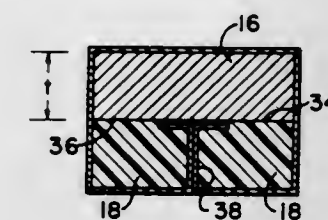
Daniel C. Buck, Hanover, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 25, 1969, Ser. No. 810,313

Int. Cl. H01p 1/18

U.S. Cl. 333-31 A

6 Claims



A miniature electromagnetic wave apparatus or reciprocal phase shifter is disclosed. The apparatus comprises a wave guide structure having a longitudinal axis and at least first and second parallel elongated conductive members. The wave guide structure is dimensioned so as to support propagation of electromagnetic wave energy in a direction along the longitudinal axis of the wave guide structure. The electromagnetic wave energy as supported in said wave guide structure has longitudinally and transversely extending r.f. magnetic field components. A thin elongated body of gyromagnetic material is disposed between the conductive members so as to be traversed by the transversely extending magnetic field components. Means are associated with the wave guide structure for establishing a given state of magnetization within the body of gyromagnetic material and longitudinally thereof so as to effect negative phase shift of the wave energy propagated through the phase shifter.

3,654,577

TERMINATION ARRANGEMENT FOR WAVEGUIDE

Georg Spinner, Munich; Juergen Luehring, Hannover, and Guenter Ahrens, Langenhagen, all of Germany, assignors to Spinner G.m.b.H., Elektrotechnische Fabrik and Kabel-und Metallwerke Gutehoffnung-shuette Aktiengesellschaft, Hannover, Germany

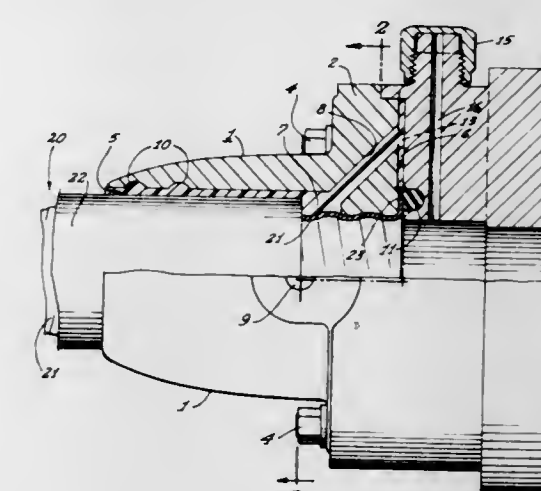
Filed Aug. 26, 1970, Ser. No. 67,087

Claims priority, application Germany, Aug. 29, 1969, P 19 43 885.8

Int. Cl. H01p 1/24

U.S. Cl. 333-98 R

5 Claims



A two-element waveguide terminator, wherein at the place where the flanged end of a waveguide is sandwiched between a flange of one terminator element and the other terminator element, there remains a hollow space between these elements. The one element is a sleeve disposed as a fitting over

the waveguide end, but a hollow clearance space remains between sleeve and waveguide end. The one terminator element is provided with ducts interconnecting the two hollow spaces which are filled with a viscous elastic material, such as silicone rubber.

3,654,578

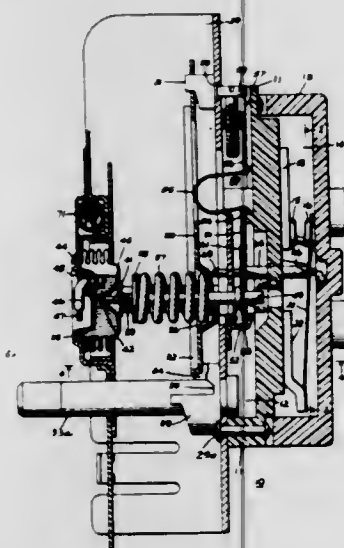
CONDITION RESPONSIVE SWITCH MECHANISM
Paige W. Thompson, Morrison, Ill., assignor to General Electric Company

Filed May 12, 1970, Ser. No. 36,624

Int. Cl. H01h 37/36

U.S. Cl. 337-317

6 Claims



A condition responsive electric switch mechanism includes a switch having open and closed positions. A switch actuator is connected to the switch for moving it between its open and closed positions and a spring assembly is connected to the actuator for moving it between the switch open and closed positions. A thermally responsive mechanism, including a sealed expansible chamber assembly, is connected to the switch actuator for controlling movement between the switch open and closed positions. The sealed expansible chamber assembly is partially filled with liquid and partially filled with vapor so that the change in vapor volume between the switch open and closed positions is relatively large as compared to the total vapor volume. The mechanism may include two sets of spring contacts, each with its own actuator. A toggle mechanism is provided to operate one actuator. There is an operator to engage the toggle mechanism for movement of the toggle mechanism between open and closed positions of one set of contacts. There is a manually adjustable support and a spring mounted between the support and the operator. The thermally responsive expansible chamber assembly also engages the operator. The manually adjustable support has a position engaging both actuators for manually opening both sets of contacts.

3,654,579

ELECTROMECHANICAL TRANSDUCERS AND HOUSINGS

Anthony D. Kurtz, Englewood, N.J.; Joseph Mallon, Philadelphia, Pa., and Charles Gravel, River Edge, N.J., assignors to Kulite Semiconductor Products, Inc.

Filed May 11, 1970, Ser. No. 36,169

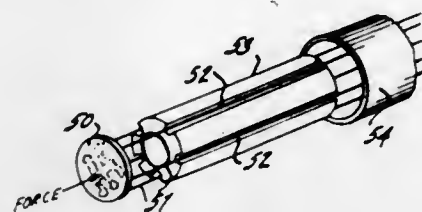
Int. Cl. G01b 7/20

U.S. Cl. 338-2

11 Claims

There is disclosed an electromechanical transducer of the type employing a silicon diaphragm. The transducer has terminal or contact areas deposited thereon by suitable metallization techniques. The contacts are located on a non-active area of the transducer and are routed by metallized conductors to piezo-resistive sensing elements diffused in the

diaphragm within the active region thereof. The diaphragms are associated with suitable housing configurations employing slots or apertures in predetermined locations for accommodating wires or leads which are coupled to the contact



3,654,580

RESISTOR STRUCTURE

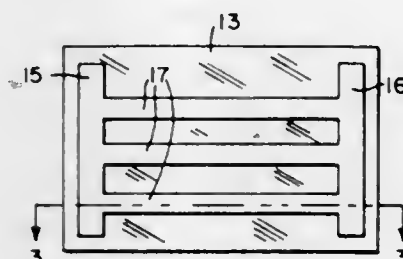
Risto Laisi, Amherst, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed Mar. 14, 1969, Ser. No. 807,172

Int. Cl. H01c 3/02

U.S. Cl. 338-61

3 Claims



A laminated resistor structure for low ohmic valued, high frequency and high power applications and a method for fabricating such a resistor structure. In the disclosed method, part of the resistive layer is removed from the laminated structure to form a plural branch pattern having a pair of spaced apart portions and a plurality of spaced apart elongated strips extending between the portions. The resistive layer pattern forms a parallel electrical connection of the resistive strips to provide not only low ohmic value but also a relatively large area of the laminated structure for power dissipation. By forming the resistive strips with straight line geometries, the inductance is minimal, thereby providing a high frequency capability.

3,654,581

ROTOR AND SHAFT ASSEMBLY FOR VARIABLE RESISTOR

John J. Franz, Jr., Hacienda Heights, Calif., assignor to Beckman Instruments, Inc.

Filed Mar. 15, 1971, Ser. No. 124,162

Int. Cl. H01c 9/02

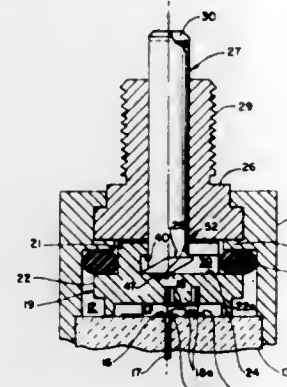
U.S. Cl. 338-162

8 Claims

In a shaft and rotor assembly for a variable resistor device or the like the rotor member is provided with a slotted opening having an undercut lower portion of a width substantially greater than the upper portion of the opening. The shaft is provided with a driving head having substantially the shape of a parallelepiped in which a pair of upper and lower surfaces are arranged substantially normal to the axis of the shaft. The distance between the upper and lower parallel surfaces is slightly less than the depth of the lower portion of the slotted opening in the rotor and the sides of the head are arranged to mate substantially with the side walls of the slot in the rotor so that the shaft may be slid into the lower portion of the slot with the shank of the shaft extending through the

upper portion of the slot. The upper surface of the head abuts against the upper surface of the undercut lower portion of the slot thereby preventing axial movement of the head

for establishing a flush heat transmitting contact with a printed circuit pad on the board. The body portion of the eyelet may be provided with a cylindrical insulating sheath.



3,654,584

SERVICE LINE BRANCHOUT FACILITY FOR COMMUNICATION CABLES

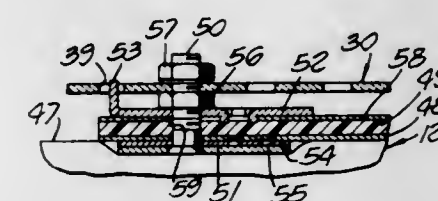
George W. Gillemot, 2331 20th Street, Santa Monica, Calif., and John T. Thompson, 244 Loring Street, Los Angeles, Calif.

Filed Feb. 19, 1970, Ser. No. 12,821

Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

30 Claims



and shaft with respect to the rotor. Lateral movement of the head with respect to the rotor is prevented by an extension from the lower surface of the head which fits into a mating opening formed on the lower surface of the slot.

3,654,582

ROTATEABLE ELECTRIC CONTACT

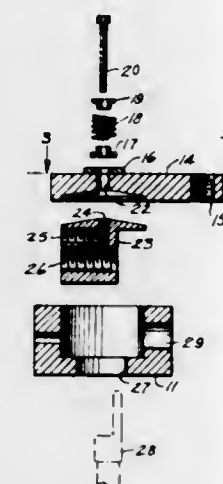
Manuel Hernandez, 3137 Lancaster Avenue, Anaheim, Calif.

Filed Aug. 20, 1969, Ser. No. 851,658

Int. Cl. H01r 1/126

U.S. Cl. 339-8 A

1 Claim



A device for the connection of an output switch and an input lead for a battery, a plate portion of the device allowing for rotation of the upper portion. This device also contains a screw for securing the rotatable members.

3,654,583

CIRCUIT BOARD EYELET

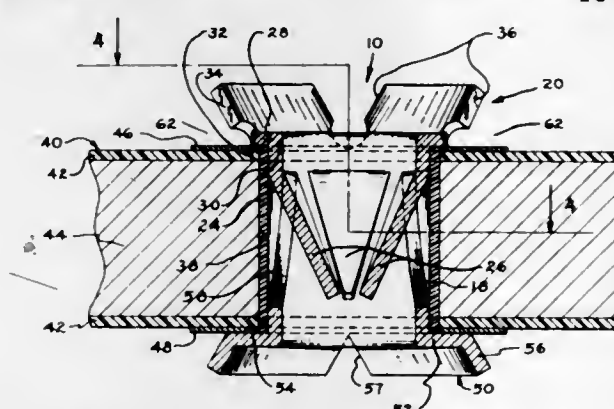
Lloyd Mancini, New Cumberland, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.

Filed June 22, 1970, Ser. No. 48,302

Int. Cl. H01r 9/06, 11/22; H05k 1/02

U.S. Cl. 339-17 C

16 Claims



A circuit board solder eyelet having a flange with a flat annular printed circuit contact surface at one end of the eyelet

A service line branchout facility for communication cables equipped with improved mechanical and electrical coupling means for rigidly interconnecting the cable sheath and shield to the adjacent end of the facility main frame. The coupling means are readily adaptive to widely varying conditions including a wide range of cable sizes and operating conditions affecting the spacing between the end of the cable sheath and the branchout facility. Wherever feasible the cable shield and sheath are clamped directly to the facility frame; if the sheath shrinks or is pulled away from the end of the facility, a metal adapter strip is interposed.

3,654,585

COORDINATE CONVERSION FOR THE TESTING OF PRINTED CIRCUIT BOARDS

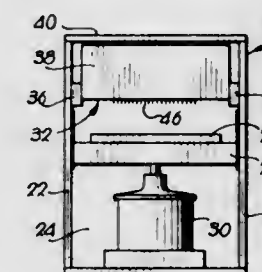
Price D. Wickersham, Shawnee Mission, Kans., assignor to Brooks Research and Manufacturing, Inc., Kansas City, Mo.

Filed Mar. 11, 1970, Ser. No. 18,486

Int. Cl. H05k 1/02

U.S. Cl. 339-17 M

7 Claims



An array of spring pin contact elements are arranged in a matrix on a uniform rectangular grid and, through a coordinate conversion interface, provide access to the random-arranged contact points of a single or multiple layer printed circuit board for the purpose of conducting electrical tests. The interface is a transition plate constructed in accordance with the artwork of a given board and comprises a baseplate provided with contact pads on one side having the same random arrangement as the contact points of the board, and corresponding contact pads on the opposite side each positioned at an individual contact location having the same planar coordinates as a particular one of the spring pin contact elements. The corresponding pads are electrically interconnected through the baseplate. The board and the interface are supported on a shiftable platen with the random-arranged pads engaging the contact points, the platen being spaced

from and aligned with the spring pin elements such that, upon movement of the platen toward the spring pin elements, the pads on the opposite side of the interface are brought into engagement with the elements of like coordinates.

3,654,586

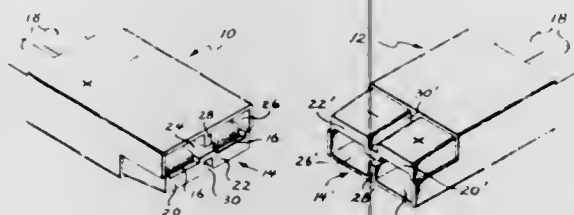
INDEXING MEANS FOR ELECTRICAL CONNECTORS
Edward D. Winkler, Reading, Mass., assignor to Anderson Power Products, Inc., Boston, Mass.

Filed Mar. 20, 1970, Ser. No. 21,279

Int. Cl. H01r 13/54; 25/04

U.S. Cl. 339-49 R

7 Claims



An indexing or keying system for electrical connectors adapted for longitudinal telescopic engagement with each other provides each connector with an indexing member having a predetermined facing configuration disposed at the connecting end thereof on one side of the centerline and a complementary indexing opening on the other side of the centerline having a facing configuration substantially identical to the facing configuration of the indexing member. By selecting unique complementary values for the facing dimensions of the indexing members and openings, the connectors may be indexed in accordance with any desired circuit parameter to prevent inadvertent joinder of dissimilar indexed connectors.

3,654,587

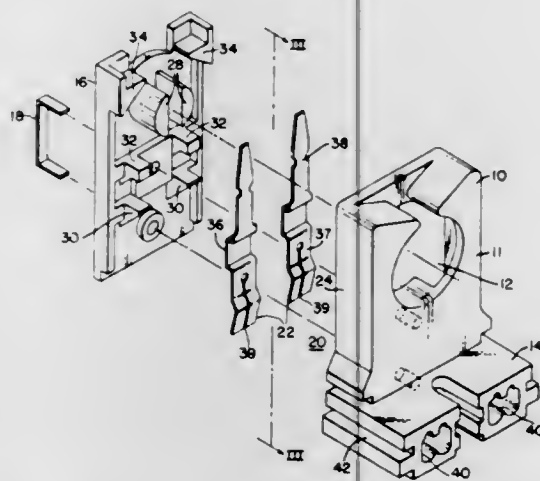
FLUORESCENT LAMPHOLDER OR THE LIKE
Emmett J. McLaughlin, Fairfield, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 15, 1970, Ser. No. 3,077

Int. Cl. H01r 33/08

U.S. Cl. 339-53 R

5 Claims



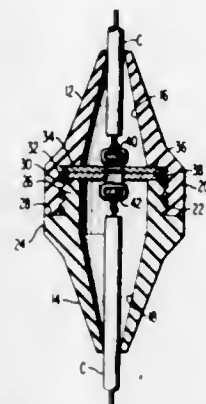
Contact members within a housing of a fluorescent lampholder are provided with a mounting portion secured in fixed position between the front and back members of the housing and a pin-contacting portion that is flat and parallel with a housing wall and not subject to twisting, the pin-contacting portion extending across a frontal opening for engaging an inserted lamp pin. The contact member has resilient means for permitting lateral motion parallel to the front wall but is constrained from any appreciable motion perpendicular to the front wall.

3,654,588
ELECTRICAL WIRE CONNECTOR
Fred N. Ruth, 7159 S. Missiondale, Tucson, Ariz.
Filed Feb. 5, 1970, Ser. No. 8,962

Int. Cl. H01r 13/54

U.S. Cl. 339-89 R

15 Claims



The connector includes a pair of electrical insulating housing elements having central openings and threadably engageable one with the other. Each element is provided with an electrically conductive disc to which is secured a wire received within the associated opening, the disc butting a shoulder portion of the element. To effect an electrical connection, the elements are threaded one to the other with the discs being clamped between the respective shoulders in engagement with one another to form an electrical connection. In one form, the openings through the elements are tapered and the elements circumferentially scored at axially spaced positions whereby the ends of the elements can be removed to accommodate wires of enlarged diameter or larger gauge. In a further form, a pair of insulating elements having respective disc portions are threadably engaged within a body which also threadably receives a third element having a disc portion. In final securement, the first pair of discs are clamped against the third disc to provide an electrical connection therewith.

3,654,589

ELECTRICAL CONNECTOR

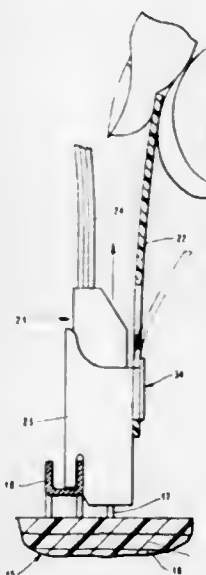
Edmund J. Di Stefano; Arthur E. Enderley, and Robert C. Hoffman, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,476

Int. Cl. H01r 13/46

U.S. Cl. 339-110 R

5 Claims



A cable assembly has a series of cables whose ends are joined to contacts in separate insulating housings. The hous-

ings at each end of the assembly are ganged on holders. Each holder has a series of slots separably engaged with tabs on the associated housings. Each holder is flexible and has a portion which can be grasped by a person to allow the person to manipulate the assembly to join it with and disconnect it from mating contact elements on a printed circuit board.

control energizable thereby. It embodies a wafer-shaped insulator with contact portions of lead wires located on opposite sides of the insulator. The terminal fits in an internally threaded socket of a housing for an electromagnet forming part of the control and is held therein by a connector nut for receiving the thermocouple's lead terminals.

3,654,590

ELECTRICAL CONTACT DEVICES FOR HIGH VOLTAGE ELECTRICAL SYSTEMS

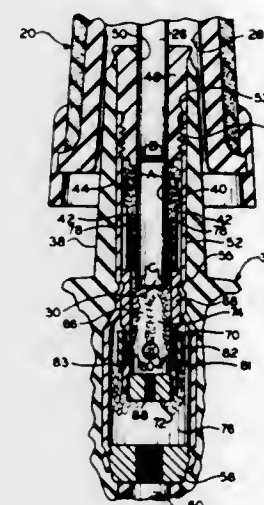
Robert R. Brown, Bernardsville, N.J., assignor to Ameraca Esna Corporation, New York, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,243

Int. Cl. H01r 13/52

U.S. Cl. 339-111

12 Claims



An electrical device in the form of an electrical connector for making a connection between complementary electrical contacts, shown in the form of a pin and a socket, under high voltage fault conditions, the device including a sleeve of arc-quenching material for guiding the pin into contact with the socket, the sleeve being axially spaced from the socket to provide a gap between the sleeve and the socket, and a metallic tubular member surrounding the gap and contacting the socket, the wall of the tubular member being radially spaced from the pin such that the gap has a longitudinal length no less than the order of magnitude of one-half the distance between the pin and socket at which an arc will be struck between the pin and the socket as the pin approaches the socket under high voltage fault conditions and a lateral width no less than the order of magnitude of one-half the same arc-strike distance.

3,654,591

ELECTRIC TERMINAL AND COUPLING

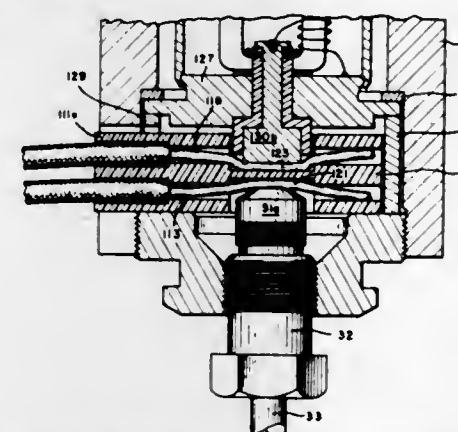
M. R. Jayaram, Long Beach, and Nickolas J. Sidaris, Cypress, both of Calif., assignors to Honeywell Inc., Minneapolis, Minn.

Filed July 2, 1970, Ser. No. 52,037

Int. Cl. H01v 1/10; H01r 3/00

U.S. Cl. 339-147 R

4 Claims



An electric terminal for connecting a high limit switch in series with a pilot-burner-heated thermocouple and a safety

3,654,592

ELECTRICAL CONNECTOR AND BLOCK

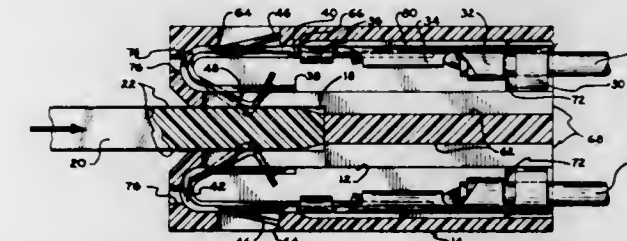
Michel M. Primorac, Middletown, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.

Filed Sept. 21, 1970, Ser. No. 73,752

Int. Cl. H05k 1/07; H01r 5/08

U.S. Cl. 339-176 MP

12 Claims



A circuit board connector block is provided with bi-metal terminals. Each terminal includes a body formed of a relatively malleable strip stock having a spring guard portion and a crimp barrel. A spring metal contact is confined within the guard with a portion extending into the crimp barrel so that when a bared wire is positioned in the barrel and the barrel is crimped, direct electrical connection is formed between the wire and the spring contact. Each terminal is snugly fitted within a cavity in an insulating body to form a connector block for circuit boards or the like.

3,654,593

LAMP HOLDER

Ian Bruce Page, Hemel Hempstead, and Alan Thompson, Harrow, Middlesex, both of England, assignors to AMP Incorporated, Harrisburg, Pa.

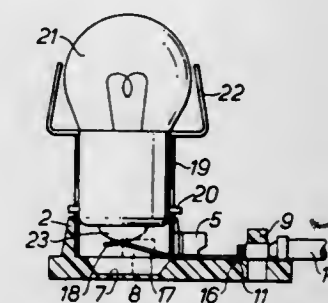
Filed Aug. 12, 1970, Ser. No. 63,141

Claims priority, application Great Britain, Sept. 30, 1969, 47,886/69

Int. Cl. H01r 33/46

U.S. Cl. 339-188 R

1 Claim



A base for a lamp socket, comprising a floor having an up-standing wall defining a lamp base receptacle, a portion of the wall having a slot to receive a forward part of an electrical contact, and a bridge spaced from the lamp socket receptacle supported on the floor for holding a rearward part of the electrical contact.

3,654,594

CRIMP TYPE TERMINAL

Fred C. Sitzler, Mechanicsburg, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa.

Filed Oct. 9, 1970, Ser. No. 79,525

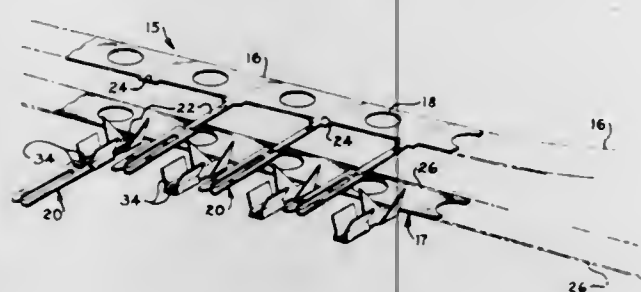
Int. Cl. H01r 15/12

U.S. Cl. 339-223 R

13 Claims

A bi-metal crimp terminal having a terminal portion formed of high tensile strength spring material with a tail ex-

tending into a crimp barrel formed of relatively maleable strip stock such as brass so that when a bared conductor is positioned in the crimp barrel and the barrel is crimped



around the wire, a direct electrical connection is formed between the wire and the terminal portion. The terminals may be secured to a carrier strip.

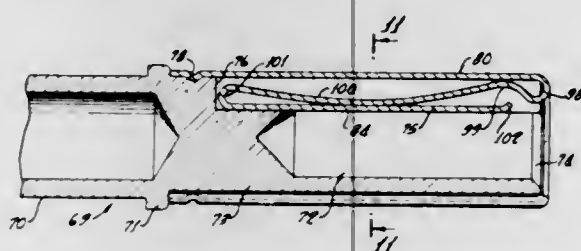
3,654,595

SOCKET CONTACT FOR ELECTRICAL CONNECTOR
Maurice D. Curr, Idyllwild, Calif., assignor to The Deutsch Company Electronics Components Division, Banning, Calif.
Continuation-in-part of application Ser. No. 45,411, June, 1970, now abandoned. This application Oct. 7, 1970, Ser. No. 78,761

Int. Cl. H01r 13/06

U.S. Cl. 339-256 R

20 Claims



A socket contact including an elongated cylindrical member having a cylindrical opening extending inwardly from the outer end thereof, a portion of the member being cut away inwardly of the outer end, the cutaway portion intersecting the opening and providing parallel side edges along opposite sides of the opening and a flat surface rearwardly of the opening, a sleeve being positioned over the cylindrical member to enclose the cutaway portion and provide a space within which is a spring, which may be integral with the sleeve, having a rectangular flat inner portion with an outwardly inclined forward end, a narrower arcuate outer portion overlying the inner portion and having a convex surface engaging the midportion of the inner part, and a bent portion interconnecting the inner and outer spring portions, the bent portion of the spring being adjacent the flat surface rearwardly of the opening.

3,654,596

STORAGE TYPE ACOUSTIC IMAGE CONVERTER DEVICE AND ACOUSTIC VIEWING SYSTEM
John M. Osepchuk, Concord, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Feb. 26, 1970, Ser. No. 14,375

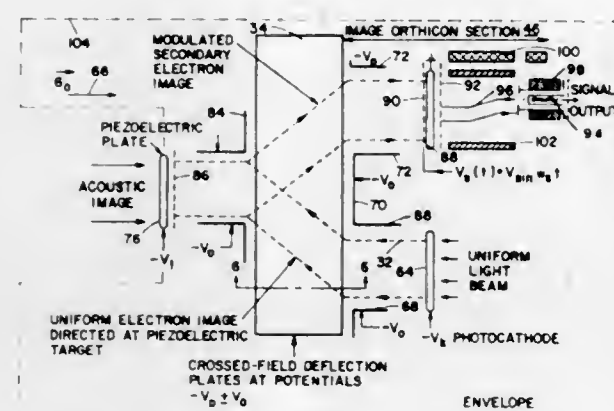
Int. Cl. G01s 9/66

U.S. Cl. 340-3 R

14 Claims

An electron discharge device is provided for a system involving illumination by suitable sonic energy radiator means of any opaque, turbulent or dense medium and converting the returned acoustic signals into a video output signal for remote or direct display. Storage, as well as integration of acoustic signals through a process of correlation in a device having a unique crossed field electron beam deflection system is provided together with the signal impinging and

generation means in an integral evacuated envelope. A non-scanning flood type electron beam continuously samples the



voltage on an acoustic-responsive conversion plate and yields a modulated secondary electron emission beam whose phase and amplitude is that of the impinging acoustic signals.

3,654,597

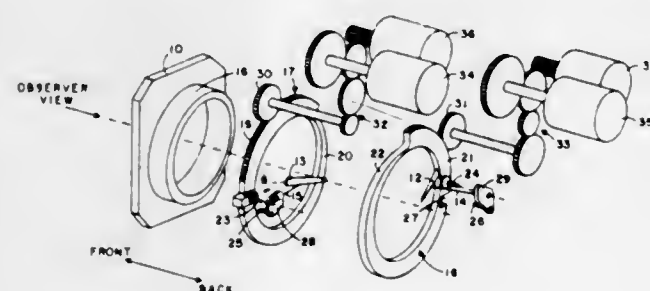
COMMAND BAR MECHANISM FOR FLIGHT DIRECTOR INDICATOR AIRCRAFT INSTRUMENT
Ronald E. Cox, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed Aug. 7, 1970, Ser. No. 61,953

Int. Cl. G08g 5/02

U.S. Cl. 340-27 NA

8 Claims



A compact positioning mechanism for an indicator assembly of the type comprising first and second bar members arranged in a V-like configuration and collectively defining a command plane which is both rotatable about and transversely displaceable with respect to a reference axis. A pair of ring members, each formed with a camming surface, carry the respective bar members on a cam follower pivotably mounted on one ring and in camming engagement with the cam surface on the other. Rotation of the command plane is achieved through like rotation of the two rings while displacement transverse of the reference axis is achieved by relative rotation between the two rings.

3,654,598

DIGITAL CYCLE SYSTEM COORDINATOR FOR TRAFFIC CONTROL SYSTEM

Daniel H. Morgan, Orange, and Jackie E. Herndon, Garden Grove, both of Calif., assignors to Tamar Electronics Industries, Inc., Los Angeles, Calif.

Filed May 20, 1969, Ser. No. 826,167

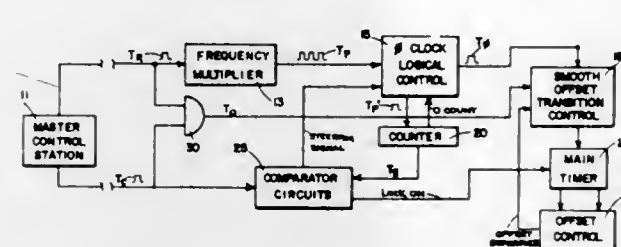
Int. Cl. G08g 1/07

U.S. Cl. 340-41

13 Claims

A pair of periodic pulsating signals are generated at a master control station, such signals differing in frequency by a predetermined small amount. These two frequencies are chosen so that they will periodically arrive in phase with each other at intervals equal to a desired timing cycle. The signals from the master station are transmitted to coordinated inter-actors in a system where the signals are received by coordinators and digitally processed to generate a plurality of

clock pulses, each of said clock pulses representing a finite increment of the total timing cycle. These timing pulses as



referred to the commencement of the timing cycle are utilized to synchronize the local controller with the master station and to provide various desired timing offsets.

3,654,599

VEHICLE STEERING REVERSAL RATE ALARM SYSTEM

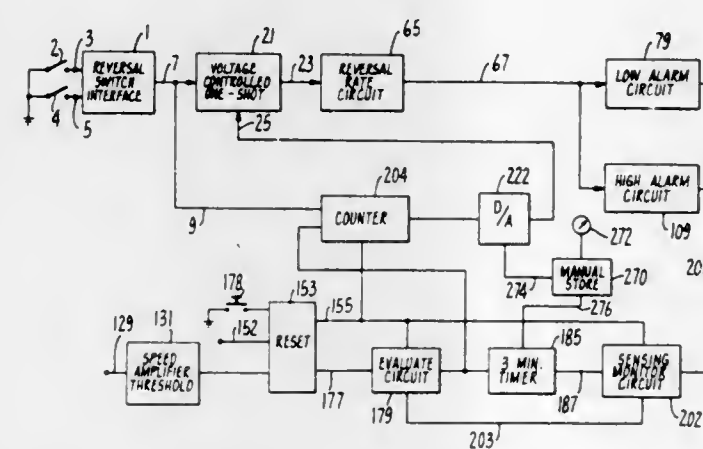
Werner Sepper, Concord, Calif., assignor to Life Technology, Inc.

Filed Apr. 10, 1970, Ser. No. 27,410

Int. Cl. G08b 21/00

U.S. Cl. 340-52

12 Claims



Pulses, generated by every reversal of a vehicle's steering wheel are counted during a fixed time period to determine a reversal rate when the vehicle exceeds a minimum speed. That rate is stored and a voltage proportional to the rate is used to control the pulse width of subsequent reversal pulses that are applied to a capacitor charging circuit having a long time constant. A high capacitor voltage activates a high reversal rate alarm and a low capacitor voltage activates a low reversal rate alarm.

3,654,600

STEERING LOCKING DEVICE

Yukio Yamamoto, Ohmiya, Japan, assignor to Nissan Motor Company, Limited, Yokohama and Kanto Seiki Company, Limited, Nissin-cho, Ohmiya, Japan

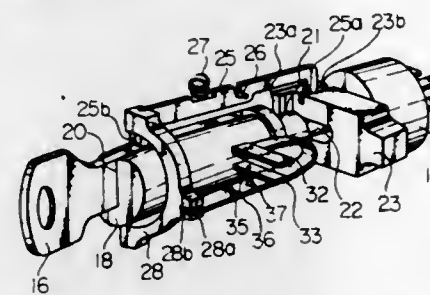
Filed Dec. 21, 1970, Ser. No. 99,958

Claims priority, application Japan, Dec. 29, 1969, 44/105176

Int. Cl. B60r 25/02

U.S. Cl. 340-52 D

7 Claims



A steering locking device for an automotive steering system, whereby the steering shaft is locked when the key

cylinder is held in its "lock" position and when the key is removed from the key cylinder and whereby a warning signal such as sound or light is produced when the vehicle door is opened with the steering shaft left unlocked and/or the key left inserted into the key cylinder. The warning signal is produced through operation of an electric switch mechanism which is compactly accommodated in the housing of the locking device.

3,654,601

VEHICLE TIRE PRESSURE WARNING SYSTEM

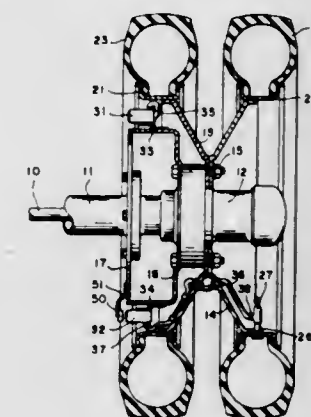
Robert V. Munson, and Patrick T. Thayer, both of San Antonio, Tex., assignors to Thayer Corporation, San Antonio, Tex.

Filed Mar. 10, 1970, Ser. No. 18,210

Int. Cl. G08b 21/00

U.S. Cl. 340-58

10 Claims



For detecting a reduction of pressure in the pneumatic tire of a vehicle. A magnet device is mounted for rotation with the vehicle wheel to pass in close proximity to a magnetically operated switch. The magnet device is responsive to the pressure within the tire to move the magnet in position to actuate the switch when the pressure falls below a predetermined value. The switch is connected in a circuit to produce a warning signal to the vehicle operator.

3,654,602

AUTOMOBILE ANTI-THEFT ALARM AND CONTROL UNIT

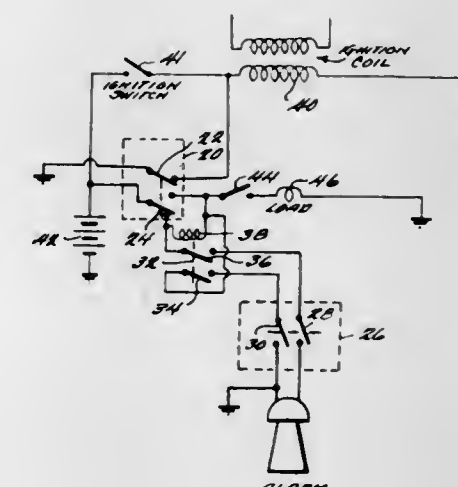
James A. Jones, 2814 York Avenue, Cleveland, Ohio

Filed Nov. 17, 1970, Ser. No. 90,297

Int. Cl. B60r 25/04

U.S. Cl. 340-64

3 Claims



Apparatus for protecting a vehicle such as an automobile from theft and/or other improper use including a first double pole double throw switch, a relay having first and second normally open controlled switches and a second normally closed double pole, double throw switch. When the first switch is manually shifted to the protective position, the first

switch electrically connects the primary winding of the ignition coil or the like to ground so that the vehicle cannot be started and also electrically connects the vehicle battery to the relay via the vehicle devices which operate off the battery so that if any of these devices are used while the first switch is in the protective position the relay is activated. The activation of the relay causes a latching current path to be completed in parallel with the vehicle devices so that the relay remains activated even if all vehicle devices are thereafter shut off, and further causes a noisemaker such as the vehicle horn to be connected to the battery to sound an audio alarm. Once activated the relay remains activated until the first or second switch is manually opened.

3,654,603

COMMUNICATIONS EXCHANGE

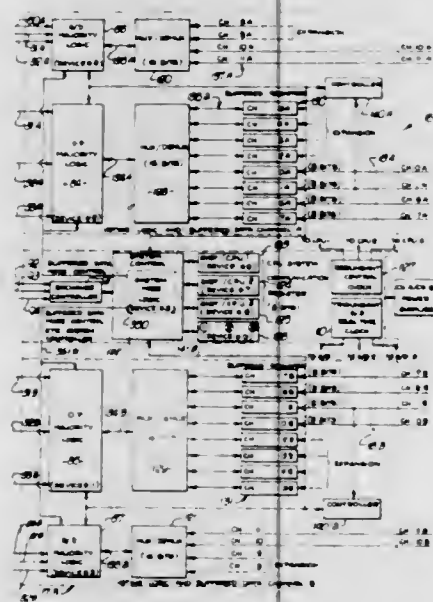
William F. Gunning, Fullerton; John F. Wilson, Santa Ana, and Charles C. Bertram, Anaheim, all of Calif., assignors to Astrodata, Inc., Anaheim, Calif.

Filed Oct. 31, 1969, Ser. No. 873,015

Int. Cl. H04I 1/00

U.S. Cl. 340-146.1

4 Claims



A communications exchange for automatically interconnecting subscriber lines and trunks employs a switching network operable to establish a large number of possible message transmission paths between subscriber terminators and trunk terminators; multiple computers are operable simultaneously upon network transmitted message processing data to similarly process the data and produce output signals; and communication of data between the switching network and computers is established through a system controller operable to determine which computers shall be preferred as communicating valid data and which of the preferred computers shall be used as a sole survivor to transmit valid processing data to the network.

3,654,604

SECURE COMMUNICATIONS CONTROL SYSTEM

Paul A. Crafton, Potomac, Md., assignor to Constellation Science and Technology Corporation, Oxon Hill, Md.

Filed Jan. 5, 1970, Ser. No. 726

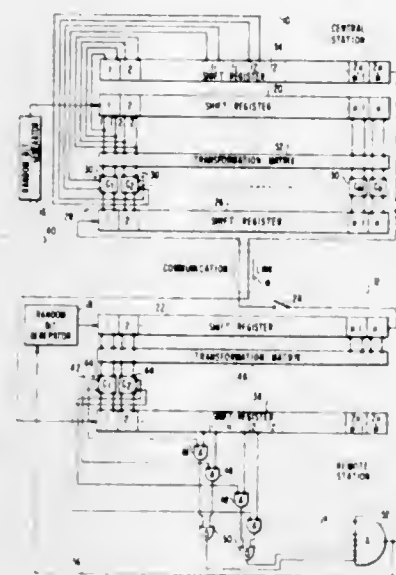
Int. Cl. G06F 11/00; G08B 29/00; H04I 15/24

U.S. Cl. 340-147 R

10 Claims

A system for generating secure command signals at a remote station, such as a branch bank, under the control of a central station, such as a main bank. Random words are inde-

pendedly generated at each station and transmitted to the other station. Both random words are compared at each sta-



tion and the comparisons are ANDed at the remote station. Exact coincidence produces the command signal.

3,654,605

REMOTE METER READING SYSTEM HAVING ELECTRO-MECHANICAL OSCILLATORS

Yukio Honda, and Tsukasa Kawamura, both of Tokyo, Japan, assignors to Tamura Electric Works, Limited, Tokyo, Japan and Yukio Honda, Tokyo, Japan, part interest to each

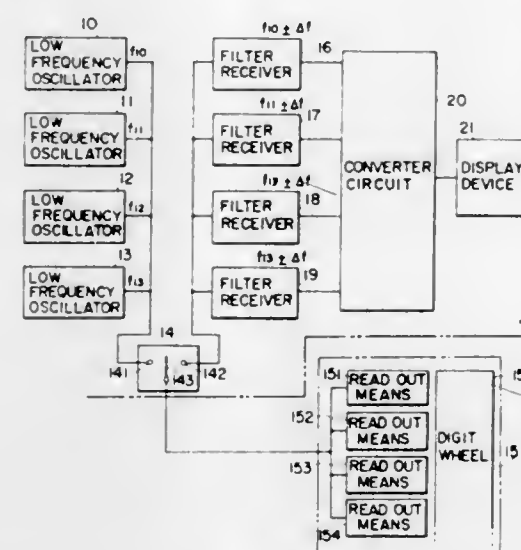
Filed Mar. 2, 1970, Ser. No. 15,501

Claims priority, application Japan, Mar. 3, 1969, 44/15499

Int. Cl. H04Q 9/00

U.S. Cl. 340-151

5 Claims



In a remote reading system to read values displayed in a remote local office in a central office, the local office is provided with a digit wheel, a plurality of permanent magnets arranged on one side of the digit wheel in accordance with predetermined decimal - binary codes and a plurality of passive oscillators closely adjacent the digit wheel, a predetermined number of the passive oscillators being assigned to one bit of the codes whereas the central office is provided with a single oscillator of variable frequency or a plurality of oscillators of different frequencies assigned to the passive oscillators, a plurality of filter receivers responsive to oscillation frequencies of the passive oscillators, a binary-decimal converter for the outputs from the filter receivers, means to display the output from the converter, and a modulator. Each of the passive oscillators operates to resonate to a

frequency assigned thereto and sent from the central office when the passive oscillator comes to face one of the permanent magnets and the different oscillation frequencies are applied from the central office simultaneously to the passive oscillators in the local office through the modulator which connects the passive oscillators with the filter receivers to read in the central office the digits in the digit wheel.

3,654,606

ALTERNATING VOLTAGE EXCITATION OF LIQUID CRYSTAL DISPLAY MATRIX

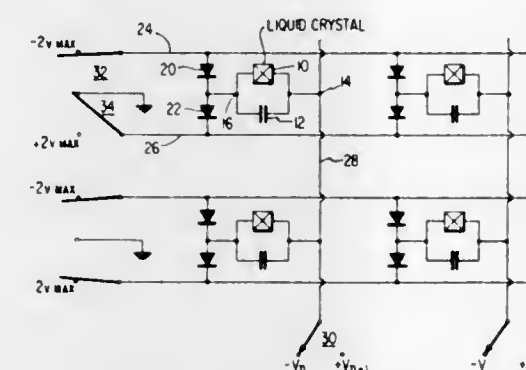
Frank Jerome Marlowe, Kingston, and Edward Oskar Nester, Hightstown, both of N.J., assignors to RCA Corporation

Filed Nov. 6, 1969, Ser. No. 874,527

Int. Cl. H04Q 1/00, 3/00

U.S. Cl. 340-166

8 Claims



A unidirectional electric field is applied to selected liquid crystal elements of a display matrix during one display frame. The direction of application of the field is reversed during the next display frame. The above may be achieved, for example, by connecting a capacitor across the liquid crystal element, charging it in one sense during one frame then opening the charging circuit, and charging it in the opposite sense during the next frame and then opening the charging circuit.

3,654,607

SIGNAL SEQUENCING SYSTEM

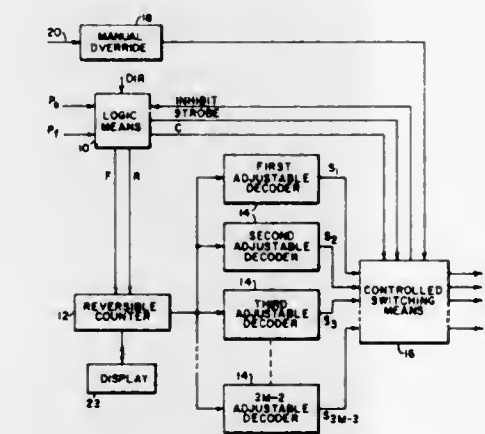
Andre Wavre, Monroeville, and Dean Santis, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 13, 1969, Ser. No. 798,914

Int. Cl. H04Q 42

U.S. Cl. 340-168

13 Claims



A system is disclosed for providing sequential control signals to an apparatus including a plurality of M banks of elements, wherein each bank comprises up to N elements and wherein the banks are moved in either a forward or reverse direction by incremental steps and wherein the groups within the banks are each moved incrementally in a cyclical manner. Such an apparatus could be the well known

jack mechanism for moving the respective positions of a plurality of control rods operative with a reactor device. A reversible control signal counter is provided which counts the cumulative number of steps taken by all of the M banks. Adjustable decoding means provide selected signals at predetermined counter states. The selected signals are indicative of the incremental steps taken by the first and final group of elements during bank sequencing. Means are provided responsive to the selected signals to provide sequential bank signals. The disclosure includes means for insuring that the last element moved prior to a change in sequencing direction is the first to be moved in the opposite direction when a change of direction is desired. Means are also provided to insure that misalignment of the elements within the bank cannot occur.

3,654,608

PULSE SEQUENCING SYSTEM

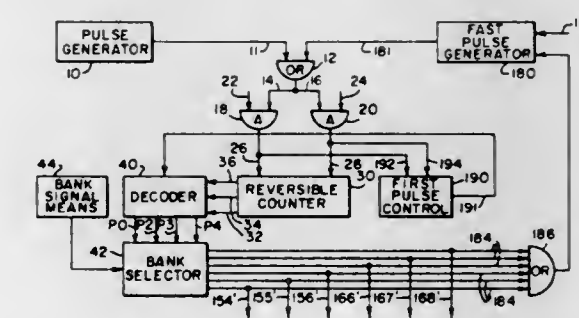
Andre Wavre, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 13, 1969, Ser. No. 798,913

Int. Cl. H04Q

U.S. Cl. 340-168

6 Claims



It is herein disclosed a system for providing a cyclical sequence of equally spaced operation controlling pulses to elements or devices comprising a plurality of element banks. The number of banks of elements and the number of elements per bank may be varied easily within a given cycle duration and yet remain equally spaced in time regardless of the number of elements per bank. Further, the desired sequencing may be carried on in a forward or reverse direction. The above is carried out by providing a sufficient number of element operation controlling pulses to allow the selection among such pulses such that any number of elements per bank may be chosen for a predetermined operation up to a predetermined maximum number such that they are equally spaced in time. Bank signals are provided which are then gated by the element controlling pulses. The aforesaid is carried out by a bank selector matrix which comprises a plurality of terminals, from which selected terminals are connected to receive bank signals and the desired element pulses and also to appropriate gating means. The output from the gating means then comprises a cyclical sequence of pulses equally spaced in time which may be sent to those groups of elements located in banks for which bank signals have been provided.

3,654,609

PROPORTIONAL SPACING VISUAL EDITING SYSTEM

Robert G. Bluthman, Austin, Tex.; Paul E. Goldsberry, Lexington, Ky.; Robert L. McConnell, Lexington, Ky., and Jack W. Simpson, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,791

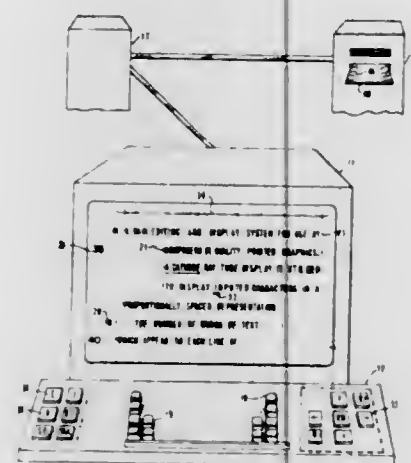
Int. Cl. G06F 3/14

U.S. Cl. 340-172.5

12 Claims

A data composing, editing, formatting and display system for use by composers of quality printed graphics. A cathode ray tube display is utilized to display input data characters

in a proportionally spaced representation. The number of words of text which appear on each line of displayed text are optimized in accordance with variable margin settings and the width values of the characters appearing on the line. Additional text may be inserted or deleted at any point in the displayed text without resultant loss of word definition, paragraph definition, word order, or line-margin relationship. Additional lines of text may be created or deleted between paragraphs of words as words are inserted or deleted in one of the



paragraphs. The text character representations are stored serially in bulk storage and accessed by a processor having a high speed storage and arithmetic section for display and line-word optimization calculations. A large parallel gating section of the processor and a control storage containing unique factors set the conditions which "program" the high speed storage and arithmetic section to effect necessary text manipulation between display frames while maintaining a real time response to rapidly initiated operator controlled functions.

3,654,610

USE OF FAULTY STORAGE CIRCUITS BY POSITION CODING

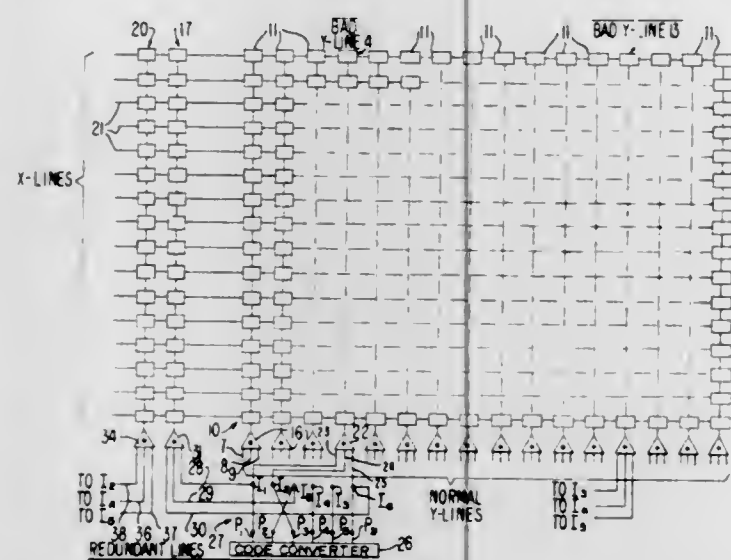
Wendell B. Sander, Los Altos, and Frank S. Greene, Jr., San Jose, both of Calif., assignors to Fairchild Camera and Instrument Corporation, Mountain View, Calif.

Filed Sept. 28, 1970, Ser. No. 76,056

Int. Cl. G06f 5/02, 11/00

U.S. Cl. 340—172.5

6 Claims



A memory system having an array of a predetermined number of storage cells, each for storing a single bit of binary information, arranged in rows and columns, the rows and columns each having binary addresses, the system including at least one redundant row of storage cells and one or more

defective rows, or at least one redundant column of storage cells and one or more defective columns, or both. The contained cells of the redundant rows or columns are not required to make up the required number of storage cells. A code converter is embodied for converting the binary addresses of each of the rows and columns of the system to combinatorial addresses, each combinatorial address being associated with a row or column of the array, the maximum number of combinatorial addresses to which the binary addresses of all the rows or all the columns may be converted being at least one more than the maximum number of binary address associated with the additional combinatorial addresses. A connection mechanism is included for connecting the code converter to the array of storage cells, the connection providing that the additional combinatorial addresses are associated with the defective rows or columns, and the combinatorial addresses with which the binary addresses of the defective rows or columns would normally be associated are associated with the redundant rows or columns.

3,654,611

VISUAL EDITING SYSTEM INCORPORATING CONTROLS FOR JUSTIFYING AND DEJUSTIFYING DISPLAYED TEXT

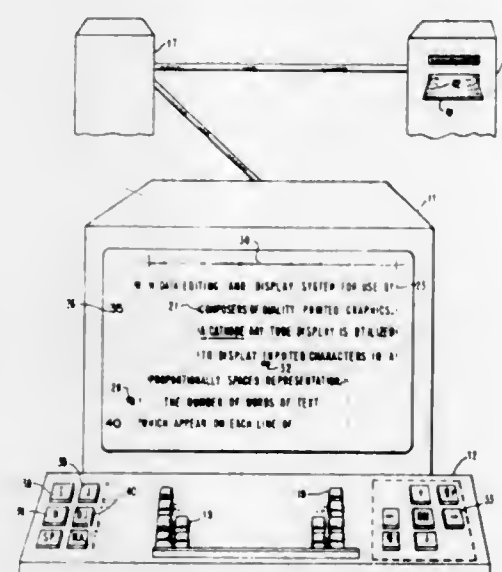
Robert G. Bluethman, Austin, Tex., and Jack W. Simpson, Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 2, 1970, Ser. No. 15,792

Int. Cl. G06f 3/14

U.S. Cl. 340—172.5

14 Claims



A data composing, editing, formatting and display system for use by composers of quality printed graphics. A cathode ray tube display is utilized to display keyed data and data input by a secondary media reader in a manner analogous to the display of a page of typed data on a typewriter. The number of words of text which appear on each line of displayed text between margin boundaries are optimized. Additional text may be inserted or deleted at any point in the displayed text or the margin boundaries can be altered resulting in the displayed text shifting to accommodate the additional text or new boundaries. Text shifting results in re-optimization of the display lines without resultant loss of word integrity or paragraph definition. Operator controls are effective to justify each line of displayed text by effecting extra spacing between text characters. The displayed justified text can then be output to a secondary media recorder or dejustified to facilitate further text and format modifications and thus maintain optimum word-line relationships.

3,654,612

DISPLAY SYSTEM USING A CATHODE-RAY TUBE

Katsuhiko Ohara, and Kazuchiyo Matsuzawa, both of Tokyo, Japan, assignors to Takachiho Koeki Kabushiki Kaisha, Komatsubara-machi, Kita-ku, Osaka-shi, Japan

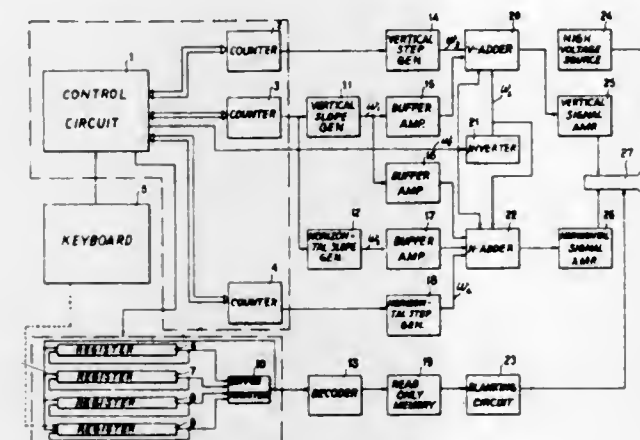
Filed Mar. 25, 1970, Ser. No. 22,639

Claims priority, application Japan, Mar. 29, 1969, 44/23982

Int. Cl. G05f 5/00; G05b 11/14; G06k 15/20

U.S. Cl. 340—172.5

5 Claims



A display system for displaying information patterns on the screen of a cathode-ray tube obtained in a logical operation device, such as a calculator, where counters and registers are commonly used for both the logical operation of the logical operation device and the display operation of the system. The average DC values of the inputs to the vertical signal amplifier and the horizontal signal amplifier for the cathode-ray tube are maintained at stable values at both a period of the logical operation and a period of the display operation in order to eliminate the disturbance and fluctuation of the displayed pattern during the transition — an instant when the operation mode of the system is switched — from the logical operation to the display operation. Slope signals for displaying each digit are generated after a predetermined time from the start of the digit display time for a displayed unit-pattern.

3,654,613

PROGRAMMED MANIPULATOR APPARATUS WITH ARTIFICIAL END-OF-PROGRAM FACILITIES

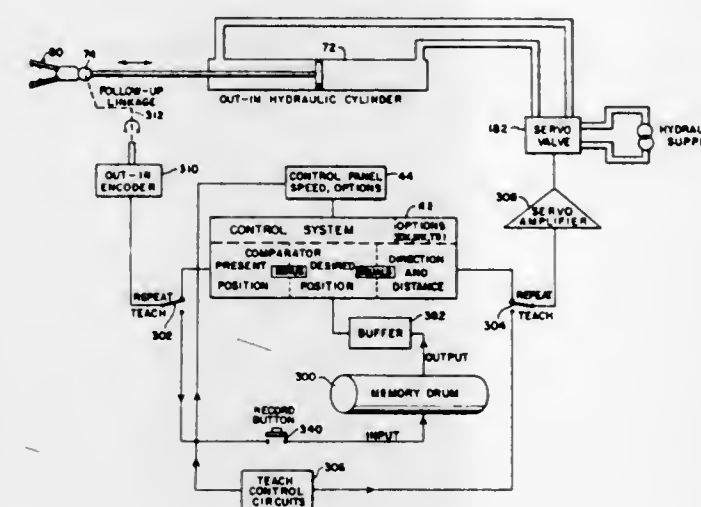
Maurice J. Dunne, and George E. Munson, Jr., both of Newtown, Conn., assignors to Unimation, Inc., Bethel, Conn.

Filed Feb. 11, 1970, Ser. No. 10,379

Int. Cl. G06f 15/46; B25j 9/00

U.S. Cl. 340—172.5

15 Claims



A programmed manipulator apparatus is provided with partial program repetition teaching facilities so that a predetermined portion of the total program may be repeated a selectable number of times after which the total program is

performed. The point at which the partial program is to be repeated is employed to develop an artificial end-of-program signal which is employed to restart the total program. Counter means are provided for disabling the artificial end-of-program signal after a number of repetitions of the partial program. The manipulator apparatus is also arranged to cooperate with an externally produced artificial end-of-program signal which may be responsive to the presence or absence of a part carried by the manipulator arm, a characteristic such as the temperature of the part carried by the arm, or the like, and is employed to restart the total program if an undesired characteristic is sensed.

3,654,614

SYSTEM FOR AUTOMATICALLY SEARCHING OUT A DESIRED FRAME FROM A MICROFILM TRAVELLING ALONG A GUIDE PATH

Takeo Tano, Tokyo, Japan, assignor to Iwasaki Tsushinki Kabushiki Kaisha also k/a Iwatsu Electric Co., Ltd., Tokyo, to, Japan

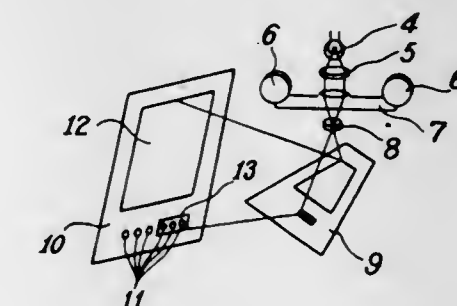
Filed May 28, 1970, Ser. No. 41,328

Claims priority, application Japan, June 11, 1969, 44/45367

Int. Cl. G06f 15/40

U.S. Cl. 340—172.5

2 Claims



A system for automatically searching out a desired frame from a microfilm travelling along a guide path by counting the number of detected pulses generated in response to optical detection of each blip printed on the corresponding blank space of each frame of the microfilm is known. In accordance with a feature of this invention, detected pulses are generated from a group of photosensitive means so as to have directional information and sequential information. Moreover, additive counting-pulses and subtractive counting-pulses are generated in response to only the travelling direction of the microfilm.

3,654,615

ELEMENT PLACEMENT SYSTEM

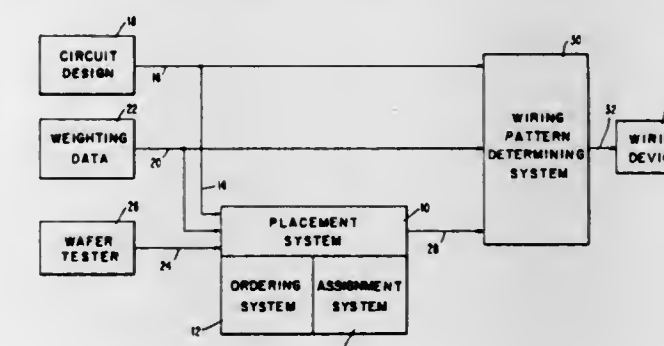
Harlow Freitag, Lake Mohegan, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 1, 1965, Ser. No. 510,767

Int. Cl. G06f 7/00

U.S. Cl. 340—172.5

20 Claims



The disclosure describes a system for assigning a plurality of interrelated circuit elements to element positions in an

array of element positions on a circuit board. The system includes means for storing an indication of the interrelationship of the elements being assigned and the order in which the elements are to be assigned. Apparatus is provided for assigning the first element to be assigned to a selected position in the array, selecting candidate positions related in a predetermined manner to the position which has just had an element assigned to it; determining the best candidate position for the next element to be assigned and assigning the next element to be assigned to the position determined above; the system repeats the above three steps until all elements have been assigned.

3,654,616

PROGRAM SELECTION ARRANGEMENT FOR MANIPULATOR APPARATUS

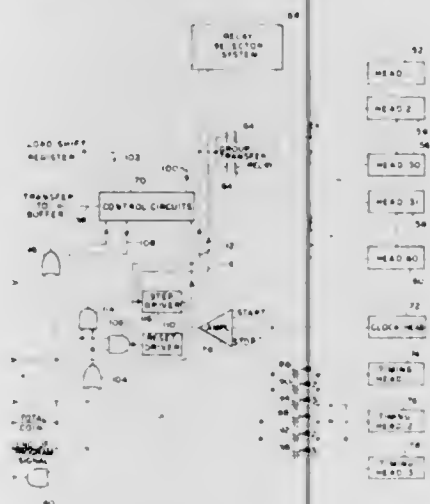
Maurice J. Dunne, Newtown; Robert E. Correll, Middlebury, and Joseph Albert Picard, Jr., Ansonia, all of Conn., assignors to Unimation, Inc., Bethel, Conn.

Filed June 29, 1970, Ser. No. 50,441

Int. Cl. B25j 9/00; G06f 15/46

U.S. Cl. 340-172.5

18 Claims



Manipulator apparatus is provided wherein a number of multi-step programs for controlling movement of the manipulator arm in desired patterns of movement are available. Facilities are provided for automatically selecting any one of the programs in a random manner in respect to externally developed signals representing such programs. In a particular embodiment, the programs available control movement of the arm to perform different patterns of spot welding operations in accordance with automobile bodies randomly distributed on a production line conveyor. The control system also functions automatically to perform a spot welding operation at certain program steps in accordance with recorded spot weld control signals and without requiring a separate program step for a spot welding instruction, thereby substantially decreasing the number of program steps required to carry out a given pattern. Facilities are also provided for preventing double or multiple welds in response to a single position instruction or program step of the manipulator arm.

In accordance with a further embodiment, the manipulator apparatus is arranged to select different programs in a predetermined sequence but also responds to control signals indicating the presence or absence of certain external conditions associated with the programmed operations to skip one or more programs until the external conditions are changed.

3,654,617

MICROPROGRAMMABLE I/O CONTROLLER

John W. Irwin, Longmont, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 1, 1970, Ser. No. 77,088

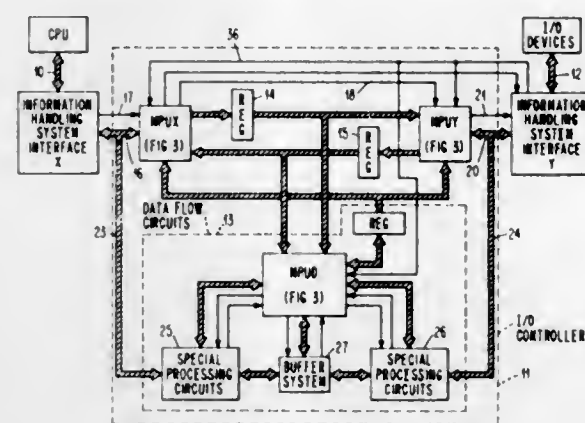
Int. Cl. G06f 9/12

U.S. Cl. 340-172.5

20 Claims

A microprogrammable plural ALU (arithmetic-logic unit) controller utilizes task assignments for improving processing

efficiencies. The ALU's are selected to be low-cost, low-capability devices. Each ALU is within one independent Micro Programmable Unit (MPU). Interconnection registers,



preferably symmetrically arranged, provide program synchronization between the plural MPU's. These same registers have direct connections to data flow circuits for monitoring and controlling their operation.

3,654,618

MAGNETIC TAPE UNIT CONTROL SYSTEM

Kaoru Kanda, Yokohama, and Tadahiyo Kobayashi, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

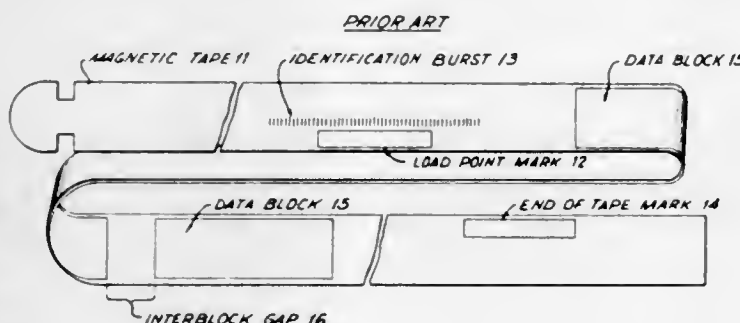
Filed Oct. 23, 1970, Ser. No. 83,518

Claims priority, application Japan, Oct. 28, 1969, 44/86273; Nov. 26, 1969, 44/94885

Int. Cl. G06f 3/06; G06k 19/08

U.S. Cl. 340-172.5

6 Claims



Instruction decoding means decodes a received instruction. The instruction decoding means comprises a plurality of circuits each representing a different instruction and each providing an output signal at its output and decoding control means connected to each of the circuits for directing the decoded instruction in accordance with its contents to the input of a selected one of said circuits. Each of a plurality of storage circuits is coupled to the output of a corresponding one of the circuits of the instruction decoding means for storing the output signals of said circuits. A read and write circuit connected to the outputs of some of the storage circuits designates a selected one of a readout and a writein instruction and stores the designation in accordance with the contents of the storage circuits to which the read and write circuit is connected. A packing density circuit connected to the outputs of the others of the storage circuits designates a selected one of a first packing density and a second packing density and stores the designation in accordance with the contents of the storage circuits to which the packing density circuit is connected. The output of the read and write circuit is coupled to an input of the packing density circuit for designating the second packing density in the packing density circuit when the read and write circuit designates a readout. A packing density identification burst detecting means has an input coupled to a readout head of a magnetic tape for detecting the existence on the magnetic tape of a packing density identification burst. The output of the packing density

identification burst detecting means is coupled to an input of the packing density circuit for designating the first packing density in said packing density circuit when the packing density identification burst detecting means fails to detect a packing density identification burst in the magnetic tape.

3,654,619

AUDIO-VISUAL INSTRUCTIONAL SYSTEM WITH SYNCHRONIZED VISUAL AND AUDIO PRESENTATIONS

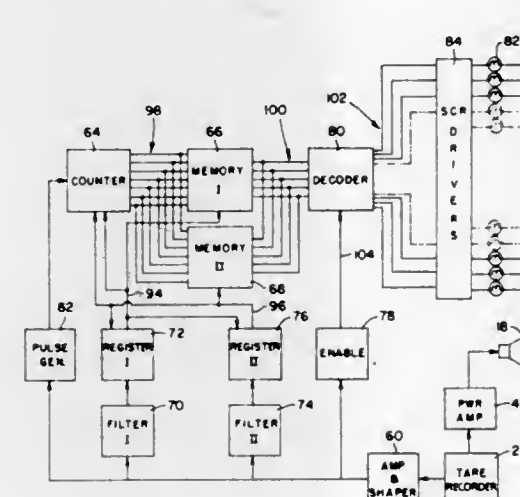
Abraham Tishman, Greenbelt, Md., assignor to Dynamic Typing, Inc., Washington, D.C.

Filed Dec. 20, 1968, Ser. No. 785,600

Int. Cl. G09b 13/02

U.S. Cl. 340-172.5

18 Claims



An audio-visual instructional system wherein the student or trainee is simultaneously subjected to synchronized visual and audio presentations for conditioning the trainee by utilizing both sensory perceptions. The system includes a visual display which is actuated by a memory device which is in turn actuated by a control signal of a signal reproducing means.

3,654,620

TERMINAL DEVICE FOR DATA TRANSMISSION WITH DISPLAY FACILITY AND MESSAGE FORMAT CONTROL

Antonlo S. Bartocci, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Torino, Italy

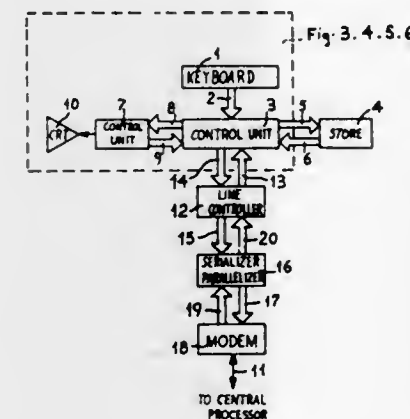
Filed Oct. 21, 1969, Ser. No. 868,132

Claims priority, application Italy, Oct. 23, 1968, 53591 A/68

Int. Cl. G06f 3/14

U.S. Cl. 340-172.5

8 Claims



In a terminal device for the transmission of data, a display device is provided to display characters in a store contained in the terminal device. The position and format of displayed messages are adjustable by control of the location of storage of the data by means of a message format control. This latter

is adapted to selectively generate a group of stop signals for defining a corresponding group of cells of the store; each one of said groups of cells corresponds to display positions defining a corresponding display format. The cells defined by the stop signals are decoded by decoder means and the characters are entered in them so that these characters are displayed in the positions of the display corresponding to the selected display format. Means are also provided which are operable for causing the characters following a predetermined flag signals to be shifted one step. Other means are provided for displacing the characters following said signal to be shifted to the next row of the display.

3,654,621

INFORMATION PROCESSING SYSTEM HAVING MEANS FOR DYNAMIC MEMORY ADDRESS PREPARATION

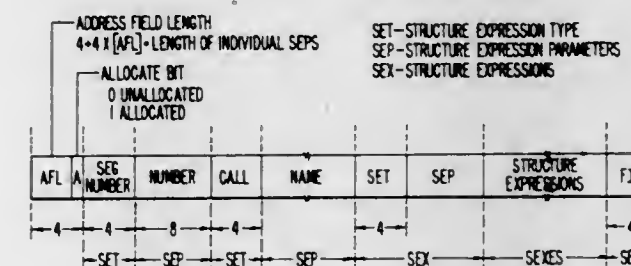
Robert V. Bock; Frederick Rehhausser, both of Malvern; Elmer Dean Earnest, Downingtown; Frederick H. Gerbstadt, Berwyn, and James A. White, West Chester, all of Pa., assignors to Burroughs Corporation, Detroit, Mich.

Filed Nov. 28, 1969, Ser. No. 880,537

Int. Cl. G06f 9/10

U.S. Cl. 340-172.5

14 Claims



This disclosure relates to an information processing system having means to dynamically prepare memory addresses for any particular element in a field of variable length which field may reside in any portion of the systems storage. Each desired element is specified by a descriptor which contains all the information necessary for such specification and the system is provided with an evaluation section which is adapted to evaluate the descriptor to extract that information necessary to create the memory control word which is employed to address the system storage. Because of the dynamic nature of the descriptor evaluation or memory address preparation, absolute memory addresses need not be created until such time as they are required. Furthermore, the method and apparatus employed allow for the accessing of a hierarchy of nested structures within the system storage.

3,654,622

AUXILIARY STORAGE APPARATUS WITH CONTINUOUS DATA TRANSFER

William F. Beausoleil, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,433

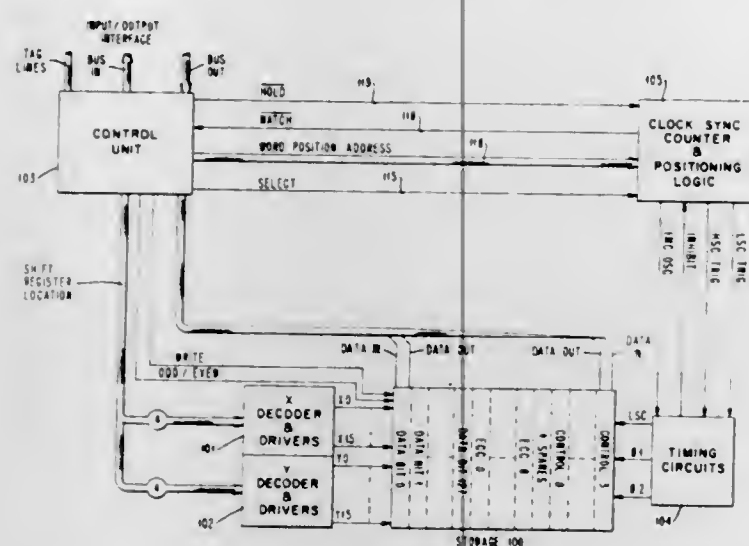
Int. Cl. G06f 7/34

U.S. Cl. 340-172.5

13 Claims

An electronic bulk storage having the characteristics of a sequential access storage device. Data are stored parallel by word in a plurality of electronically rotatable memory elements selectable by a memory selection matrix. Each element has a feed-back loop for recirculating data and when selected, a group of elements at an address N is read in parallel a word at a time by electronically rotating data bits stored in the selected memory elements at an address. Controls are provided to select memory elements N+1 whenever elements

at address N are selected by the selection matrix. First data is read out of the elements at address N and then data is read



out of the elements at address $N+1$ without any time lost for reselection of memory elements.

3,654,623

BINARY MEMORY CIRCUIT WITH COUPLED SHORT TERM AND LONG TERM STORAGE MEANS

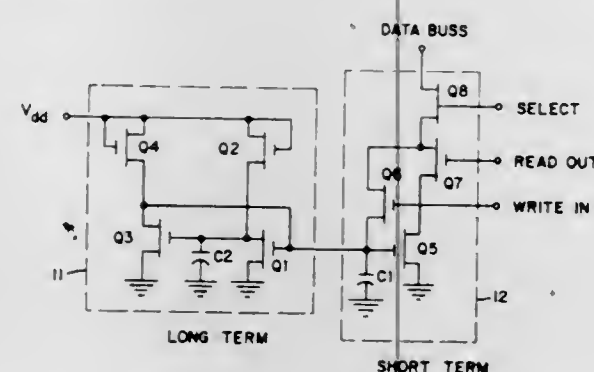
Eugene H. Campbell, Morgan Hill, and James F. Kane, San Jose, both of Calif., assignors to Signetics Corporation, Sunnyvale, Calif.

Filed Mar. 12, 1970, Ser. No. 18,952

Int. Cl. G11c 9/00, 11/24, 11/40

U.S. Cl. 340-173 CA

6 Claims



A binary memory circuit includes a short term memory having a capacitor coupled to a data bus by select and read and write field effect transistors. A long term memory element is also coupled to the capacitor and is in the form of a cross coupled inverter which includes gate-drain connected field effect transistors which act as load resistors in a pinch off mode for low power consumption. The switching time of the long term storage means is substantially longer than the rise time of the short term memory. The long term memory also restores or maintains any signal stored by the short term memory.

3,654,624

LASER RECORDING SYSTEM USING DRUM MOUNTED RECORD STRIPS

Carl H. Becker, Palo Alto; Harold R. Dell, Palo Alto; Ballard D. French, Palo Alto; Masao Hashiguchi, Mt. View; Keith E. McFarland, Woodside, and Herman Wong, Santa Clara, all of Calif., assignors to Precision Instrument Company, Palo Alto, Calif.

Filed Mar. 17, 1969, Ser. No. 807,553

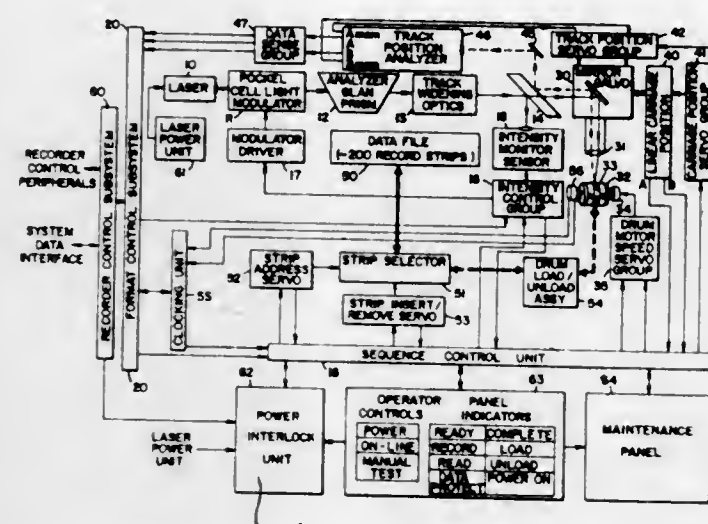
Int. Cl. G11c 13/04; G01d 15/14, 15/28

U.S. Cl. 340-173 LM

16 Claims

A laser recording system for scanning a modulated laser beam in spaced parallel lines across a flat elongated strip of

energy absorbing material and for ablating minute regions from the material in a linear pattern representing digital bits according to the intensity of the modulating signal. The flat elongated record strip is wound around the surface of a drum during the recording and reproducing operations and the drum is rotated with respect to the laser beam. By means of a



servo-controlled linear positioning mechanism, the laser beam is moved transversely to the direction of drum rotation in a manner which will permit selection of any one of a large number of spaced parallel scan lines on the record strip. The final positioning of the laser beam to the selected scan line is performed by a servo-controlled mirror galvanometer mounted on the linear positioning mechanism carriage.

3,654,625

RAPID SEQUENTIAL INFORMATION RECORD, STORAGE AND PLAYBACK SYSTEM

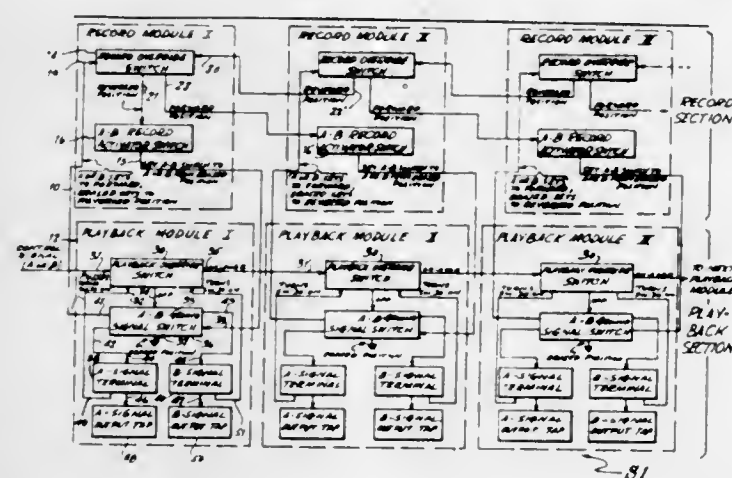
Ralph Silverman, 4326 Larchwood Avenue, Philadelphia, Pa.

Filed Aug. 6, 1969, Ser. No. 848,004

Int. Cl. G11c 7/00; G11b 19/02

U.S. Cl. 340-173 R

8 Claims



A rapid sequential information record, storage and playback system has no moving parts aside from electronically active non-mechanical electronic switches. The system may serve as a secondary memory and conclusion writing or readout system for digital computers. Translations occur between physically sequential and temporarily sequential sets of signals. Translation is accomplished by passage of an electric current through a series of electronic switches located in pairs of record and playback modules to change the electronic configurations of the electronic switches. In playback the modules that contain information are not emptied of information. Systems described employ record and playback modules operated in succession with or without feed back of signals to trigger successive operation in record and playback modes.

3,654,626

THREE-DIMENSIONAL STORAGE SYSTEM USING F-CENTERS

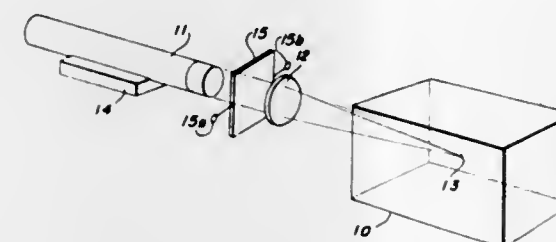
Myer Geller; Daniel E. Altman, both of San Diego; Thomas A. De Temple, El Cerrito, and Henry F. Taylor, San Diego, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Sept. 17, 1969, Ser. No. 858,693

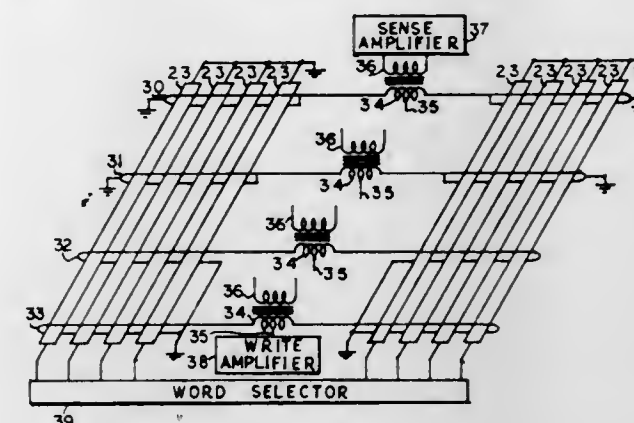
Int. Cl. G11c 13/04

U.S. Cl. 340-173 CC

16 Claims



core during excitation passes through another core on the other side of the word conductors so that fluctuations in the



switching fields due to changes in the pattern of stored information, are reduced or suppressed.

3,654,628

MULTI-TRACK STORAGE SYSTEM HAVING A TOUCH CIRCUIT WITH INDIVIDUAL HEAD INDICATION

Donald M. Goodale, Thousand Oaks, Calif., assignor to Burroughs Corporation, Detroit, Mich.

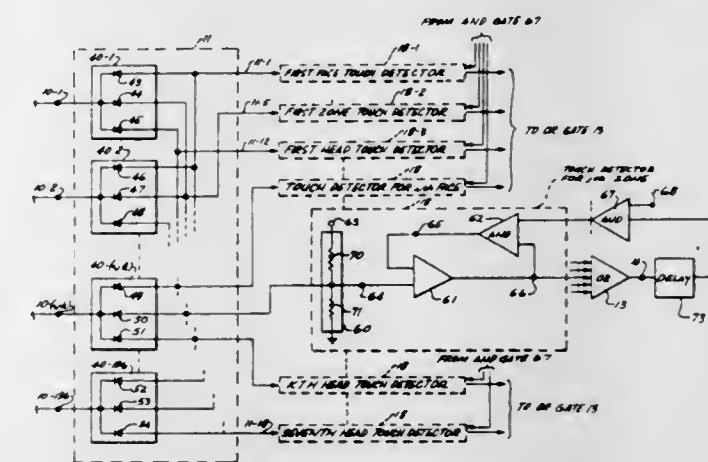
Filed May 4, 1970, Ser. No. 34,366

Int. Cl. G11b 5/40

U.S. Cl. 340-174.1 B

24 Claims

A high intensity beam of energy is sharply focused to produce F-center coloration at points within a suitable material. The sharply focused energy is arranged to be selectively directed at a plurality of a great many discrete points in three dimensional array within the material; the presence or lack of F-center coloration can be employed to record a "one" or "zero" in binary fashion. The recorded F-center coloration may be read out by an indicated attenuation of a light beam focused at each point of interest, or by photo-conductivity, or other suitable means. When desired, the recorded coloration points may be erased by irradiation with a suitable F-band beam or white light. The concept of the disclosed system permits the recording of binary information having a density of approximately 10^{10} bits per cubic centimeter, and extremely high speed electro-optical input and read-out.



A touch indicator circuit generates and stores a warning signal in response to an offending contact between any one of a plurality of head assemblies and a movable record member. A circuit matrix responsive to signals generated upon a touching provides encoded warning signals which uniquely identify the particular head assembly which has made contact.

3,654,627

PLATED WIRE MEMORY

Richard L. Snyder, New Smyrna Beach, Fla.

Filed June 30, 1970, Ser. No. 51,175

Int. Cl. G11c 11/14

U.S. Cl. 340-174 PW

1 Claim

A plated wire core memory array is described in which the core wires are divided into two sets which are placed on either side of word conductors. The flux emanating from one

DESIGNS

APRIL 4, 1972

223,223

FRANKFURTER BUN

Theodore A. Corn, 10000 North Point, San Francisco, Calif. 94109, and Robert M. Harlick, 2330 Wexford, South San Francisco, Calif. 94080
Filed Apr. 14, 1969, Ser. No. 16,743
Term of patent 14 years
Int. Cl. D1—01

U.S. Cl. D1—15

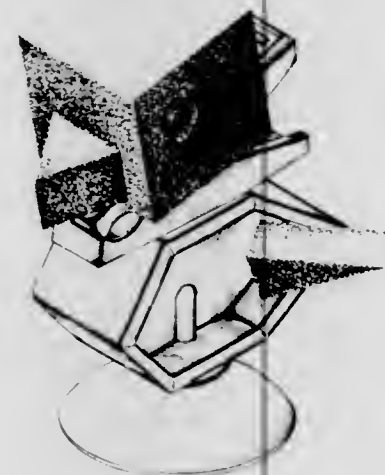


223,224

HOLDER FOR SEWING MATERIAL OR THE LIKE

Margaret A. Wilbrecht, 400 Carlotta, Newport Beach, Calif. 92606
Filed July 29, 1970, Ser. No. 24,170
Term of patent 14 years
Int. Cl. D6—99

U.S. Cl. D3—19

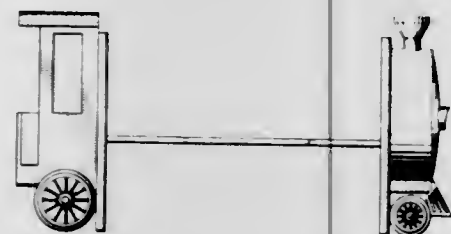


223,225

BEDSTEAD FOR CHILDREN

Ronald L. Magram, 9631 SW. 77th Ave., Apt. 208C, South Miami, Fla. 33143
Filed Oct. 5, 1970, Ser. No. 25,329
Term of patent 14 years
Int. Cl. D6—01; D21—01

U.S. Cl. D5—4

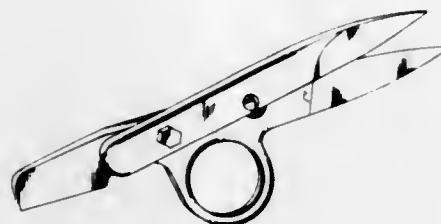


223,226

NIPPERS

Walter K. Fogg, 45 Kensington St., Feeding Hills, Mass. 01030
Filed Nov. 23, 1970, Ser. No. 26,120
Term of patent 14 years
Int. Cl. D8—03

U.S. Cl. D8—57



223,227

ELECTRICIAN'S COMBINED WIRE HOLDER AND HEAT ABSORBER, OR SIMILAR ARTICLE

Emanuel R. Archibald, 502 Buckeye St., Redwood City, Calif. 94063
Filed Jan. 15, 1971, Ser. No. 106,951
Term of patent 14 years
Int. Cl. D8—05

U.S. Cl. D8—71



APRIL 4, 1972

U. S. PATENT OFFICE

367

223,228

COMBINATION LOCK

Henry Padleckas, 815 N. Oak Ave, Oak Park, Ill. 60302, and Leonard Paulius, 6123 S. Bentley Ave., Clarendon Hills, Ill. 60514
Filed Aug. 19, 1970, Ser. No. 24,568
Term of patent 14 years
Int. Cl. D8—06

U.S. Cl. D8—114



223,229

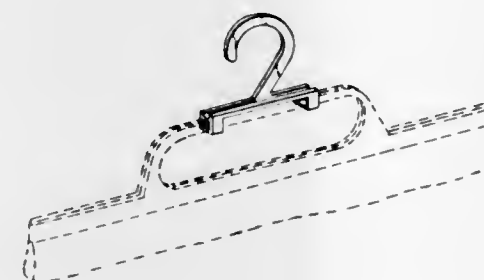
HOOK SUPPORT FOR CARRIER BAG HANDLE

Seymour Kamins, Oceanside, and Norman Rosenberg, Bayside, N.Y., assignors to CTP Industries Inc., Brooklyn, N.Y.
Original design application Oct. 9, 1968, Ser. No. 13,910.
Divided and this application Oct. 6, 1969, Ser. No. 19,789

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—246



223,230

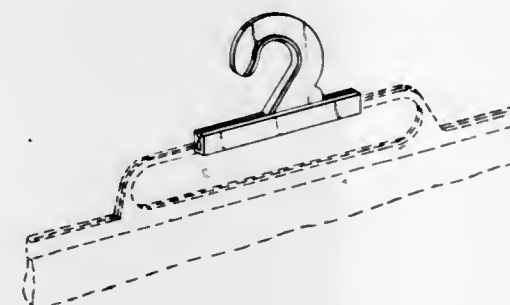
HOOK SUPPORT FOR CARRIER BAG HANDLE

Seymour Kamins, Oceanside, and Norman Rosenberg, Bayside, N.Y., assignors to CTP Industries Inc., Brooklyn, N.Y.
Original design application Oct. 9, 1968, Ser. No. 13,910.
Divided and this application Oct. 6, 1969, Ser. No. 19,790

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—246



223,231

THREADED INSERT

Arthur C. Miller, P.O. Box 137, Chester Springs, Pa. 19425
Filed Sept. 21, 1970, Ser. No. 25,083
Term of patent 14 years
Int. Cl. D8—10

U.S. Cl. D8—272

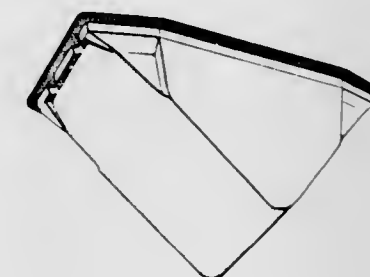


223,232

PACKAGING TRAY

William P. Jacobson, Rockford, Ill., assignor to Anderson Bros. Mfg. Co., Rockford, Ill.
Filed Jan. 4, 1971, Ser. No. 103,947
Term of patent 14 years
Int. Cl. D9—03

U.S. Cl. D9—180

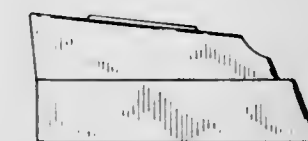


223,233

JEWELRY DISPLAY BOX

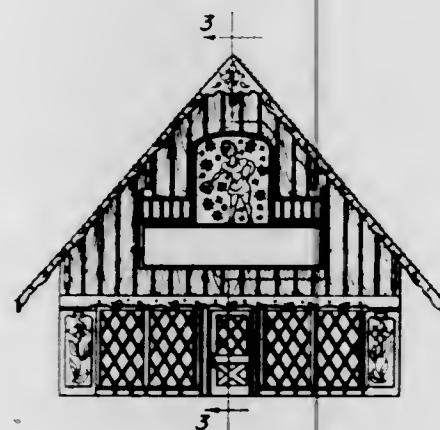
Bryan F. Commans, Overland Park, Kans., and Irene Irvin, Kansas City, Mo., assignors to The House of Commons, Inc., Kansas City, Mo.
Filed Oct. 12, 1970, Ser. No. 25,448
Term of patent 3½ years
Int. Cl. D9—03

U.S. Cl. D9—239



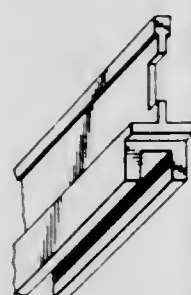
223,234
BUILDING FRONT
James A. Salmans, 511 N. Broadway,
New Philadelphia, Ohio 44663
Filed Oct. 28, 1969, Ser. No. 19,759
Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D13—1



223,235
CEILING RUNNER
Howard A. Busby, 6361 Rancho Park Drive, San Diego,
Calif. 92120, and Paul D. Dail, 800 S. Sunset, West
Covina, Calif. 91790
Filed June 5, 1970, Ser. No. 23,333
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—1



223,236
CONCRETE PILE
Shigeru Watanabe, Yasushi Ishihara, and Naoyoshi
Kondo, Tokyo, Japan, assignors to Nippon Concrete
Industries Company, Ltd., Tokyo, Japan
Filed July 9, 1970, Ser. No. 23,885
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—1



223,237
CONCRETE PILE
Shigeru Watanabe and Koji Nunokawa, Tokyo, Japan,
assignors to Nippon Concrete Industries Company, Ltd.,
Tokyo, Japan
Filed July 9, 1970, Ser. No. 23,886
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—1



223,238
CONCRETE PILE
Shigeru Watanabe, Tokyo, Japan, assignor to Nippon
Concrete Industries Company, Ltd., Tokyo, Japan
Filed July 9, 1970, Ser. No. 23,887
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D13—1



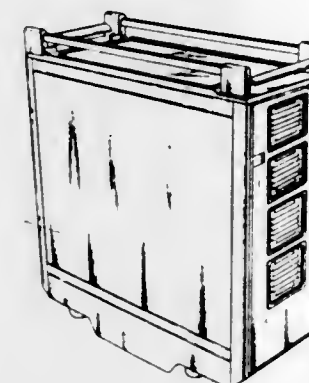
223,239
BUILDING
Jack A. McMillan, Oklahoma City, Okla., assignor to
Circustime, Inc., Oklahoma City, Okla.
Filed Dec. 14, 1970, Ser. No. 26,452
Term of patent 14 years
Int. Cl. D25—03

U.S. Cl. D13—1



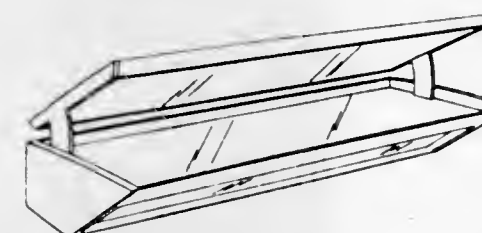
223,240
SERVICE CART
Stuart I. Freedman, Los Angeles, Calif., assignor to
Monogram Industries, Inc.
Filed July 10, 1970, Ser. No. 24,239
Term of patent 14 years
Int. Cl. D12—02

U.S. Cl. D14—3



223,241
REAR VIEW MIRROR
Lynn Harold Hodge, 12618 Wyoming Ave.,
Detroit, Mich. 48238
Filed Aug. 17, 1970, Ser. No. 24,530
Term of patent 3½ years
Int. Cl. D12—16

U.S. Cl. D14—6



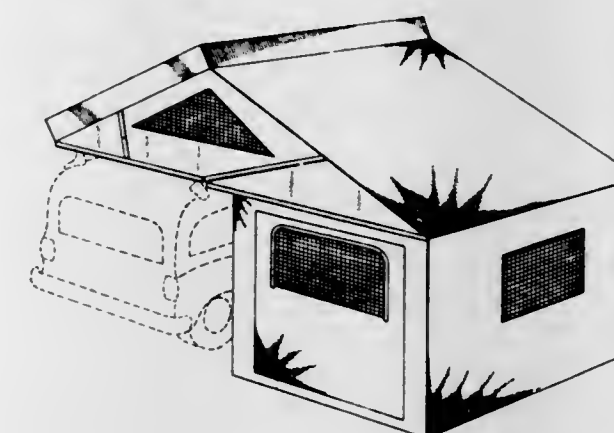
223,242
**CONTROL HANDLE FOR INDUSTRIAL
PALLET TRUCK**
Roy Haynes, Danbury, England, assignor to Lansing
Bagnall Limited, Basingstoke Hampshire, England
Filed Nov. 3, 1970, Ser. No. 25,800
Claims priority, application Great Britain May 4, 1970
Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D14—6



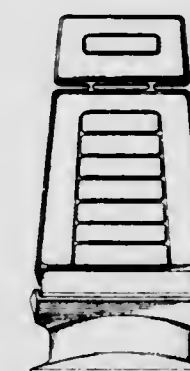
223,243
CAR TOP/CAMPER
Jimmy M. Lambert, 2108 Stonebridge Road,
Dothan, Ga. 36301
Filed May 20, 1970, Ser. No. 23,065
Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D14—27



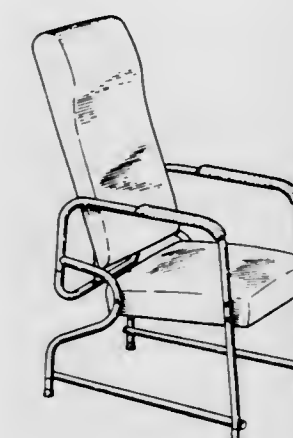
223,244
INFANT'S CAR SEAT
Robert Martin Prashker, Kingston, Pa., assignor to
Jamy, Inc., Kingston, Pa.
Filed Apr. 6, 1970, Ser. No. 22,283
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D15—1



223,245
RECLINING CHAIR
Morton I. Thomas, Monroe, N.Y.
(125 South St., Passaic, N.J. 07055)
Filed Nov. 16, 1970, Ser. No. 26,021
Term of patent 14 years
Int. Cl. D6—02

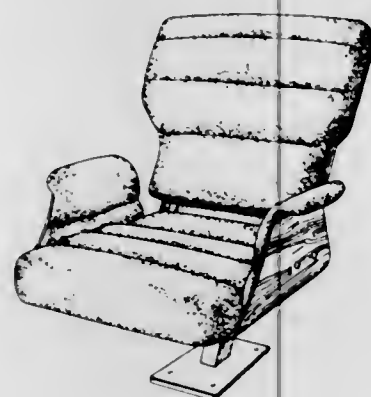
U.S. Cl. D15—11



**223,246
SEAT**

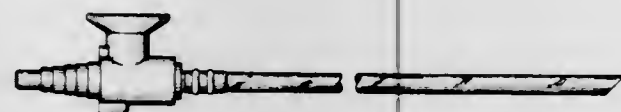
Peter Geoffrey Mann, Glasgow, Scotland, and Iain Kilburn White, Melbourne, Victoria, Australia, assignors to Essoldo Furnishers Limited, Glasgow, Scotland
Filed Oct. 20, 1970, Ser. No. 25,566
Claims priority, application Great Britain Aug. 6, 1970
Term of patent 14 years
Int. Cl. D6—02

U.S. Cl. D15—8

**223,247
SUCTION CATHETER**

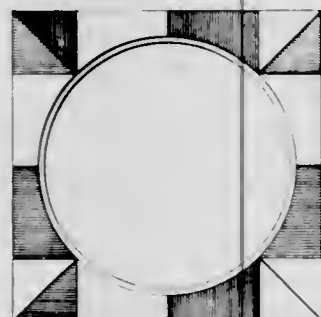
David L. Brodsky, Providence, and Elliott J. Brodsky, East Greenwich, R.I., assignors to Superior Plastic Products Co., Providence, R.I.
Filed July 20, 1970, Ser. No. 24,033
Term of patent 14 years
Int. Cl. D24—02

U.S. Cl. D16—1



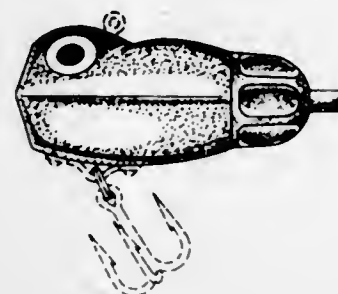
**223,248
BUILDING BLOCK**
Conrad L. Pickel, 500 SW, 16th St., Boynton Beach, Fla. 33435
Filed Sept. 30, 1970, Ser. No. 25,267
Term of patent 14 years
Int. Cl. D25—01

U.S. Cl. D18—2

**223,249
FISHING LURE**

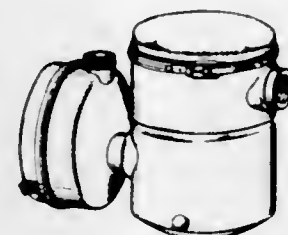
William D. Storm, P.O. Box 265, Norman, Okla. 73069
Filed May 27, 1970, Ser. No. 23,169
Term of patent 14 years
Int. Cl. D22—05

U.S. Cl. D22—27

**223,250
COMBINED SWIMMING POOL PUMP
AND STRAINER**

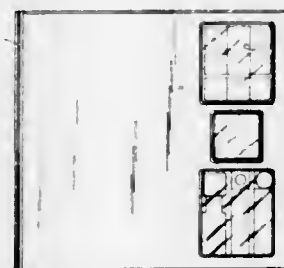
Harry M. Clinton, Northridge, Calif., assignor to Swimrite Manufacturing Co., Inc., Van Nuys, Calif.
Filed Aug. 3, 1970, Ser. No. 24,266
Term of patent 14 years
Int. Cl. D23—01; D15—02

U.S. Cl. D23—4



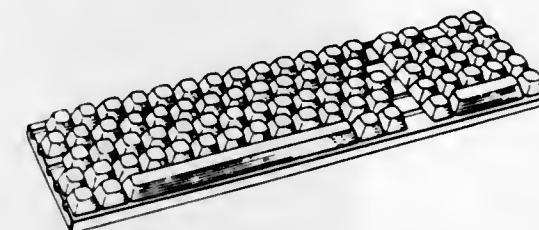
**223,251
PACKAGED EDUCATIONAL ELECTRONIC
TOY KIT**
Jurgen Greubel, Eschenhahn Schöne Aussicht, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Apr. 8, 1970, Ser. No. 22,334
Claims priority, application Germany Oct. 8, 1969
Term of patent 14 years
Int. Cl. D19—08

U.S. Cl. D25—1

**223,252
COMMUNICATION KEYBOARD**

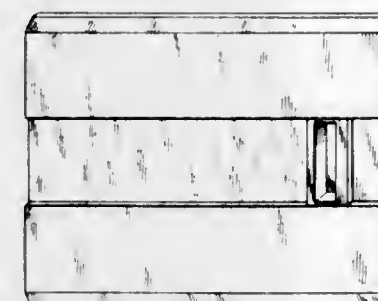
Allen G. Jacobson, Ramsey, N.J., assignor to Computer Transceiver Systems, Inc., Paramus, N.J.
Continuation-in-part of design application Ser. No. 16,968, Apr. 30, 1969, which is a continuation-in-part of design application Ser. No. 12,846, July 22, 1968. This application Apr. 23, 1970, Ser. No. 22,586
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5

**223,253
COVER PLATE FOR BOXES FOR COMPARTMENTS
CONTAINING ELECTRICAL DEVICES**

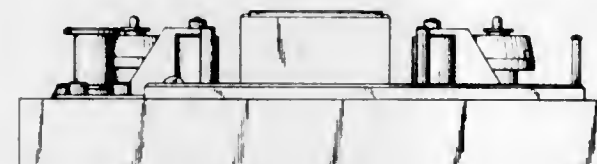
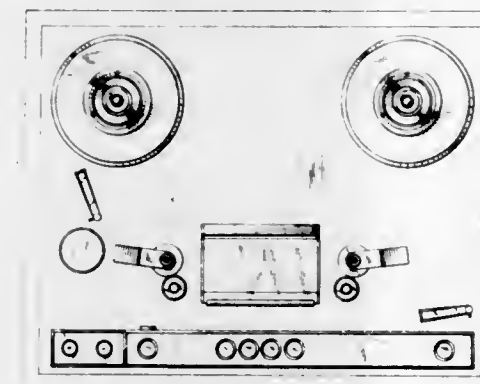
Giuseppe Zecca, Via Monte Tabor 16, Varese, Italy
Filed May 21, 1970, Ser. No. 23,089
Claims priority, application Italy Nov. 29, 1969
Term of patent 14 years
Int. Cl. D13—03

U.S. Cl. D26—13



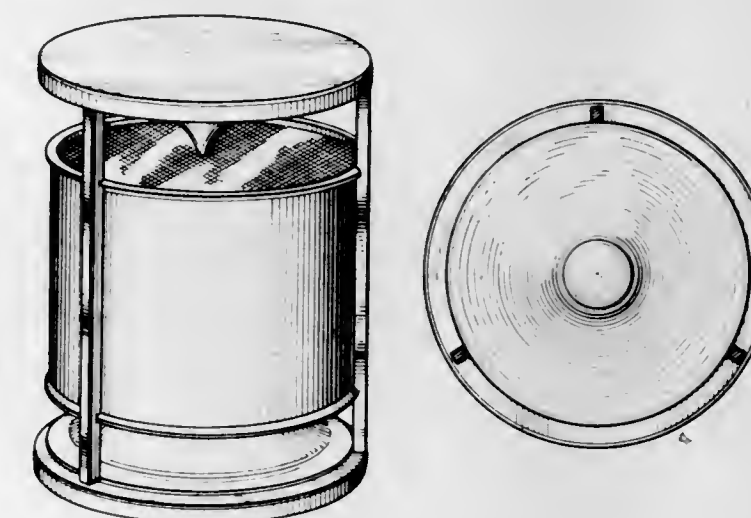
**223,254
TAPE DECK**
George Adams and John Hawkins, New York, N.Y., assignors to United Research Laboratory, New York, N.Y.
Filed May 18, 1970, Ser. No. 23,051
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14

**223,255
DUAL SPEAKER HOUSING**

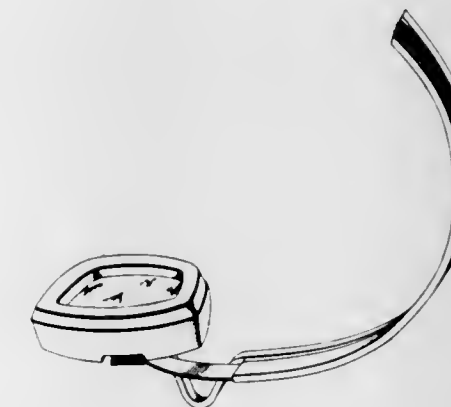
Melvin H. Boldt, Glenview, and David P. Chuboff, North Barrington, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.
Filed Oct. 9, 1970, Ser. No. 25,410
Term of patent 14 years
Int. Cl. D14—01

U.S. Cl. D26—14



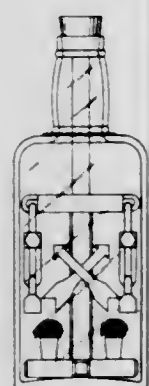
**223,256
HEADSET**
Ernest F. Thomson, Fairfield, Conn., assignor to KMS Industries, Inc., Ann Arbor, Mich.
Filed Nov. 16, 1970, Ser. No. 25,981
Term of patent 7 years
Int. Cl. D14—01

U.S. Cl. D26—14



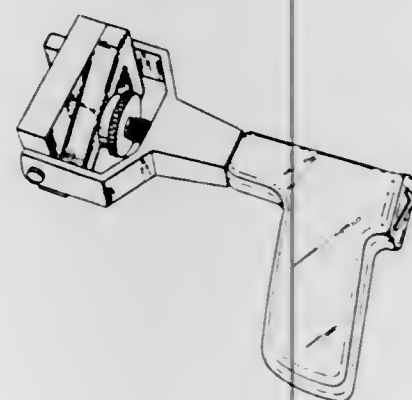
223,257
DECORATIVE NOVELTY OR THE LIKE
 Hugh N. Pace, 4629 Poole Road,
 Raleigh, N.C. 27610
 Filed May 4, 1970, Ser. No. 22,797
 Term of patent 14 years
 Int. Cl. D11—02

U.S. Cl. D29—23



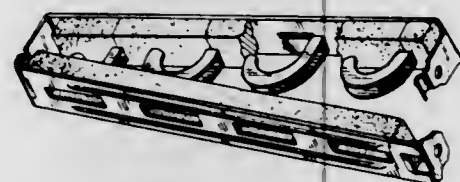
223,258
LIVESTOCK BRANDING DEVICE
 Robin Ian Yeoman Gates, 22 Station Road,
 Redhill, England
 Filed Sept. 29, 1970, Ser. No. 25,252
 Claims priority, application Great Britain May 27, 1970
 Term of patent 14 years
 Int. Cl. D30—08

U.S. Cl. D30—43



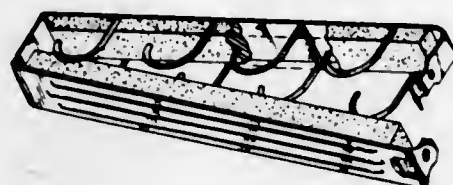
223,259
FISHING ROD HOLDER
 William J. Stahl, Chatham, N.J., assignor to National
 Manufacturing Company, Inc., Chatham, N.J.
 Filed Oct. 15, 1970, Ser. No. 25,492
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D33—17



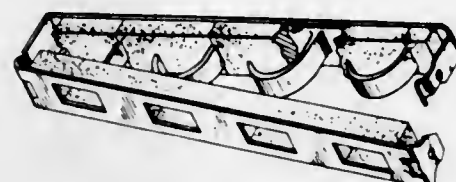
223,260
FISHING ROD HOLDER
 William J. Stahl, Chatham, N.J., assignor to National
 Manufacturing Company, Inc., Chatham, N.J.
 Filed Oct. 15, 1970, Ser. No. 25,494
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D33—17



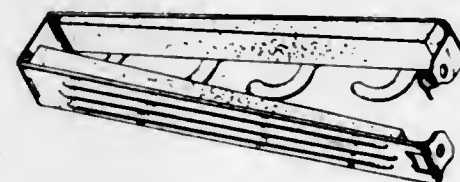
223,261
FISHING ROD HOLDER
 William J. Stahl, Chatham, N.J., assignor to National
 Manufacturing Company, Inc., Chatham, N.J.
 Filed Oct. 15, 1970, Ser. No. 25,495
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D33—17



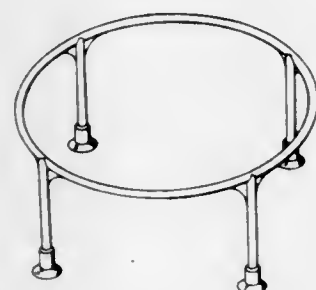
223,262
FISHING ROD HOLDER
 William J. Stahl, Chatham, N.J., assignor to National
 Manufacturing Company, Inc., Chatham, N.J.
 Filed Oct. 15, 1970, Ser. No. 25,518
 Term of patent 14 years
 Int. Cl. D6—04

U.S. Cl. D33—17



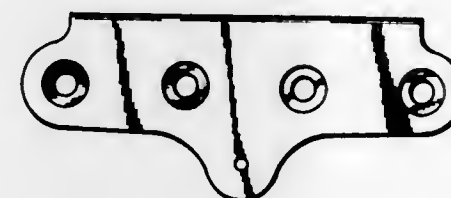
223,263
**BATHING SUPPORT FOR INFANTS
 AND THE LIKE**
 Gerald Goldstein, Johannesburg, Transvaal, Republic of
 South Africa, assignor to Babysitter (Proprietary) Lim-
 ited, Johannesburg, Transvaal, Republic of South
 Africa
 Filed Mar. 17, 1970, Ser. No. 21,939
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. D33—21



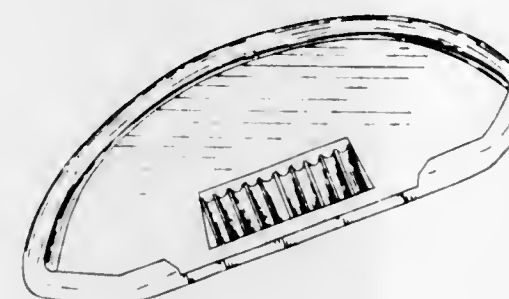
223,264
HOLDER FOR GOLF TEES AND MARKER
 Peter Mondy, 137 Naomi, Arcadia, Calif. 91006
 Filed Aug. 31, 1970, Ser. No. 24,781
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5



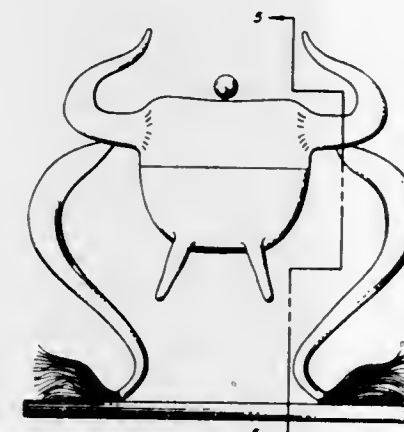
223,265
PORTABLE GAME BOARD
 Milton Wolf, 3801 Johnson Ave.,
 Las Vegas, Nev. 89110
 Filed Feb. 12, 1971, Ser. No. 115,148
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—5



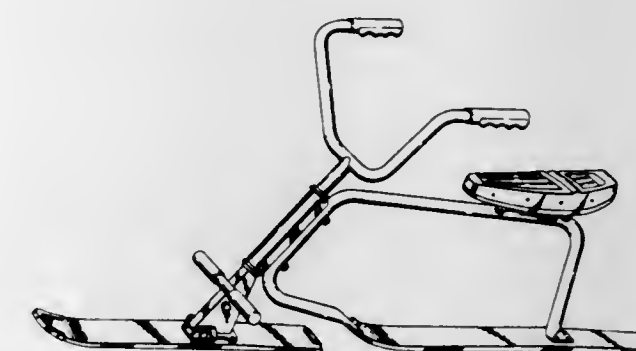
223,266
ANIMAL TOY OR SIMILAR ARTICLE
 Robert V. Longfield, 49 Glenbrook Mobile Estates, 4800
 Auburn Folsom Road, and Belton C. Bibb, 7077 Pine
 Gate Way, both of Loomis, Calif. 95650
 Filed Sept. 2, 1970, Ser. No. 24,817
 Term of patent 14 years
 Int. Cl. D21—01

U.S. Cl. D34—15



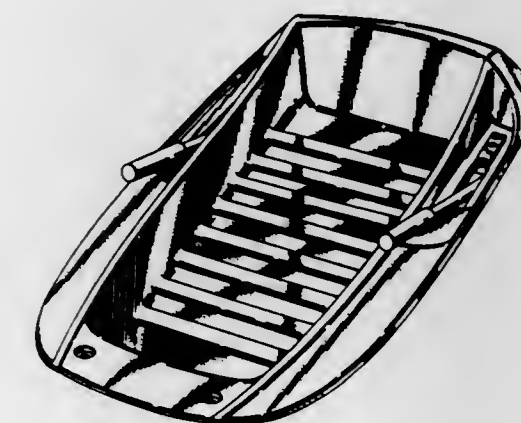
223,267
SKI SCOOTER
 Charles F. Molzen and Hangwind F. Lippisch, Wooster,
 Ohio, assignors to Rubbermaid Incorporated, Wooster,
 Ohio
 Filed Sept. 23, 1970, Ser. No. 25,157
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—15



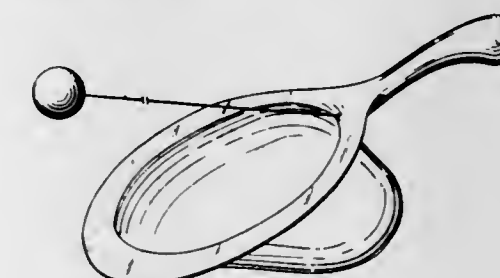
223,268
SNOW SLED
 Charles F. Molzen, Wooster, Ohio, assignor to
 Rubbermaid Incorporated, Wooster, Ohio
 Filed Oct. 1, 1970, Ser. No. 25,294
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—15



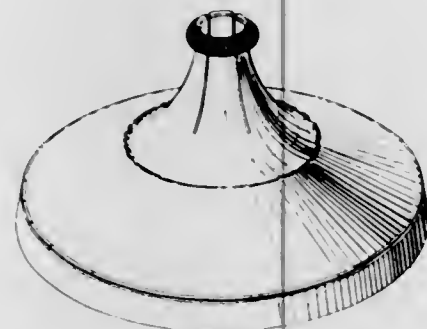
223,269
TETHERED BALL TOY
 Richard L. Collver, 226 20th St. E.,
 Saskatoon, Saskatchewan, Canada
 Filed Nov. 2, 1970, Ser. No. 25,764
 Claims priority, application Canada Oct. 28, 1970
 Term of patent 3½ years
 Int. Cl. D21—01

U.S. Cl. D34—15



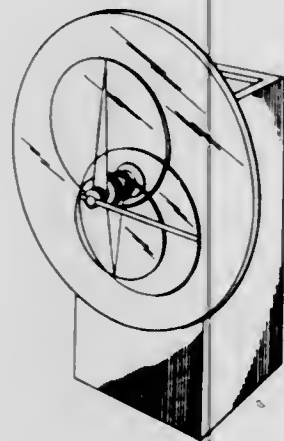
223,270
SELF-ADJUSTING CHRISTMAS TREE HOLDER
 Alf Georg Aarhun, 3 Gosenbakken,
 4000 Stavanger, Norway
 Filed Nov. 17, 1970, Ser. No. 26,042
 Term of patent 14 years
 Int. Cl. D11—99

U.S. Cl. D35—1



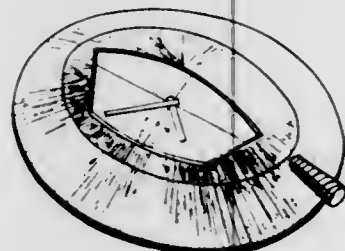
223,271
CLOCK
 Edward P. Cheslock, R.D. 1, Lincoln
 University, Pa. 19352
 Filed Sept. 3, 1970, Ser. No. 24,825
 Term of patent 14 years
 Int. Cl. D10—01

U.S. Cl. D42—7



223,272
WRIST WATCH
 Andre le Marquant, Bulle, Switzerland, assignor to Catena
 Watch Co. S.A., Fribourg, Switzerland
 Filed Dec. 11, 1969, Ser. No. 20,466
 Claims priority, application Switzerland June 26, 1969
 Term of patent 14 years
 Int. Cl. D10—02

U.S. Cl. D42—8



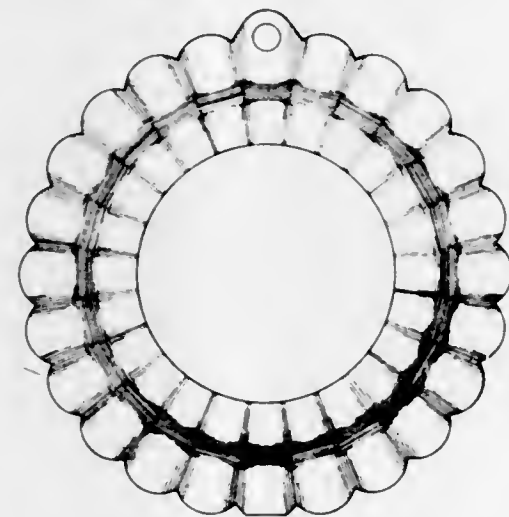
223,273
CASE FOR A PENDANT WATCH OR THE LIKE
 Pirmin Ochs, Pforzheim, Germany, assignor to Rodi &
 Wienberger Aktiengesellschaft, Pforzheim, Germany
 Filed Sept. 8, 1970, Ser. No. 24,859
 Claims priority, application Germany July 3, 1970
 Term of patent 3½ years
 Int. Cl. D10—02

U.S. Cl. D42—8



223,274
CASE FOR A PENDANT WATCH OR THE LIKE
 Pirmin Ochs, Pforzheim, Germany, assignor to Rodi &
 Wienberger Aktiengesellschaft, Pforzheim, Germany
 Filed Sept. 8, 1970, Ser. No. 24,860
 Claims priority, application Germany July 3, 1970
 Term of patent 3½ years
 Int. Cl. D10—02

U.S. Cl. D42—8



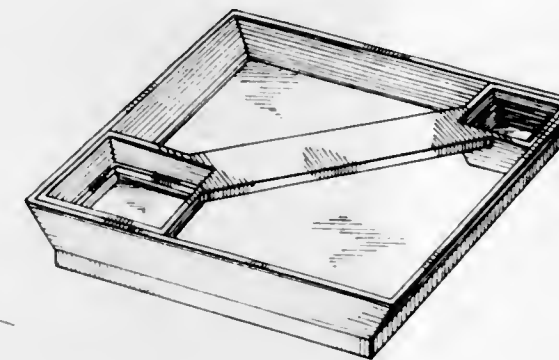
223,275
COMBINED SALT AND PEPPER SHAKER
 Alexander Szopo, 346 Sudan St.,
 New Brunswick, N.J. 08901
 Filed Sept. 15, 1970, Ser. No. 25,015
 Term of patent 14 years
 Int. Cl. D7—01

U.S. Cl. D44—22



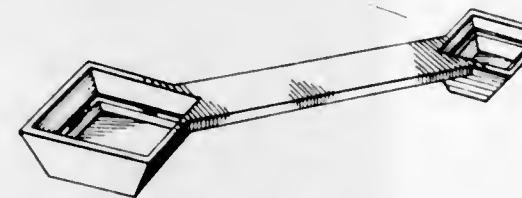
223,276
COMBINED MEASURING SPOON AND WEIGHING
TRAY FOR DIET FOOD PORTIONS
 William Macowski, Jr., Caldwell, N.J., assignor to
 Ketcham & McDougall, Inc., Roseland, N.J.
 Filed Aug. 24, 1970, Ser. No. 24,673
 Term of patent 14 years
 Int. Cl. D7—99

U.S. Cl. D44—10



223,277
MEASURING SPOON
 William Macowski, Jr., Caldwell, N.J., assignor to
 Ketcham & McDougall, Inc., Roseland, N.J.
 Filed Aug. 24, 1970, Ser. No. 24,672
 Term of patent 14 years
 Int. Cl. D7—06

U.S. Cl. D44—29



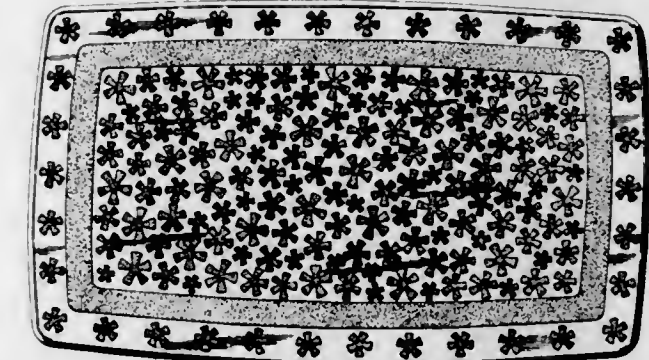
223,278
BATH MAT OR SIMILAR ARTICLE
 Paul C. Mallonn, Wooster, Ohio, assignor to
 Rubbermaid Incorporated, Wooster, Ohio
 Filed Nov. 5, 1970, Ser. No. 25,842
 Term of patent 14 years
 Int. Cl. D7—99; D5—99

U.S. Cl. D44—31



223,279
BATH MAT OR SIMILAR ARTICLE
 William D. Taylor, Wooster, Ohio, assignor to
 Rubbermaid Incorporated, Wooster, Ohio
 Filed Nov. 5, 1970, Ser. No. 25,845
 Term of patent 14 years
 Int. Cl. D7—99; D5—99

U.S. Cl. D44—31



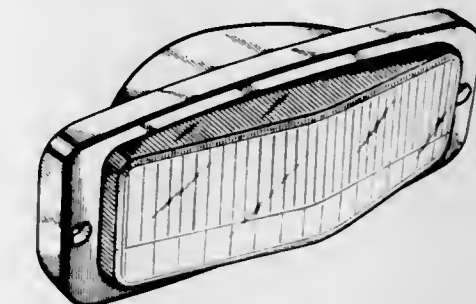
223,280
FINDING FOR A BROOCH OR THE LIKE
 Leonard Page, Levittown, N.Y., assignor to Dynamic
 Learning Media, Inc., Farmingdale, N.Y.
 Filed Apr. 13, 1970, Ser. No. 22,413
 Term of patent 14 years
 Int. Cl. D11—01

U.S. Cl. D45—19



223,281
VEHICLE LAMP
 Takeshige Fujita and Tetsuo Tsuruta, Tokyo, Japan,
 assignors to Stanley Electric Co., Ltd., Tokyo, Japan
 Filed Aug. 21, 1970, Ser. No. 24,642
 Claims priority, application Japan June 2, 1970
 Term of patent 14 years
 Int. Cl. D26—06

U.S. Cl. D48—32



223,282

HIGH INTENSITY LAMP

Dan M. Andre, Skokie, Ill., assignor to Universal Lamp Co., Inc., Chicago, Ill.
 Filed Dec. 15, 1970, Ser. No. 26,518
 Term of patent 14 years
 Int. Cl. D26—05

U.S. Cl. D48—20

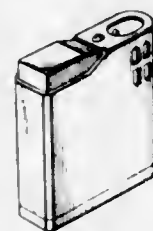


223,285

CIGARETTE LIGHTER

Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Tokyo, Japan
 Filed Mar. 10, 1971, Ser. No. 123,123
 Claims priority, application Japan Sept. 22, 1970
 Term of patent 14 years
 Int. Cl. D27—05

U.S. Cl. D47—27

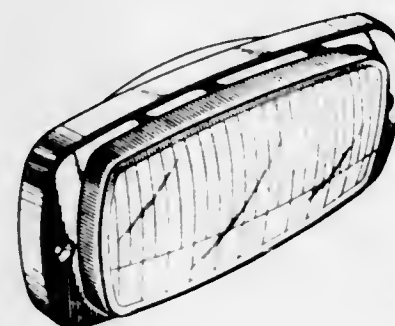


223,286

VEHICLE LAMP

Takeshige Fujita and Tetsuo Tsuruta, Tokyo, Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan
 Filed Aug. 21, 1970, Ser. No. 24,643
 Claims priority, application Japan June 2, 1970
 Term of patent 14 years
 Int. Cl. D26—06

U.S. Cl. D48—32

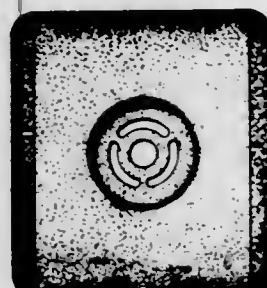
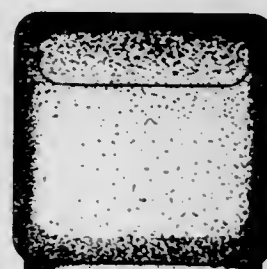


223,283

TABLE CIGARETTE LIGHTER

Dieter Rams, Konigstein, Tannus, Germany, assignor to Braun A.G., Frankfurt am Main, Germany
 Filed Nov. 18, 1970, Ser. No. 26,058
 Claims priority, application Germany May 25, 1970
 Term of patent 14 years
 Int. Cl. D27—05

U.S. Cl. D48—27

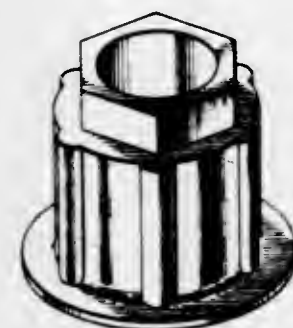


223,287

SOCKET FOR A MOP HANDLE

Raymond R. Ciprotti, P.O. Box 513, Leominster, Mass. 01453
 Filed Jan. 15, 1971, Ser. No. 106,940
 Term of patent 14 years
 Int. Cl. D7—05; D4—01

U.S. Cl. D49—21

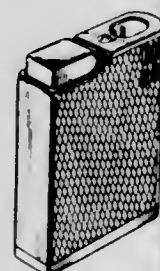


223,284

CIGARETTE LIGHTER

Sadao Yoshinaga, Tokyo, Japan, assignor to Yoshinaga Prince Co., Ltd., Tokyo, Japan
 Filed Mar. 10, 1971, Ser. No. 123,118
 Term of patent 14 years
 Int. Cl. D27—05

U.S. Cl. D48—27

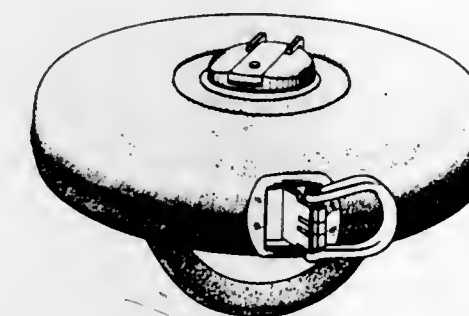


223,288

TAPE MEASURE

Andre Quenot, Besancon, France, assignor to Manufacture Quenot Mabo, Besancon, France
 Filed Jan. 8, 1971, Ser. No. 105,140
 Claims priority, application France Oct. 9, 1970
 Term of patent 14 years
 Int. Cl. D10—04

U.S. Cl. D52—1

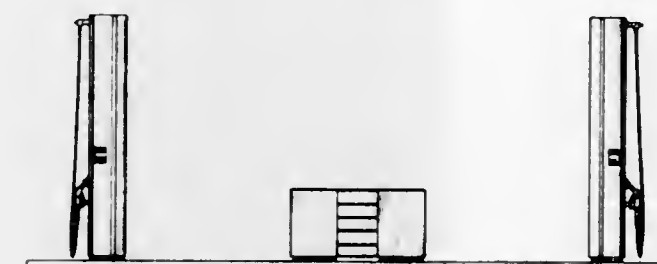


223,289

GASOLINE DISPENSER ISLAND

Hal C. Hartsell, Jr., Winston-Salem, N.C., and David D. Tompkins, Worthington, Ohio, assignors to Gilbert & Barker Manufacturing Company, New York, N.Y.
 Filed July 27, 1970, Ser. No. 24,138
 Term of patent 14 years
 Int. Cl. D10—04

U.S. Cl. D52—2

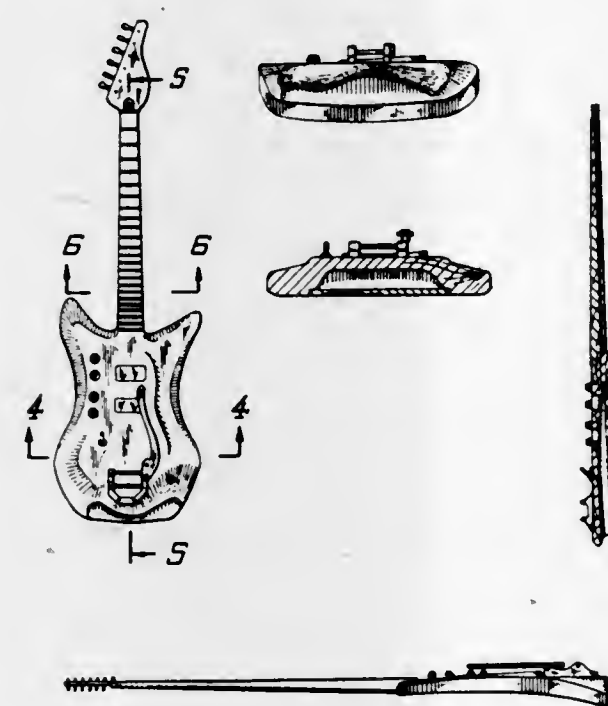


223,290

GUITAR

Hunter Wolfe, 121 Yardley Ave., Falkington, Pa. 19054
 Filed Jan. 8, 1971, Ser. No. 105,149
 Term of patent 14 years
 Int. Cl. D17—03

U.S. Cl. D56—1

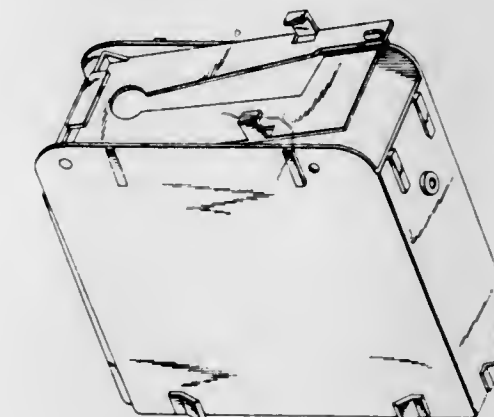


223,291

COMBINED DISPLAY AND BOX DISPENSING UNIT

Alexander N. Schoenfeld, Roslyn Heights, N.Y., assignor to Trans World Display Corporation
 Filed Aug. 18, 1970, Ser. No. 24,562
 Term of patent 14 years
 Int. Cl. D9—99

U.S. Cl. D52—2

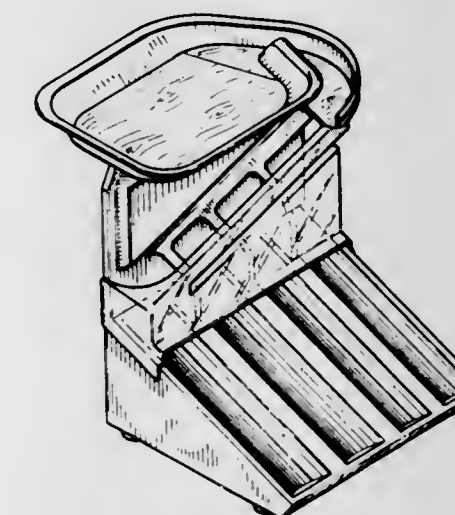


223,292

COIN SORTER

Roger M. Brewster, 1921 Millbrook Drive, Salt Lake City, Utah 84106
 Filed Oct. 21, 1970, Ser. No. 25,592
 Term of patent 14 years
 Int. Cl. D20—99

U.S. Cl. D52—4



223,293

METERING INSTRUMENT

George Banks, Emerson, N.J., and Michael Iannone, Farmingdale, N.Y., assignors to The Narda Microwave Corporation, Plainview, N.Y.
 Filed Mar. 23, 1970, Ser. No. 22,000
 Term of patent 14 years
 Int. Cl. D10—10, 11

U.S. Cl. D52—6



223,294

COMBINED ELECTRIC PHONOGRAPH, CASSETTE RECORDER AND REPRODUCER AND RADIO OR SIMILAR ARTICLE

Hideo Wada, Chigasaki, Snkeyoshi Nashinoki, Yokohama, and Itsuo Kato and Tsutomu Murakami, Tokyo, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

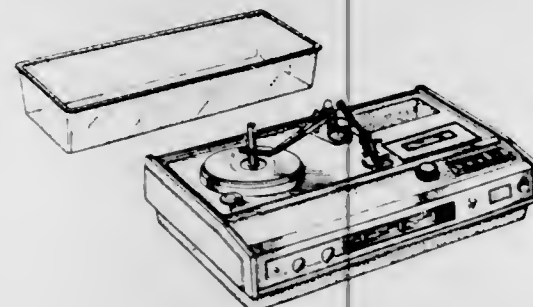
Filed Sept. 17, 1970, Ser. No. 25,047

Claims priority, application Japan Mar. 26, 1970

Term of patent 14 years

Int. Cl. D14—03

U.S. Cl. D56—4



223,295

HINGE FOR SPECTACLE FRAME

Martin Obster and Anton Dietrich, Munich, Germany, assignors to Optische Werke G. Rodenstock, Munich, Germany

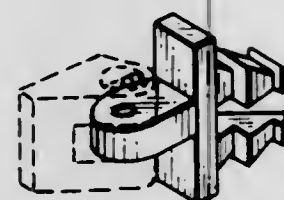
Filed Mar. 17, 1970, Ser. No. 21,934

Claims priority, application Germany Dec. 10, 1969

Term of patent 14 years

Int. Cl. D16—06

U.S. Cl. D57—1



223,296

EYEGLASSES OR THE LIKE

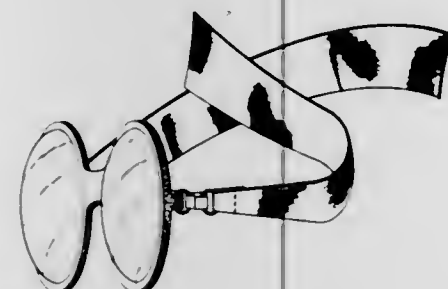
Allen Lee, 1416 Reisterstown Road, Pikesville, Md. 21208

Filed Aug. 5, 1970, Ser. No. 24,328

Term of patent 14 years

Int. Cl. D16—06

U.S. Cl. D57—1



223,297

OPHTHALMIC LENS HARDENING APPARATUS

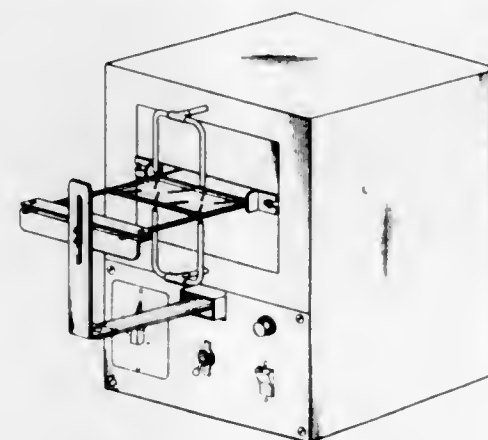
Stanley Kirk, Wantagh, N.Y., assignor to Kirk Optical Lens Co., Inc., New York, N.Y.

Filed Dec. 14, 1970, Ser. No. 26,479

Term of patent 3½ years

Int. Cl. D16—08

U.S. Cl. D57—1



223,298

BINOCULARS

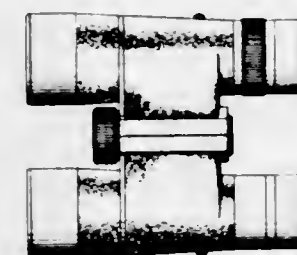
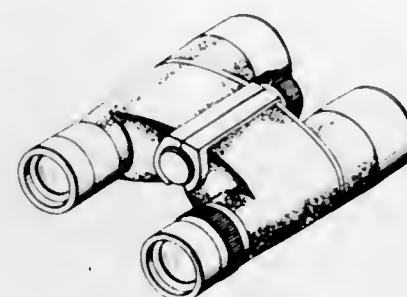
Yasuo Senda, Shin-ichi Negami, Tokyo, Japan, assignor to The Oriental Trading Company, Ltd.

Filed Dec. 22, 1970, Ser. No. 26,618

Term of patent 14 years

Int. Cl. D16—08

U.S. Cl. D57—1



223,299

X-RAY FILM ENLARGER-VIEWER

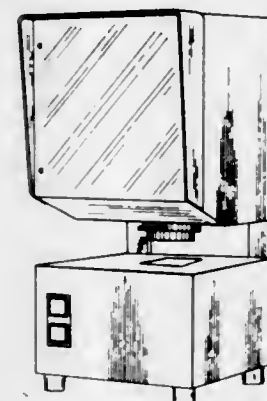
Panayotis Constantine Dimitracopoulos, P.O. Box 458, Outremont Post Office, Montreal 154, Quebec, Canada

Filed Nov. 27, 1970, Ser. No. 26,193

Term of patent 14 years

Int. Cl. D24—01; D16—03

U.S. Cl. D61—1



223,300

COMBINED TELEPRINTER AND PUNCHED EDGE CARD FEEDER

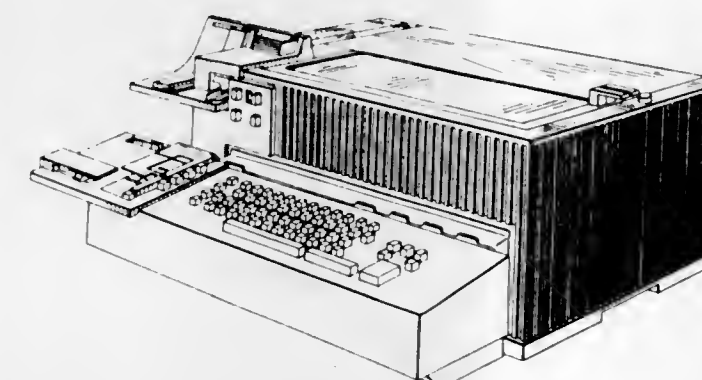
Ettore Sottsass, Jr., Via Mazoni 14, 20123 Milan, Italy
Continuation-in-part of design application Ser. No. 13,373, Aug. 30, 1968. This application May 8, 1970, Ser. No. 22,897

Claims priority, application Italy Mar. 1, 1968

Term of patent 14 years

Int. Cl. D18—99

U.S. Cl. D64—11



223,301

DESK TOP ELECTRONIC CALCULATOR

Manfred Link, Nuremberg, Germany, assignor to Triumph Werke Nuernberg A.G., Nuremberg, Germany

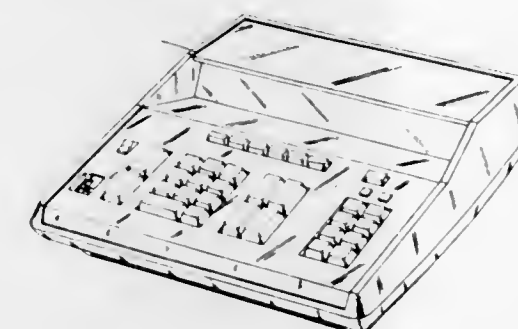
Filed Dec. 16, 1970, Ser. No. 26,534

Claims priority, application Germany June 24, 1970

Term of patent 14 years

Int. Cl. D18—01

U.S. Cl. D64—11



223,302

PAINT TRAY

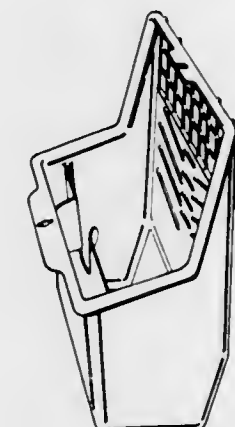
Henry Golden and Samuel R. Genca, Rochester, N.Y., assignors to Tray-X Corporation, Rochester, N.Y.

Filed Dec. 21, 1970, Ser. No. 26,572

Term of patent 14 years

Int. Cl. D4—04

U.S. Cl. D64—18



223,303

SOUTH BAY PUNT

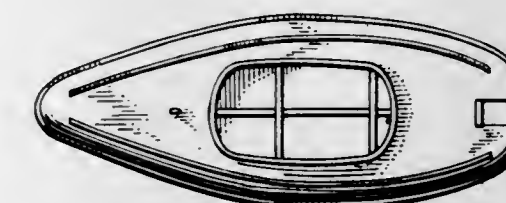
John Magnus, 39 Washington Ave., West Sayville, N.Y. 11796, and Raymond Milek, 2026 Ambrose Place, Baldwin, N.Y. 11510

Filed Oct. 1, 1970, Ser. No. 25,289

Term of patent 7 years

Int. Cl. D12—06

U.S. Cl. D71—1



223,304

WALL CHIME

John Daggart, Macclesfield, England, assignor to V & E Friedland Limited, Macclesfield, England

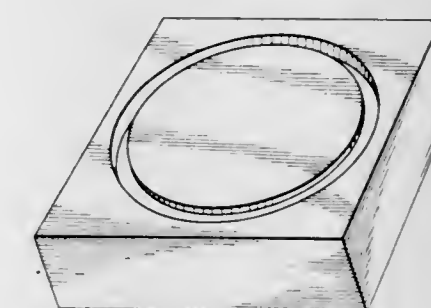
Filed Sept. 9, 1968, Ser. No. 13,469

Claims priority, application Great Britain Mar. 26, 1968

Term of patent 14 years

Int. Cl. D31

U.S. Cl. D72—1



223,305

PERPETUAL CALENDAR

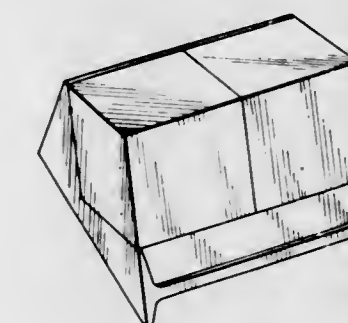
William S. Sherman, Highland Park, Ill., assignor to The Autopoint Company, Chicago, Ill.

Filed Aug. 18, 1969, Ser. No. 18,731

Term of patent 14 years

Int. Cl. D19—03

U.S. Cl. D74—5

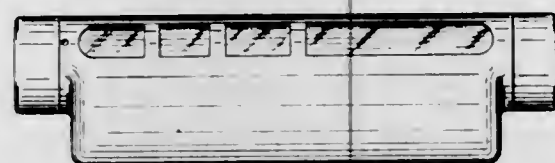


223,306

DATE CALCULATOR

Rene-Louis Revillon, Paris, France, assignor to Totaldator S.A., Courbevoie, France
 Filed June 29, 1970, Ser. No. 23,715
 Claims priority, application France Apr. 15, 1970
 Term of patent 14 years
 Int. Cl. D19-03

U.S. Cl. D74-5

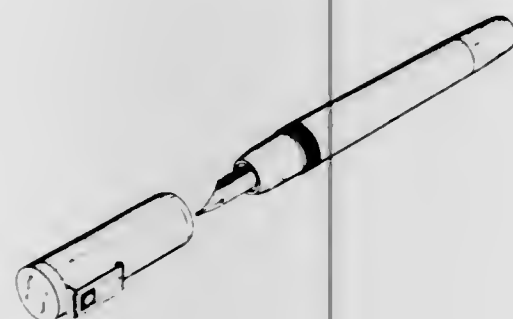


223,307

FOUNTAIN PEN

Geoffrey Nockolds, Spencer Cottage, Upham, Hampshire, England
 Filed July 31, 1970, Ser. No. 24,243
 Claims priority, application Great Britain Feb. 2, 1970
 Term of patent 14 years
 Int. Cl. D19-06

U.S. Cl. D74-17

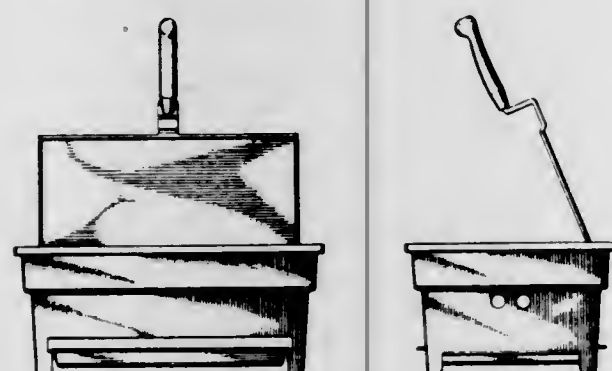


223,308

GRILL FOR COOKING FOOD

Edward M. Marshall, 8107 SW. 72nd Ave., Apt. 102E, Miami, Fla. 33143
 Filed Mar. 15, 1971, Ser. No. 124,615
 Term of patent 14 years
 Int. Cl. D7-02

U.S. Cl. D81-10

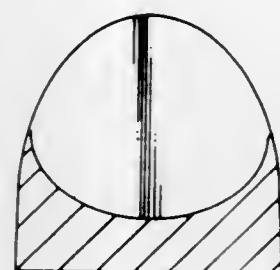
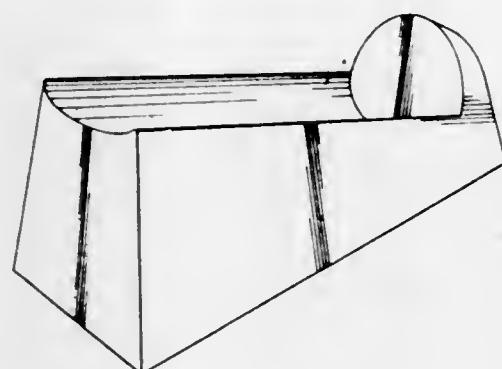


223,309

MEDICAL LUBRICANT TUBE SUPPORT STAND AND TUBE SEALING ARRANGEMENT THEREFOR

William B. van Valin, Solvang, Calif., assignor to Van Lon Ran, Ltd.
 Filed Aug. 3, 1970, Ser. No. 24,271
 Term of patent 14 years
 Int. Cl. D24-05; D6-01

U.S. Cl. 83-1

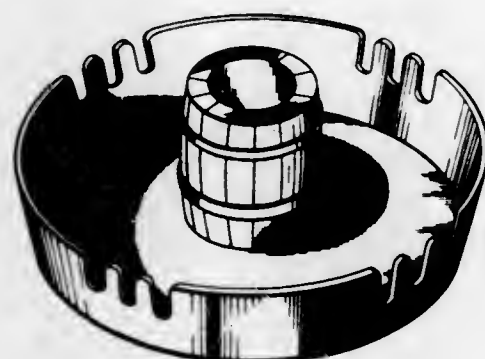


223,310

ASH TRAY

Harry W. Hollister, 89 Thayer St. 10040, and Betty Mabel Coester, 60 Seaman Ave. 10034, both of New York, N.Y.
 Filed Feb. 9, 1971, Ser. No. 114,097
 Term of patent 14 years
 Int. Cl. D27-03

U.S. Cl. D85-2



223,311

SMOKING PIPE OR SIMILAR ARTICLE

William Geiser, 903 Alto St., Monrovia, Calif. 91016
 Filed May 4, 1971, Ser. No. 140,313
 Term of patent 14 years
 Int. Cl. D27-02

U.S. Cl. D85-8

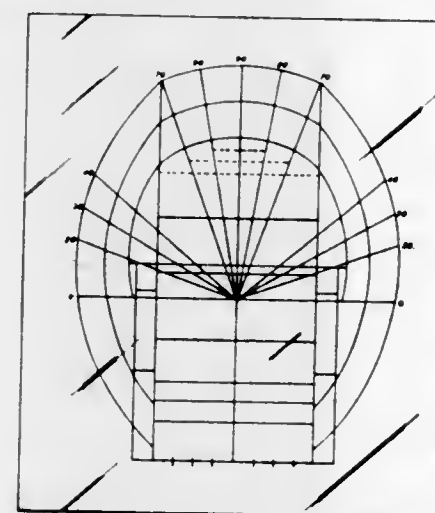


223,312

TRANSPARENT FACIAL STRUCTURE ANALYZER

Shoichi Mogi, 1332 N. Sierra Bonita, Hollywood, Calif. 90046
 Filed Aug. 27, 1970, Ser. No. 24,739
 Term of patent 14 years
 Int. Cl. D28-03; D10-11

U.S. Cl. D86-10

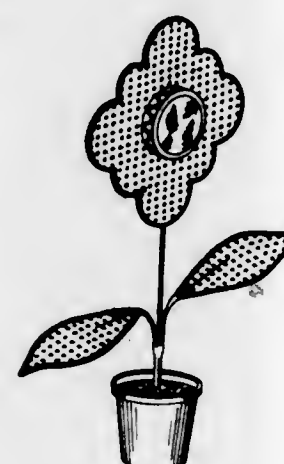


223,313

EAR RING HOLDER

Laura I. White, 321 N. Garfield, Alhambra, Calif. 91801
 Filed Dec. 21, 1970, Ser. No. 26,605
 Term of patent 3 1/2 years
 Int. Cl. D3-99

U.S. Cl. D86-10

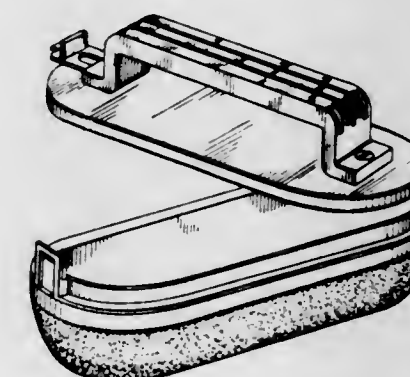


223,314

SHOE SHINE BOX OR SIMILAR ARTICLE

Melvin A. Goldfeder, Rockville Centre, N.Y., assignor to Swank, Inc., Attleboro, Mass.
 Filed Dec. 14, 1970, Ser. No. 25,477
 Term of patent 14 years
 Int. Cl. D28-99

U.S. Cl. D86-11



223,315

PAPER BOY COLLECTION BAG

Mary Georgina Koerber, 706 S. Garfield, Mason City, Iowa 50401
 Filed June 26, 1969, Ser. No. 17,886
 Term of patent 14 years
 Int. Cl. D3-02

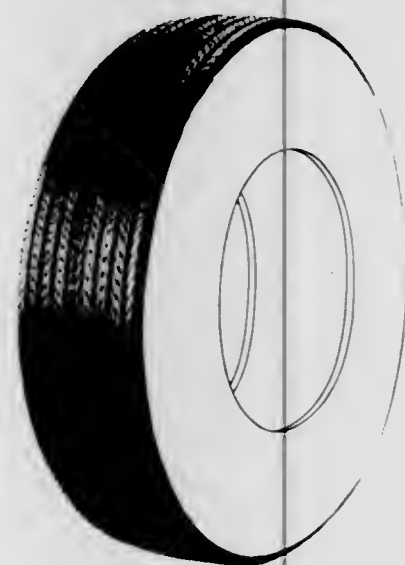
U.S. Cl. D87-3



223,316
TIRE

John K. Vohs, Union City, Tenn., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Oct. 14, 1970, Ser. No. 25,485
Term of patent 14 years
Int. Cl. D12-15

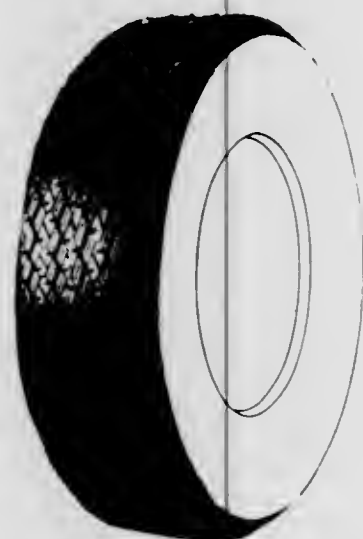
U.S. Cl. D90-20



223,317
TIRE

Lance R. McKissick, Fayetteville, N.C., and Allen R. Wilson, Mogadore, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Nov. 19, 1970, Ser. No. 26,262
Term of patent 14 years
Int. Cl. D12-15

U.S. Cl. D90-20



223,318

TOWEL OR SIMILAR ARTICLE

Leonard C. Clementi, Huntington, N.Y., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Oct. 26, 1970, Ser. No. 25,663
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26



223,319

TOWEL OR SIMILAR ARTICLE

Connie C. Willoughby, New York, N.Y., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Dec. 11, 1970, Ser. No. 26,421
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26



223,320

TOWEL OR SIMILAR ARTICLE

Edward C. Taiman, New Fairfield, Conn., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Feb. 16, 1971, Ser. No. 115,909
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26



223,321

TOWEL OR SIMILAR ARTICLE

Nancy Ann Scherer, Plainfield, N.J., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Feb. 16, 1971, Ser. No. 115,910
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26



223,322

TOWEL OR SIMILAR ARTICLE

Nancy Ann Scherer, Plainfield, N.J., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Feb. 16, 1971, Ser. No. 115,925
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26

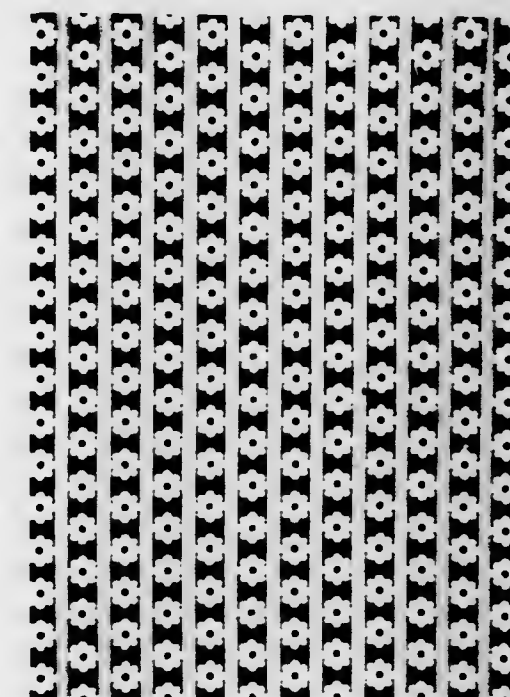


223,323

SHEET OR SIMILAR ARTICLE OF BED LINEN

Edward C. Taiman, New Fairfield, Conn., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Feb. 16, 1971, Ser. No. 115,936
Term of patent 14 years
Int. Cl. D6-13

U.S. Cl. D92-26



223,324

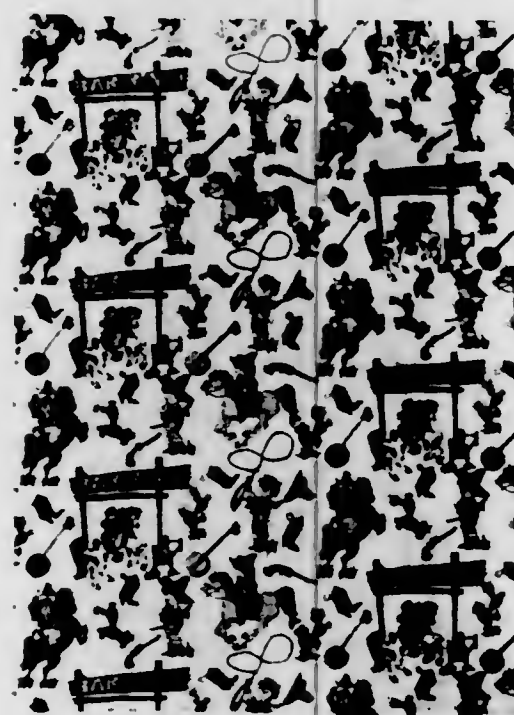
SHEET OR SIMILAR ARTICLE OF BED LINENNancy Ann Scherer, Plainfield, N.J., assignor to
Cannon Mills Company, Kannapolis, N.C.

Filed Feb. 16, 1971, Ser. No. 115,922

Term of patent 14 years

Int. Cl. D6—13

U.S. Cl. D92—26



223,325

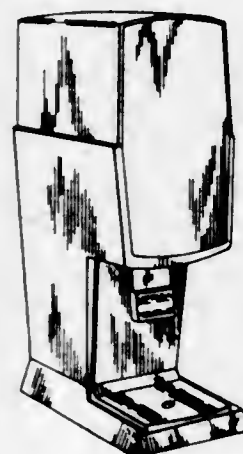
BEVERAGE DISPENSERDana W. Mox, Glenview, Ill., assignor to Karma Division
of Brandt Automatic Cashier Company, Addison, Ill.

Filed Oct. 29, 1970, Ser. No. 25,707

Term of patent 14 years

Int. Cl. D15—08

U.S. Cl. D94—3

**LIST OF PATENTEES**

TO WHOM

PATENTS WERE ISSUED ON THE 4TH DAY OF APRIL, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

- AB Svensk Industris Konstruktions-Och Beraknings-Kontor SIKOB: Aktiebolaget Bahco Ventilation: See—
Gustavsson, Karl Axel Goran; and Tornqvist, Knut Melker Evald, 3,653,511.
- See—
Stranicky, Fedor, 3,653,576.
Stranicky, Fedor, 3,653,579.
- AB Volvo Penta: See—
Bergstedt, Karl Abdon, 3,653,270.
- Abbott Laboratories: See—
Paris, Gerard Y.; and Garmaise, David L., 3,654,289.
- Abdullah, Mukhtar, to CPC International Inc. Production of high maltotetraose syrup. 3,654,082, Cl. 195-31.
- Abel, Allen J. Support device for fluid receptacles. 3,653,624, Cl. 248-312.
- A. B. Infrarodteknik: See—
Nilsson, Hans Erik, 3,654,471.
- Ableson, Arthur E., to American Potash & Chemical Corporation. Inhibition of sodium bicarbonate crystallization during crystallization of other materials using polyphosphates. 3,653,847, Cl. 23-302.
- Aboul-Saad, Ibrahim Ahmed, to Du Pont de Nemours, E. I., and Company. Pad-acid steam nylon-cotton blend with acid and vat dyes. 3,653,801, Cl. 8-21.
- Abram, Guy R.; and Offerman, Emil, to Mathew Moody Ltd. Tow truck. 3,653,328, Cl. 104-172.
- Abrams, Paul S.; and Peterson, Rudolph G., to Carcs, Inc. Marking device. 3,653,596, Cl. 239-93.
- Abrams, Richard Lee; and Glass, Alastair Malcolm, to Bell Telephone Laboratories, Incorporated. Narrow band electromagnetic, pyroelectric radiation devices using piezoelectric detectors. 3,654,466, Cl. 250-83.3.
- Adamas Carbide Corporation: See—
Scheyer, Gerard, 3,654,374.
- Adams, Richard C.; Merian, John A.; and McGlashan, John, to Schjeldahl, G. T., Company. Retarder mechanism. 3,653,177, Cl. 53-182.
- Adams, William H.; and Painter, Charles D., to Armstrong Cork Company. Seam sealer dispensing head. 3,653,560, Cl. 222-566.
- Addressograph-Multigraph Corporation: See—
Serfahs, Arthur S.; and Patzke, Robert C., 3,653,755.
- Admiral Coated Products, Inc.: See—
Alexander, Martin J., 3,654,016.
- Aerodyne Controls Corporation: See—
Miller, James R., 3,654,410.
- Aeroflex-General Corporation: See—
Batchelder, George W.; and Zimmerman, Gilbert A., 3,653,993.
Batchelder, George W.; and Zimmerman, Gilbert A., 3,653,994.
Binnings, Gerald F.; Meyer, Theodore N.; and Riley, Mel J., 3,654,091.
- AGA Aktiebolag: See—
Norr, Artur Valter Leopold; and Holm, Fritz Bertil Willy, 3,654,085.
- Ager, John W., to FMC Corporation. Oxidation of p-toluic acid to terephthalic acid. 3,654,356, Cl. 260-524.
- Agfa-Gevaert Aktiengesellschaft: See—
Wiesner, Max; Sonne, Herbert; and Schmidt, Hans-Robert, 3,653,604.
- Agon Fabrique d'Horlogerie, Robert Triebold SA: See—
Hurt, Zeno, 3,653,203.
- Ahlgrim, Michael: See—
Kandler, Joachim; Mietens, Gerhard; and Ahlgrim, Michael, 3,653,947.
- Ahrens, Guenter: See—
Spinner, Georg; Luehring, Juergen; and Ahrens, Guenter, 3,654,577.
- Air Products and Chemicals Inc.: See—
Kucirka, John F., 3,654,318.
- Air Reduction Company, Incorporated: See—
McNabney, Ralph; and Huibers, Derk Th. A., 3,654,126.
Smith, Hugh R., Jr., 3,654,108.
- Airco/Boc Cryogenic Plants Corporation: See—
Foster, Kenneth M.; and Lofredo, Antony, 3,653,220.
- Aizawa, Tatsuo: See—
Nihiyakumen, Kouzi; Yokoyama, Taizo; Ueda, Yasuo; Kamezawa, Yasutoki; and Aizawa, Tatsuo, 3,653,903.
- Akashi, Goro; and Fujiyama, Masaaki, to Fuji Photo Film Co., Ltd. Magnetic recording medium. 3,653,962, Cl. 117-240.
- Akashi, Tsuneo: See—
Ohno, Tomeji; Takahashi, Masao; Akashi, Tsuneo; and Tsubouchi, Norio, 3,654,160.
- AKG Akustische u. Kino-Gerate Gesellschaft m.b.H.: See—
Reinthal, Karl, 3,654,406.
- Akrongold, Harold S.; and Akrongold, Rochelle. Washing polymers. 3,654,167, Cl. 252-119.
- Akrongold, Rochelle: See—
Akrongold, Harold S.; and Akrongold, Rochelle, 3,654,167.
- Aktiebolaget Carl Lamm: See—
Kvarnegard, Sven Bertil, 3,654,462.
- Aktiengesellschaft Brown, Boveri & Cie: See—
Scharli, Otto, 3,653,433.
- Alberto-Culver Company: See—
Schmitt, William H., 3,653,914.
Schmitt, William H.; and Lukey, Robert A., 3,653,922.
- Albertson, Robert V.; and Albertson, Victor N., to Minnesota Automotive, Inc., mesne. Two-speed transmission. 3,653,273, Cl. 74-217.
- Albertson, Victor N.: See—
Albertson, Robert V.; and Albertson, Victor N., 3,653,273.
- Albright, John D., to United States of America, Navy, mesne. Stadiametric ranging system. 3,653,769, Cl. 356-141.
- Alcan Research and Development Limited: See—
Eccles, Anthony Garth, 3,654,150.
- Alday, James M., to Remington Arms Company, Inc. Firearm receiver mechanism with a roller detent pin for a telescopic breech-bolt. 3,653,140, Cl. 42-16.
- Alexander, Martin J., to Admiral Coated Products, Inc. Method and apparatus for adhering foil to a surface. 3,654,016, Cl. 156-247.
- Alfa-Laval AB: See—
Giddey, Claude; and Dove, Georges, 3,653,919.
- Allard, Pierre: See—
Stauff, Emile; Guillot, Jean; Allard, Pierre; Schubert, Johannes; Topfer, Heinz; and Prier, Erich, 3,653,288.
- Allegheny Ludlum Steel Corporation: See—
Lipsie, Paul C., 3,654,042.
- Allen, Clifford W.; and Wilson, Richard F., to Westinghouse Air Brake Company. Slip control systems for air clutches. 3,653,476, Cl. 192-104.
- Allen, Paul T.: See—
Drinkard, B. M.; Allen, Paul T.; and Unger, Edward H., 3,653,184.
- Alliance Machine Company, The: See—
Polen, Karl L., 3,653,518.
- Allied Chemical Corporation: See—
Port, Eugene B.; and Howard, Carlton J., 3,653,848.
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- Young, David E.; Anderson, Lowell R.; and Fox, William B., 3,654,335.
- Allied Paper Incorporated: See—
Levy, Robert M.; Thiessen, Robert J.; and Growald, Bert, 3,653,894.
- Allinquant, Fernand Michel; and Allinquant, Jacques Gabriel. Suspension systems for vehicles. 3,653,651, Cl. 267-64.
- Allinquant, Jacques Gabriel: See—
Allinquant, Fernand Michel; and Allinquant, Jacques Gabriel, 3,653,651.
- Allis-Chalmers Manufacturing: See—
Heian, Glenn A., 3,653,645.
- Allis-Chalmers Manufacturing Company: See—
Rockwell, Harvey W.; and Poore, Wesley A., 3,653,450.
- Allisbaugh, Howard C., to Lilly, Eli, and Company. Filled capsules. 3,653,500, Cl. 206-56.
- Alsefelt, Per-Erik Ingemar: See—
Brannland, Rolf August; Alsefelt, Per-Erik Ingemar; and Gyllensten, Hans Otto, 3,654,071.
- Alsop, Arthur Graham, to Strachan and Henshaw Limited. Stitching machine. 3,653,570, Cl. 227-81.
- Alta Industries, Incorporated: See—
Ropiequet, Richard L.; and Montag, Margaret J., 3,654,017.
- Altman, Daniel E.: See—
Geller, Myer; Altman, Daniel E.; De Temple, Thomas A.; and Taylor, Henry F., 3,654,626.
- Aluma-Form, Inc.: See—
Farmer, Marion R., 3,653,622.
- Alumet Corporation, The: See—
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- Aluminum Company of America: See—
Dunn, Lloyd G., 3,653,249.
Koenig, James J.; and Hart, Leroy D., 3,653,937.
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- Amano, Morio: See—
Kashiwagi, Shinichi; Amano, Morio; and Nakasawa, Koichi, 3,653,706.
- Ameraca Esna Corporation: See—
Brown, Robert R., 3,654,590.

- American Air Filter Company, Inc.: See—
Zurnuehlen, Robert C., 3,653,531.
- American Chain & Cable Company, Inc.: See—
Gilmore, William J., 3,653,277.
- American Cyanamid Company: See—
Asato, Goro; and Berkelhammer, Gerald, 3,654,299.
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- American Electric Manufacturing Corporation: See—
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- American Hoist & Derrick Company: See—
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- American Home Products Corporation: See—
Kim, Dong H.; and Santilli, Arthur A., 3,654,204.
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- American Optical Corporation: See—
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- American Potash & Chemical Corporation: See—
Ableson, Arthur E., 3,653,847.
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- American Standard Inc.: See—
Grotecke, Daniel Edward; and Lazor, Donald Keith, 3,653,426.
Liskowitz, John W., 3,653,767.
Loveley, Joseph D., 3,653,431.
McManus, Herbert C., 3,653,371.
- American Cyanamid Company: See—
Maricle, Donald Leonard; and Rahut, Michael McKay, 3,654,525.
- Amerola Products Corporation: See—
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- Ameton Inc.: See—
Law, Gabriel H.; and McMahon, Walter Michael, 3,653,930.
- Amkhem Products, Inc.: See—
Waldrum, John E., 3,653,598.
- Ammatuna, Salvatore, Tapping tool, 3,653,780, Cl. 408-241.
- AMP Incorporated: See—
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- Ampex Corporation: See—
Sterly, Glenn E., 3,653,669.
- Amsted Industries Incorporated: See—
Neff, Paul J.; and Bright, Jerald L., 3,653,252.
- Amundson, Clyde H.: See—
Buhler, Allen C.; Engel, Eric; Nelson, John H.; and Amundson, Clyde H., 3,653,921.
- Anaconda Company, The: See—
Versteegh, Jan, 3,654,096.
and testament of Bobb, Lloyd J., deceased. See—
Bobb, Lloyd J., 3,654,403.
- Anderson & Thompson Ski Co., Inc.: See—
McAusland, Robert R., 3,653,565.
- Anderson, Carl C.: See—
Christenson, Roger M.; and Anderson, Carl C., 3,654,213.
- Anderson, Lowell R.: See—
Young, David E.; Anderson, Lowell R.; and Fox, William B., 3,654,335.
- Anderson Power Products, Inc.: See—
Winkler, Edward D., 3,654,586.
- Anderson, Ronald A.; and Whitten, Frank R., to Schlumberger Technology Corporation, Formation-sampling apparatus, 3,653,436, Cl. 166-100.
- Andersson, Sigfrid, Cylindrical pressure vessel, 3,653,434, Cl. 165-169.
- Ando, Noriyoshi: See—
Wakamatsu, Hisato; Ando, Noriyoshi; and Majima, Kazu, 3,653,726.
- Andrews, Ann; and Andrews, Peter, Hair rollers or hair curlers, 3,653,391, Cl. 132-40.
- Andrews, Peter: See—
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- Mann, George V.: *See*—
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- Mann, Howard G., to North American Rockwell Corporation. Process
for etching beryllium. 3,654,001, Cl. 156-18.
- Mann, Leonard J., to General Motors Corporation. Plastic refrigerator
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- Mansour, Said K.; and Rehfsuss, John W., to Celanese Coatings Com-
pany. Polymeric dispersions stabilized by vinyl oxazoline polymers.
3,654,201, Cl. 260-23.
- Mao, Roger Alain, to RCA Corporation. Circuits for driving loads such
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- Marathon Oil Company: *See*—
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- Marchal, Philippe Albert Hippolyte; Simonnet, Jacques Louis Paul;
and Verrien, Jean Prudent Fernand Rene, to Bertin & Cie Plaisir,
and Entreprise de Recherches et d'Activites Petrolieres-elf. Gas-
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- Marconi, Walter; Cesoa, Sebastiano; and Roggero, Arnaldo, to Snam
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alpha olefins and polyenes presenting an alkylidene group conju-
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- Maricle, Donald Leonard; and Rauhut, Michael McKay, to Americin
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- Marietta, Martin, Corporation: *See*—
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- Marine Protein Corporation: *See*—
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- Markarian, Mark; and Gamari, Francis J., to Sprague Electric Com-
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- Marks, Alvin M. Electro-optical dipolar material. 3,653,741, Cl. 350-
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- Marlowe, Frank Jerome; and Nester, Edward Oskar, to RCA Corpora-
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3,654,606, Cl. 340-166.
- Maroth, Arthur M. Powerful positive displacement reciprocating pres-
surizing device and method and means for continuously varying the
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- Marraffino, Leonard L. Four part, two fluid dispenser. 3,653,547, Cl.
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- Mars Incorporated: *See*—
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- Marshall, Gailen D., to Sperry Sun Well Surveying Company. Expenda-
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- Martin, Raymond Gerald, to United States of America, Navy, mesne.
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- Martin, Wendell L. Method and apparatus for controlling automatic
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- Martuch, Leon L., to Scientific Anglus Inc. Tactile indicator for fly
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- Marvel Engineering Company: *See*—
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- Marvosh, Daniel. Machine for making tabletops. 3,653,113, Cl. 29-
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- Marx, Helmut; and Desch, Hermann, to Leitz, Ernst, G.m.b.H. Rota-
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- Mary, Donald J.; and Davis, Harry J., to United States of America,
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- Masek, Sophia D.: *See*—
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- Massa, Frank, to Massa Division, Dynamics Corporation of America.
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Mevisen, Ernst A.; and Coulter, Stanley M., to Dravo Corporation. Support assembly for a tiltable hot metal processing vessel. 3,653,649, Cl. 266-36.

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Mills, Ivor W.; Dimeler, Glenn R.; Atkinson, William A., Jr.; and Hoffman, James P., to Sun Oil Company. Process for preparing high viscosity hydrorefined cable oil. 3,654,127, Cl. 208-14.

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Miura, Ataka, to Janome Sewing Machine Co., Ltd. System for stopping a single phase wound commutator motor at a fixed position. 3,654,536, Cl. 318-466.

Miwa, Akihiro, to Kabushiki Kaisha Daini Seikosha. Digital display world clock. 3,653,204, Cl. 58-42.5.

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Van Palln, William B. 223,309.

Van Palln, William B., to Van Lon Ran, Ltd. Medical lubricant tube support stand and tube sealing arrangement therefor. 223,309, 4-4-72, Cl. D83-1.

Vohs, John K., to The Goodyear Tire & Rubber Co. Tire. 223,316, 4-4-72, Cl. D90-20.

Wada, Hideo, S. Nashinoki, I. Kato, and T. Murakami, to Matsushita Electric Industrial Co., Ltd. Combined electric phonograph, cassette recorder and reproducer and radio or similar article. 223,294, 4-4-72, Cl. D56-4.

Watanabe, Shigeru, Y. Ishihara, and N. Kondo, to Nippon Concrete Industries Co., Ltd. Concrete pile. 223,236, 4-4-72, Cl. D13-1.

Watanabe, Shigeru, and K. Nunokawa, to Nippon Concrete Industries Co., Ltd. Concrete pile. 223,237, 4-4-72, Cl. D13-1.

Watanabe, Shigeru, to Nippon Concrete Industries Co., Ltd. Concrete pile. 223,238, 4-4-72, Cl. D13-1.

LIST OF DESIGN PATENTEES

White, Iain K.: See—
Mann, Peter G., and White. 223,246.

White, Laura I. Ear ring holder. 223,313, 4-4-72, Cl. D86-10.

Wilbrecht, Margaret A. Holder for sewing material or the like. 223,224, 4-4-72, Cl. D3-19.

Willoughby, Connie C., to Cannon Mills Co. Towel or similar article. 223,319, 4-4-72, Cl. D92-26.

Wilson, Allen R.: See—
McKlesick, Lance R., and Wilson. 223,317.

Wolf, Milton. Portable game board. 223,263, 4-4-72, Cl. D34-5.

Wolfe, Hunter. Gutter. 223,290, 4-4-72, Cl. D56-1.

Yoshinaga Prince Co., Ltd.: See—
Yoshinaga, Sadao. 223,284.
Yoshinaga, Sadao. 223,285.

Yoshinaga, Sadao, to Yoshinaga Prince Co., Ltd. Cigarette lighter. 223,284, 4-4-72, Cl. D48-27.

Yoshinaga, Sadao, to Yoshinaga Prince Co., Ltd. Cigarette lighter. 223,285, 4-4-72, Cl. D48-27.

Zecca, Giuseppe. Cover plates for boxes for compartments containing electric devices. 223,253, 4-4-72, Cl. D26-13.

Zenith Radio Corp.: See—
Boldt, Melvin H., and Chuboff. 223,255.

CLASSIFICATION OF PATENTS

ISSUED APRIL 4, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2	296	3,653,847	CLASS 49	160	3,653,223	CLASS 75	3	3,653,874	CLASS 99	2R	3,653,909	
80	3,653,074	302	3,653,848	220	3,653,153	344	3,653,224	3,653,875	2	3,653,908		
338	3,653,075	312ME	3,653,850	280	3,653,154	467	3,653,225	28	3,653,876	64	3,653,912	
CLASS 4	315	3,653,849	313	3,653,155	29	3,653,227	43	3,653,877	71	3,653,910		
236	3,653,076	CLASS 24	411	3,653,157	29	3,653,227	63	3,653,878		3,653,911		
	3,653,077	16PB	3,653,096	417	3,653,158	CLASS 64	93R	3,653,879	77.1	3,653,913		
263	3,653,078		3,653,099	501	3,653,156	26	3,653,228	168C	3,653,880	78	3,653,914	
CLASS 5	33C	3,653,097	CLASS 51	5	3,653,159	29	3,653,226	171	3,653,881	80R	3,653,915	
82	3,653,079	114.5	109	3,653,160	CLASS 65	3,653,860	208	3,653,882	81	3,653,916		
108	3,653,080	198	165TP	3,653,161	11W	3,653,861	212	3,653,883	84	3,653,917		
262	3,653,081	241	3,653,162	30	3,653,862	16	3,653,861	214	3,653,884	107	3,653,918	
269	3,653,082	270	3,653,103	33	3,653,863	30	3,653,862	CLASS 81	5.1R	3,653,284	116	3,653,919
348	3,653,083	CLASS 27	218R	3,653,855	3,653,864	3,653,865	31	3,653,286	CLASS 82		140R	3,653,920
		12	3,653,104	268	3,653,164	3,653,866	33A	3,653,287	3,653,286		141A	3,653,922
10	3,653,797	CLASS 28	334	3,653,856	116	3,653,867	101	3,653,285	3,653,287	166	3,653,925	
15	3,653,798		358	3,653,857	156	3,653,868	82	3,653,293	3,653,285	168	3,653,924	
18	3,653,799	46	378	3,653,858	182R	3,653,869	70	3,653,294	CLASS 83	174	3,653,926	
21B	3,653,801	CLASS 29	401	3,653,859	356	3,653,870	CLASS 85		3,653,293	176	3,653,928	
21C	3,653,800	96	67	3,653,107	CLASS 66	3,653,229	CLASS 87	1	3,653,295	199C	3,653,929	
31	3,653,803	110	80	3,653,108	50R	3,653,231	CLASS 89	1.73	3,653,288			
110	3,653,804	96	67	3,653,109	56	3,653,230	35A	3,653,289	CLASS 90	5	3,653,290	
116.4	3,653,805	110.5	162	3,653,110	85	3,653,232	CLASS 91	5	3,653,290	13.2	3,653,291	
130.1	3,653,806	149.5	173	3,653,111	86	3,653,232	62	3,653,292	CLASS 92	62	3,653,292	
158	3,653,807	156.8H	177	3,653,112	177	3,653,233	52	3,653,296	CLASS 93	58.3	3,653,304	
	3,653,808	183	294	3,653,113	CLASS 52		184	3,653,297	CLASS 94	18	3,653,305	
CLASS 9	196.6	3,653,852	296	3,653,114	CLASS 53	39.28	306	3,653,298	CLASS 95	11L	3,653,315	
2A	3,653,084	200B	375	3,653,115	64	3,653,174	416	3,653,299	CLASS 96	11W	3,653,316	
8	3,653,085	200R	521	3,653,116	21	3,653,175	12.5	3,653,300	CLASS 97	12.5	3,653,307	
329	3,653,086	203J	669	3,653,117	24	3,653,176	162	3,653,302	CLASS 98	13	3,653,308	
CLASS 12	208D	3,653,113	CLASS 54	21	3,653,177	38A	68	3,653,303	CLASS 99	24	3,653,309	
20	3,653,087	237	64	3,653,178	39.28	3,653,206	52	3,653,304	CLASS 100	31	3,653,310	
50.5	3,653,088	243.52	159	3,653,179	38A	3,653,235	42	3,653,311	CLASS 101	42	3,653,312	
142R	3,653,089	429	182	3,653,180	68	3,653,236	44A	3,653,313	CLASS 102	44A	3,653,314	
CLASS 13	434	3,653,118	184	3,653,181	264	3,653,237	89G	3,653,314	CLASS 103	89G	3,653,314	
9	3,654,373	585	184	3,653,182	352	3,653,238	58.3	3,653,304	CLASS 104	1	3,653,930	
31	3,654,374	589	1	3,653,183	CLASS 55		18	3,653,305	CLASS 105	3	3,653,931	
CLASS 15	604	3,653,121	16	3,653,184	8	3,653,871	11L	3,653,315	CLASS 106	22	3,653,932	
105	3,653,090	3,653,122	35	3,653,185	8	3,653,872	11W	3,653,316	CLASS 107	47Q	3,653,933	
CLASS 16	58	3,653,123	53	3,653,186	35	3,653,873	12.5	3,653,307	CLASS 108	125	3,653,934	
94	3,653,091	293	67	3,653,187	67	3,653,873	162	3,653,308	CLASS 109	189	3,653,935	
128	3,653,092	CLASS 32	103	3,653,188	CLASS 72		58.3	3,653,304	CLASS 110	288B	3,653,937	
CLASS 17	22	3,653,125	223	3,653,189	53	3,653,239	18	3,653,305	CLASS 111	288Q	3,653,936	
CLASS 19	32	3,653,126	230	3,653,190	82	3,653,240	11L	3,653,315	CLASS 112	1	3,653,930	
83	3,653,094	43	283	3,653,191	88	3,653,241	11W	3,653,316	CLASS 113	3	3,653,931	
CLASS 21	174PA	3,653,128	288	3,653,192	122	3,653,242	12.5	3,653,307	CLASS 114	22	3,653,932	
CLASS 23	155	3,653,129	302	3,653,193	171	3,653,244	13	3,653,308	CLASS 115	47Q	3,653,933	
250	3,653,812	CLASS 35	310	3,653,194	187	3,653,245	13	3,653,308	CLASS 116	125	3,653,934	
2A	3,653,809	1	327A	3,653,195	198	3,653,246	24	3,653,309	CLASS 117	189	3,653,935	
2R	3,653,810	2	328R	3,653,196	349	3,653,247	31	3,653,310	CLASS 118	288B	3,653,937	
2	3,653,811	72	328R	3,653,197	369	3,653,251	42	3,653,311	CLASS 119	288Q	3,653,936	
15W	3,653,813	CLASS 37	348	3,653,198	CLASS 56		44A	3,653,312	CLASS 120	4	3,653,335	
	3,653,814	1	348	3,653,199	CLASS 57	28	89G	3,653,313	CLASS 121	1	3,653,339	
	3,653,815	8	139	3,653,200	46	3,653,252	139	3,653,314	CLASS 122	139	3,653,340	
19V	3,653,816	142	157MS	3,653,201	28	3,653,253	144	3,653,314	CLASS 123	144	3,653,341	
21	3,653,817	CLASS 38	23	3,653,202	46	3,653,254	1PC	3,653,887	CLASS 124			
59	3,653,818	3,653,133	42.5	3,653,203	67	3,653,255	1R	3,653,888	CLASS 125	31	3,653,342	
63	3,653,819	14	58	3,653,204	138	3,653,256	35	3,653,889	CLASS 126	64	3,653,343	
79	3,653,820	135	74	3,653,205	144	3,653,257	36.1	3,653,890	CLASS 127	8A	3,653,344	
106	3,653,821	CLASS 40	126A	3,653,206	194A	3,653,258	48PC	3,653,891	CLASS 128			
121	3,653,822	28R	152A	3,653,207	228	3,653,259	49	3,653,892	CLASS 129	79R	3,653,346	
129	3,653,823	96.5	52VS	3,653,208	233	3,653,260	50	3,653,893	CLASS 130	121.12	3,653,347	
145	3,653,824	130R	52S	3,653,209	292	3,653,261	84	3,653,894	CLASS 131	134	3,653,348	
149	3,653,825	CLASS 42	54.5P	3,653,210	351	3,653,262	101	3,653,895	CLASS 132	965	3,653,345	
165	3,653,826	1R	54.5R	3,653,211	398R	3,653,263	101	3,653,896	CLASS 133			
	3,653,827	16	54.5R	3,653,212	421B	3,653,264	101	3,653,897	CLASS 134	5D	3,653,349	
168	3,653,828	CLASS 43	54.5R	3,653,213	422TC	3,653,266	35	3,653,898	CLASS 135	5R	3,653,350	
181	3,653,829	22	293	3,653,214	CLASS 74		36.1	3,653,900	CLASS 136	20R	3,653,351	
192	3,653,830	42.06	322	3,653,215	5	3,653,267	48PC	3,653,901	CLASS 137	56	3,653,352	
199	3,653,831	44.98	322	3,653,216	55	3,653,268	49	3,653,899	CLASS 138	115	3,653,353	
203R	3,653,832	54.5	322	3,653,217	89.15	3,653,269	50	3,653,902	CLASS 139	125	3,653,354	
207.5	3,653,833	131	322	3,653,218	101	3,653,270	84	3,653,903	CLASS 140	206A	3,653,355	
226	3,653,834	CLASS 44	322	3,653,219	101	3,653,271	84	3,653,904	CLASS 141			
230EP	3,653,837	66	322	3,653,220	190.5	3,653,272	84	3,653,905	CLASS 142			
230HC	3,653,838	17	322	3,653,221	217B	3,653,273	87A	3,653,906	CLASS 143			
230B	3,653,836	40	322	3,653,222	241	3,653,274	114.1	3,653,907	CLASS 144			
230R	3,653,835	60	322	3,653,223	436	3,653,275	33	3,653,316	CLASS 145			
	3,653,835	76A	322	3,653,224	501M	3,653,276	110	3,653,317	CLASS 146			
	3,653,836	116	322	3,653,225	501M	3,653,277	115	3,653,318	CLASS 147			
	3,653,837	201	322	3,653,226	574	3,653,278	33	3,653,316	CLASS 148			
	3,653,838	CLASS 47	322	3,653,227	710.5	3,653,279	110	3,653,317	CLASS 149			
	3,653,839	29	322	3,653,228	713	3,653,280	115	3,653,318	CLASS 150			
	3,653,840		322	3,653,229	731	3,653,281			CLASS 151			
	3,653,841		322	3,653,230	815	3,653,282			CLASS 152			
	3,653,842		322	3,653,231	864	3,653,283			CLASS 153			
	3,653,843		322	3,653,232					CLASS 154			
	3,653,844		322	3,653,233					CLASS 155			
	3,653,845		322	3,653,234					CLASS 156			
	3,653,846		322	3,653,235					CLASS 157			

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36.2	3,653,945	CLASS 141	112	3,654,060	195	3,653,463	301	3,654,125	CLASS 222
46CA	3,653,946	1	118	3,654,061	CLASS 184	3,654,126	314	3,654,126	3,653,543
47A	3,653,947	4	119	3,654,062	6.2	3,653,464	CLASS 206	55	3,653,544
63.2	3,653,948	208	125	3,654,063	7D	3,653,466	45.12	61	3,653,545
66	3,653,949	353	156	3,654,064	55A	3,653,465	46FN	83	3,653,546
72	3,653,950	CLASS 144	159	3,654,065	CLASS 187	3,653,467	46H	94	3,653,547
104R	3,653,951	3R	160	3,654,066	22	3,653,467	46M	129.1	3,653,548
126GB	3,653,952	CLASS 146	216	3,654,067	CLASS 188	3,653,468	47A	132	3,653,549
126GN	3,653,953	81R	251	3,654,068	1C	3,653,468	56AA	136	3,653,550
130E	3,653,954	174	254	3,654,069	58	3,653,469	62R	146HE	3,653,551
132C	3,653,955	186	30	3,654,070	71.9	3,653,470	63.2R	148	3,653,552
139.5A	3,653,956	CLASS 148	33	3,654,071	181A	3,653,471	65C	181	3,653,553
141	3,653,957	1.5	49	3,654,072	217	3,653,472	65E	256	3,653,554
158	3,653,958	CLASS 149	145	3,654,073	353	3,653,473	CLASS 208	309	3,653,555
201	3,653,959	6.14R	213	3,654,074	CLASS 190	3,653,474	14	400.7	3,653,557
221	3,653,960	6.24	254	3,654,075	18A	3,653,475	33	402.17	3,653,558
240	3,653,962	11.5R	254	3,654,076	CLASS 192	3,653,476	48	545	3,653,559
CLASS 118	3,653,963	12.1	391	3,654,077	CLASS 194	3,653,477	54	566	3,653,560
7	3,653,964	12.4	89	3,654,078	99A	3,653,478	57	66	3,653,561
CLASS 119	3,653,965	31	237	3,654,079	104F	3,653,479	CLASS 223	70	3,653,562
1	3,653,966	113	274	3,654,080	113B	3,653,480	66	76	3,653,563
14.02	3,653,967	127	281	3,654,081	CLASS 196	3,653,481	CLASS 224	76	3,653,564
51.12	3,653,968	162	CLASS 165	3,654,082	4	3,653,482	1A	3,653,565	
52AF	3,653,969	175	1	3,654,083	100A	3,653,483	5R	3,653,566	
61	3,653,970	189	33	3,654,084	CLASS 198	3,653,484	25A	3,653,567	
CLASS 122	3,653,971	CLASS 149	61	3,654,085	28R	3,654,078	42.42R	3,653,568	
32	3,653,972	2	80	3,654,086	31R	3,654,079	CLASS 226	97	3,653,569
CLASS 123	3,653,973	19	169	3,654,087	63	3,654,080	140	140	3,653,570
3	3,653,974	3	226	3,654,088	CLASS 199	3,654,081	CLASS 227	81	3,653,571
32EA	3,653,975	21	266	3,654,089	65	3,654,082	CLASS 209	3	3,653,572
122D	3,653,976	158	273	3,654,090	103.5R	3,654,090	3	5	3,653,573
148E	3,653,977	209R	291	3,654,091	127	3,654,085	7	20	3,653,574
1885	3,653,978	330	305R	3,654,092	139	3,654,091	102	49	3,653,575
193	3,653,979	CLASS 126	CLASS 169	3,654,093	CLASS 197	3,654,092	CLASS 210	1.5H	3,653,576
25A	3,653,980	3	2R	3,654,094	128	3,653,482	6	22	3,653,577
91R	3,653,981	6	5	3,654,095	129	3,653,483	23	23R	3,653,578
263	3,653,982	11	58	3,654,096	CLASS 171	3,653,483	61	23	3,653,579
CLASS 128	3,653,983	17	CLASS 172	3,654,097	CLASS 172	3,653,484	69	37R	3,653,580
2K	3,653,984	18	4	3,654,098	16R	3,653,484	83	40	3,653,581
2.06R	3,653,985	62.4	16	3,654,099	25	3,653,485	112	43	3,653,582
2.08	3,653,986	66	548	3,654,100	36	3,653,486	130	51TC	3,653,583
33	3,653,987	88	803	3,654,101	38	3,653,488	169	54C	3,653,584
33	3,653,988	108	804	3,654,102	110	3,653,489	281	62	3,653,585
66	3,653,989	132	15	3,654,103	153	3,653,490	CLASS 211	85	3,653,586
88	3,653,990	152	16B	3,654,104	171	3,653,491	13	43.2	3,653,587
145.6	3,653,991	155	35GC	3,654,105	175	3,653,492	43	CLASS 235	3,653,588
266	3,653,992	178	47	3,654,106	189	3,653,493	1	7A	3,654,143
284	3,653,993	204	117F	3,654,107	195	3,653,494	125	30R	3,653,589
296	3,653,994	212	153G	3,654,108	CLASS 200	3,654,094	CLASS 212	61.11E	3,654,144
303.1	3,653,995	215	163F	3,654,109	33R	3,654,098	CLASS 214	61.12M	3,654,145
303.17	3,653,996	217	CLASS 175	3,654,110	48R	3,654,099	1R	78	3,654,146
347	3,653,997	245	CLASS 176	3,654,111	61.19	3,654,101	17DB	84	3,654,147
354	3,653,998	247	CLASS 177	3,654,112	61.45R	3,654,101	38CA	3,654,148	3,654,148
360	3,653,999	251	CLASS 178	3,654,113	83Z	3,654,102	83.3	92LG	3,654,149
CLASS 131	3,653,100	255	5.4HE	3,654,114	86R	3,654,103	138	92PC	3,654,150
11	3,653,101	291	5.45Y	3,654,115	136	3,654,104	145	92PE	3,654,151
CLASS 132	3,653,102	320	6.6P	3,654,116	167R	3,654,105	309	150.2	3,654,152
40	3,653,103	331	6.6P	3,654,117	168G	3,654,106	313	151.1	3,654,153
41	3,653,104	345	6.6P	3,654,118	CLASS 202	3,654,092	331	151.3	3,654,154
CLASS 134	3,653,105	415	6.6P	3,654,119	61.19	3,653,516	CLASS 218	153	3,654,155
26	3,653,106	438	6.6P	3,654,120	61.45R	3,653,517	38R	156	3,654,156
42	3,653,107	441	6.6P	3,654,121	83Z	3,653,518	CLASS 219	197	3,654,157
CLASS 136	3,653,108	470	6.6P	3,654,122	86R	3,653,519	10.55	49	3,654,158
30	3,653,109	494	6.6P	3,654,123	136	3,653,520	CLASS 220	3	3,654,159
75	3,653,110	502	6.6P	3,654,124	167R	3,653,521	5A	8.16	3,654,160
83R	3,653,111	505	6.6P	3,654,125	168G	3,653,522	9F	25	3,654,161
83	3,653,112	510	6.6P	3,654,126	CLASS 203	3,653,523	40R	41.35E	3,654,162
86C	3,653,113	512	6.6P	3,654,127	61.19	3,653,524	46R	93	3,654,163
59	3,653,114	518	6.6P	3,654,128	61.45R	3,653,525	54	74	3,653,526
90	3,653,115	521	6.6P	3,654,129	83Z	3,653,526	85	3	3,653,527
114	3,653,116	558	6.6P	3,654,130	86R	3,653,527	CLASS 221	3	3,653,528
170	3,653,117	580	6.6P	3,654,131	136	3,653,528	1	60	3,653,529
225	3,653,118	582	6.6P	3,654,132	167R	3,653,529	73	68.3	3,653,530
231	3,653,119	598	6.6P	3,654,133	168G	3,653,530	150HC	71.2	3,653,531
CLASS 137	3,653,120	602	6.6P	3,654,134	CLASS 204	3,653,531	374	74	3,653,532
102	3,653,121	606	6.6P	3,654,135	61.19	3,653,532	CLASS 222	55.19A	3,653,533
114	3,653,122	610	6.6P	3,654,136	61.45R	3,653,533	5A	60	3,653,534
209	3,653,123	614	6.6P	3,654,137	83Z	3,653,534	9F	60.3	3,653,535
270	3,653,124	618	6.6P	3,654,138	86R	3,653,535	40R	71.2	3,653,536
315	3,653,125	622	6.6P	3,654,139	136	3,653,536	46R	74	3,653,537
334	3,653,126	626	6.6P	3,654,140	167R	3,653,537	54	74	3,653,538
344	3,653,127	630	6.6P	3,654,141	168G	3,653,538	85	74	3,653,539
355.17	3,653,128	634	6.6P	3,654,142	CLASS 205	3,653,539	CLASS 223	55.19A	3,653,540
493	3,653,129	638	6.6P	3,654,143	61.19	3,653,540	1	60	3,653,541
512.3	3,653,130	642	6.6P	3,654,144	61.45R	3,653,541	73	68.3	3,653,542
565	3,653,131	646	6.6P	3,654,145	83Z	3,653,542	150HC	71.2	3,653,543
594	3,653,132	650	6.6P	3,654,146	86R	3,653,543	374	74	3,653,544
599.2	3,653,133	654	6.6P	3,654,147	136	3,653,544	CLASS 224	55.19A	3,653,545
615	3,653,134	658	6.6P	3,654,148	167R	3,653,545	5A	60	3,653,546
625.6	3,653,135	662	6.6P	3,654,149	168G	3,653,546	9F	60.3	3,653,547
625.63	3,653,136	666	6.6P	3,654,150	CLASS 206	3,653,547	40R	71.2	3,653,548
89	3,653,137	670	6.6P	3,654,151	61.19	3,653,548	46R	74	3,653,549
CLASS 138	3,653,138	674	6.6P	3,654,152	61.45R	3,653,549	54	74	3,653,550
1	3,653,139	678	6.6P	3,654,153	83Z	3,653,550	85	74	3,653,551
92.1	3,653,140	682	6.6P	3,654,154	86R	3,653,551	CLASS 225	55.19A	3,653,552
CLASS 140	3,653,141	686	6.6P	3,654,155	136	3,653,552	1	60	3,653,553
1	3,653,142	690	6.6P	3,654,156	167R	3,653,553	73	68.3	3,653,554
92.1	3,653,143	694	6.6P	3,654,157	168G	3,653,554	150HC	71.2	3,653,555
CLASS 141	3,653,144	698	6.6P	3,654,158	CLASS 207	3,653,555	374	74	3,653,556
1	3,653,145	702	6.6P	3,654,159	61.19	3,653,556	CLASS 226	55.19A	3,653,557
92.1	3,653,146	706	6.6P	3,654,160	61.45R	3,653,557	5A	60	3,653,558
CLASS 142	3,653,147	710	6.6P	3,654,161	83Z	3,653,558	9F	60.3	3,653,559
1	3,653,148	714	6.6P	3,654,162	86R	3,653,559	40R	71.2	3,653,560
92.1	3,653,149	718	6.6P	3,654,163	136	3,653,560	46R	74	3,653,561
CLASS 143	3,653,150	722	6.6P	3,654,164	167R	3,653,561	54	74	3,653,562
1	3,653,151	726	6.6P	3,654,165	168G	3,653,562	85	74	3,653,563
92.1	3,653,152	730	6.6P	3,654,166	CLASS 208	3,653,563	CLASS 227	55.19A	3,653,564
CLASS 144	3,653,153	734	6.6P	3,654,167	61.19	3,653,564	1	60	3,653,565
1	3,653,154	738	6.6P	3,654,168	61.45R	3,653,565	73	68.3	3,653,566
92.1	3,653,155	742	6.6P	3,654,169	83Z	3,653,566	150HC	71.2	3,653,567
CLASS 145	3,653,156	746	6.6P	3,654,170	86R	3,653,567	374	74	3,653,568
1	3,653,157	750	6.6P	3,654,171	136	3,653,568	CLASS 228		

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191	3,653,606	3,653,639	3,654,291	CLASS 272	252W	3,654,489	3,654,568	
198	3,653,607	3,653,640	3,654,292	29	3,653,657	3,654,490	3,654,569	
199	3,653,608	3,653,637	3,654,293	63	3,653,658	3,654,491	CLASS 333	
CLASS 244	3,653,609	2N	3,654,191	68	3,653,659	3,654,492	3,654,570	
13	3,653,610	2P	3,654,192	304	3,654,296	3,654,493	11	3,654,571
48E	3,653,611	2P	3,654,193	306.5	3,654,297	3,654,494	21R	3,654,572
83E	3,653,612	2P	3,654,194	307C	3,654,298	3,654,495	22R	3,654,573
103R	3,653,613	2.5AH	3,654,195	309	3,654,299	3,654,496	30	3,654,574
137R	3,653,614	2.5AP	3,654,196	309.6	3,654,300	3,654,497	31A	3,654,575
137	3,653,615	2.5M	3,654,197	325	3,654,301	3,654,498	98R	3,654,576
190	3,653,616	2.5N	3,654,198	326S	3,654,302	3,654,499	312	3,654,577
CLASS 246	3,654,456	4R	3,654,199	326.12R	3,654,303	3,654,500	CLASS 308	3,653,731
182B	3,654,456	16	3,654,199	326.13R	3,654,304	3,653,732	184	3,653,731
CLASS 248	3,653,617	17.2	3,654,199	326.14R	3,654,305	3,653,732	193	3,653,732
42	3,653,617	19UA	3,654,200	326.5FM	3,654,306	3,654,501	CLASS 310	3,654,500
58	3,653,618	23ST	3,654,201	326.5R	3,654,305	3,654,501	8.3	3,654,500
99	3,653,619	23H	3,654,202	332.2C	3,654,310	3,654,502	10	3,654,501
101	3,653,620	27	3,654,206	332.3R	3,654,309	3,654,503	26	3,654,502
119S	3,653,621	28.5AV	3,654,207	340.9	3,654,311	3,654,504	162	3,654,503
221	3,653,622	29.6ME	3,654,208	343.2R	3,654,312	3,654,504	239	3,654,504
231	3,653,623	29.6TA	3,654,209	343.3	3,654,313	3,654,505	CLASS 312	3,653,733
312	3,653,624	29.6F	3,654,210	345.7	3,654,314	3,653,733	39	3,653,733
358R	3,653,625	31.6	3,654,211	345.7	3,654,315	3,653,734	107	3,653,734
371	3,653,626	32.6A	3,654,212	345.7	3,654,316	3,653,735	330	3,653,735
488	3,653,627	33.6GA	3,654,213	348.5L	3,654,317	3,654,506	CLASS 313	3,654,505
CLASS 249	3,653,629	37B	3,654,215	376	3,654,319	3,654,506	92B	3,654,505
19	3,653,629	37S	3,654,215	376	3,654,319	3,654,506	184	3,654,506
214	3,653,628	41B	3,654,216	397.4	3,654,320	3,654,507	198	3,654,507
CLASS 280	3,654,457	41	3,654,217	398	3,654,321	3,654,508	CLASS 318	3,654,509
41.9S	3,654,457	41.5A	3,654,219	400	3,654,322	3,653,688	3.5	3,654,509
43.5FL	3,654,458	41.5R	3,654,218	410.9R	3,654,323	3,653,689	29	3,654,510
49.5TE	3,654,459	45.75K	3,654,222	412.4	3,654,325	3,653,689	59	3,654,511
51.5	3,654,460	45.9R	3,654,220	413	3,654,326	3,653,685	64	3,654,512
65ZE	3,654,461	45.9R	3,654,221	418	3,654,327	3,653,686	111	3,654,513
65	3,654,462	45.9S	3,654,225	429.9	3,654,328	3,653,687	156	3,654,514
71R	3,654,463	47C	3,654,225	429.9	3,654,328	3,653,687	CLASS 317	3,654,515
71.5R	3,654,464	50	3,654,226	440	3,654,330	3,653,688	18D	3,654,515
71.5S	3,654,465	67FP	3,654,228	448R	3,654,331	3,653,689	27R	3,654,516
83.1	3,654,467	67.6R	3,654,229	448.2N	3,654,332	3,653,690	33R	3,654,517
83.3H	3,654,466	75NR	3,654,230	453PH	3,654,336	3,653,691	36TD	3,654,518
83.3R	3,654,468	75M	3,654,231	453R	3,654,333	3,653,692	61	3,654,519
83.6R	3,654,469	75R	3,654,233	454	3,654,334	3,653,693	100	3,654,521
83.6W	3,654,470	75R	3,654,234	456R	3,654,335	3,653,694	134	3,654,522
85	3,654,471	75T	3,654,232	463	3,654,337	3,653,695	230	3,654,523
106	3,654,472	78A	3,654,238	464	3,654,339	3,653,696	CLASS 319	3,654,524
199	3,654,473	78R	3,654,236	465.4	3,654,340	3,653,697	234R	3,654,525
203	3,654,475	78R	3,654,236	465.5R	3,654,341	3,653,698	238P	3,654,526
206	3,654,476	78S	3,654,235	465.8	3,654,342	3,653,699	239R	3,654,527
211J	3,654,476	78.4N	3,654,239	465.8	3,654,342	3,653,699	239R	3,654,527
217SS	3,654,477	78.5	3,654,240	473R	3,654,343	3,653,699	239R	3,654,528
219DC	3,654,478	79	3,654,241	475P	3,654,344	3,653,700	239R	3,654,529
231SE	3,654,479	79.3R	3,654,242	481R	3,654,344	3,653,701	239R	3,654,530
231R	3,654,480	79.5B	3,654,243	482R	3,654,346	3,653,702	239R	3,654,531
CLASS 281	3,653,630	79.7	3,654,244	484R	3,654,347	3,653,703	239R	3,654,532
129	3,653,630	80	3,654,245	486R	3,654,348	3,653,704	239R	3,654,533
159	3,653,631	80.7	3,654,246	508	3,654,348	3,653,705	239R	3,654,534
304	3,653,632	86.1E	3,654,247	515M	3,654,349	3,653,706	239R	3,654,535
354	3,653,633	87.5	3,654,248	524R	3,654,356	3,653,707	239R	3,654,536
CLASS 282	3,654,164	88.2C	3,654,250	525	3,654,350	3,653,708	239R	3,654,537
8.5A	3,654,164	88.2	3,654,249	525	3,654,350	3,653,708	239R	3,654,538
8.5C	3,654,151	88.3	3,654,251	525	3,654,351	3,653,709	239R	3,654,539
30	3,654,171	92.8A	3,654,252	527R	3,654,352	3,653,710	239R	3,654,540
32.7	3,654,152	94.9B	3,654,254	533C	3,654,355	3,653,711	239R	3,654,541
42.1	3,654,153	94.9R	3,654,253	533N	3,654,354	3,653,712	239R	3,654,542
46.6	3,654,154	97.6	3,654,255	544Y	3,654,358	3,653,713	239R	3,654,543
46.6	3,654,155	105	3,654,256	551S	3,654,359	3,653,714	239R	3,654,544
46.5	3,654,156	141	3,654,257	552R	3,654,357	3,653,715	239R	3,654,545
49.5	3,654,157	154	3,654,258	558R	3,654,360	3,653,716	239R	3,654,546
49.9	3,654,158	157	3,654,259	561A	3,654,361	3,653,717	239R	3,654,547
62.56	3,654,161	205	3,654,260	564E	3,654,362	3,653,718	239R	3,654,548
62.57	3,654,162	210R	3,654,261	571	3,654,364	3,653,719	239R	3,654,549
62.63	3,654,163	215FP	3,654,190	575	3,654,365	3,653,720	239R	3,654,550
62.9	3,654,159	233.3R	3,654,263	577	3,654,363	3,653,721	239R	3,654,551
90	3,654,165	239A	3,654,264	580	3,654,366	3,653,722	239R	3,654,552
117	3,654,166	239.1	3,654,265	583EE	3,654,367	3,653,723	239R	3,654,553
119	3,654,167	268H	3,654,276	583NH	3,654,369	3,653,724	239R	3,654,554
135	3,654,168	239.3A	3,654,267	584B	3,654,370	3,653,725	239R	3,654,555
180	3,654,169	239.3D	3,654,268	586A	3,654,371	3,653,726	239R	3,654,556
181	3,654,170	240A	3,654,269	606.5P	3,654,372	3,653,727	239R	3,654,557
301.4F	3,654,172	243AA	3,654,270	CLASS 261	3,653,641	3,653,728	239R	3,654,558
301.4P	3,654,173	247	3,654,271	18	3,653,642	3,653,729	239R	3,654,559
305	3,654,175	248CS	3,654,273	39B	3,653,643	3,653,730	239R	3,654,560
313R	3,654,176	249.8	3,654,274	56	3,653,643	3,653,731	239R	3,654,561
356	3,654,177	250R	3,654,275	CLASS 263	3,653,644	3,653,732	239R	3,654,562
408	3,654,178	251A	3,654,204	21A	3,653,645	3,653,733	239R	3,654,563
414	3,654,179	268PH	3,654,205	32R	3,653,645	3,653,734	239R	3,654,564
415	3,654,181	268H	3,654,276	CLASS 266	3,653,646	3,653,735	239R	3,654,565
431N	3,654,182	268R	3,654,279	23T	3,653,647	3,653,736	239R	3,654,566
442	3,654,183	270R	3,654,280	31	3,653,648	3,653,737	239R	3,654,567
452	3,654,184	285	3,654,281	35	3,653,649	3,653,738	239R	3,654,568
458Z	3,654,185	286R	3,654,282	36P	3,653,649	3,653,739	239R	3,654,569
465	3,654,186	289R	3,654,283	CLASS 267	3,653,651	3,653,740	239R	3,654,570
511	3,654,187	290P	3,654,284	64B	3,653,652	3,653,741	239R	3,654,571
520	3,654,188	293.57	3,654,285	165	3,653,653	3,653,742	239R	3,654,572
CLASS 284	3,653,634	293.62	3,654,286	CLASS 271	3,653,654	3,653,743	239R	3,654,573
29A	3,653,634	293.76	3,654,287	44	3,653,655	3,653,744	239R	3,654,574
172	3,653,635	294.8G	3,654,293	62B	3,653,656	3,653,745	239R	3,654,575
173	3,653,636	295C	3,654,290	68	3,653,657	3,653,746	239R	3,654,576
CLASS 259	3,653,638	296R	3,654,290	CLASS 272	3,653,658	3,653,747	239R	3,654,577
4	3,653,638	297R	3,654,291	CLASS 273	3,653,659	3,653,748	239R	3,654,578
		302A	3,654,292	CLASS 274	3,653,660	3,653,749	239R	3,654,579
		302R	3,654,293	4F	3,653,661	3,653,750	239R	3,654,580
		304	3,654,294	CLASS 275	3,653,662	3,653,751	239R	3,654,581
		306.5	3,654,295	29A	3,653,663	3,653,752	239R	3,654,582
		307C	3,654,296	85D	3,653,664	3,653,753	239R	3,654,583
		309	3,654,297	95R	3,653,665	3,653,754	239R	3,654,584
		309.6	3,654,298	96R	3,653,666	3,653,755	239R	3,654,585
		325	3,654,299	106.5B	3,653,667	3,653,756	239R	3,654,586
		326S	3,654,300	125R	3,653,668	3,653,757	239R	3,654,587
		326.12R	3,654,301	126R	3,653,669	3,653,758	239R	3,654,588
		326.13R	3,654,302	134D	3,653,670	3,653,759	239R	3,654,589
		326.14R	3,654,303	135AE	3,653,671	3,653,760	239R	3,654,590
		326.5FM	3,654,304	CLASS 276	3,653,672	3,653,761	239R	3,654,591
		326.5R	3,654,305	103	3,653,673	3,653,762	239R	3,654,592
		332.2C	3,654,306	164	3,653,674	3,653,763	239R	3,654,593
		332.3R	3,654,307	205	3,653,675			

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81	3,653,765	207	3,653,773	183	3,653,778	CLASS 417	508	3,653,788	133	3,653,336
86	3,653,766	254	3,653,774	206	3,653,779	12	534	3,653,789	328	3,653,793
102	3,653,767					298		3,653,783	394	3,653,337
104	3,653,768	CLASS 401		CLASS 408		317	CLASS 418	3,653,790	CLASS 431	
141	3,653,769	6	3,653,775	241	3,653,780	367	73	3,653,791	208	3,653,794
160	3,653,770	86	3,653,776	CLASS 416		404	CLASS 425	3,653,792	247	3,653,795
194	3,653,771	110	3,653,777	221	3,653,781	415	1	3,653,792	328	3,653,796
205	3,653,772									

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D 8—	57	223,324		27	223,242	D33—	17	223,259		22	223,275		4	223,294	D85—	2	223,310
	71	223,325		1	223,243			223,260		29	223,277		1	223,295		8	223,311
	114	223,326		8	223,244			223,261		31	223,278		1	223,296	D86—	10	223,312
	246	223,327		11	223,245			223,262		19	223,279			223,297		11	223,313
		223,328	D16—	1	223,247	D34—	5	223,263	D45—	19	223,280			223,298	D87—	3	223,314
		223,329	D18—	2	223,248			223,264	D48—	20	223,282			223,299	D90—	20	223,315
		223,330	D21—	27	223,249		15	223,265		27	223,283	D61—	11	223,300	D92—	26	223,316
		223,331	D23—	4	223,250			223,266			223,284	D64—	18	223,301			223,317
		223,332	D25—	1	223,251			223,267			223,285		1	223,302			223,318
		223,333	D26—	5	223,252			223,268			223,286	D71—	1	223,303			223,319
		223,334		13	223,253	D35—	3	223,269	D49—	21	223,287	D72—	5	223,304			223,320
		223,335		14	223,254	D42—	7	223,270	D52—	2	223,289	D74—	17	223,305			223,321
		223,336			223,255		8	223,271			223,291		10	223,306			223,322
		223,337			223,256			223,272			223,292			223,307			223,323
		223,338			223,257			223,273			223,288			223,308	D94—	3	223,324
		223,339						223,274									223,325
		223,340															

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PATENTS

1	3,653,297	3,653,603	3,654,107	3,653,445	3,654,256	3,653,610
	3,653,443	3,653,609	3,654,108	3,653,802	3,654,273	3,653,617
	3,653,549	3,653,618	3,654,113	3,654,230	3,654,355	3,653,621
4	3,653,737	3,653,626	3,654,149	3,654,617	3,654,405	3,653,625
	3,653,142	3,653,627	3,654,164	3,653,123	3,654,436	3,653,628
	3,653,475	3,653,629	3,654,168	3,653,163	3,654,538	3,653,666
	3,653,685	3,653,631	3,654,207	3,653,185	3,654,627	3,653,669
	3,654,443	3,653,633	3,654,244	3,653,263	3,653,088	3,653,675
	3,654,505	3,653,638	3,654,293	3,653,460	3,653,193	3,653,683
	3,654,588	3,653,655	3,654,321	3,653,499	3,653,465	3,653,690
5	3,653,501	3,653,659	3,654,322	3,653,505	3,653,530	3,653,699
	3,653,517	3,653,664	3,654,328	3,653,665	3,654,051	3,653,714
6	3,653,086	3,653,681	3,654,333	3,653,702	3,654,330	3,653,721
	3,653,100	3,653,684	3,654,337	3,653,776	3,653,108	3,653,722
	3,653,110	3,653,686	3,654,362	3,653,789	3,653,116	3,653,755
	3,653,111	3,653,687	3,654,385	3,653,915	3,653,117	3,653,757
	3,653,113	3,653,692	3,654,387	3,653,980	3,653,129	3,653,817
	3,653,120	3,653,694	3,654,392	3,654,275	3,653,132	3,653,843
	3,653,122	3,653,707	3,654,396	3,654,279	3,653,133	3,653,853
	3,653,127	3,653,712	3,654,398	3,654,283	3,653,179	3,653,855
	3,653,146	3,653,730	3,654,404	3,654,439	3,653,191	3,653,888
	3,653,149	3,653,743	3,654,407	3,654,467	3,653,236	3,653,900
	3,653,151	3,653,744	3,654,413	3,654,525	3,653,240	3,653,914
	3,653,155	3,653,748	3,654,419	3,654,569	3,653,242	3,653,922
	3,653,157	3,653,765	3,654,423	3,654,587	3,653,252	3,653,928
	3,653,168	3,653,780	3,654,433	3,654,613	3,653,260	3,653,932
	3,653,182	3,653,786	3,654,437	3,654,616	3,653,265	3,653,937
	3,653,213	3,653,805	3,654,438	3,653,801	3,653,278	3,653,939
	3,653,268	3,653,824	3,654,446	3,653,803	3,653,279	3,653,951
	3,653,274	3,653,831	3,654,449	3,653,849	3,653,299	3,653,974
	3,653,283	3,653,835	3,654,454	3,654,069	3,653,318	3,653,986
	3,653,294	3,653,847	3,654,473	3,654,307	3,653,331	3,654,012
	3,653,296	3,653,927	3,654,482	3,653,660	3,653,334	3,654,033
	3,653,339	3,653,930	3,654,490	3,654,036	3,653,344	3,654,039
	3,653,392	3,653,953	3,654,509	3,653,126	3,653,369	3,654,040
	3,653,394	3,653,956	3,654,530	3,653,186	3,653,396	3,654,061
	3,653,395	3,653,970	3,654,534	3,653,195	3,653,401	3,654,082
	3,653,404	3,653,975	3,654,581	3,653,275	3,653,402	3,654,087
	3,653,413	3,653,993	3,654,582	3,653,321	3,653,405	3,654,088
	3,653,421	3,653,994	3,654,584	3,653,411	3,653,442	3,654,089
	3,653,452	3,653,995	3,654,591	3,653,494	3,653,449	3,654,122
	3,653,461	3,653,997	3,654,595	3,653,547	3,653,450	3,654,129
	3,653,513	3,653,998	3,654,598	3,653,585	3,653,451	3,654,133
	3,653,514	3,654,000	3,654,599	3,653,611	3,653,507	3,654,141
	3,653,516	3,654,001	3,654,603	3,653,641	3,653,519	3,654,158
	3,653,541	3,654,015	3,654,610	3,653,729	3,653,521	3,654,182
	3,653,550	3,654,028	3,654,623	3,653,812	3,653,557	3,654,185
	3,653,553	3,654,038	3,654,624	3,653,904	3,653,561	3,654,186
	3,653,564	3,654,050	3,654,626	3,654,018	3,653,581	3,654,220
	3,653,568	3,654,077	3,654,628	3,654,235	3,653,599	3,654,261
	3,653,572	3,654,091	8	3,653,135	3,654,236	3,654,263

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,654,414	3,654,190	3,653,991	3,654,032	3,653,848	3,653,860
3,654,416	3,654,379	3,654,101	3,654,039	3,653,863	3,653,861
3,654,422	3,654,395	3,654,202	3,654,060	3,653,862	3,653,862
3,654,429	3,654,408	3,654,308	3,654,064	3,653,863	3,653,868
3,654,439	3,654,496	3,654,320	3,654,095	3,653,876	3,653,882
3,654,517	3,654,537	3,654,324	3,654,110	3,653,879	3,653,918
3,654,518	3,654,553	3,654,382	3,654,121	3,653,885	3,653,942
3,654,546	3,654,576	3,654,383	3,654,126	3,653,887	3,653,945
3,654,548	3,654,604	3,654,424	3,654,134	3,653,889	3,653,965
3,654,553	3,654,619	3,654,444	3,654,136	3,653,891	3,653,968
3,654,574	3,653,083	3,654,339	3,654,154	3,653,892	3,654,002
3,654,578	3,653,087	3,653,085	3,654,155	3,653,893	3,654,026
3,653,081	3,653,089	3,653,138	3,654,157	3,653,896	3,654,053
3,653,082	3,653,119	3,653,147	3,654,177	3,653,897	3,654,057
3,653,102	3,653,131	3,653,253	3,654,221	3,653,899	3,654,092
3,653,153	3,653,241	3,653,273	3,654,258	3,653,910	3,654,188
3,653,250	3,653,262	3,653,332	3,654,262	3,653,911	3,654,216
3,653,383	3,653,308	3,653,341	3,654,278	3,653,926	3,654,314
3,653,448	3,653,313	3,653,446	3,654,290	3,653,929	3,654,359
3,653,500	3,653,353	3,653,455	3,654,291	3,653,935	3,654,388
3,653,534	3,653,356	3,653,539	3,654,299	3,653,961	3,654,456
3,653,563	3,653,362	3,653,624	3,654,302	3,653,982	3,654,468
3,653,578	3,653,384	3,653,639	3,654,303	3,653,987	3,654,474
3,653,583	3,653,429	3,653,845	3,654,313	3,654,022	3,654,514
3,653,613	3,653,432	3,653,912	3,654,323	3,654,023	3,654,560
3,653,623	3,653,444	3,653,916	3,654,326	3,654,034	3,654,602
3,653,630	3,653,462	3,653,917	3,654,335	3,654,045	3,653,076
3,653,679	3,653,504	3,653,925	3,654,342	3,654,047	3,653,077
3,653,682	3,653,582	3,653,972	3,654,343	3,654,049	3,653,215
3,653,839	3,653,594	3,654,043	3,654,347	3,654,062	3,653,379
3,653,931	3,653,732	3,654,073	3,654,349	3,654,097	3,653,438
3,653,976	3,653,739	3,654,192	3,654,356	3,654,123	3,653,840
3,654,041	3,653,742	3,654,241	3,654,367	3,654,140	3,653,844
3,654,138	3,653,760	3,654,340	3,654,374	3,654,144	3,654,102
3,654,179	3,653,761	3,654,341	3,654,375	3,654,162	3,654,212
3,654,180	3,653,815	3,654,361	3,654,386	3,654,167	3,654,458
3,654,219	3,653,850	3,654,369	3,654,400	3,654,172	3,654,460
3,654,229	3,653,851	3,654,417	3,654,440	3,654,178	3,653,090
3,654,240	3,653,859	3,654,484	3,654,441	3,654,195	3,653,506
3,654,251	3,653,969	3,653,602	3,654,463	3,653,670	3,653,670
3,654,287	3,653,977	3,654,250	3,654,466	3,653,963	3,653,963
3,654,384	3,654,052	3,653,093	3,654,476	3,654,215	3,654,017
3,654,411	3,654,067	3,653,145	3,654,483	3,654,231	3,654,231
3,654,504	3,654,068	3,653,374	3,654,492	3,654,247	3,654,247
3,653,137	3,654,072	3,653,531	3,654,497	3,654,265	3,653,099
3,653,141	3,654,103	3,653,540	3,654,499	3,654,281	3,653,103
3,653,173	3,654,115	3,653,875	3,654,499	3,654,297	3,653,104
3,653,271	3,654,117	3,653,973	3,654,507	3,654,332	3,653,124
3,653,523	3,654,125	3,654,081	3,654,508	3,654,333	3,653,130
3,653,555	3,654,173	3,654,151	3,654,531	3,654,377	3,653,139
3,653,577	3,654,174	3,654,169	3,654,544	3,654,389	3,653,156
3,653,586	3,654,224	3,654,170	3,654,556	3,654,390	3,653,161
3,653,658	3,654,312	3,654,170	3,654,562	3,654,410	3,653,162
3,653,662	3,654,324	3,654,300	3,654,565	3,654,415	3,653,164
3,653,703	3,654,381	3,654,344	3,654,572	3,654,435	3,653,166
3,653,709	3,654,391	3,654,346	3,654,579	3,654,448	3,653,171
3,653,944	3,654,394	3,654,372	3,654,590	3,654,455	3,653,181
3,654,080	3,654,431	3,654,428	3,654,606	3,654,469	3,653,188
3,654,494	3,654,434	3,653,337	3,654,607	3,654,476	3,653,211
3,654,597	3,654,493	3,653,672	3,654,624	3,654,527	3,653,222
3,653,080	3,654,520	3,653,075	3,654,629	3,654,529	3,653,233
3,653,342	3,654,521	3,653,092	3,654,647	3,654,540	3,653,247
3,653,420	3,654,523	3,653,112	3,654,649	3,654,547	3,653,249
3,653,535	3,654,524	3,653,128	3,654,654	3,654,554	3,653,259
3,653,566	3,654,530	3,653,140	3,654,563	3,654,567	3,653,323
3,654,585	3,654,534	3,653,152	3,654,567	3,654,589	3,653,333
3,653,224	3,654,536	3,653,160	3,654,599	3,654,615	3,653,348
3,653,426	3,654,596	3,653,165	3,654,622	3,654,622	3,653,364
3,653,463	3,653,118	3,653,170	3,653,180	3,653,385	3,653,389
3,653,476	3,653,143	3,653,245	3,653,190	3,653,396	3,653,390
3,653,734	3,653,176	3,653,322	3,653,234	3,653,406	3,653,406
3,654,201	3,653,194	3,653,335	3,653,267	3,653,408	3,653,408
3,654,510	3,653,208	3,653,354	3,653,290	3,653,486	3,653,491
3,654,609	3,653,212	3,653,373	3,653,298	3,653,515	3,653,515
3,653,219	3,653,217	3,653,423	3,653,305	3,653,524	3,653,524
3,653,269	3,653,237	3,653,467	3,653,357	3,653,525	3,653,525
3,653,349	3,653,244	3,653,498	3,653,358	3,653,527	3,653,536
3,653,392	3,653,245	3,653,503	3,653,380	3,653,554	3,653,554
3,654,130	3,653,248	3,653,545	3,653,386	3,653,560	3,653,560
3,654,184	3,653,272	3,653,559	3,653,387	3,653,571	3,653,571
3,654,194	3,653,277	3,653,588	3,653,391	3,653,576	3,653,580
3,654,274	3,653,280	3,653,592	3,653,403	3,653,584	3,653,598
3,654,331	3,653,291	3,653,608	3,653,418	3,653,591	3,653,616
3,654,447	3,653,293	3,653,612	3,653,437	3,653,601	3,653,647
3,653,316	3,653,340	3,653,614	3,653,459	3,653,611	3,653,648
3,654,011	3,653,425	3,653,637	3,653,474	3,653,616	3,653,649
3,654,076	3,653,430	3,653,652	3,653,484	3,653,623	3,653,668
3,653,098	3,653,431	3,653,656	3,653,490	3,653,624	3,653,695
3,653,239	3,653,458	3,653,738	3,653,497	3,653,637	3,653,708
3,653,255	3,653,464	3,653,745	3,653,507	3,653,641	3,653,720
3,653,261	3,653,479	3,653,746	3,653,511	3,653,647	3,653,723
3,653,317	3,653,485	3,653,756	3,653,518	3,653,657	3,653,782
3,653,324	3,653,512	3,653,767	3,653,522	3,653,657	3,653,791
3,653,351	3,653,574	3,653,814	3,653,532	3,653,657	3,653,794
3,653,360	3,653,575	3,653,833	3,653,567	3,653,693	3,653,799
3,653,377	3,653,596	3,653,834	3,653,657	3,653,700	3,653,800
3,653,399	3,653,676	3,653,838	3,653,741	3,653,728	3,653,813
3,653,444	3,653,696	3,653,752	3,653,752	3,653,775	3,653,816
3,653,711	3,653,701	3,653,943	3,653,759	3,653,781	3,653,829
3,653,758	3,653,711	3,653,946	3,653,762	3,653,783	3,653,832
3,653,769	3,653,725	3,653,960	3,653,772	3,653,788	3,653,842
3,653,940	3,653,731	3,653,967	3,653,773	3,653,797	3,653,852
3,653,959	3,653,753	3,653,988	3,653,779	3,653,806	3,653,857
3,653,966	3,653,907	3,653,992	3,653,793	3,653,857	3,653,873
3,654,146	3,653,881	3,654,003	3,653,823	3,653,858	
3,654,147	3,653,894	3,654,005	3,653,828		
3,654,165	3,653,908	3,654,016	3,653,841		

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,653,874	3,654,475	46 :	3,653,287	3,653,510	3,654,464	3,653,716		
3,653,883	3,654,477	47 :	3,653,276	3,653,526	3,654,470	3,653,895		
3,653,901	3,654,486		3,653,314	3,653,538	3,654,500	3,653,924		
3,653,941	3,654,503		3,653,363	3,653,556	3,654,526	3,654,046		
3,653,950	3,654,512		3,653,372	3,653,573	3,654,601	3,654,175		
3,653,958	3,654,513		3,653,441	3,653,606	3,654,611	3,654,353		
3,653,990	3,654,516		3,653,622	49 :	3,653,114	54 :	3,653,509	
3,653,996	3,654,519		3,653,724	3,653,635	3,653,587	55 :	3,653,136	
3,654,029	3,654,528		3,654,198	3,653,636	50 :	3,653,169	3,653,192	
3,654,031	3,654,535		3,654,232	3,653,671	3,654,109		3,653,223	
3,654,042	3,654,541		3,654,239	3,653,717	51 :	3,653,101	3,653,282	
3,654,048	3,654,545		3,654,373	3,653,792		3,653,310	3,653,310	
3,654,127	3,654,551		3,654,451	3,653,837		3,653,355	3,653,338	
3,654,131	3,654,583	48 :	3,653,115	3,653,899		3,653,551	3,653,375	
3,654,132	3,654,592		3,653,144	3,653,909		3,653,698	3,653,409	
3,654,137	3,654,594		3,653,150	3,654,008		3,653,909	3,653,412	
3,654,148	3,654,607		3,653,184	3,654,027		3,654,058	3,653,477	
3,654,193	3,654,608		3,653,214	3,654,093		3,654,189	3,653,489	
3,654,204	3,654,621		3,653,221	3,654,128		3,654,226	3,653,502	
3,654,205	3,654,625		3,653,257	3,654,142		3,654,226	3,653,520	
3,654,211	3,653,091		3,653,266	3,654,181		3,654,304	3,653,522	
3,654,213	3,653,177		3,653,370	3,654,183		3,654,305	3,653,643	
3,654,222	3,653,546		3,653,381	3,654,315	53 :	3,654,306	3,653,645	
3,654,242	3,653,569		3,653,393	3,654,350		3,654,532	3,653,680	
3,654,266	3,653,949		3,653,435	3,654,351		3,653,084	3,653,766	
3,654,296	3,653,952		3,653,436	3,654,352		3,653,302	3,653,921	
3,654,318	3,654,206		3,653,437	3,654,358		3,653,388	3,654,006	
3,654,327	3,653,105		3,653,439	3,654,370		3,653,400	3,654,020	
3,654,376	3,653,955		3,653,440	3,654,421		3,653,417	3,654,070	
3,654,403	3,654,055		3,653,468	3,654,430		3,653,447	3,654,086	
3,654,427	3,654,380		3,653,493			3,653,543	3,654,124	
3,654,430			3,653,495			3,653,565	3,654,284	
						3,653,710	3,654,453	
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PATENT OFFICE NOTICES

Certificates of Correction for the Week of Apr. 11, 1972

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3,411,353
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3,586,837

Dedications

3,496,088.—*Jean Pfau*, Geneva and *Heinz Rhyner*, Meyrin-Geneva, Switzerland. ELECTROLYTIC MACHINING APPARATUS. Patent dated Feb. 17, 1970. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,520,791.—*Jean Pfau*, Geneva, *Heinz Rhyner*, Meyrin-Geneva, and *Georges Marendaz*, Geneva, Switzerland. PROTECTIVE CIRCUIT FOR ELECTROLYTIC MACHINING APPARATUS. Patent dated July 14, 1970. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,536,603.—*Benno Ibo Bonga*, Onex, Geneva, Switzerland. ELECTRICAL CONNECTORS TO A WORKPIECE IN ELECTRO-EROSION MACHINES. Patent dated Oct. 27, 1970. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,561,213.—*Samuel Shiber*, Chicago, Ill. DUAL RATIO MASTER CYLINDER. Patent dated Feb. 9, 1971. Dedication filed Jan. 21, 1972, by the assignee, *Borg-Warner Corporation*.

Hereby dedicates to the People of the United States the entire remaining term of said patent.

Corrected Dedication

2,715,599.—*John F. Les Veaux*, Middleport, and *Calvin M. Tidwell*, Medina, N.Y. METHOD OF MAKING INSECTICIDAL CALCIUM ARSENATE BATCH. Patent dated Aug. 16, 1955. Dedication filed Nov. 4, 1971, by the assignee *FMC Corporation*.

Hereby dedicates to the Public the remaining term of said patent.

Disclaimers and Dedications

3,416,772.—*William C. Sheehan*, Bartlesville, Okla. METHOD OF FIBRILLATION. Patent dated Dec. 17, 1968. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,423,888.—*Claude V. Brown*, Bartlesville, Okla. FIBRILLATION. Patent dated Jan. 28, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,424,358.—*Leroy E. Robinson* and *Dan E. Perry*, Bartlesville, Okla. METHOD FOR PRODUCING FIBRILLATED FILM. Patent dated Jan. 28, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,431,875.—*Harold D. Boultinghouse*, Bartlesville, Okla. TUFTED ARTICLES AND METHOD FOR MAKING SAME. Patent dated Mar. 11, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,460,416.—*Dixie E. Gilbert*, Bartlesville, Okla. FIBRILLATION METHOD. Patent dated Aug. 12, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

APRIL 11, 1972

U. S. PATENT OFFICE

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3,473,206.—*Harold D. Boultinghouse*, Bartlesville, Okla. FIBRILLATION. Patent dated Oct. 21, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,478,142.—*Max E. Greene*, Bartlesville, Okla. METHOD OF PLEATING AND STRETCHING PLASTIC FILM. Patent dated Nov. 11, 1969. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,490,663.—*Bradley Skinner*, Bartlesville, Okla. FIBRILLATION. Patent dated Jan. 20, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,490,664.—*Harold D. Boultinghouse*, Bartlesville, Okla. RECIPROCATING PLASTIC FILM SPLITTER. Patent dated Jan. 20, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,491,928.—*Harold D. Boultinghouse*, Bartlesville, Okla. FIBRILLATION OF ORIENTED FILM. Patent dated Jan. 27, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,511,901.—*Claude V. Brown*, Bartlesville, Okla. FIBRILLATION OF PLASTIC FILM. Patent dated May 12, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,541,197.—*James K. Hughes*, Bartlesville, Okla. PRODUCTION OF NET-LIKE STRUCTURES. Patent dated Nov. 17, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,548,048.—*James K. Hughes* and *Jake E. Williams*, Bartlesville, Okla. METHOD OF PRODUCING POLYMERIC ARTICLES RESISTANT TO FIBRILLATION. Patent dated Dec. 15, 1970. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,554,419.—*Leroy E. Robinson* and *Dan E. Perry*, Bartlesville, Okla. NONWOVEN FABRICS. Patent dated Jan. 12, 1971. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,566,735.—*Max E. Greene*, Spartanburg, S.C. FIBRILLATION. Patent dated Mar. 2, 1971. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,577,724.—*Max E. Greene*, Bartlesville, Okla. METHOD OF FIBRILLATING AND TWISTING ORIENTED FILM. Patent dated May 4, 1971. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,579,618.—*Dan F. Stewart*, *Bob C. Blair*, *Max E. Greene*, and *Lloyd R. Alexander*, Bartlesville, Okla. HIGH SPEED FIBRILLATION PROCESS. Patent dated May 18, 1971. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

3,596,816.—*Claude V. Brown*, Bartlesville, Okla. FIBRILLATION METHOD. Patent dated Aug. 3, 1971. Disclaimer and dedication filed Dec. 28, 1971, by the assignee, *Phillips Petroleum Company*.

Hereby disclaims said patent and dedicates to the Public the remaining term of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 21, 1972

PATENT EXAMINING GROUPS

Actual
Filing Date
of Oldest
New Case
Awaiting
Action

CHEMICAL EXAMINING GROUPS

- GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... 1-11-71
Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock;
Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions;
Fuel and Igniting Devices.
- GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... 9-04-70
Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids;
Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.
- HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... 1-25-71
Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins
With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding;
Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.
- COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director... 2-01-71
Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chem-
ical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.
- SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... 10-01-70
Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas;
Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas
and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.

ELECTRICAL EXAMINING GROUPS

- INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... 7-21-71
Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches;
Miscellaneous.
- SECURITY, GROUP 220—R. L. CAMPBELL, Director..... 2-11-71
Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-
Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.
- INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... 3-03-71
Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and
Related Arts.
- ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... 4-01-71
Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and
Networks; Optics; Radiant Energy; Measuring.
- PHYSICS, GROUP 280—R. L. EVANS, Director..... 1-06-71
Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.
- DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... 1-06-71
Industrial Arts; Household, Personal and Fine Arts.

MECHANICAL EXAMINING GROUPS

- HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... 2-03-71
Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling;
Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics;
Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Recep-
tacles and Packages.
- MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... 1-08-71
Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire
Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block
and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery;
Jacks.
- AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... 1-04-71
Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating;
Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Trolley; Printing; Typewriters; Stationery;
Information Dissemination.
- HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... 3-17-71
Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation;
Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lu-
brication; Joint Packing.
- CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... 2-03-71
Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators;
Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal
Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and
Reeling.

Expiration of patents: The patents within the range of numbers indicated below expire during April 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1964 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,705,322 to 2,707,276, inclusive
Plant Patents..... Numbers 1,374 to 1,388, inclusive

REISSUES

APRIL 11, 1972

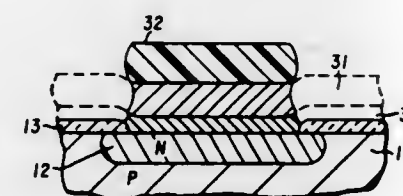
Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,325 MULTILEVEL OHMIC CONTACTS FOR SEMICONDUCTOR DEVICES

James A. Cunningham, Houston, and Robert P. Williams, Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Original No. 3,341,753, dated Sept. 12, 1967, Ser. No. 405,461, Oct. 21, 1964. Application for reissue Sept. 12, 1969, Ser. No. 862,993

Int. Cl. H01L 5/02
U.S. Cl. 317—232 R 13 Claims



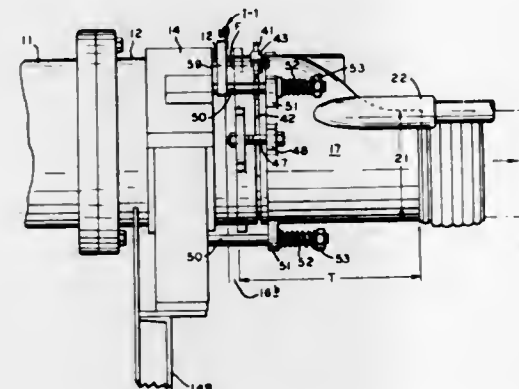
A multilevel expanded ohmic contact to a semiconductor device where the ohmic contact includes a molybdenum film and an overlying layer of highly conductive metal as aluminum. The molybdenum and aluminum films may be deposited by evaporation techniques described herein.

27,326 TRUNNION VALVE FOR CONTINUOUS ROTARY FILTER

John A. Sheaffer, South Norwalk, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Original No. 3,455,454, dated July 15, 1969, Ser. No. 692,085, Dec. 20, 1967. Application for reissue Oct. 1, 1969, Ser. No. 868,248

Int. Cl. B01D 33/08, 33/06, 33/02
U.S. Cl. 210—91 42 Claims



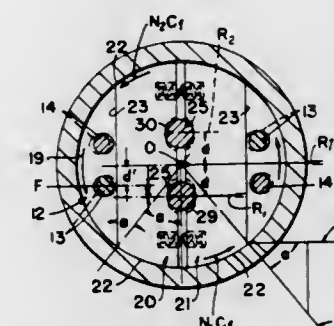
Improved trunnion valve for rotary filters providing a bridge plate assembly having simple and compact means for adjusting the bridge blocks from the outside, thereby varying the extent and location of respective operating zones of the filtration cycle without necessitating the dismounting of the valve.

27,327 BALANCED BI-DIRECTIONAL NO-BACK MECHANISM

Ilmars Kalns, Taylor, Mich., assignor to Formsprag Company, Warren, Mich.

Original No. 3,414,095, dated Dec. 3, 1968, Ser. No. 605,872, Dec. 29, 1966. Application for reissue Dec. 2, 1969, Ser. No. 881,400

Int. Cl. F16d 67/00, 51/04
U.S. Cl. 192—8 3 Claims



A no-back type clutch or anti-feed-back or torque transmitting mechanism is disclosed which has two brake shoes normally urged in a direction to engage a cylindrical brake drum surface, but separated from the latter by the action of driving pins on a power input member. The output member has driven and reaction transmitting pins extending between the brake shoes; and in response to an excessive torque load the output pins spread the shoes into braking engagement with the drum surface, thus limiting the feed back of torque to the input. The output pins react against the shoes on a greater length moment arm than do the input pins, with a resultant couple-balancing effect.

27,328 THERMOSETTING RESINS DERIVED FROM N-3-OXOHYDROCARBON-SUBSTITUTED ACRYLAMIDES

John Wesley Forsberg, Mentor-on-the-Lake, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

No Drawing. Original No. 3,518,326, dated June 30, 1970, Ser. No. 826,006, May 19, 1969, which is a continuation-in-part of Ser. No. 619,565, Mar. 1, 1967. Application for reissue Oct. 9, 1970, Ser. No. 79,716

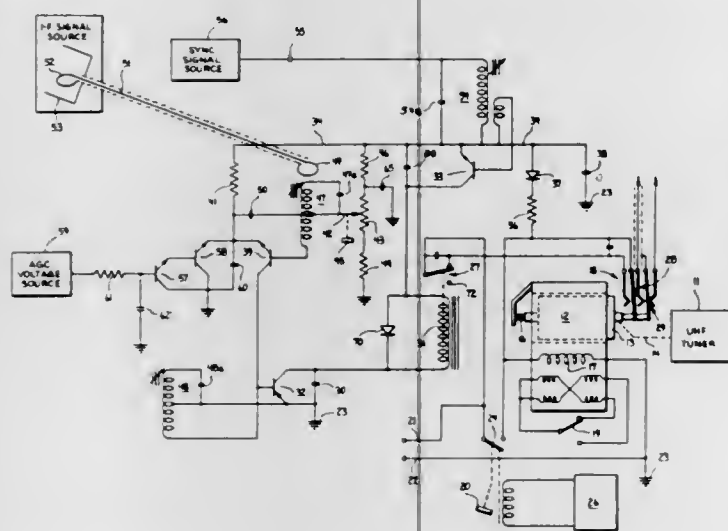
Int. Cl. C08g 37/38
U.S. Cl. 260—828 21 Claims

A thermosetting polymeric composition is prepared by the reaction of an N-3-oxohydrocarbon-substituted acrylamide (preferably diacetone acrylamide) with an aliphatic aldehyde containing no more than 4 carbon atoms, preferably formaldehyde, in a strongly alkaline medium. While the structure of the composition is not known, it is believed to be a crosslinked product formed by hydroxymethylation and subsequent condensation through the hydroxymethyl groups. The acrylamide olefinic bonds are apparently unaffected. These compositions are useful either alone or in combination with unsaturated poly-

esters, for the preparation of thermosetting molding powders. They may also be used to replace polyesters (in full or in part) in typical applications such as production of resin-impregnated fiber glass mats and various kinds of laminates.

27,329 SEARCH TUNE SYSTEM FOR TELEVISION RECEIVERS

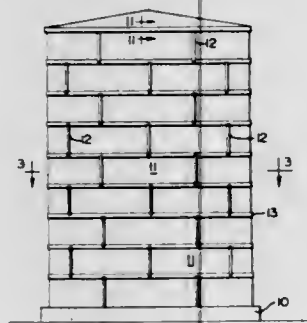
Louis F. Mayle, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind.
Original No. 3,388,215, dated June 11, 1968, Ser. No. 386,207, July 30, 1964. Application for reissue Apr. 24, 1970, Ser. No. 31,799
Int. Cl. H04n 5/44
U.S. Cl. 178—5.8 R 35 Claims



An undetented tuner motor holding circuit with an electrically operable normally-closed switch therein. A switch control circuit having a pair of transistors in series therein, both normally non-conducting, one being activated in response to the I-F carrier, and the other being activated in response to a horizontal sync signal, simultaneous activation of both serving to open the motor hold circuit. A third transistor responsive to AGC level for controlling the one transistor in accordance with a sensitivity setting.

27,330 THERMALLY INSULATED TANK STRUCTURE

Emil G. Marcmann, Medford, N.J. 08055
Original No. 3,456,835, dated July 22, 1969, Ser. No. 720,943, Apr. 12, 1968. Application for reissue June 3, 1970, Ser. No. 43,247
Int. Cl. B65d 25/18
U.S. Cl. 220—9 F 10 Claims



An insulated tank structure comprising a plurality of panels having an insulating material secured thereto which

are arranged about the outside walls of a tank structure and caused to retain its position thereon by means of a novel securing means which will permit for the expansion and contraction of the securing means and panels secured thereby due to temperature changes occurring within the tank structure.

27,331 SULFURIZED DIELS-ALDER ADDUCTS AND LUBRICANTS CONTAINING THE SAME

Lester Earl Coleman, Willoughby Hills, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
No Drawing. Original No. 3,498,915, dated Mar. 3, 1970, Ser. No. 784,172, Dec. 16, 1968, which is a continuation-in-part of Ser. No. 657,520, Aug. 1, 1967, which in turn is a continuation-in-part of Ser. No. 602,600, Dec. 19, 1966. Application for reissue Nov. 16, 1970, Ser. No. 90,164
Int. Cl. C10m 1/38; C07g 17/100
U.S. Cl. 252—47.5 24 Claims

Sulfur-containing compositions characterized by the presence of at least one cycloaliphatic group with at least two nuclear carbon atoms of one cycloaliphatic group or two nuclear carbon atoms of different cycloaliphatic groups joined through a divalent sulfur linkage. The sulfur linkage contains at least two sulfur atoms. Sulfurized Diels-Alder adducts are illustrative of the compositions disclosed. These sulfur-containing compositions are particularly useful as extreme pressure and antiwear additives in various lubricating oils.

27,332 PERFUME COMPOSITIONS CONTAINING GERANONITRILE, CINNAMYL NITRILE OR 2-NONENYL NITRILE

Willard T. Somerville, Monmouth, N.J., and Edward J. Shuster, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.
No Drawing. Original No. 3,325,369, dated June 13, 1967, Ser. No. 335,071, Mar. 26, 1964, which is a continuation-in-part of Ser. No. 277,695, May 3, 1963. Application for reissue Mar. 23, 1970, Ser. No. 22,072
Int. Cl. A61k 7/00
U.S. Cl. 252—522 6 Claims

Compositions containing geranonitrile to impart thereto a citrusy lemon-like odor, but substantially free from discoloration and odor degradation. Such compositions may include soaps or detergents.

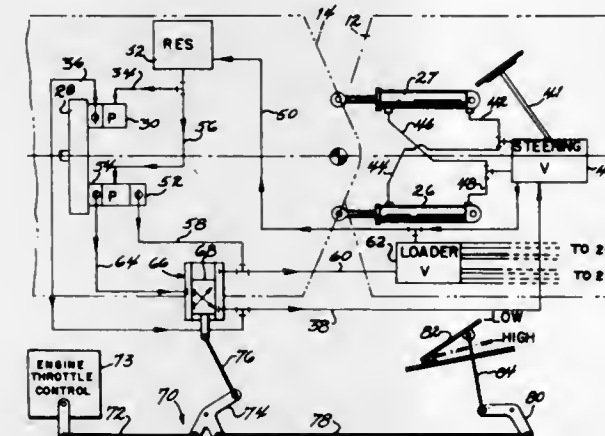
27,333 PROCESS FOR AFTERTREATMENT OF FRESHLY COLORED POLYAMIDE FIBERS

Karl Soiron, Riehen, Switzerland, Hans Rafael, Weil am Rhein, Germany, and Walter Stockar, Binningen, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Original No. 3,490,860, dated Jan. 20, 1970, Ser. No. 665,223, Sept. 5, 1967, which is a division of Ser. No. 296,392, July 19, 1963. Application for reissue Sept. 1, 1970, Ser. No. 68,807
Claims priority, application Switzerland, July 31, 1962, 9,156/62
Int. Cl. D06p 5/02
U.S. Cl. 8—165 10 Claims

An improvement in the dyeing and printing of polyamide fibers, comprising an after-treatment of the introduction of such fibers which have been freshly dyed or printed with a fiber reactive dyestuff, prior to the conventional drying, into an aqueous bath which contains certain halogenated organic products in combination with a certain kind of tertiary saturated aliphatic di- or tetra-amine; the pH of the bath is adjusted to about 4 to 5.5, and the bath containing the fibers is then heated; also the aforesaid after-treatment baths per se.

27,334 MULTIPLE SPEED HYDRAULIC CONTROL SYSTEM

Richard F. Zimmerman, Waukegan, Ill., assignor to International Harvester Company
Original No. 3,360,925, dated Jan. 2, 1968, Ser. No. 524,894, Feb. 3, 1966. Application for reissue June 2, 1969, Ser. No. 848,756
Int. Cl. F15b 11/16, 15/18
U.S. Cl. 60—19 10 Claims

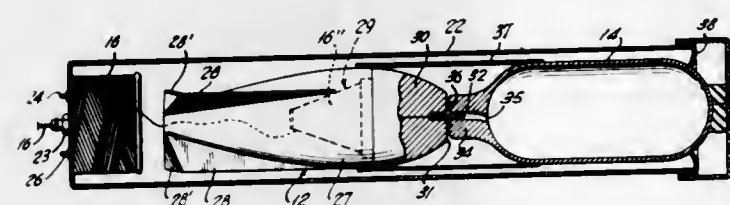


[A multiple speed hydraulic steering control system for a tractor loader vehicle with means responsive to a low speed engine throttle setting to direct a high rate of fluid flow to the control system and responsive to a high speed throttle setting to direct a low rate of fluid flow to the control system.]

A multiple speed hydraulic steering and lifting control system for a tractor loader vehicle with means responsive to a low speed engine throttle setting to direct fluid flow for steering and lifting, respectively, at one disproportionate rate and responsive to a high speed engine throttle setting to direct fluid flow for steering and lifting, respectively, at a differing disproportionate rate. Specifically, steering receives its high rate of fluid flow at low engine speed and lifting receives its high rate of fluid flow at high engine speed, with each having available at least some flow full time.

27,335 AQUATIC PROBE

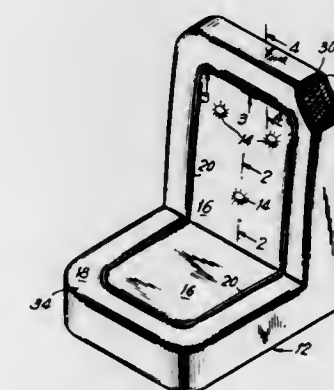
Samuel A. Francis, Marion, Mass., assignor to The Buzzards Corporation, Marion, Mass.
Original No. 3,349,613, dated Oct. 31, 1967, Ser. No. 389,434, Aug. 13, 1964. Application for reissue Aug. 15, 1969, Ser. No. 862,986
Int. Cl. G01c 13/00
U.S. Cl. 73—170 A 16 Claims



The present invention includes apparatus to be deployed from an underwater vessel, comprising a bathythermograph probe having a quantity of wire wound therein and having a negative buoyancy, a thermistor contained within the probe, a float assembly releasably secured to the probe and initially having a positive buoyancy and having an internal chamber.

27,336 UPHOLSTERY CUSHION CONSTRUCTION COMPRISING A RESILIENT PADDING

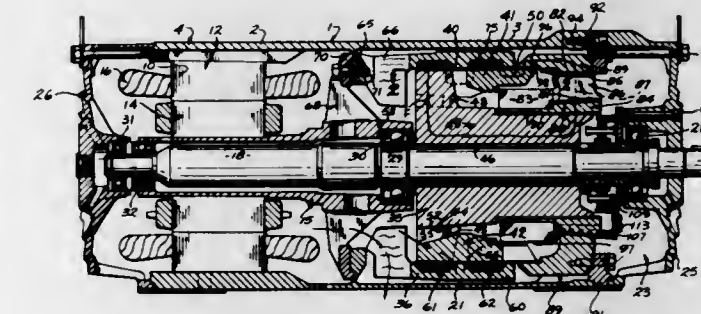
Sigmund Bereday, 11 Suchville, Bayamon, Puerto Rico
Original No. 3,266,066, dated Aug. 16, 1966, Ser. No. 427,059, Jan. 21, 1965. Application for reissue June 15, 1970, Ser. No. 46,130
Int. Cl. A47c 27/22, 27/14; B60n 1/06
U.S. Cl. 5—361 3 Claims



1. An upholstered seating unit including a frame for use in furniture and the like comprising a resilient padding, a preformed upholstery cover over said resilient padding, a sheet of slippery material between said padding and cover to reduce friction between it and the cover to a minimum, and means fastening said upholstery cover with respect to said frame and compressing said resilient padding via said upholstery cover and said sheet of slippery material so that said padding is held in depressed position by said fastening means; said upholstery cover at least at the seat portion being free to move with respect to said slippery sheet due to its smooth surface whereby to facilitate the initial application of the upholstery cover by sliding it over the slippery sheet and padding and preventing wrinkling of the upholstery cover on the seating unit during use and to enable said depressed padding to rebound to the limit allowed by said fastening means.

27,337 EDDY CURRENT COUPLING

Ralph L. Jaeschke, Kenosha, Wis., assignor to Eaton Corporation, Cleveland, Ohio
Original No. 3,486,052, dated Dec. 23, 1969, Ser. No. 579,117, Sept. 13, 1966. Application for reissue Aug. 17, 1970, Ser. No. 64,417
Int. Cl. H02k 49/02
U.S. Cl. 310—105 5 Claims



A single support, stationary field eddy current coupling having two rotors. One of the rotors includes three annular series of poles. Two series of poles are displaced axially from each other and magnetically isolated from the third series of poles. The third series of poles which

is interposed between the said two series is also magnetically isolated from the hub member of the one said rotor. The other rotor includes two cylindrical magnetic inductor members magnetically isolated from each other which surround but are separated from said poles by an air gap whereby the magnetic flux generated by the field member crosses said air gap four times.

27,338

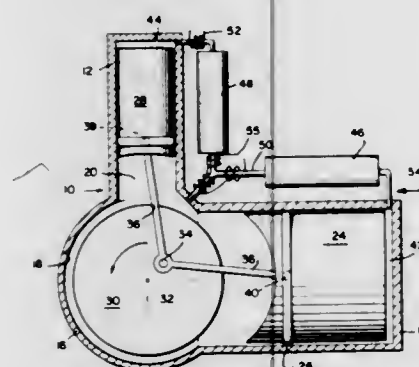
CRYOGENIC REFRIGERATOR ADAPTED TO MINIATURIZATION

Kenneth W. Cowans, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Original No. 3,423,948, dated Jan. 28, 1969, Ser. No. 627,984, Apr. 3, 1967. Application for reissue May 18, 1970, Ser. No. 48,755

Int. Cl. F25b 9/00

U.S. Cl. 62—6

6 Claims



The structure is a cryogenic refrigerator producing a low-level temperature by closed cycle circulation of a cryogenic fluid. A totally sealed housing is provided which defines a hot cylinder, cold cylinder, and crankcase chamber, the latter having a crankshaft rotatably mounted therein and directly connected to displacers in the cold and hot cylinders. The crankcase chamber which com-

municates directly with the cold and hot cylinders serves as a reservoir through which the cryogenic fluid is cycled during refrigerator operation. The direct rod connections, crankshaft to displacers, eliminate the need for cylinder-defining walls and the related seals and bearing guide arrangements. Motive power is provided by stator windings externally of the sealed housing which operatively cooperate with a rotor journaled internally of the housing and associated with the crankshaft.

27,339

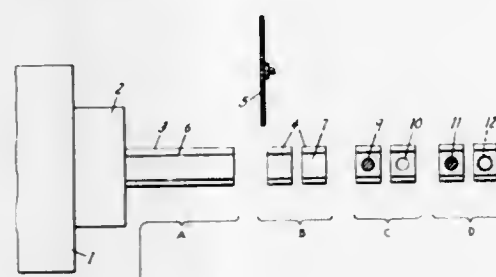
TURNBUCKLES

Russell H. Dornbos, Spring Lake, Mich., assignor to Gerwin Industries, Inc., Michigan City, Ind.
Original No. 3,442,000, dated May 6, 1969, Ser. No. 626,843, Mar. 29, 1967. Application for reissue May 25, 1970, Ser. No. 41,123

Int. Cl. B23p 13/00

U.S. Cl. 29—175

10 Claims



Manufacturing steps of extruding tubular metal bar stock of greater width than thickness and having edges of reduced thickness, with an internal bore of rectangular cross section in the thicker portion of the tube; cutting the tube transversely into slugs of lesser width than the thickness of the tube, boring aligned holes into the ends of the slugs through narrower ends formed from the reduced edges and into the ends of the oblong opening formed by the extrusion, and tapping the holes with oppositely pitched threads at opposite ends of the slugs.

PLANT PATENTS

GRANTED APRIL 11, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,102

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed Jan. 22, 1970, Ser. No. 5,163

Int. Cl. A01h 5/00

U.S. Cl. Plt.—25

1 Claim

A bushy rose of the floribunda class, tall-growing, moderately branched and moderately vigorous in habit. The plant has compound leaves comprising from three to seven leaflets which are of medium size, moderately thin, somewhat leathery in texture, and semi-glossy in appearance. These leaflets are oval in form, both the apex and the base being acute. The margin is simply serrate. The color of the open bloom is a distinctive strong reddish orange, tinged with yellow on the underside of the petals. When fully open, the center of the bloom shows brilliant golden yellow around the flower stamens. The petalage is double, ranging from twenty-five to thirty petals, with three to eight petaloids. The flower is high-centered in form at the first, and remains high-centered after opening fully. The bloom has a tea fragrance, from moderate to penetrating in strength. The plant sets hips freely, containing many seeds.

but of distinct pink color and form, produced on strong growth.

3,105

HOYA CARNOSA RUBRA

Barnell L. Cobia, Winter Garden, Fla., assignor to B. L. Cobia, Inc., Winter Garden, Fla.

Filed Feb. 16, 1970, Ser. No. 11,926

Int. Cl. A01h 5/00

U.S. Cl. Plt.—88

1 Claim

A new and distinct plant variety of the milkweed family resembles plants of the *Hoya carnosa* Exotica variety in variegated leaf patterns but is distinguished from the latter variety by certain color characteristics, by slightly larger stems and by a somewhat wider leaf blade that is usually ovate in shape.

3,106

GRAPEVINE

John M. Garabedian, 3158 Hamilton St., Fresno, Calif. 93712

Filed Apr. 29, 1970, Ser. No. 33,111

Int. Cl. A01h 5/03

U.S. Cl. Plt.—47

1 Claim

A large, vigorous, productive grapevine having canes of medium length and thickness, long tendrils of medium thickness, dense foliage, medium size leaves with a 2-series margin, medium size fertile flowers, and fruit of which the clusters are of medium to large size, and the berries white, of large size, firm and crisp of flesh, oval to obovoid in form, seedless, and of superior eating quality; the fruit—which does not shatter even when mature—ripening about a week to ten days earlier than the Thompson Seedless (unpatented), and the berries being of relatively larger size and sweeter, with a bitey taste account high acid, and a slightly muscat flavor.

3,103

ROSE PLANT

Mathias Tantau, Uetersen, Germany, assignor to Jackson & Perkins Company, Newport Beach, Calif.

Filed Jan. 22, 1970, Ser. No. 5,164

Claims priority, application Germany, Feb. 18, 1969, 45/69 S

Int. Cl. A01h 5/00

U.S. Cl. Plt.—24

1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a bushy, upright, well-branched and compact plant habit, strong dark green foliage of medium size and which is slightly reddish green when young, intensely bright, light golden yellow flower buds of well pointed form, mature, densely filled, fragrant flowers of medium size and abundantly borne in clusters suitable for cut flower production under glass, a distinctive and attractive deep yellow open flower color which is retained without appreciable fading as the flower age, good resistance to blackspot and powdery mildew, and good lasting qualities of the flowers as cut flowers, with a rapid repeating habit of the flowers when grown under glass.

3,104

ROSE PLANT

Alain Meilland, Alpes-Maritimes, France, assignor to The Conard-Pyle Company, West Grove, Pa.

Filed Feb. 5, 1970, Ser. No. 9,086

Claims priority, application France, Feb. 24, 1969, 6904859

Int. Cl. A01h 5/00

U.S. Cl. Plt.—18

1 Claim

A rose plant of the hybrid tea class, discovered as a sport of the rose Carina (U.S. Plant Patent No. 2,378),

William J. Flemer and William Flemer III, Princeton, N.J., assignors to Tresearch, Kingston, N.J.
Filed Dec. 3, 1969, Ser. No. 881,942

Int. Cl. A01h 5/12

U.S. Cl. Plt.—51

1 Claim

1. A new and distinct variety of elm tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a general resemblance to typical American elms, but being

particularly distinguished therefrom by a superior tree form, a superior and more rapid rate of growth, and a superior and outstanding resistance to Dutch elm disease.

3,109

MAPLE TREE

George V. Schichtel, Orchard Park, N.Y., assignor to J. Frank Schmidt & Son Co., Troutdale, Ore.
Filed Dec. 11, 1969, Ser. No. 884,388
Int. Cl. A01h 5/12

U.S. Cl. Plt.—51

1 Claim

1. A new and distinct variety of maple tree of the type botanically known as *Acer rubrum*, substantially as herein shown and described, characterized particularly as to novelty by an exceptionally vigorous habit of growth which extends late in the growing season, an upright form terminating in a rounded head at the top of the tree, and having very smooth and shiny bark, and attractive light green foliage of heavy texture and distinctive shape, and which turns red in the fall, while otherwise generally having characteristics usually typical of the species *Acer rubrum*.

3,110

APPLE TREE

William J. Wilson and Emory Clyde Wilson, Fort Valley, Ga., assignors to Bountiful Ridge Nurseries, Inc., Princess Anne, Md.

Filed Dec. 11, 1969, Ser. No. 884,389

Int. Cl. A01h 5/03

U.S. Cl. Plt.—34

1 Claim

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized partic-

ularly as to novelty by a general resemblance of the tree and fruit in most respects to the apple variety commercially known as "Golden Delicious" (unpatented), but being distinguished therefrom by its more attractive smooth-skinned fruit which is almost entirely free of russetting, superior resistance to bitter rot, and an unusual fruiting habit evidenced by a tendency of the fruit to cluster and acquire a cherry red color when very small, but becoming yellowish green in color as the fruit continues to grow to maturity.

3,111

ROSE PLANT

Samuel McGredy IV, Portadown, Ireland, assignor to Armstrong Nurseries, Inc., Ontario, Calif.
Filed Dec. 18, 1969, Ser. No. 886,430
Int. Cl. A01h 5/00

U.S. Cl. Plt.—22

1 Claim

A bush rose plant of the floribunda class adapted for outdoor cultivation, and being of rather stiff upright habit, with erect and almost smooth peduncles. The buds are characterized by gland-tipped cilia on the surface of the bud and by frequent foliaceous parts extending beyond the tip of the bud before the calyx breaks. The flowers are usually borne in irregular clusters on strong medium length stems, being of small to average diameter for its class, from 3" to 3 3/4", with 25 to 28 petals, and 2 or 3 petaloids. The color is at first relatively pale pink, with strong purplish red overlay at the outer margins of the petals, the inner surfaces being predominantly bright red in color. When fully open, the center of the bloom shows nearly white around the flower stamens.

PATENTS

PUBLISHED APRIL 11, 1972

GENERAL AND MECHANICAL

3,654,629

DISPOSABLE BIB

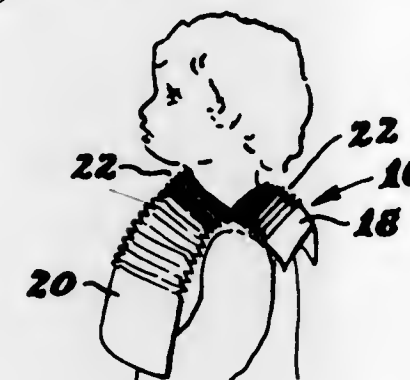
Marilou Crisman, 1523 East Broadway, Logansport, Ind., and Arthur G. Howard, 5869 N. Keystone, Indianapolis, Ind.

Filed Dec. 29, 1969, Ser. No. 888,681

Int. Cl. A41d 13/04

U.S. Cl. 2—49

4 Claims



A disposable bib, providing both some liquid-absorption and water-proofness, having formed means for snugly pressing the wearer's neck, for more protection.

3,654,630

ADJUSTABLE SWIM AND SUN SUIT PANTY GARMENT

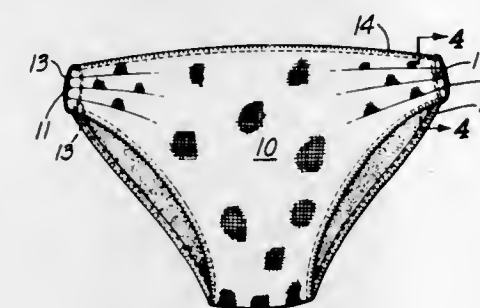
Lester W. Block, 8520 Warner Drive, Culver City, Calif.

Filed Sept. 23, 1970, Ser. No. 74,775

Int. Cl. A41d 7/00

U.S. Cl. 2—67

4 Claims



An adjustable swim and sun suit panty garment having adjusting means for converting the width of the hip bands from the comparatively wide bands of a hip hugger to the comparatively narrower bands of a bikini. The adjusting means is entirely concealed within the hip bands when the garment is worn in a conventional manner. When the garment is converted, only the neatly decorative midportion of the adjusting means is visible from outside the garment. The garment may be converted back and forth as desired.

3,654,631

GLARE SHIELDING DEVICE

Giuseppe Re Baratelli, Deerfield, Ill., assignor to Ramostar Corporation, Deerfield, Ill.

Filed Dec. 2, 1968, Ser. No. 780,326

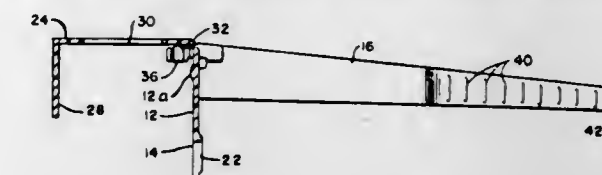
Int. Cl. A61f 9/02

U.S. Cl. 2—14 J

8 Claims

Glare shielding device as for night driving motorists in which two shields are supported by a foldable frame so as to

be interposed in the wearer's normal line of vision forwardly of his eyes and offset from the pupillary axes thereof to impede light from the oncoming traffic directly striking the



wearer's eyes while permitting him to have substantially full straight ahead and also lateral vision, the frame and shields being a unitary molded piece of translucent plastic material.

3,654,632

CLOTHING SLEEVE

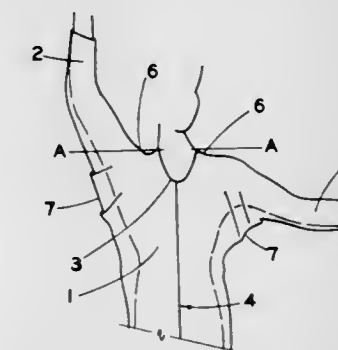
Flora L. Lacroix, 6535 St. Andrews Drive, Tucson, Ariz.

Filed June 18, 1970, Ser. No. 47,371

Int. Cl. A41b 1/00

U.S. Cl. 2—125

7 Claims



The shoulder seam of the sleeve of a garment is formed from material cut upward at an angle of approximately 115° to 145° in relation to a horizontal line from shoulder-tip to shoulder-tip, and includes a front portion comprised of a shorter curved section, a second longer reversed curved section and a straight line section extending to the end of the sleeve, and a back portion comprised of a curved section and a straight line extending to the end of the sleeve, said curved sections having predetermined radii with the three front sections joined together at predetermined angles and the two back sections joined together at predetermined angles.

3,654,633

NECKTIE KNOT-HOLDING DEVICE

Herberts K. Goba, 307 Tegler Building, Edmonton 15, Alberta, Canada

Continuation-in-part of application Ser. No. 37,391, May 11, 1970, now abandoned, Continuation of application Ser. No. 770,948, Oct. 28, 1968, now abandoned. This application May 28, 1970, Ser. No. 41,295

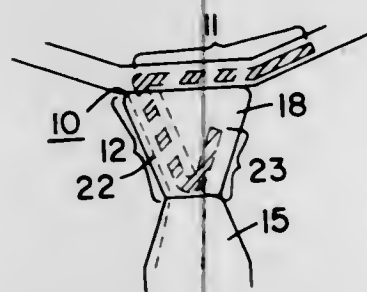
Int. Cl. A43d 25/08

U.S. Cl. 2—153

25 Claims

According to one aspect of this invention, a device having two portions designated as a head portion and a tail portion is provided for maintaining a knot in a necktie. The tail portion of this device is longer than the head portion and is flexible. The head portion, in this aspect of the invention, may assume various configurations, and may be either rigid or flexible. Said device is insertable in the necktie knot before the

latter is tightened; and when inserted in the knot, the tail portion of the device, which preferably is comprised of a flexible wire, is bent relatively to the head portion so that the device assumes the general outline of a completed necktie knot. When said device is placed within the necktie knot, the head portion is positioned between the downcoming wider end of the tie and the outer circumscribing fold of the knot, and the tail portion is positioned within the knot between the downcoming wider and narrower ends of the tie, and the end of the tail portion is oriented towards the head portion and is positioned within the inner folds of the necktie knot. Another embodiment of the invention disclosed resides in a device of the same general type as indicated above, but in which the head-portion is U-shaped. The flexible tail portion is attached



to the center part of the head portion. The head portion is made from a material which is at least semi-rigid at ambient temperatures. When this device is positioned within the knot of a necktie, the tail portion is bent relative to the head portion in such a way that the device assumes the general outline of a completed necktie knot; one leg of the U-shaped head portion is disposed within the knot in front of the downcoming wider and narrower ends of the necktie but behind the outer circumscribing fold of the knot, while the other leg of the U-shaped head portion is positioned behind the downcoming narrower end of the necktie; and the tail portion is positioned within the knot between the downcoming narrower and wider ends of the necktie, with the end of said tail portion being oriented toward the head portion of the device.

3,654,634

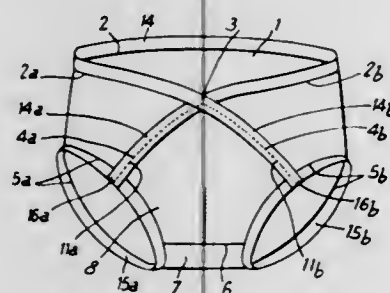
UNDERGARMENT FOR MEN

Ruben Javier Torres, 88 Avenue Paul Doumer, Paris, France
Continuation of application Ser. No. 811,901, Apr. 1, 1969,
now abandoned. This application Nov. 17, 1970, Ser. No.
90,447

Claims priority, application France, Apr. 2, 1968, 146782
Int. Cl. A41b 9/02

U.S. Cl. 2-224 A

3 Claims



Men's briefs assemblable from a one-piece main fabric body portion having terminal wing portions on the main fabric body and a crotch extension and a gusset to be secured to the crotch extension and terminal wing portions to complete the garment.

3,654,635
PIPED OPENING FOR USE IN A GARMENT

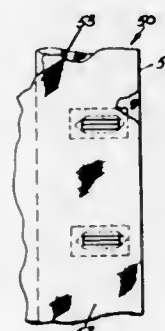
John L. Cruden, Jr., R.D. #1 Marvin Hollow Road, Walton, N.Y.

Original application June 25, 1968, Ser. No. 739,812, now
Patent No. 3,587,501, dated June 28, 1971. Divided and this
application June 22, 1970, Ser. No. 47,950

Int. Cl. A41f 1/02

U.S. Cl. 2-266

5 Claims



This disclosure is directed to a piped opening for use in a garment and an apparatus for making the opening. The piped opening comprises corresponding die-cut slits or cuts formed in the front and facing portion of a garment with the flap or flaps defined thereby being reversely folded inwardly of the respective front and facing portions to define a corresponding opening therein. An edging patch having a complementary slit or cut and reversely folded patch flaps is secured to one of the portions with the patch flaps positioned contiguous to corresponding flaps of the adjacent portion to form a partially piped opening. The front and facing portions and then reversely folded to dispose the edging patch therebetween with the respective opening defined in each, disposed in coaxial alignment. The front and facing portions are then secured.

3,654,636

PORTABLE BIDET

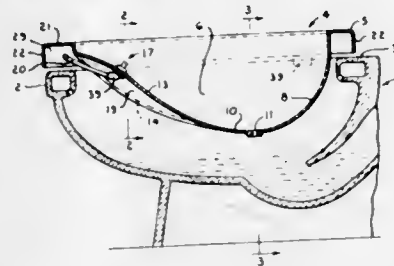
Erno Restyanszki, 4595 Wilson Street, Gary, Ind.

Filed Aug. 5, 1970, Ser. No. 61,256

Int. Cl. A41k 3/22, 11/08

U.S. Cl. 4-7

12 Claims



The invention is directed to a bidet which may be readily detachably mounted on a conventional toilet bowl for the purpose of promoting the health and sanitation of a human individual.

3,654,637

FLUSH TANK APPARATUS

Sherwood L. Young, Monson, Mass., assignor to American Standard Inc., New York, N.Y.

Original application Aug. 22, 1968, Ser. No. 754,669, now
Patent No. 3,533,437. Divided and this application June 1,
1970, Ser. No. 54,065

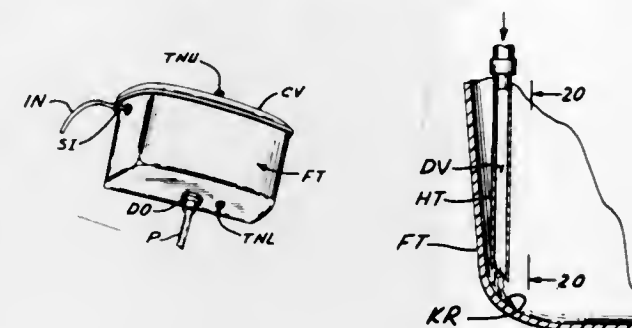
Int. Cl. E03d 1/01, 1/20

U.S. Cl. 4-18

11 Claims

Relates to flush tank mechanism for a toilet bowl. The flush tank houses, in addition to a conventional flush valve, a

water inlet valve and an elongated lever having a built-in channel substantially throughout its length for feeding water incoming through said valve to the flush tank. A float is physically coupled to the free end or front end of the elongated lever and the float includes an open-ended chamber for receiving water from the channel of the lever, but the water



is discharged from the chamber through an aperture therein. The channel of the lever provides one path for the incoming water reaching the tank while a hush tube, also coupled to the inlet water valve, provides a second path for incoming water. The lever is coupled to the inlet valve by geared members and they are operated to translate the rotary motion of the lever into linear motion to close the inlet valve.

3,654,638

OUTPUT COMMODE PAN

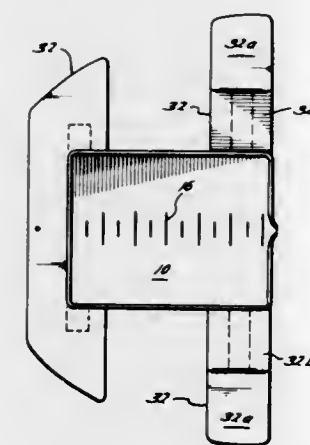
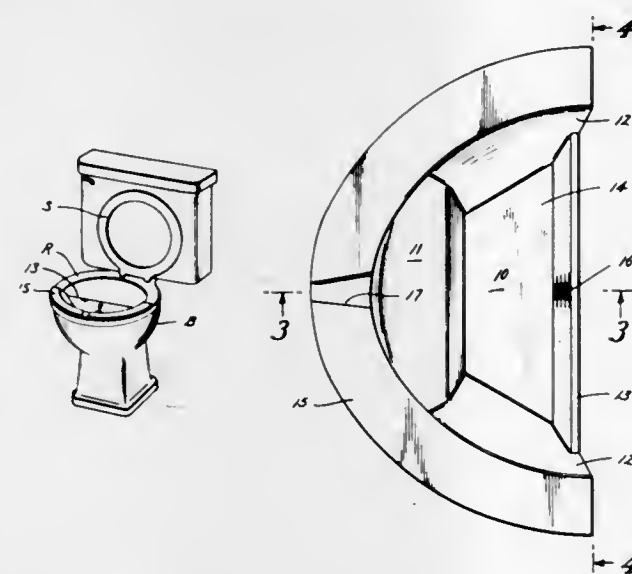
Alice W. Nye, 7534 Greendows, Houston, Tex.

Continuation-in-part of application Ser. No. 828,307, May 27,
1969, now abandoned. This application Dec. 17, 1969, Ser.
No. 885,811

Int. Cl. E03d 13/00

U.S. Cl. 4-110

4 Claims



A receptacle for collecting and measuring body fluids, par-

ticularly urine, adapted to be removably supported in a conventional toilet bowl.

3,654,639

ABOVE GROUND POOL UNITS WITH FOLDABLE SIDE PANEL, DECK AND FENCE

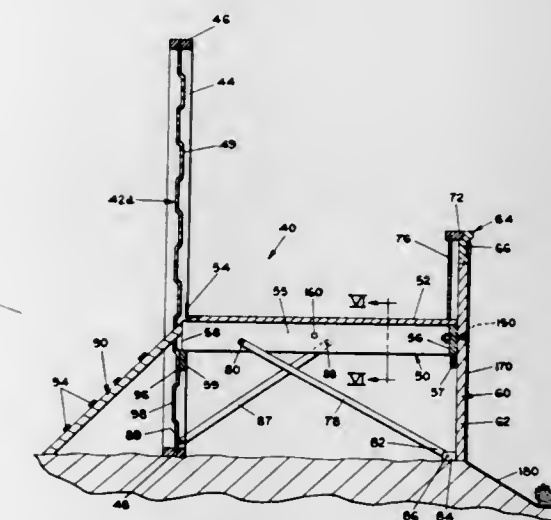
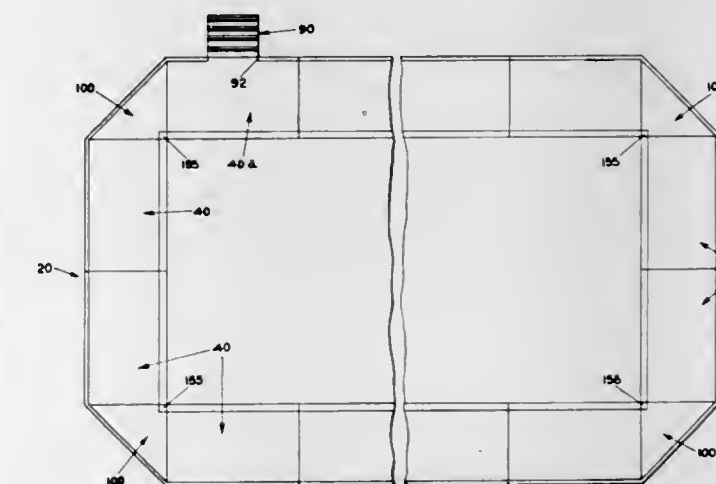
Jay A. Lankheet, Holland, Mich., assignor to Glamour Pools Company, Holland, Mich.

Filed Sept. 22, 1970, Ser. No. 74,446

Int. Cl. E04h 3/16, 3/18

U.S. Cl. 4-172.19

14 Claims



Collapsible, foldable unit pool structures, the assembly of which forms an enclosed pool, each unit comprising a portion of a fence and deck hingedly connected together, and in some cases a portion of a pool wall hingedly connected to the deck by a brace. A second brace hinged to the deck is bolted during assembly to the fence. The deck, fence and pool wall sections or portions fold flat for shipping. After each unit is unfolded to its erected state with the deck extending substantially perpendicular to the fence and with all pool wall sections abutted approximately perpendicular and bolted to their respective deck sections, the units are attached end-to-end to each other by bolting the underside of their deck sections together. A pool liner is attached to the pool wall sections over the abutment joints, the liner covering also the ground or any excavation utilized to deepen the pool.

3,654,640

ABOVE GROUND SWIMMING POOL CONSTRUCTION

Frederick Katzman, 372 Hamilton Boulevard, Piscataway, N.J.

Filed Dec. 24, 1970, Ser. No. 101,299

Int. Cl. E04h 3/16, 3/18

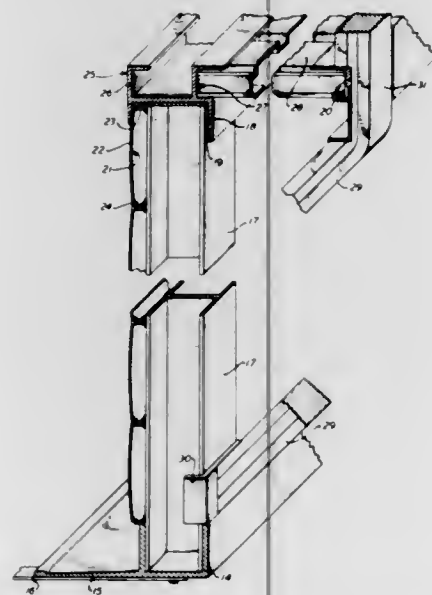
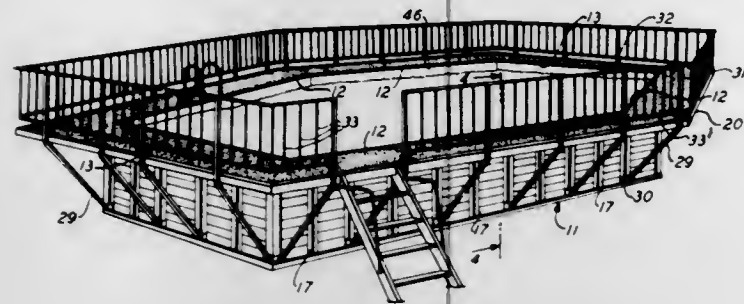
U.S. Cl. 4-172.19

7 Claims

An above ground swimming pool construction wherein the pool is hexagonal, the vertical walls are supported in chan-

nels and the decks are supported by arms, which are anchored to the channels; and the arms extend upwardly and

bed is used as a sofa, and which swings to an upright position to form a headboard for the bed when it is unfolded. The



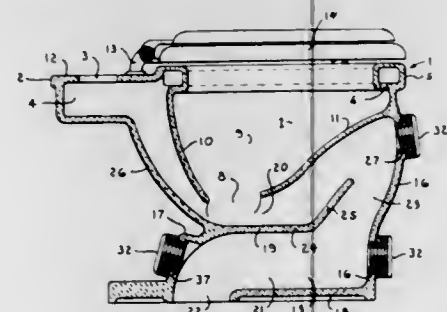
outwardly, also extend above the deck to support deck rails, and the channels are cross-connected to opposite channels.

3,654,641 TOILET BOWL STRUCTURE

Fred Braun, Sr., 204 North Clarke Road, Gary, Ind.
Filed Oct. 2, 1970, Ser. No. 77,429
Int. Cl. E03d 11/00

U.S. Cl. 4-257

8 Claims



The invention involves providing a lower chamber in a toilet bowl with at least a pair of substantially aligned clean-out openings whereby a cleaning instrument may be extended through either or both of the openings for cleaning the chamber.

3,654,642 HINGED-SEAT PLATFORM FOR SOFA-BED

John J. Barabas, New Rochelle, N.Y., assignor to Castro Convertibles Corporation, New Hyde Park, N.Y.
Filed Mar. 10, 1969, Ser. No. 805,774
Int. Cl. A47c 17/14, 17/22

U.S. Cl. 5-13

11 Claims

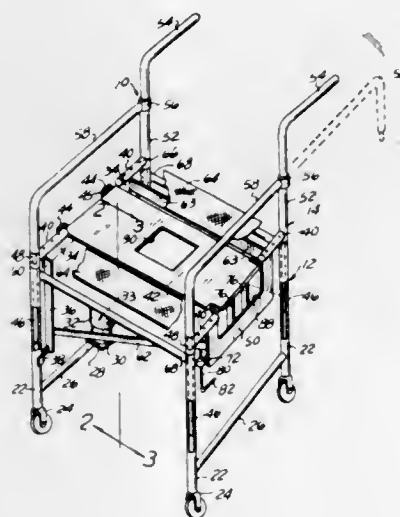
The sofa-bed has a hinged, cushioned seat platform which provides a soft support for the seat cushions when the sofa-

hinge structure permits the pivot point of the platform to rise and fall when people get up from or sit down on the sofa cushions.

3,654,643
INVALID LIFT-TRANSFER CHAIR
Wayne N. Clanan, 1458 Burns Avenue, Detroit, Mich.
Filed May 5, 1969, Ser. No. 823,534
Int. Cl. A61g 1/02, 7/10

U.S. Cl. 5-81 B

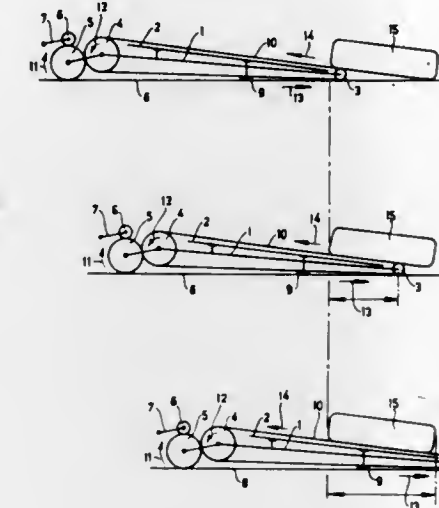
7 Claims



A chair base structure on casters has four tubular legs with which telescope the uprights of a vertically movable seat structure actuated by the piston and cylinder of a hydraulic lift jack. Pivoted at one end to the seat structure is a tiltable slide support upon which an invalid transfer slide is reciprocally mounted. The rearward uprights of the seat structure are provided with laterally swinging chair arms which enter sockets on the forward uprights and are pivoted to chair-pushing handle bars. A plastic bearing plate placed on the bed assists the operation of the slide in transferring an invalid between the bed and the chair. The slide support is provided with a central opening which enables its use as an auxiliary toilet seat when moved over a toilet bowl.

3,654,644
STRETCHER
Simon Stevens, Emmen, Netherlands, assignor to Stero N.V., Emmen, Netherlands
Filed Oct. 27, 1969, Ser. No. 869,579
Int. Cl. B66f 11/00; A61g 7/10
U.S. Cl. 5-81

4 Claims

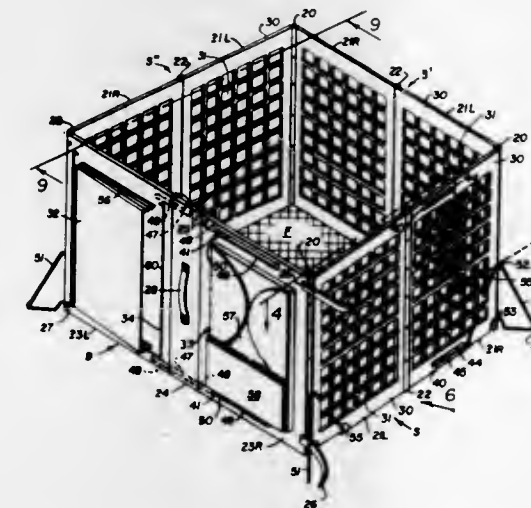


A stretcher having an endless belt of flexible material guided by two spaced-apart parallel guides on a frame. A supporting plate is affixed to the frame under the flexible belt. Mounted on the frame is a propulsion mechanism coupled to a driving mechanism for driving the belt in a circumferential direction in such a way that, on moving the frame in the longitudinal direction of the belt with respect to the ground, a corresponding displacement of the belt in the opposite direction is effected.

3,654,645
FOLDABLE CRIB
Byron D. Lee, 27 University Drive, Longmont, Colo.
Filed Nov. 2, 1970, Ser. No. 86,083
Int. Cl. A47c 31/00

U.S. Cl. 5-99

8 Claims

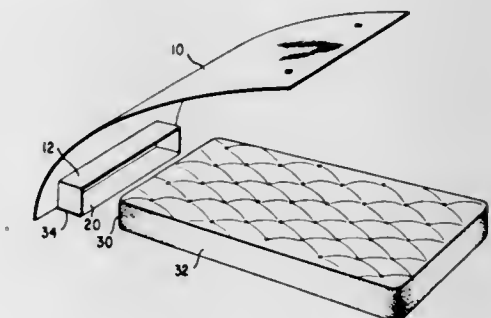


A foldable crib for a child having hinged wall sections and hinged corner sections adapted to accordin-fold into a compact unit with a backwall section embracing the other wall sections and into a package having the general shape of an ordinary suitcase. A handle at one edge of this folded unit permits it to be easily carried. A cloth-type floor in the crib, with the weave arranged on a bias, stabilizes the same when opened, and when folded, the floor section is merely pulled upwardly between the wall sections. The auxiliary features

may be incorporated in this crib, on the opposing sides of the backwall section, such as a mattress and a foldable baby seat, the same enhancing its usefulness and versatility.

3,654,646
FITTED BED COVERING
Stephen J. McMahon, Jr., 1730 Lanier Place, Washington, D.C.
Filed Jan. 30, 1970, Ser. No. 7,006
Int. Cl. A47g 9/02
U.S. Cl. 5-334 C

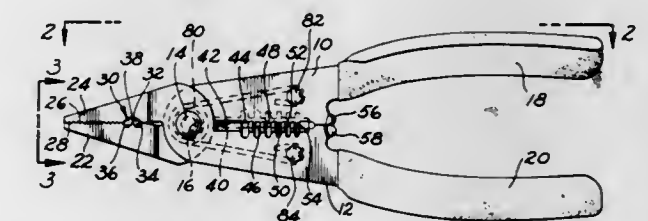
9 Claims



A bed covering having a pocket adapted to enclose the foot end of a mattress and to be held in place thereon by the pocket and by an overlying conventional fitted bottom sheet. Decorative indicia adjacent the head end of the covering is provided to facilitate the centering of the covering on the mattress.

3,654,647
COMBINATION WIRE WORKING TOOL
Ted Neff, Hunter Industries, 9851 Adburtis Avenue, La Habra, Calif.
Filed Feb. 13, 1970, Ser. No. 11,062
Int. Cl. H02g 1/12; B25b 7/22
U.S. Cl. 7-5.3

2 Claims



A hand tool primarily for use with electrical wiring which combines into one tool all the necessary tools normally required when gripping, pulling, bending, cutting, stripping, and crimping operations are performed during an electrical wiring job. The tool includes needle-nose plier jaws for gripping, pulling, and bending wire; a crimping orifice for crimping solderless electrical terminals to the ends of wire; cutter blades for cutting wire; and a plurality of orifices for cutting and stripping insulation material from insulated wire of different diameters.

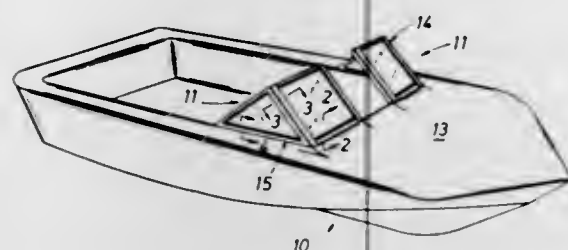
3,654,648
WINDSHIELD
Jerry W. Wilhoit, Austin, Tex., assignor to Glastron Boat Company, Austin, Tex.
Filed Aug. 5, 1970, Ser. No. 61,149
Int. Cl. B63b 17/00

U.S. Cl. 9-1 R

13 Claims

A windshield for the hood of a motorboat or the like comprising first and second windshield sections having side edges longitudinally slidably interlocked with one another in a

desired angular relation and anchored to the hood by connectors longitudinally slidably interlocked with the lower member is not only circular to correspond with the predetermined pathway is circular, and the guideway for the female member is not only circular to correspond with the predetermined pathway.



edges of the sections and the upper sides of base members mounted on the hood, respectively.

3,654,649

SYSTEM FOR RETRIEVING ANCHOR CHAINS

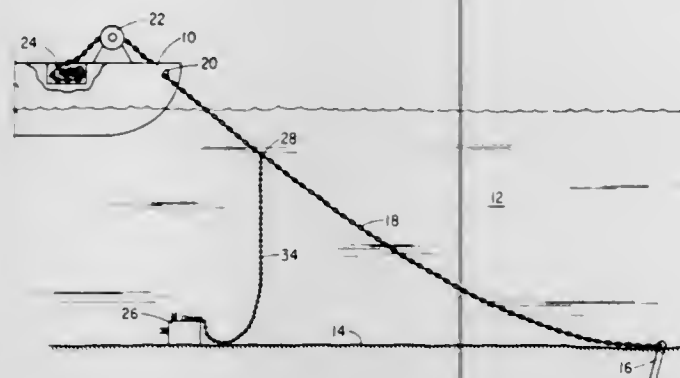
James D. Richardson, Denver, Colo., assignor to Amoco Production Company, Tulsa, Okla.

Filed Nov. 12, 1969, Ser. No. 875,844

Int. Cl. B63b 21/50

U.S. Cl. 9-9

3 Claims



This invention relates to a system for retrieving the anchor chain which has been cut loose from an anchored vessel. A buoy, filled with water to make it non-buoyant, is attached to the anchor line. If it becomes necessary to sever the anchor line from the ship, the anchor line and flooded buoy both drop to the ocean floor. When it is desired to retrieve the anchor line, a gas generating device, made a part of the buoy, is actuated to drive the water out of the buoy. The now buoy rises to the surface and brings the end of the anchor chain with it.

3,654,650

AUTOMATIC ASSEMBLY APPARATUS

Warren C. Burgess, Jr., Avon Lake, and Donald N. Buckles, Fairview Park, both of Ohio, assignors to Burgess & Associates, Inc.

Filed July 6, 1970, Ser. No. 52,272

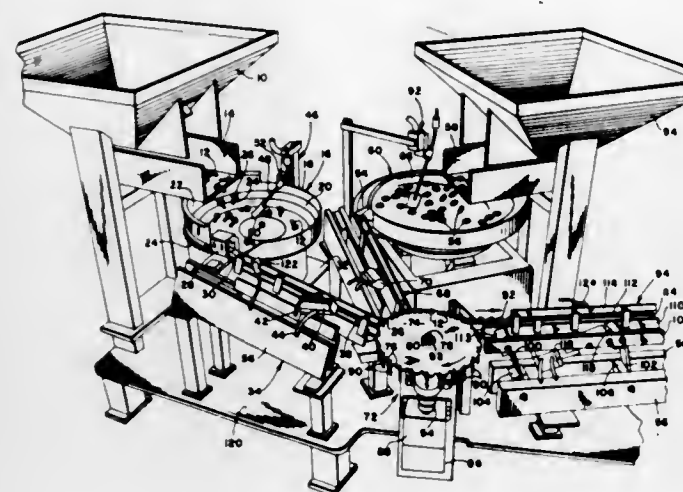
Int. Cl. B23p 19/08

U.S. Cl. 10-155

3 Claims

There is provided an apparatus for the assembly of a male member such as a bolt blank and a female member, such as a washer, which apparatus is characterized by an element for supporting and moving the male member along a predetermined pathway. A guideway for the female member is provided which is coextensive with at least a portion of the pathway and which is adapted to change the relative spatial relationship of the female member to the male member in the predetermined pathway as the female member moves along the guideway. Means are provided for moving the female member along the guideway in synchronized relation with the male member whereby the male and female members are moved relative to one another in the pathway to a final assembled condition. In a specific embodiment, the predetermined

pathway is circular, and the guideway for the female member is not only circular to correspond with the predetermined pathway.



mined pathway, but also converges toward the supporting the moving means for the male member. In this manner the parts are assembled while in the pathway.

3,654,651

COMBINED HEEL, FOREPART AND CEMENT-LASTING MACHINE

Herbert Schindler, Pirmasens, and Gerhard Winter, Havesteln, both of Germany, assignors to Firma Schon & Cie. Gesellschaft mit beschränkter Haftung, Pirmasens, Germany

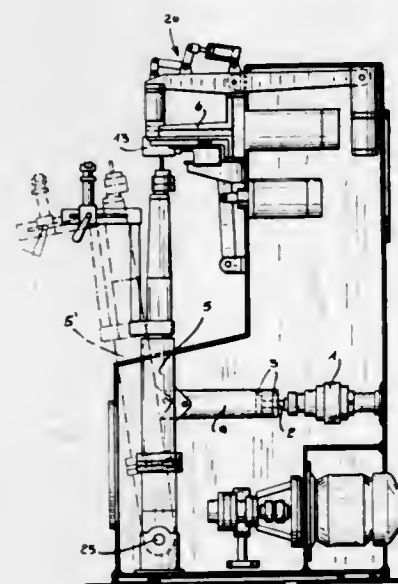
Filed July 30, 1970, Ser. No. 59,633

Claims priority, application Germany, Aug. 5, 1969, P 19 39 747.8

Int. Cl. A43d 21/00, 3/00

U.S. Cl. 12-12.5

10 Claims



A combined heel, forepart and cement-lasting machine having a heel-band supported in the machine frame and a last-carrier displaceable by means of a motor in a direction towards the heel-band. The motor is a rotary motor which engages the last-carrier by way of a self-locking spindle drive to provide a precise position thereof during the working cycle.

3,654,652
SUSPENDED OVERPASS

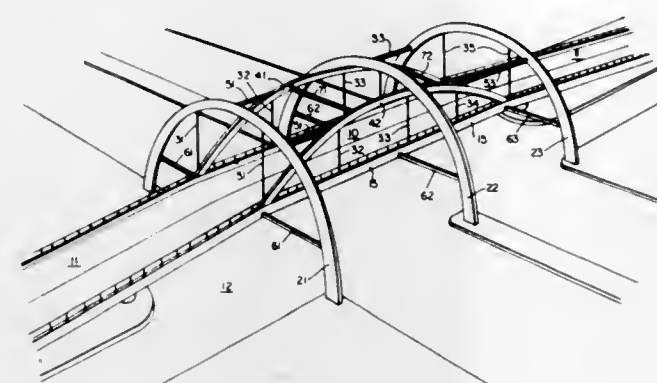
William W. Pleasants, P.O. Box 82, Bethel, Del.

Filed Jan. 4, 1971, Ser. No. 103,748

Int. Cl. E01d 1/00

U.S. Cl. 14-1

3 Claims



An overpass structure has three transverse arches which are ground supported, and two longitudinal arches which are suspended, as by hanger cables, from the transverse arches. The roadway is suspended from the transverse and longitudinal arches, in alignment with and between the longitudinal arches. Horizontal struts provide horizontal support.

3,654,653

PROBE APPARATUS

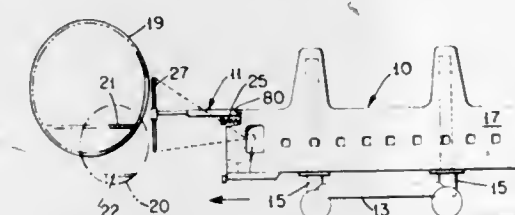
Walter S. Eggert, Jr., Huntingdon Valley, and Christian E. Franz, Roslyn, both of Pa., assignors to Boothe Airside Systems, Inc.

Filed Mar. 2, 1970, Ser. No. 16,174

Int. Cl. E01d 15/12

U.S. Cl. 14-72

7 Claims



Sighting probe apparatus for a vehicle with an elevatable passenger compartment having an extensible and rotatable gangway-canopy structure for mating with an aircraft or terminal building to transfer passengers. The probe apparatus includes a sighting bar carried by a boom which can be extended to assume a vertical position when the gangway-canopy is in its retracted position. Novel track means are provided to rotate and retract the sighting bar to permit the gangway-canopy to be extended to an operative position.

3,654,654

CLEANING APPARATUS

Christian O. Abreu, East Rochester; John S. Bernhard, Pittsford, and Henry T. Chiavaroli, Henriette, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,817

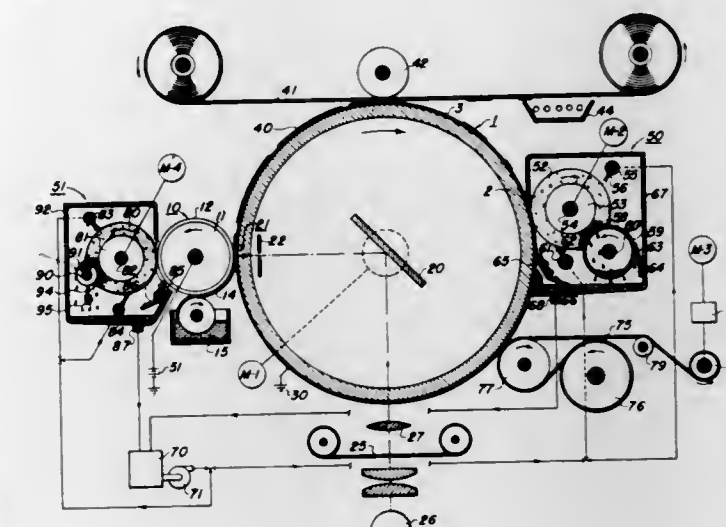
Int. Cl. B08b 1/02; A47I 13/40

U.S. Cl. 15-1.5

17 Claims

A cleaning mechanism for cleaning surfaces of contaminants. The apparatus has a sponge-like member that rotates in contact with the surface to be cleaned. A liquid is sprayed into the sponge-like member to help remove contaminants from the surface to be cleaned. The sponge-like member is squeezed by a hard roller to remove excess liquid and contaminants so that it may be recycled to continually clean the surface. The unit is housed in a mechanism that has provisions for draining the liquid without wetting other portions of

taminants so that it may be recycled to continually clean the surface. The unit is housed in a mechanism that has provisions for draining the liquid without wetting other portions of



the machine in which the mechanism is housed. A further option incorporates a wiper web and wiper blade surface contacting means operating in conjunction with the sponge-like member.

3,654,655

MACHINE FOR CLEANING AND POLISHING POOL BALLS

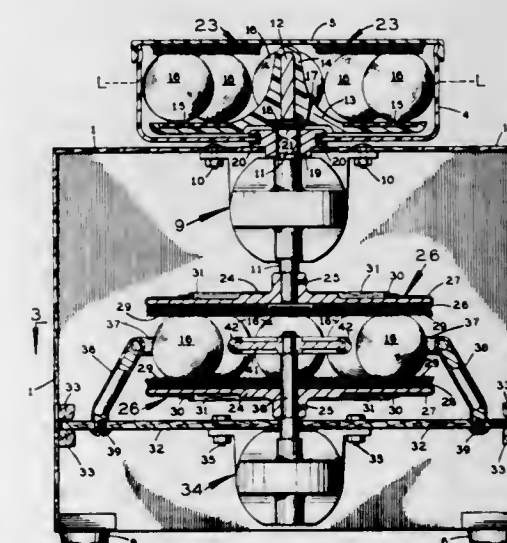
Jack J. Mitnick, 705 East 10th Avenue, Hialeah, Fla.

Filed Nov. 2, 1970, Ser. No. 85,912

Int. Cl. A63b 47/04

U.S. Cl. 15-21 A

6 Claims



A motor driven machine for washing and polishing pool balls on which is provided a container for rotation of the balls therein against brushes in the presence of a cleaning liquid and then the transfer of the washed and dried balls in contact between deep pile covered surfaces of a pair of power rotated coaxial discs rotated at different speeds including means for confining the balls between the fleece or the pile and including bumper means for the random rotation of the balls while being moved in a generally circular path between the discs for polishing.

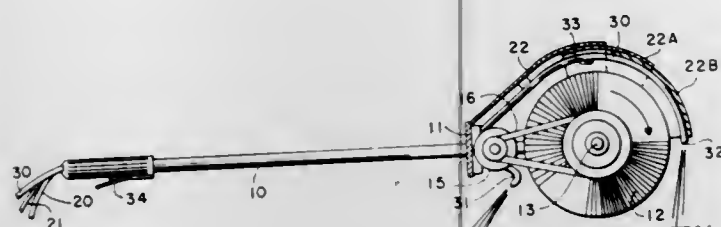
3,654,656

SELF-SUPPORTING ROTARY BRUSH

Ernest L. Romagosa, 11353 Fernald, Dallas, Tex.
Filed Aug. 29, 1969, Ser. No. 854,165
Int. Cl. A46b 13/04

U.S. Cl. 15-24

4 Claims



Disclosed is a hydraulically powered rotating brush mounted in a supporting handle. A shroud disposed over said brush and spray nozzles depending from the supporting handle are adapted to direct currents of air and washing fluid onto the surface being washed and assist in supporting the weight of the device during operation.

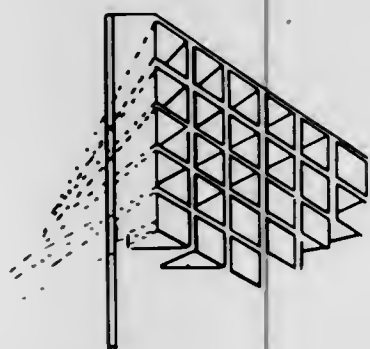
3,654,657

FOOT MAT FOR VEHICLES

Otto Hubel, Hamburg, Germany, assignor to Dupol-Rubbermaid GmbH Fabrik fur Gummi-und Kunststoffherzeugnisse, Dreieichenhain, An der Trift, Germany
Filed Aug. 3, 1970, Ser. No. 60,364
Claims priority, application Germany, Aug. 5, 1969, P 19 39 716.1
Int. Cl. B62d 25/20

U.S. Cl. 15-215

6 Claims



A foot mat of elastomeric material for vehicles, said mat having honeycomb or alveolar cells disposed in a slanting or inclined arrangement with respect to the base of the mat, with the cross section of each of the cells increasing from the bottom upwardly towards its upper open end.

3,654,658

SPLATTER SHIELD AND BUMPER FOR PAINT ROLLER

Imre Kovacs, Star Route, Massena, N.Y.
Filed Dec. 3, 1970, Ser. No. 94,737
Int. Cl. B44d 3/28

U.S. Cl. 15-248 A

7 Claims

A device adapted to be affixed without tools to a conventional paint roller to serve as a splatter shield and to act as a bumper preventing the movement of the paint cylinder against an adjacent wall. The shield of the device is mounted on the spindle of the roller and is rotatable around the paint cylinder. The clamp of the device has a plate rotatable by a

finger of the hand holding the handle of the roller. The plate and the shield are interconnected by a pair of guide lines so



that the shield can be positioned as desired by finger rotation of the plate.

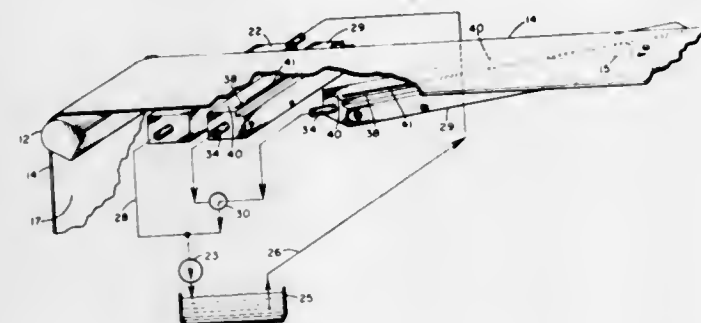
3,654,659

LIQUID TONER CLEAN-OFF SYSTEM FOR HIGH SPEED OPERATION

John Blumenthal, Wickliffe, Ohio, assignor to Clevite Corporation
Filed May 6, 1970, Ser. No. 35,092
Int. Cl. A471 5/38

U.S. Cl. 15-306 A

5 Claims



When an electrostatic latent image on a record medium is developed using liquid toner, excess toner is left on the record. The excess toner is removed by passing the record over a toner clean-off head having an elongated opening extending across the record and maintained at reduced pressure. The maximum record velocity, at which satisfactory toner removal is obtained, is increased by proportioning the trailing land adjacent to the opening to promote high velocity air leakage between the land and the record into the opening. A further, substantial increase is obtained by orienting the clean-off opening so that the length thereof forms an oblique angle with the direction of record motion. Preferably, the angle is less than 30°. The clean-off opening may be broken into a plurality of shorter, intersecting openings arranged in a zig-zag pattern across the record, thereby reducing the space occupied along the length of the record.

3,654,660

PHONOGRAPH RECORD VACUUM CLEANER

William W. Taylor, 16472 Malden Circle, and Richard O. Spencer, 3952 Sirius Drive, both of Huntington Beach, Calif.

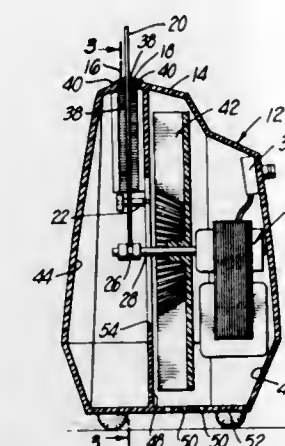
Filed Apr. 16, 1970, Ser. No. 29,048
Int. Cl. A471 5/22

U.S. Cl. 15-308

3 Claims

A housing provided therein with a vertically oriented slot of a size to receive a lower portion of a record on edge,

means in the housing and engageable with the edge of a record in the slot for supporting the record for rotation about its axis, brushes carried by the housing and respectively extending along opposite edges of the slot and engageable with successive portions of opposite sides of a record in the slot as



the record is rotated about its axis, vacuum means in the housing for flowing air into the housing through the slot to remove dust from opposite sides of the record and from the brushes, the air being exhausted through an outlet in the housing, and means in the housing for rotating the record about its axis as air flows into the housing through the slot.

3,654,661

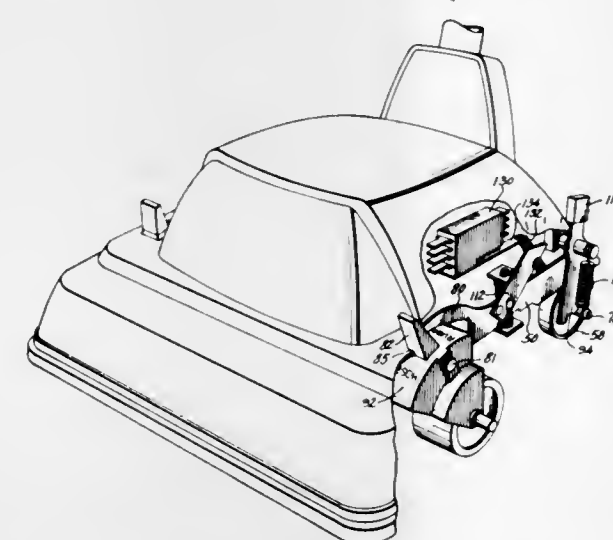
VACUUM CLEANER

Ernest R. Scott, Mayfield Heights, Ohio, assignor to General Electric Company

Filed Nov. 26, 1969, Ser. No. 880,305
Int. Cl. A471 5/34

U.S. Cl. 15-333

7 Claims



An electric vacuum cleaner construction wherein a cam and lever arrangement is provided for readily adjusting the nozzle of a vacuum cleaner for cleaning carpets of various pile heights. The vacuum cleaner may also be quickly converted to operate off-the-floor vacuum tools.

3,654,662

RUG CLEANING MACHINE

Leonard E. Bates, Torrance, Calif., assignor to Cardic Machine Products, Inc., Inglewood, Calif.

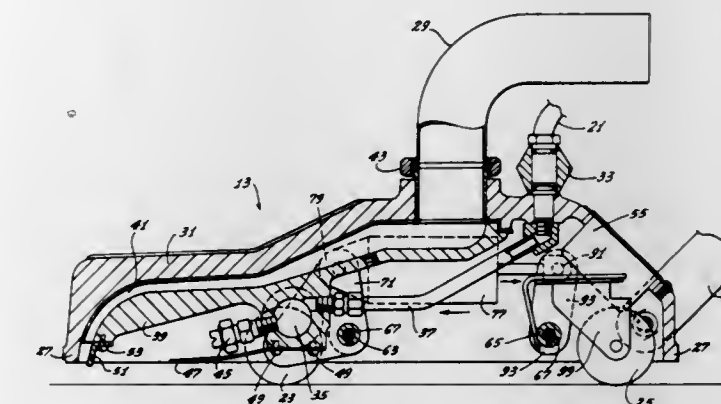
Filed June 15, 1970, Ser. No. 46,069
Int. Cl. A471 11/34

U.S. Cl. 15-302

12 Claims

A machine for cleaning rugs having one or more nozzles through which a high pressure fluid is injected into the pile of

the rug to cause a cleaning reaction with the dirt therein. A vacuum, drawn through the machine, removes the dirt and fluid from the rug. The machine is provided with a plurality of wheels which extend below the lower skirt surface of the machine when it is not being used for cleaning so as to facilitate movement of the machine across a rug or other surface. The nozzle or nozzles through which the high pressure fluid is passed are positioned in the machine to receive such



fluid from a plenum chamber. A piston-cylinder is positioned between rods upon which links carrying the machine wheels are mounted so as to simultaneously rotate the rods about their axes to raise the wheels. The cylinder is suitably connected to the plenum chamber so that when fluid enters the chamber, the piston and cylinder automatically react to withdraw the wheels into the machine so that the skirt rests directly upon the carpet, allowing more efficient utilization of the vacuum system.

3,654,663

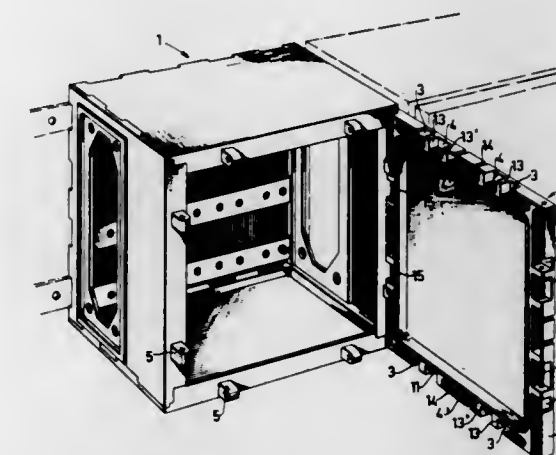
DEVICE FOR CLOSURE OF BOXES, PREFERENTIALLY BOXES FOR ENCLOSURE OF ELECTRICAL EQUIPMENT

Sven Erik Algotsson, Gavle, Sweden, assignor to AB Elektrotverken i Gavle, Akargatan, Gavle, Sweden

Filed Mar. 4, 1969, Ser. No. 804,229
Claims priority, application Sweden, Mar. 6, 1968, 2953/68
Int. Cl. E05d 15/50

U.S. Cl. 16-147

6 Claims



A box cover is provided in all its side edges with cut-outs, some of which correspond to lugs on the front of the box remote from its bottom in which lugs can be inserted pins sliding across the cut-outs corresponding to the lugs, so forming hinges and/or locking devices.

3,654,664

MEAT TENDERIZER

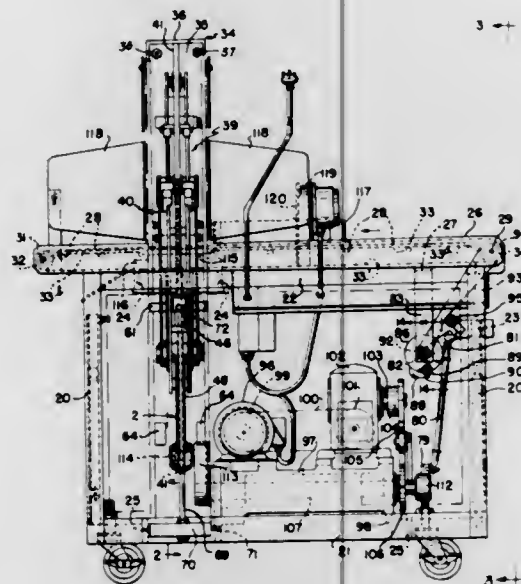
Fred Fetzer, Strongsville, and Ronald P. Miranda, Sandusky, both of Ohio, assignors to Betcher Industries, Inc., Birmingham, Ohio

Filed Mar. 9, 1970, Ser. No. 17,668

Int. Cl. A22c 9/00

U.S. Cl. 17-25

8 Claims



As a meat product travels intermittently along a horizontal conveyor belt by fixed increments, a plurality of downwardly directed blades carried by a vertically reciprocating ram carriage are moved from a position above the meat downwardly through the meat and then withdrawn upwardly. A stripper carriage associated with the ram carriage follows the latter during its downward stroke leaving a stripper frame resting on top of the meat. The stripper frame is locked in that position until the blades move upwardly out of the meat, at which time the stripper frame is unlocked and moved upwardly propelled by the ram carriage. Timing means causes said conveyor belt to move only when said blades are clear of said meat. Means is provided for varying the increment of conveyor belt travel while the machine is running.

3,654,665

MOLDING DEVICE FOR PLASTIC MATERIAL

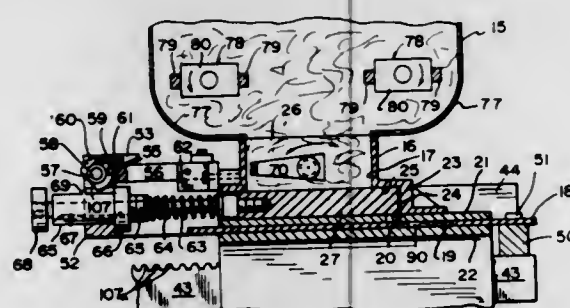
James A. Holly, Richton Park, Ill., assignor to Hollymatic Corporation

Filed Apr. 9, 1970, Ser. No. 26,814

Int. Cl. A22c 7/00

U.S. Cl. 17-32

11 Claims



A molding apparatus for forming articles and specifically patties from a moldable material and specifically ground meat, fish or the like in which a plurality of articles are formed simultaneously by providing a movable mold having a plurality of mold openings therein, a hopper for retaining a supply of the moldable material and a plurality of feeders in the bottom section of the hopper movable toward and away

from a fractional number of the passages leading to the mold openings when the mold is in material receiving position and with force means for moving the feeders toward and away from the passage means for filling the mold openings. The invention also includes a partition dividing the bottom section of the hopper into a plurality of separate parts, a feeder in the bottom section for forcing material therefrom into a mold opening and an agitator in the plurality of separate bottom parts movable to dislodge material from the adjacent portions of the hopper for increasing efficiency in feeding the material from the hopper into the mold openings. The invention also includes a pair of rotatable movers in the hopper on opposite sides of the feeder with these mover devices being rotatable toward the feeder for dislodging the moldable material and urging it toward the feeder.

3,654,666

OYSTER OPENING MACHINE

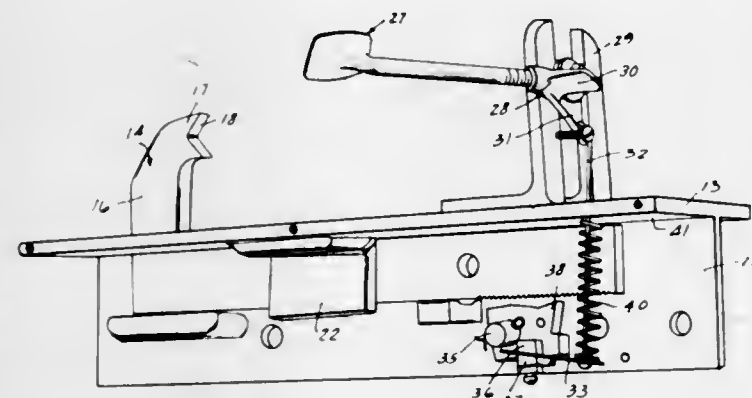
Leo H. Lanier, 710 South Bay Street, Amite, La.

Filed Sept. 9, 1969, Ser. No. 856,453

Int. Cl. A22c 29/00

U.S. Cl. 17-76

2 Claims



An oyster opening machine which includes a table or platform for carrying out the oyster opening steps. An anvil is slidably positioned on the table and a pneumatically movable piston is operably positioned oppositely of the anvil. The piston carries an oyster opening bit which is moved toward the oyster by depressing an activating lever. The anvil has a toothed rack associated therewith, and braking means are provided to engage the toothed rack and thereby lock the position of the anvil on the table prior to energizing the pneumatically operated piston. Once the anvil is correctly positioned with respect to the piston, the oyster is inserted between the piston and the anvil, and the activating lever is depressed. Upon initial movement of the activating lever, the anvil brake is engaged, and on further movement of the activating lever the pneumatically operated piston is urged toward the oyster to perform the opening function.

3,654,667

CARDING MACHINES

Wei Tsing Ling, 9 Grampian Road, 4th floor, Kowloon, Hong Kong

Filed Jan. 21, 1970, Ser. No. 4,567

Claims priority, application Great Britain, Jan. 21, 1969, 3,402/69

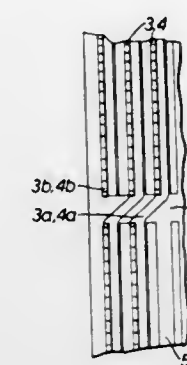
Int. Cl. D01g 15/12

U.S. Cl. 19-112

4 Claims

A carding machine comprising a card cylinder and a doffer each peripherally wound with toothed wire arranged as a series of parallel closed-spaced, preferably circular, rings, the rings of toothed wire on the doffer being offset in axial direction with respect to the rings of toothed wire on the

card cylinder and the teeth of the rings of toothed wire on the doffer intruding into the spaces between the rings of



toothed wire on the card cylinder to remove fibers which might otherwise collect in said spaces.

3,654,668

WRAPPING DEVICE

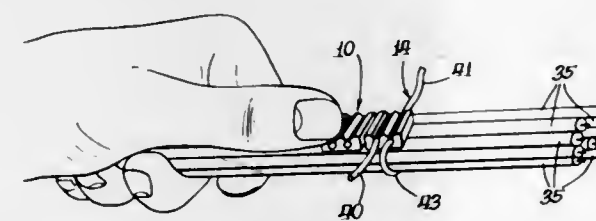
Arthur I. Appleton, 1701 W. Wellington c/o Appleton Electric Co., Northbrook, Ill.

Filed May 15, 1970, Ser. No. 37,627

Int. Cl. A44b 21/00

U.S. Cl. 24-16 R

7 Claims



A wrapping device for binding and holding together a plurality of items, such as cables, and feature a clip or cleat which securely holds a length of longitudinally resilient cord or the like wrapped in tension about said items. In one form, a plurality of cleats are integrally molded together in series to facilitate their use.

3,654,669

DOUBLE-LATCH CABLE TIE

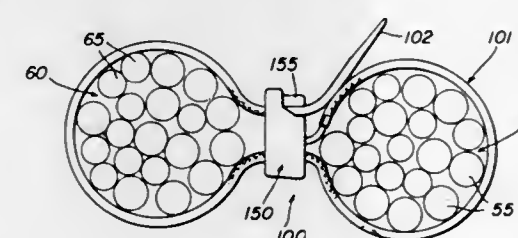
Ronald T. Fulton, Tinley Park, Ill., assignor to Panduit Corporation, Tinley Park, Ill.

Filed Mar. 31, 1970, Ser. No. 24,295

Int. Cl. B65d 63/00

U.S. Cl. 24-16 PB

16 Claims



A cable tie comprises a flexible strap having a row of teeth on one longitudinal surface thereof and a toothed wedge-shaped head at one end thereof, and a locking frame having a first and second strap-accommodating openings therethrough and being trapped on the strap with the strap in the first opening, the first opening being shaped to simultaneously accommodate the head and the other end of the strap therein with the row of teeth engaging the head to latch the strap in a first loop around a first bundle, the second opening having a

detent and a strap-bearing surface therein biased toward each other, the detent engaging the row of teeth when the other end of the strap is received through the second opening for latching the strap in a second loop around a second bundle; several alternative embodiments of detents and strap-bearing surfaces, and a strap having two rows of teeth are also disclosed.

3,654,670

BUCKLE ATTACHED TO SKI BOOT

Loris Baso, Corso Milan 19, Padua, Italy

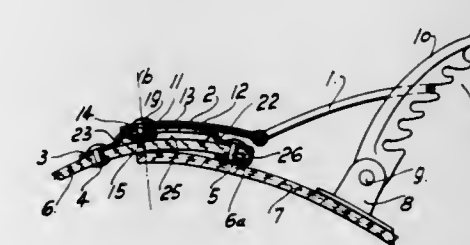
Filed Mar. 1, 1971, Ser. No. 119,755

Claims priority, application Italy, Mar. 3, 1970, 41530 A/70

Int. Cl. A43c 11/00

U.S. Cl. 24-70 SK

8 Claims



A buckle on ski shoes consisting of a toothed tensioning lever pivotally arranged on the one instep portion and a longitudinally adjustable clamping loop which is secured to the other instep portion by means of a mounting plate and an adjustable plate which can be connected to the tensioning lever.

3,654,671

BUTTON, IN PARTICULAR A CUSHION PADDING-BUTTON

Rudolf Berning, Schwelm/Westphalia, Germany, assignor to Firma Astor-Werk Otto Berning & Co., Schwelm/Westphalia, Germany

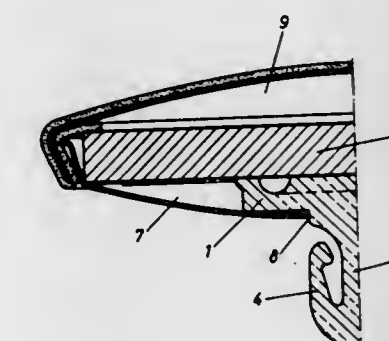
Filed Dec. 28, 1970, Ser. No. 101,530

Claims priority, application Germany, July 10, 1970, G 70 26 061.6

Int. Cl. A44b 1/18

U.S. Cl. 24-102 T

3 Claims



A button, in particular a cushion padding-button, which comprises an anchor-shaped securing part for a connecting means leading to an oppositely disposed button. The securing part includes anchor wings having free ends and an anchor shaft, as well as nose members pointing towards the anchor shaft. The nose members form undercut steps of thread insertion slots.

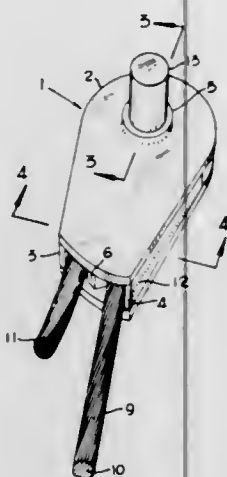
3,654,672

WEDGE CLAMPING DEVICE FOR CABLEIvan R. Bullar, 110 Cumberland, Maryland Heights, Md.
Filed Feb. 17, 1969, Ser. No. 799,757

Int. Cl. F16g 11/04

U.S. Cl. 24-136 K

2 Claims



Cable clamping means comprising first and second face plates disposed essentially parallel to each other and provided with apertures therein, elongated spacers operably mounted between said face plates providing a wedge shaped space therebetween, a clamping block operably disposed within said wedge shaped space, and a hollow cylindrical eyelet operably disposed through said apertures in said face plates and clamping block.

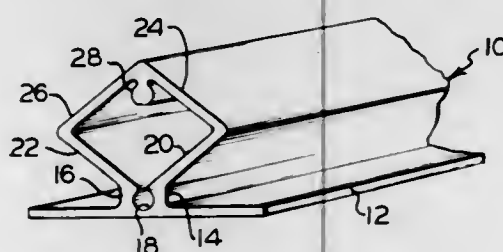
3,654,673

FASTENING DEVICE FOR GARMENTSBruce K. Thaeler, Meadville, Pa., assignor to Textron Inc.
Filed Jan. 12, 1970, Ser. No. 2,217

Int. Cl. A44b 17/00

U.S. Cl. 24-208 A

6 Claims



A fastening device for garments or the like in the form of a plastic extrusion having a stud element and a socket element integrally formed on a base member to define a single unitary component that may be easily attached to a fabric, paper, etc.

3,654,674

FLEXIBLE PROTECTIVE COVER FOR ELASTIC BAND AND METHODS OF INCORPORATION AS A PART OF OR ATTACHING TO FLEXIBLE COVERS, TUBES, PROTECTIVE WEAR, ETC.Willard Abner, P.O. Box 100, Woodland Hills, Calif.
Filed July 28, 1970, Ser. No. 58,755

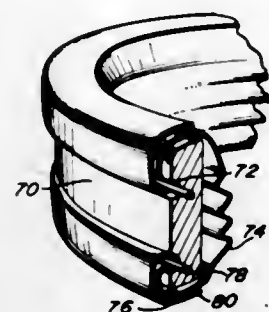
Int. Cl. A44b 21/00

U.S. Cl. 24-243 K

19 Claims

A flexible protective cover employing an elongated rubber band in a protective sleeve employed as a part of or attached to various types of flexible covers, protective wear such as shower caps, gloves, rain wear, boots, tubular members and the like. The method and procedure for assembling the

rubber band with the sleeve and the apparatus for accomplishing the assembly so that the elastic material will be



covered while is held in an elongated position so that it will have the retractability and complete working ability of a non-protected rubber band.

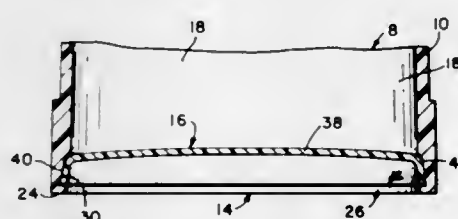
3,654,675

BURIAL URNFred D. Peterson, Belmont, Calif., assignor to Peterson Products of San Mateo, Inc., Belmont, Calif.
Filed June 15, 1970, Ser. No. 46,351

Int. Cl. A61g 17/08

U.S. Cl. 27-1

1 Claim



A rigid burial urn constructed of a thermosetting material which has a flat end face for supporting the urn in an upright position and a circular access opening extending through the end face. An interior wall of the container adjacent the end face includes a groove into which a resilient cover constructed of a thermoplastic material and having a frustoconical skirt is snapped to seal the interior of the container.

3,654,676

CASKET CAPSULE

Wilfred Lewis McHugh, 2501 Carleton Street, Calgary, Alberta, Canada

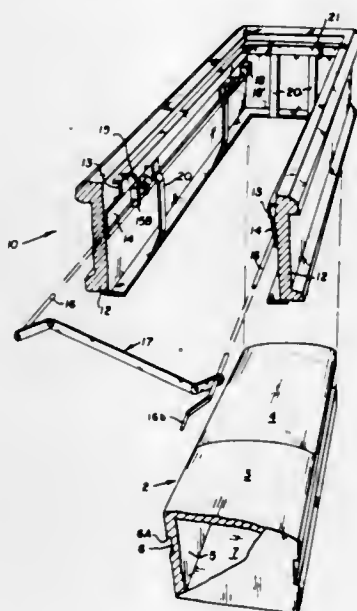
Filed Mar. 11, 1970, Ser. No. 18,645

Claims priority, application Canada, Mar. 12, 1969, 045,442

Int. Cl. A61g 17/00

U.S. Cl. 27-2

7 Claims



Apparatus is described for use with burial coffins having a re-useable outer casket and an inner casket capsule. Mount-

ing means are attached to the interior of the outer casket, and support means are carried by the mounting means and are adapted to engage a shoulder provided on the exterior of the casket capsule. In this way, the casket capsule is both supported and held in substantially fixed relation to the outer casket. Actuating means are provided on the outer casket for activating the support means enabling the casket capsule to be received and releaseably retained within the outer casket. Preferably, guide means are provided on the interior of the outer casket for properly orienting the casket capsule enabling it to be closely received within the outer casket. A tensioner device is also provided to generate a biasing force to disable any unintentional movement of the casket capsule relative to the outer casket.

3,654,677

APPARATUS FOR BULKING YARN

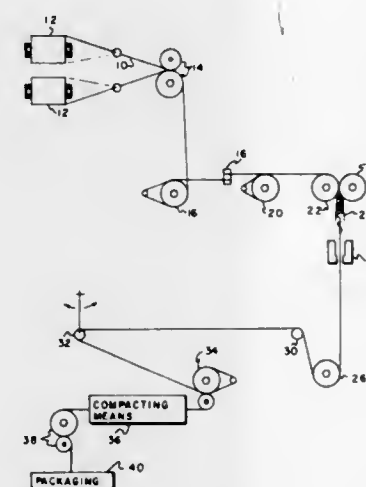
Jack C. Binford; Fredrick A. Ethridge, and James R. Talbot, all of Charlotte, N.C., assignors to Fiber Industries, Inc.

Filed Aug. 8, 1969, Ser. No. 848,549

Int. Cl. D02q 1/20

U.S. Cl. 28-1.3

11 Claims



A method for producing a yarn having latent bulking characteristics and the apparatus therefor is described. The yarn is composed of multifilament synthetic fibers which have been crimped and subjected to a constant tensioning process. The process involves subjecting a drawn yarn, preferably freshly drawn, to a crimping process which can be any of a number of crimping methods including stuffer box crimping, gear crimping, steam jet crimping and the like. The yarn is withdrawn from the crimping step under a low, substantially uniform tension, tensioning the yarn under a higher constant tension to at least partially extend the crimps, entangling or twisting the yarn and taking the yarn up on a package. The bulk characteristics of the yarn are preferably developed after incorporation into the end product such as a carpet by subjecting to heat and moisture.

3,654,678

FELTING NEEDLE MOUNTING MEANS

George Young, Alcester, England, assignor to Needle Industries Limited, Birmingham, England

Filed May 26, 1970, Ser. No. 40,594

Claims priority, application Great Britain, June 7, 1969, 28,904/69

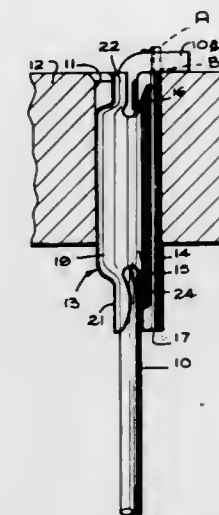
Int. Cl. D04h 18/00

U.S. Cl. 28-4 R

10 Claims

A needle mounting member for mounting a barbed felting needle in a hole in a needle carrier of a felting machine, the hole being of greater cross-sectional dimensions than the needle to be mounted therein. The needle mounting member is formed from resilient metal strip shaped to afford firstly means for gripping the needle and secondly means for

gripping the hole internally. This means for gripping the needle comprises a shaped seating including two axially spaced seating parts formed at opposite ends of a rigid part, and a resiliently displaceable tongue which is disposed axially between the seating parts. The outer gripping means com-



prises an outwardly directed seating afforded by said rigid part and a further tongue which is resiliently displaceable relative thereto and is adapted to press outwardly against the side wall of the hole. The two resiliently displaceable tongues are effectively isolated from one another by the common rigid part and thus act independently.

3,654,679

MICROVOIDING WITH ALKALI METAL HYDROXIDE A HEAT FUSED FABRIC OF POLYAMIDE WITH FIBER OCCLUDED AXIALLY ALIGNED POLYESTER MICROFIBERS

Carlo Meneghini, Chester; Richard Eugene Mayer, Richmond; Stanley David Lazarus, Petersburg, and Norman Barry Rainer, Richmond, all of Va., assignors to Allied Chemical Corporation, New York, N.Y.

Filed July 30, 1968, Ser. No. 748,615

Int. Cl. D02g 3/36

U.S. Cl. 28-73

2 Claims

A fibrous material, which can be a filament, fabric, or a film, having increased whiteness and a desirable luster is produced by a process which comprises treating the fibrous material comprising a polyamide matrix having polyester microfibers dispersed therein with a hot, aqueous caustic solution containing about 0.5 to 10, preferably about 2 to 6, weight percent of a caustic material which can be an alkali metal oxide or hydroxide or an alkali metal salt of a weak acid which is capable of producing a pH of at least about 12.5 at a concentration of 0.1N in aqueous solution, at a temperature of at least about 95° C, for a period of time sufficient to remove a portion of the polyester microfibers to produce elongated microvoids in the fibrous material thereby increasing the whiteness and imparting a lustrous effect to the fibrous material.

3,654,680

METHOD OF MAKING GAS DISCHARGE DEVICE

Wolfgang W. Bode, Sylvania; Glenn H. Dunlap, Maumee; Anthony M. Kobylak, Rossford; Raymond S. Richards, and Lawrence V. Pfander, both of Toledo, all of Ohio, assignors to Owens-Illinois, Inc.

Original application Apr. 28, 1969, Ser. No. 819,641, now Patent No. 3,602,754. Divided and this application Nov. 2, 1970, Ser. No. 85,892

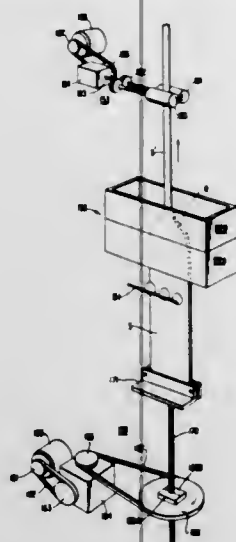
Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29-25.16

10 Claims

Methods of making complex glass panel structures having precision dimensions. Glass tubes, rods, plates or other large

glass structures are redrawn individually or in groups to filamentary or capillary size tube or gas continuums which are assembled as a monolayer to form a gas discharge panel, for



example. Complex glass structures having precision uniform cross-sectional dimensions are constructed. Various novel glass structures and/or conductor configurations and methods of assembling are disclosed.

3,654,681

CUTOFF TOOL HAVING IMPROVED CHIP RELIEVING SURFACE

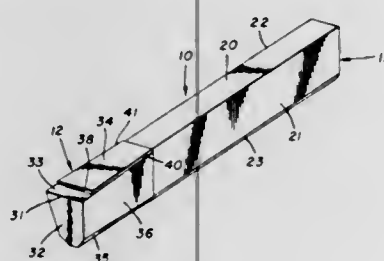
William B. Stein, Barberton, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed Apr. 22, 1970, Ser. No. 30,683

Int. Cl. B26d 1/00

U.S. Cl. 29-95

5 Claims



A metal cutoff tool characterized by the fact that the cutting portion thereof is provided with a chip breaker surface that includes opposed chamfered surfaces located rearwardly of the cutting edge and that assist in providing clearance for chip removal purposes.

3,654,682

TOOL HOLDER

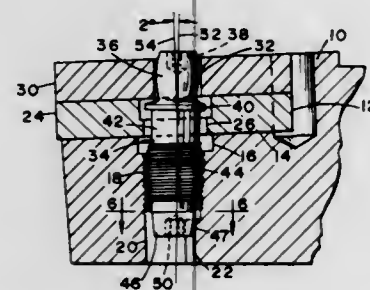
Edward H. Newbould, 191 Silver Spur Drive, York, Pa.

Filed Sept. 1, 1970, Ser. No. 68,609

Int. Cl. B26d 1/00

U.S. Cl. 29-96

5 Claims



A tool holder having a shank provided with a recess to support an anvil and an expendable cutter insert which is held

against one or more walls of the recess by a clamping screw provided with a lever action effected by the screw as it is threaded into a socket in the shank of the tool.

3,654,683

METHOD OF CONSTRUCTING A BALL TYPE BEARING

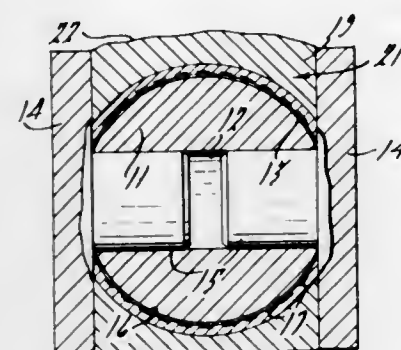
Charles S. White, Route 3, P.O. Box 454-H, Palmdale, Calif.

Filed Sept. 28, 1970, Ser. No. 76,109

Int. Cl. B23p 11/00, 17/00; F16c 9/06

U.S. Cl. 29-149.5 B

6 Claims



The method of constructing a bearing such as a ball for a rod end or a ball stud, for examples, has layers built up thereon from a dipping, or plating and/or spraying process. The ball has a highly polished surface which is treated to have little or no adhesion with a metal layer plated thereon. The first layer of lead, tin or the like is plated on the ball surface with a minimum adhesion therebetween. On this first layer is plated a bearing metal such as silver, nickel, bronze and the like which adheres thereto. A housing is built up on the second layers by a plating or spraying process and the adhered layers are freed from the ball surface by a very light breakaway force. A predetermined clearance is obtained between the bearing metal and ball surface when the first layer is eroded away.

3,654,684

METHOD OF MAKING A BEARING FOR STRUCTURAL ELEMENTS

Hans Alfred Nell, Klippe 17, Langenberg, Germany

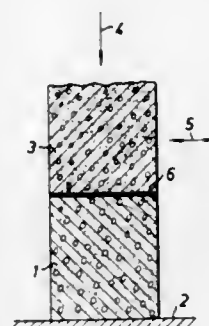
Filed Mar. 3, 1970, Ser. No. 16,005

Claims priority, application Germany, Mar. 3, 1969, P 19 10 727.8

Int. Cl. B23p 11/00; B21d 53/10; B23q 17/00

U.S. Cl. 29-149.5 NM

8 Claims



A bearing for structural elements is made by first providing at least two foil components each of which has a free surface which in use of the bearing is to slidably engage the free surface of the respective other component. Thereupon the free

surfaces are placed into face-to-face abutment and the two components are subjected to such forces and movements as at least approximate those which the finished bearing is expected to encounter in actual use, for instance by advancing the foil components between two pressure rollers rotating in mutually opposite directions. In so doing the bearing has imparted thereto a predetermined at least substantially constant coefficient of friction before it is subjected to actual use, and which coefficient of friction it could otherwise only attain over a period of time in actual use.

3,654,685

APPARATUS FOR INSTALLING BUSHINGS

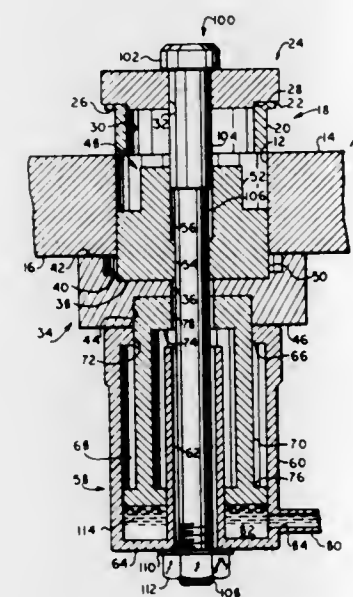
Robert H. Shifflet, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Mar. 16, 1970, Ser. No. 20,310

Int. Cl. B23p 19/00, 19/04; B23q 17/00

U.S. Cl. 29-200 R

9 Claims



with the jaws or grips of the tool in engagement internally of the tappets.

3,654,687

HYDROSTATIC EXTRUSION OF COMPOUND MATERIAL

Martin Burstrom, Overklinten, and Jan Nilsson, Robertsfors, both of Sweden, assignors to Almann Svenska Elektriska Aktiebolaget, Vasteras, Sweden

Original application Sept. 9, 1968, Ser. No. 758,308. Divided and this application Apr. 27, 1970, Ser. No. 32,195

Claims priority, application Sweden, Sept. 27, 1967, 13258/67

Int. Cl. B21c 23/22

U.S. Cl. 29-421

6 Claims



Apparatus for seating a bushing includes a member which centers a bar coaxially in an aperture in a part and a disk the edge of which is recessed on one side thereof so as to engage one end and the adjacent portion of the inner wall of the bushing, the edge of the other end of said bushing being initially engaged with the edge of the aperture on one side of the part. A second centrally apertured disk abuts the other side of the part, and the bar extends through the aperture in this disk and through apertures in a ram and pressure cylinder assembly. The free end of the ram engages the second disk and the bar is locked to the pressure cylinder so that when pressure inside the latter is increased, both the bar and cylinder move away from the second disk and the bushing is thereby pulled into the aperture in the part.

3,654,686

CLAMPING TOOL

Frederick R. McFarland, and Walter L. Diffenderfer, both of Lancaster, Pa., assignors to K-D Manufacturing Company, Lancaster, Pa.

Filed Dec. 8, 1969, Ser. No. 883,212

Int. Cl. B25b 27/14; A47b 13/06

U.S. Cl. 29-280

4 Claims

A tool is provided, that is adapted to be engaged in the hand of the user, and which has a depressable portion, which actuates jaws adapted for internal engagement of a member. The tool is particularly useful for reaching into automobile

In hydrostatic extrusion of a wire or rod of one metal with a casing of another metal, a billet is extruded through a die from a pressure chamber provided with a conical surface adjacent the die opening. The billet is so constructed that fluid is prevented from entering between the core and the casing and that the axial forces created by the differences in moulding resistance of the different materials are transferred between the casing and the core. This may be done by providing a member which overlies the rear ends of the casing and core. The joint between the casing and core is sealed at the rear ends. The front end of the core is shaped to match the conical surface of the die, and the casing may be brought down over this front end, the front end of the casing tapering in thickness.

3,654,688

SYSTEM FOR INSERTION TOOL CONTROL

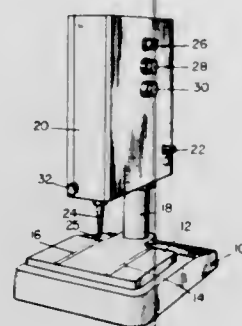
Paul C. Setzler, Sherman, Conn., assignor to Heli-Coil Corporation, Danbury, Conn.

Filed Dec. 11, 1969, Ser. No. 884,194

Int. Cl. B23p 11/00

U.S. Cl. 29-240

6 Claims



A method for controlling the rotative and translational movement of an insertion tool adapted to securably embed inserts in thermoplastic bodies is set forth along with a control system for implementation of the method. The method involves the steps of imparting rotational and extending forces to a tool threadably carrying an insert to partially liquify a thermoplastic body and seat the insert in a desired registration therein, discontinuing the rotational force and maintaining the extending force during an adjustable time period to permit resolidification of the molten thermoplastic body, thereafter discontinuing said extending force and applying both a reverse rotative force and a retracting force to said tool to dethreadingly retract same from said seated insert. In its preferred form the control system for implementation of the method includes fluidic logic control means.

3,654,689

METHOD AND APPARATUS OF ASSEMBLING AND DISASSEMBLING HYDRAULIC DISC BRAKE CALIPERS

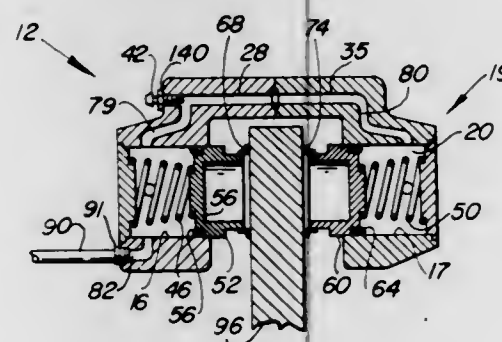
Maurice L. Schwarz, Middletown, Conn., assignor to The EIS Automotive Corporation, Middletown, Conn.

Filed June 3, 1970, Ser. No. 42,961

Int. Cl. B23p 19/02

U.S. Cl. 29-427

5 Claims



A method and apparatus for releasing frozen pistons from a disc brake caliper assembly by removing said assembly from a vehicle, removing the brake pads therefrom and placing it on a work table. The work table has a self-contained hydraulic system and a vacuum line is also provided. A spacer block of predetermined thickness is placed between the opposed pistons, and a pressure line connected to the caliper assembly. A hand pump is used to increase system pressure until all the hydraulic pistons, including any frozen pistons, move out of their bores to engage the spacer block. The hydraulic pressure is then released by a manual valve, and the hydraulic line disconnected so that the spacer block can be removed and the defective pistons removed from the

caliper assembly. The defective piston, or pistons, are replaced by operable ones, and the vacuum line used to draw them into their bores, after which the caliper assembly is prefilled with hydraulic fluid and pressure tested prior to reinstallation in the vehicle.

3,654,690

METHOD FOR REMOVING BROKEN STUDS

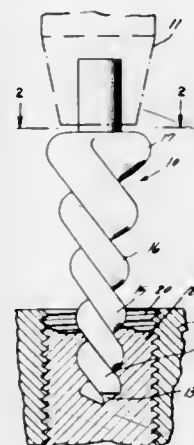
Wise J. Hardin, 301 Lexington Avenue, Box 22, Volusia County, Fla.

Filed July 2, 1970, Ser. No. 52,004

Int. Cl. B23p 19/06

U.S. Cl. 29-427

2 Claims



A method for removing a broken threaded member from a tapped bore including a drill bit adapted for rotation in the same direction required to withdraw the broken threaded member and in which a portion of the drill bit between the ends thereof has an expanding diameter to increase the torque for removing the broken threaded member when the drill bit had drilled sufficiently into the broken threaded member to reach the expanding portion.

3,654,691

PROCESS FOR CONSTRUCTING PRESTRESSED CONDUIT FOR HEATED FLUIDS

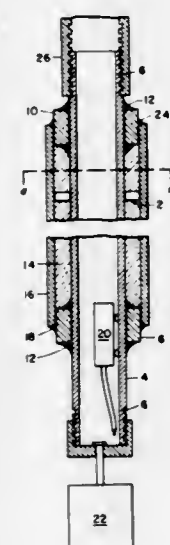
Glen Paul Willhite, and William L. Martin, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Original application Feb. 7, 1966, Ser. No. 525,573, now Patent No. 3,511,282. Divided and this application Oct. 20, 1969, Ser. No. 871,239

Int. Cl. B23p 11/02

U.S. Cl. 29-446

9 Claims



A process for constructing conduits of at least 30 feet in length within a conduit of a similar length wherein both conduits are joined in prestress.

3,654,692

METHOD OF MAKING FRICTION DISC VARIATORS

Bernard Goetz, Colombes, France, assignor to Automobiles Peugeot, Paris and Regie Nationale Des Usines Renault, Billancourt, France

Filed Nov. 21, 1969, Ser. No. 878,671

Claims priority, application France, Feb. 7, 1969, 6902820

Int. Cl. B23p 13/04

U.S. Cl. 29-558

3 Claims



A method for treating surfaces of contact for a friction element operating in a liquid medium. The method comprises sand blasting the surface so as to form unevenness, thereafter nitriding the surface layer so as to increase the hardness and thereafter effecting a partial smoothing to eliminate the crests of the unevenness.

3,654,693

FOUR-SLIDE MACHINE FOR PRODUCING BEARINGS AND THE LIKE

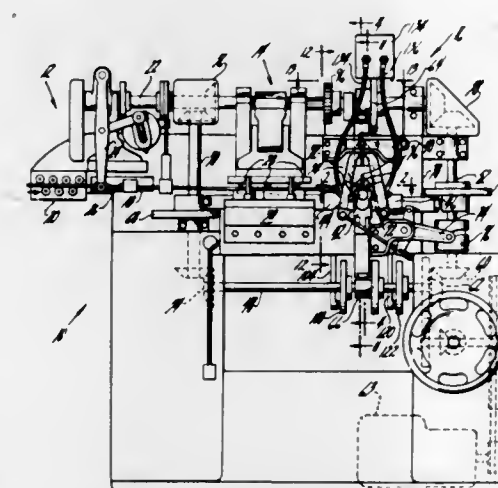
Erman V. Cavagnero, Torrington, Conn., and Joseph F. Loftus, Springfield, Ohio, assignors to The Torrington Manufacturing Company, Torrington, Conn.

Original application Apr. 16, 1968, Ser. No. 721,672, now Patent No. 3,562,473. Divided and this application June 8, 1970, Ser. No. 44,070

Int. Cl. B21d 9/05; B211 3/00

U.S. Cl. 29-564

7 Claims



A high production machine of the vertical four-slide type for intermittently advancing strip stock, severing blanks therefrom, forming the same into bearing races and welding end portions thereof together. The machine has a projecting horizontal mandrel with three work stations therealong respectively for preforming, forming, and preheating and/or welding. A cut-off anvil, transfer pins, broaching tools, and an expandable mandrel section are provided all with rear mo-

3,654,694

METHOD FOR BONDING CONTACTS TO AND FORMING ALLOY SITES ON SILICONE CARBIDE

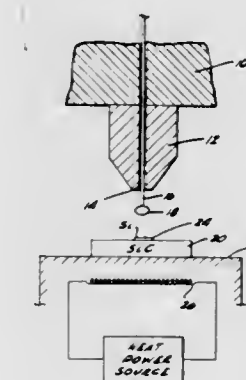
Howard L. Dunlap, Granada Hills, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 28, 1969, Ser. No. 819,832

Int. Cl. B01j 17/00; H01l 5/04, 7/60, 9/08, 11/02, 11/04, 15/08

U.S. Cl. 29-587

18 Claims



An alloy of silicon and metal (e.g., gold) formed at the eutectic temperature thereof permits the formation of a bonded contact of the metal (e.g., gold) to silicon carbide. Such a contact is useful for securing a wire to the silicon carbide, for forming alloy sites thereon, etc. A nail head bonder with a threadable heated tip may be utilized in the use of this method.

3,654,695

METHOD OF MAKING AN ELECTRONIC MODULE

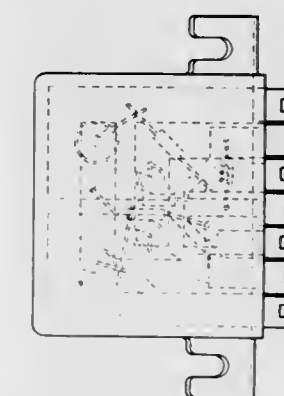
Italo Del Gaudio, Napoli, Italy, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed July 29, 1970, Ser. No. 59,232

Int. Cl. H05k 3/20

U.S. Cl. 29-593

3 Claims



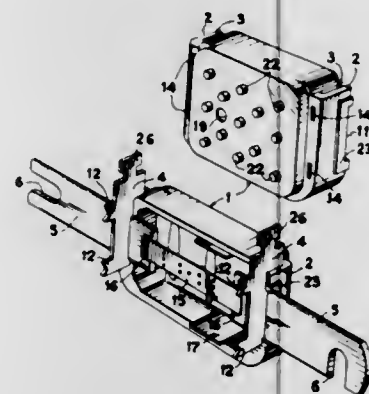
An electronic module is provided by positioning a plurality of metallic elements of interconnection in a desired pattern, attaching active and passive components to the elements of interconnection and encapsulating the elements and components in a thermally conductive, electrically insulative encapsulant. The encapsulant maintains the several parts of the module in a desired fixed spatial relationship with one another, as well as protecting and supporting parts of the module. The elements of interconnection are provided with terminal portions which project out of the encapsulant and some or all of the elements can be proportional to serve as heat sinks for the components.

3,654,696

METHOD FOR MANUFACTURING ELECTRIC FUSES
Bernard Wechsler, and Roger Wechsler, both of 3, Avenue
Valvein, 93 Montreuil, France
Filed Jan. 29, 1970, Ser. No. 6,674
Int. Cl. H01h 69/02

U.S. Cl. 29—623

9 Claims



Method for manufacturing a fuse comprising, prior to fixing the responsive element of the fuse to the two strips for connecting the element to the electric circuit, fixing the two strips at a fixed distance apart in a case of insulating material. The responsive element is thereafter soldered to the two strips and the interior of the case is closed off and filled with powdered material. The case is then finally closed.

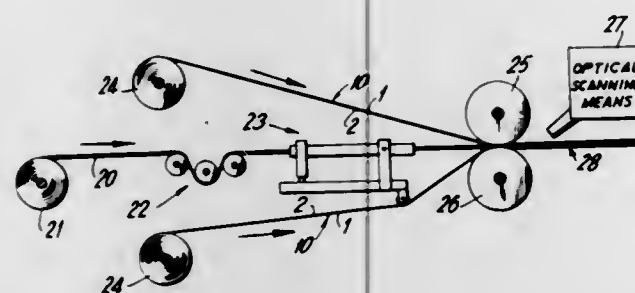
Various embodiments of the fuse obtained are disclosed.

3,654,697

METHOD OF MAKING THIN PLATED WIRE MEMORY
John M. Cole, New Hope, Pa., assignor to Thomas & Betts
Corporation, Elizabeth, N.J.
Filed Oct. 19, 1970, Ser. No. 81,915
Int. Cl. H01f 7/06

U.S. Cl. 29—604

10 Claims



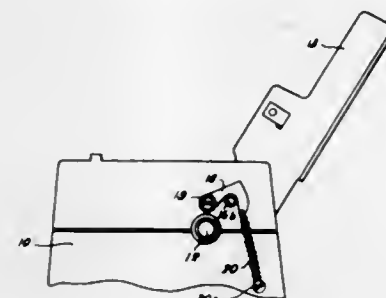
A method of making a plated wire memory plane comprises laminating two sheets of copper clad dielectric material around a plurality of generally parallel manufacture wires in a continuous lamination technique, with each copper sheet having suitable apertures therein to enable inspection of the spacing or pitch between said manufacture wires during lamination step. Suitable tooling holes are drilled in the resulting laminated structure, after which the copper foil sheets are etched to produce the word lines which extend generally perpendicular to the manufacture wires, and with the word lines being in registration above and below said manufacture wires. The latter are then withdrawn from the dielectric material and magnetically plated wires are inserted in the resulting tunnel thereby completing the memory plane.

CAN OPENER WITH REMOVABLE HAND LEVER AND CUTTING ELEMENT

Robert J. Scott, Blue Springs, Mo., and Leo F. Aberer,
Shawnee Mission, Kans., assignors to Rival Manufacturing
Company, Kansas City, Mo.
Filed Oct. 17, 1969, Ser. No. 867,231
Int. Cl. B67b 7/38

U.S. Cl. 30—4 R

7 Claims



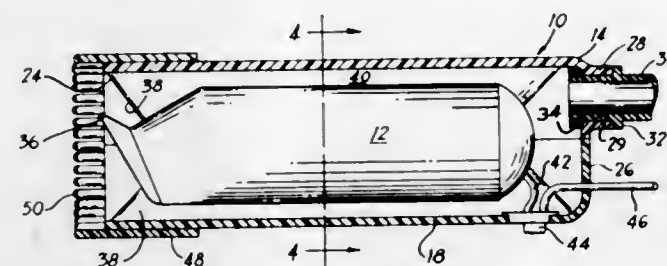
An electrically powered can opener has a cutter wheel carrying hand lever pivotally attached to its forward upright frame by an elongate pin member. A spring biased latch is pivotally affixed to the inner surface of the upright frame and located relative to an aperture therein so that the latch releasably locks the pin member (and the hand lever) to the can opener frame. The inwardly extending pin member of the pin assembly is selectively grooved so that when same is in a preselected position, the groove is engaged by the latch and when the hand lever is rotated to a preselected position, the spring biased latch rides out of the groove in the pin member allowing the hand lever to be removed from the aperture in the can opener frame.

3,654,699

HAIR TRIMMING DEVICE
Ralph Garcia, C/O Mrs. Paul Barnes, Route 8, Box 32, Win-
ston-Salem, N.C.
Filed July 17, 1970, Ser. No. 55,761
Int. Cl. B26b 19/44

U.S. Cl. 30—133

6 Claims



A hair trimming device having a conventional, electrically operated, clipper supported within a housing in spaced relation with the walls thereof, the cutting end of the clipper being disposed adjacent an open end of the housing, and an adjustable comb, surrounding the open end of the housing, and movable to selectively vary the length of the hair to be left on the scalp being trimmed. A closed end of the housing is connected with a source of suction to remove the clippings.

3,654,700

POWERED CUTTING TOOL AND CUTTING HEAD THEREFOR

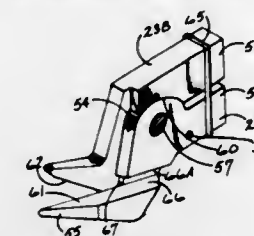
James A. Pawloski, P.O. Box 158, East Woodstock, Conn.
Filed Aug. 5, 1969, Ser. No. 847,570
Int. Cl. B26b 13/04

U.S. Cl. 30—247

3 Claims

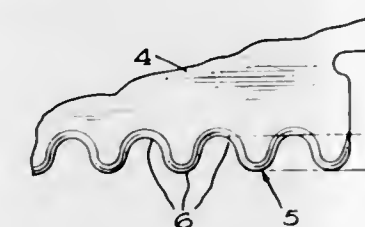
This disclosure is directed to a powered cutting tool and a cutting head adapted for use therewith comprising a housing

for containing a motor means and an actuator for controlling the operation of the motor means. A cutting head is connected in driving relationship with the motor means. The



SAFETY RAZOR BLADE
Donald M. Hastings, Sr., P.O. Box 4088, Atlanta, Ga.
Filed June 29, 1970, Ser. No. 50,724
Int. Cl. B26b 21/54

U.S. Cl. 30—346.56



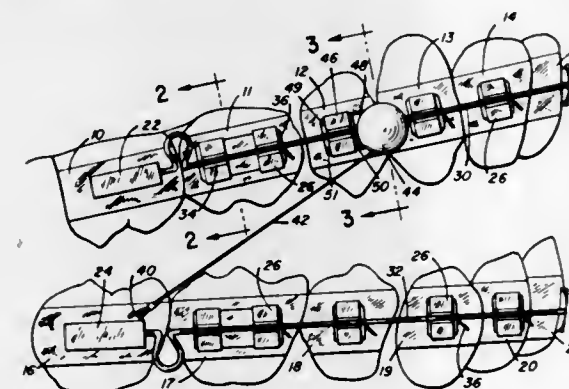
An improved safety razor blade having a cutting edge in the form of a continuous series of substantially sinusoidal micro-waves which provide more cutting surface per unit of length than a smooth- or straight-edged blade and which achieve maximum closeness and comfort of shaving action without angling the blade to the direction of the shaving stroke. The improved blade is adaptable to most of the standard safety razors utilizing either single- or double-edge blades, as well as those of the narrow band or reel type flexible blades. For optimum results, the micro-waves of the cutting edges of the blades are very minute and preferably range in wave depth from crest to trough on the order of between 0.0005 inch minimum depth to about 0.0050 inch maximum depth, and the waves numbering on the order from between about 100 or 200 per inch to about 20 per inch of blade length.

NON-CUMULATIVE-FORCE SPRING FOR ORTHODONTIC DEVICES

Vincent M. Kelly, Jr., 5930 East 31st Street, Tulsa, Okla.
Filed Jan. 21, 1969, Ser. No. 792,248
Int. Cl. A61c 7/00

U.S. Cl. 32—14 A

5 Claims



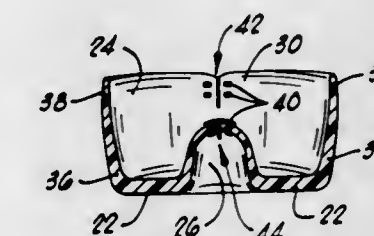
A force powered drum and cable device is utilized in place of latex elastic means in orthodontic correction systems.

DENTAL IMPRESSION TRAY

Harold L. McAdoo, 501-3 Union National Bank Building,
Bartlesville, Okla., assignor to Charlotte M. McAdoo
Filed Jan. 27, 1970, Ser. No. 6,062
Int. Cl. A61c 9/00

U.S. Cl. 32—17

3 Claims



1 Claim

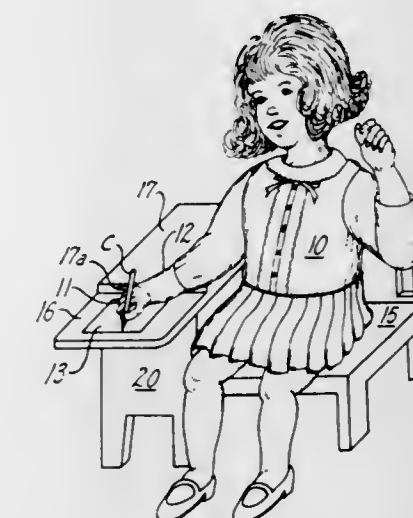
This invention is a dental impression device for holding dental impression compound. It is a dental tray. More particularly, this invention is a dental impression tray formed of a pliable polymeric plastic material, with a relatively thick base portion and thinly tapering sidewalls; the tray being easily modified by cutting and rejoining to provide a proper fit.

AUTOMATIC SCRIBER

Leslie J. Poglein, Box 291A, R.D. 1, Jeannette, Pa.
Filed Dec. 3, 1970, Ser. No. 94,718
Int. Cl. B43l 13/00

U.S. Cl. 33—18 B

8 Claims



A mechanically driven device is provided for forming or writing letters, words, symbols, designs or caricatures in accordance with programming of a pattern piece and for applying them to a piece of paper through an agency of linkage of a lever mechanism and a stylus. The pattern piece is formed by using the stylus as a tracing guide and by applying a pair of tracking pins to trace contour lines on the pattern piece; the pattern piece is then formed by cutting it along the contour lines. The pattern piece is introduced in an aligned relation into the machine and rotated about a drum or wheel in the path of the pair of tracking pins that then operate as opposed side-edge-engaging fingers along the contoured edges of the pattern piece. The tracking pins are connected through linkage to a stylus operating arm for moving a pen or pencil to faithfully translate and apply a lettering or design in accordance with contouring of the advancing pattern piece.

3,654,705

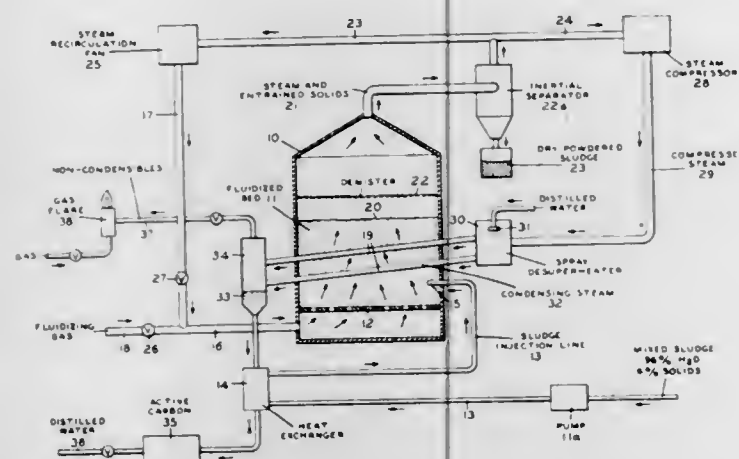
FLUIDIZED BED VAPOR COMPRESSION DRYING APPARATUS AND METHOD

Richard D. Smith, Palo Alto, and Dale A. Furlong, Sunnyvale, both of Calif., assignors to Combustion Power Company, Inc., Palo Alto, Calif.

Filed Jan. 11, 1971, Ser. No. 105,270
Int. Cl. F26b 3/08

U.S. Cl. 34-10

25 Claims



A feed stream, which is to be dried, is introduced into a fluidized bed of solid particles. A plurality of conduits are immersed in the bed for channeling a heating fluid through the bed to supply heat for vaporizing volatiles contained in the feed stream. Solid particulates and volatiles produced within the hot bed are removed from the bed. Volatiles are separated from the solid particulates entrained therein whereupon dried feed solids are recovered. The separated volatiles are preferably split into a first and a second portion. The first portion is recycled to the bed to serve as the fluidizing gas. The second portion is compressed to a pressure at which its saturation temperature exceeds the boiling temperature of the feed stream at the conditions existing in the bed. The compressed second portion is then cooled to about its saturation temperature whereupon it is re-cycled through the bed heating conduits to serve as the heating fluid. The recycled compressed volatiles condense as they pass through these conduits to supply heat for vaporizing the volatiles contained in the feed stream.

3,654,706

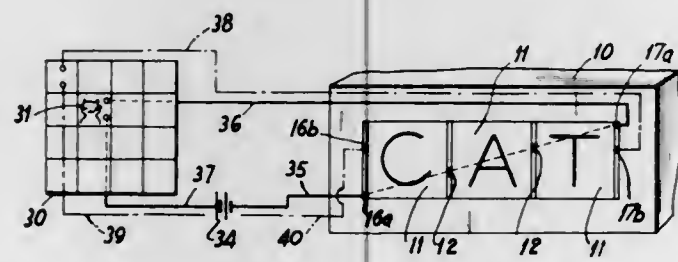
EDUCATIONAL DEVICE

Donald J. Perrella, 38 Drexell Lane, Matawan, N.J.
Continuation-in-part of application Ser. No. 657,316, July 31, 1967, now abandoned. This application June 23, 1970, Ser. No. 48,988

Int. Cl. G09b 5/00

U.S. Cl. 35-9 D

10 Claims



This invention relates to an educational device, and particularly to an electrical teaching machine for young children. The inventive device utilizes a plurality of electrically conductive means which bear symbols, such as alphabet letters or mathematical symbols. A conductive path is provided upon correct arrangement of predetermined groups of letters

to spell words, or arrangement of predetermined mathematical symbols to perform arithmetic operations. A chassis or housing incorporates electrically responsive means adapted to provide sensory stimulation upon correct arrangement of a plurality of the electrically conductive means.

3,654,707

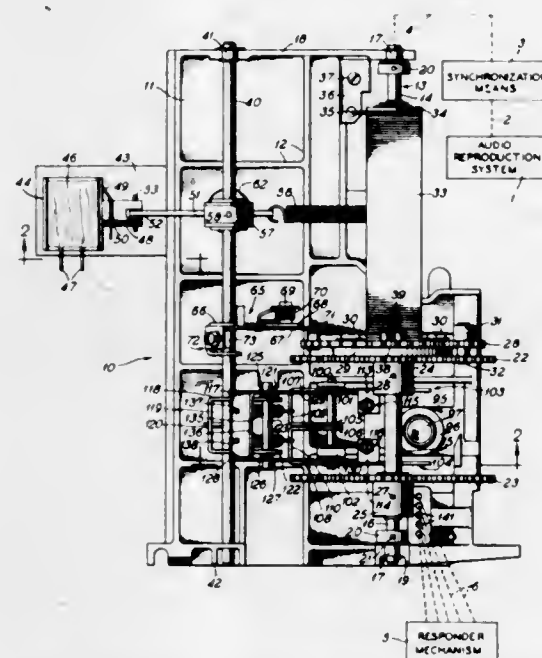
IMAGE POSITIONING MEANS FOR AUDIOVISUAL EDUCATIONAL APPARATUS

Richard W. Roberts, Lombard, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Apr. 7, 1970, Ser. No. 26,382
Int. Cl. G09b 7/00; G03b 23/08

U.S. Cl. 35-9 A

6 Claims



A device for releasably clamping an image support in an audiovisual educational apparatus to hold images carried by the support in a single common plane for visual presentation despite intermittent movement of the image support relative to the apparatus, thereby avoiding the necessity for frequent adjustment of the visual presentation for sharpness. The device is operable to release the image support to permit the intermittent relative movement to be effected freely and rapidly.

3,654,708

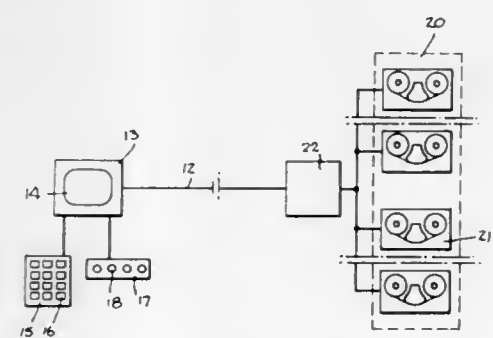
COMPUTER-ASSISTED INSTRUCTION VIA VIDEO TELEPHONE

Harvey J. Brudner, Piscataway, N.J., assignor to Westinghouse Learning Corporation, Iowa City, Iowa
Filed May 26, 1969, Ser. No. 827,868

Int. Cl. G09b 7/04; H04m 11/00

U.S. Cl. 35-9 A

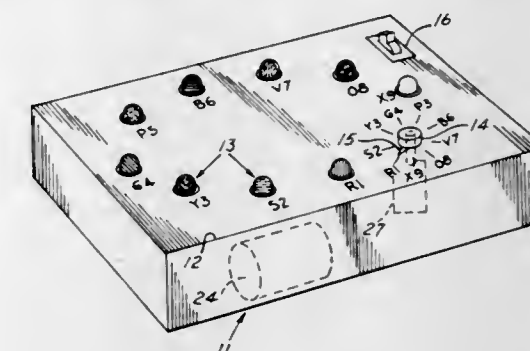
10 Claims



A teaching system utilizing a video telephone as a terminal in which the video telephone is tied into a computer whereby

information is fed into the video telephone and other information is returned to the computer. A video tape recorder, containing a central bank of pre-recorded reels of video tape, is connected to the central processing unit of the computer and the video telephone whereby pictorial representations as distinguished from the alpha-numerical representations will appear on the screen of the video telephone enabling interaction with the student. This central bank of pre-recorded reels of video tape is connected to a buffer unit so that selected tape reels can be transfer recorded into the buffer unit where it is played back to the student selecting such tape. In this manner, the pre-recorded reels of video tape in the central bank will be available almost simultaneously to a large number of students at different terminal units in the teaching system.

common light bulb is transmitted to each station via a light-conductive rod coupled to the knob. An on-off power switch



3,654,709

VOTER INSTRUCTION DEVICE

Afton V. Martin, and Michael T. Modovan, Jr., both of Jamestown, N.Y., assignors to AVM Corporation, Jamestown, N.Y.

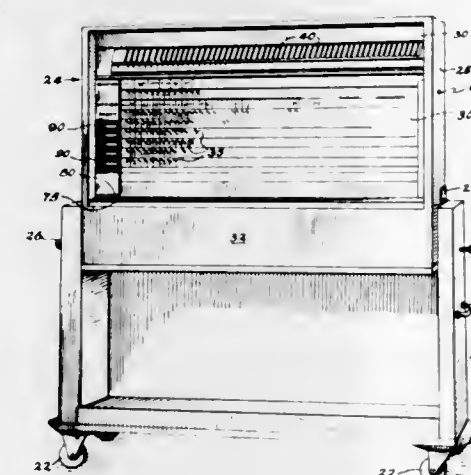
Continuation of application Ser. No. 797,811, Feb. 10, 1969, now abandoned. This application Dec. 30, 1970, Ser. No. 102,914

Int. Cl. G09b 25/02; G07c 13/00

U.S. Cl. 35-13

9 Claims

U.S. Cl. 35-66



A voting machine familiarization and/or operating instruction aid, comprising a machine frontally simulating a complete official voting machine but embodying in unique combination only operational components which are essential to indoctrination of prospective voters to accurate and efficient use of the simulated type complete and official machine.

3,654,710

SELECTIVELY ILLUMINABLE TOY

James W. Barnard, 5927 So. Elizabeth Way, Littleton, Colo.

Filed Aug. 7, 1970, Ser. No. 61,989

Int. Cl. A63h 33/26; H03j 1/04

U.S. Cl. 35-29 R

13 Claims

In a toy to amuse and teach hand-eye coordination to children, there is provided a control knob operatively associated with a selected number of distinctive illuminable stations on a display board in such a way that the stations are sequentially illuminated and darkened by the movement of the knob. In one form a rotary switch coupled to the knob sequentially connects power from a battery to a separate light bulb at each station as the knob is turned and indicia is provided on the display board for correlating each station with a knob setting. In another form a light bulb is mounted on a radial arm secured to the knob to rotate to each station as the knob is turned, and in yet another form light from a

on the display board is connected in series between the battery and the light bulb or bulbs.

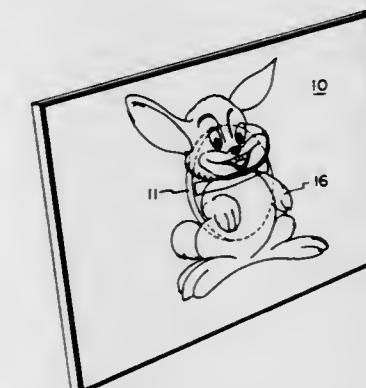
3,654,711

TEACHING AID

Lowell M. Taylor, P.O. Box 224, Kaysville, Utah
Filed Feb. 16, 1970, Ser. No. 11,695

Int. Cl. B43l 1/04

2 Claims



A teaching aid usable as a chalk board and for displaying movable objects. The teaching aid includes a board having a sandwich construction comprising rigid center core, a lamination of magnetic material such as thin sheet steel or steel foil on at least one side of the center core and a covering of book cloth material on both flat faces of the board. Magnetized rubber or vinyl members are coated so that they will stick to the face of the board having the magnetic sheet therebeneath but so that they are easily slidable thereover.

3,654,712

TEACHING AID KIT

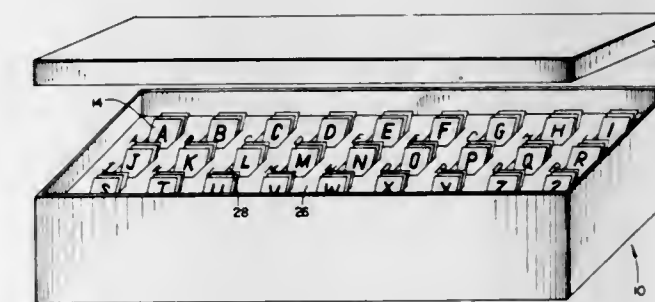
Florica Bagdasar, 5901 N. Sheridan Rd., Apt. 13-A, Chicago, Ill.

Filed Dec. 31, 1969, Ser. No. 889,559

Int. Cl. G09b 1/06

U.S. Cl. 35-73

12 Claims



The kit includes a plurality of groups of cards with each card having a letter of the alphabet marked thereon. Each

card in each group (e.g., five cards per group) has an upper case letter form marked on a first surface thereof and a lower case letter form marked on a second surface thereof. The kit also includes a container having a plurality of compartments, one for each group of cards, and a tray on which various cards can be assembled to form different combinations of letters and words. The kit also includes an alphabet learning tablet having a first side and a second side. The first side has a plurality of enclosures thereon, the number of enclosures being equal to the number of letters of the alphabet. Each of the enclosures has the printed and cursive forms of an upper case letter and a lower case letter within the enclosure. The letters are arranged in alphabetical sequence with a different letter of the alphabet in each enclosure. The second side of the tablet has a plurality of graphic enclosures thereon and each of the graphic enclosures has a picture of an article or thing and the word for the article within the enclosure. The first letter of each word is a different letter of the alphabet and the words are arranged so that the first letter of each word is in alphabetical sequence with respect to the first letter of the word in an adjacent graphic enclosure. Additionally, the kit includes a card for each letter of the alphabet which has the printed and cursive forms of an upper case and a lower case letter on a first surface thereof identical to the letter forms in one of the enclosures on the first side of the tablet and a picture of an article or thing and a word for the article on the second surface of the card identical to the picture and word in one of the graphic enclosures on the second side of the tablet.

3,654,713

DITCH DIGGING MACHINE DISK AUGER ATTACHMENT

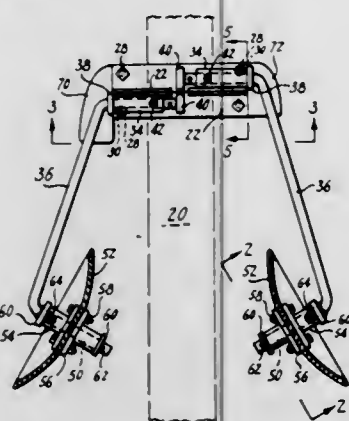
Elmer C. Craddick, and Eleanor M. Craddick, both of 6236 West 2nd St., Rio Linda, Calif.

Filed Apr. 21, 1970, Ser. No. 30,465

Int. Cl. E02f 5/14

U.S. Cl. 37-80 A

1 Claim



A disk auger attachment for ditch digging machines pivotally mounted on the boom of the ditch digger for engaging the ground adjacent the sides of the ditch to move loose earth adjacent the ditch away from the ditch and to remove earth from the edges of the ditch for preventing caveins thereof. A pair of disks are mounted on arms pivotally secured to the ditch digger boom with the axes of the disks converging and extending at an acute angle to the ditch. A bracket on the boom is arranged to lift the disks simultaneously with the raising of the boom.

3,654,714

STEAM-AIR GARMENT PRESS

William L. North, Morristown, Tenn., assignor to Forenta, Limited, Kincardine, Ontario, Canada

Filed Sept. 28, 1970, Ser. No. 76,029

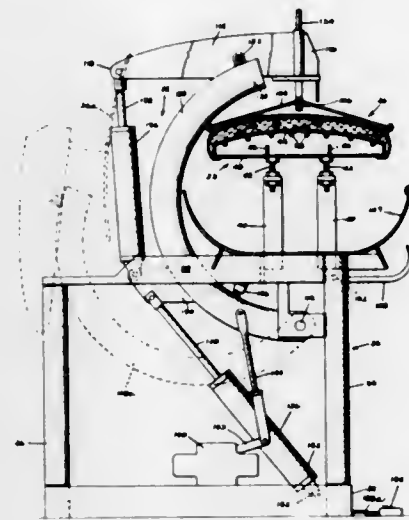
Int. Cl. D06f 71/34

U.S. Cl. 38-16

15 Claims

A steam-air garment press, such as a utility press or legger. A horizontally extending buck is provided comprising a per-

forated metal top plate joined to a metal base member and defining a cavity therewith. A porous metal pad is provided on the outer surface of the top plate, and a heating element is provided in the cavity carried on the inner surface of the top plate for continuously heating the top plate and pad. Elongated, flattened, perforated tubes are carried on the outer surface of the top plate under the pad for selectively injecting steam into the pad for outward flow therethrough thereby to heat and moisten a garment thereon. A blower communicates with the buck cavity and a heating element is pro-



vided in the blower air stream for heating the air delivered thereby, the heated air entering the cavity and flowing outwardly through the top plate perforations and the pad thereby to dry the garment thereon. An unheated head plate formed of relatively thin perforated metal is provided with means for selectively moving the head plate between active and inactive positions, the head plate in its active position lightly engaging the garment on the buck with only sufficient pressure to retain the garment thereon during the steam injection and hot air flow.

3,654,715

ADJUSTABLE SPRAYER IRON WITH TEMPERATURE INTERLOCK

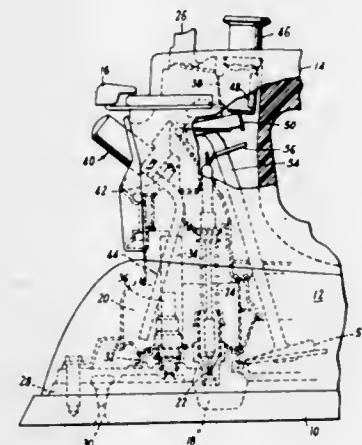
William E. Davidson, Ontario, and Llewellyn D. Busby, Upland, both of Calif., assignors to General Electric Company

Filed Nov. 25, 1970, Ser. No. 92,587

Int. Cl. D06f 75/06

U.S. Cl. 38-77.5

7 Claims



The disclosure shows a spray iron having independent adjustable sprayer assembly and temperature control means with interlocking connecting structure between the two for automatically setting the correct spray rate in accordance with the temperature setting for the material being ironed.

3,654,716

MOTOR OPERATED POLE SUPPORTED MOTION DISPLAY

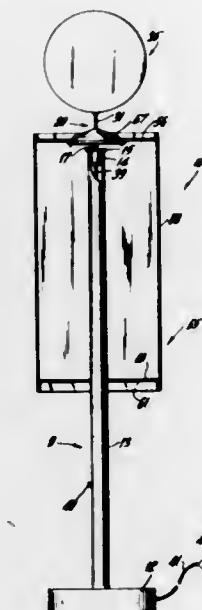
Jerome A. Moss, 333 West End Ave., New York, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,585

Int. Cl. G09f 11/02

U.S. Cl. 40-33

12 Claims U.S. Cl. 40-145



This display comprises a pole carrying a motor at its upper end, having an upwardly extending drive shaft on which is mounted means to facilitate the installation of a display member in the field and to support and stabilize the weight of the display member more evenly as opposed to the conventional "U" bracket. The display member is simply lifted over the support unit, and lowered onto a conical portion of an adaptor for self-centering of the display member which finally rests on a flange surrounding the base of said conical portion.

3,654,717

DISPLAY DEVICE

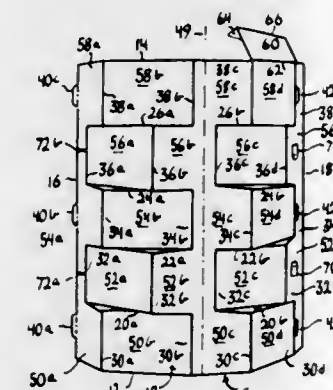
John Lane, 10359 Longview Dr., Kirtland, Ohio

Filed May 14, 1970, Ser. No. 37,092

Int. Cl. G09f 1/06

U.S. Cl. 40-126 A

4 Claims



A self-supporting tubular, geometrical product display and/or advertising device formed of a sheet of foldable material, such as, posterboard, cardboard and the like, having at least four sides each providing a plurality of display surfaces or areas, and simulating a plurality of non-aligned rectangular blocks, cartons, boxes, or the like, placed one upon another.

897 O.G.-17

3,654,718

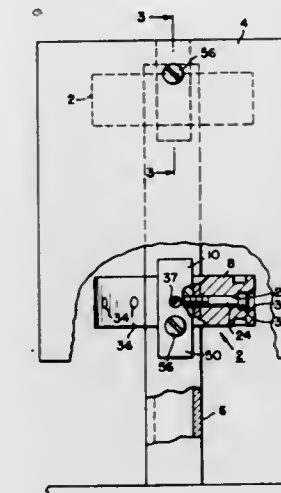
ADAPTER FOR ATTACHING SIGNS TO A NON-CYLINDRICAL SIGNPOST

Louis A. Bianchi, 83 Bond St., Rochester, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,048

Int. Cl. G09f 7/18

9 Claims



An adapter including first connection means for connecting the adapter to a non-cylindrical signpost and second connection means for connecting a sign to the adapter at any location around the adapter so that the sign can face in any desired direction. The first connection means is preferably a cylindrical block made in two halves with an opening therebetween to accommodate the signpost when the two halves are connected together around the signpost. The second connection means comprises a secondary adapter mounted for sliding movement around the periphery of the cylindrical block for positioning the sign at any desired facing orientation. The secondary adapter can be locked against movement to the cylindrical block. In another embodiment, the adapter comprises a metal ring having a plurality of circumferentially spaced-apart perforations therethrough. One perforation is used to connect the adapter to the non-cylindrical signpost, and the sign can be connected to any one of the other perforations at a selected position around the periphery of the ring.

3,654,719

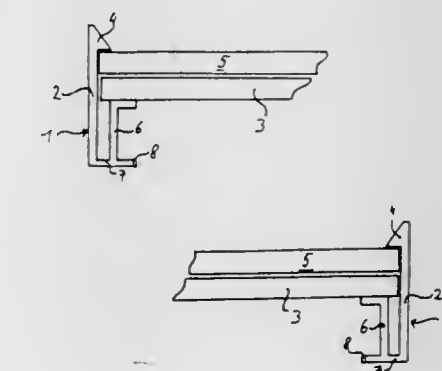
QUICK-CHANGE PICTURE MOUNT

Gunter Rochelt, Wagnerstrabe 113, P777, Ulm, Germany
Filed Jan. 22, 1968, Ser. No. 699,442. The portion of the term of the patent subsequent to Apr. 11, 1988, has been disclaimed.

Int. Cl. G09f 1/12

U.S. Cl. 40-156

9 Claims



Clamping bars embrace the edge of a glass pane and hold it against a rear wall. The clamping bars are disposed on two opposite sides of the mount and comprise each a spring loop

having shorter and longer spring legs. The shorter spring leg is connected to the rear wall. The longer spring leg has a free end portion formed on its inside with a detent nose, which tapers toward the extreme outer end of the longer leg so that the same can yield resiliently when the glass pane is urged against the detent nose until the latter snaps in over the glass pane to hold the same in position on the rear wall.

3,654,720

TRIGGER GUARD ASSEMBLY

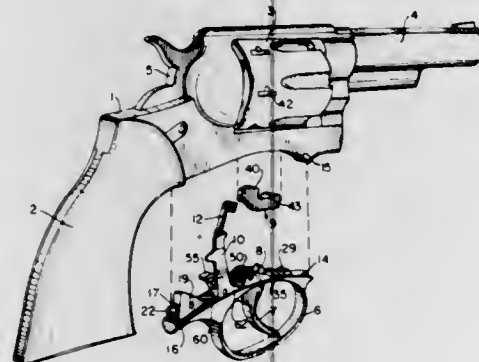
William B. Ruger, Southport, Conn., assignor to Sturm, Ruger & Co., Inc., Southport, Conn.

Filed Feb. 11, 1970, Ser. No. 10,526

Int. Cl. F41c 1/00

U.S. Cl. 42-75 A

9 Claims



A removable trigger guard assembly for firearms which in its preferred embodiment includes the trigger guard having a trigger, a trigger spring, a cylinder actuating pawl, a hammer transfer bar and means for retaining the crane shaft mounted thereon. Means are provided for removably securing the trigger guard to the revolver frame, whereby the trigger guard and said connected elements can be removed from and returned to the revolver frame as a unit. The trigger guard has a key or insert connection at one end, preferably the front end and a releasable lug at the opposite end in resilient engagement with the revolver frame which can be depressed to release said engagement and remove the trigger guard assembly.

3,654,721

TROT LINE GUIDE DEVICE FOR BOATS

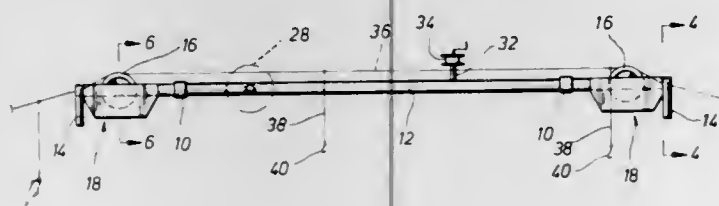
Wesley B. Coleman, 4723 West Alabama, Apt. 4, Houston, Tex.

Filed Sept. 21, 1970, Ser. No. 73,885

Int. Cl. A01k 79/00

U.S. Cl. 43-6.5

6 Claims



A line guide device for attachment to boats to guide a trot line along one side of the boat as the boat moves along the line. The guide device is provided with longitudinally spaced peripherally grooved wheels over which the line passes with the spaced apart leaders on the line hanging downwardly therefrom, and guide means is provided for retaining the line in the grooves of the wheels and for guiding the leaders in their downwardly extending positions past the wheels to prevent tangling of the leaders in the equipment or snagging of the hooks.

3,654,722

FISH LINE HOLDER

Francis P. Camilleri, 30 West Street, Rocky Hill, Conn.

Filed Feb. 9, 1970, Ser. No. 9,564

Int. Cl. A01k 87/00

U.S. Cl. 43-25

6 Claims



The device includes a housing with means for mounting the same to the pole generally opposite the reel and includes an L-shaped extension at one end defining a slot, or cavity, located on the opposite side of the pole from the reel. A ball element is slidably supported in the housing for movement from and to a position closing off the cavity, and a pair of compression springs are provided in series inside the housing for urging the ball element toward its closed position with a force which can be adjusted within two distinct ranges as a result of the double spring configuration disclosed herein.

3,654,723

MOTORIZED FISHING LINE

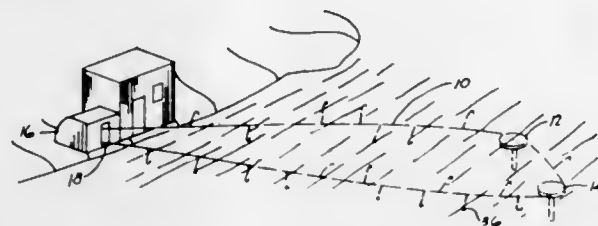
Joe F. Mercer, 302 E. Wallace St., Gonzales, Tex.

Filed Apr. 9, 1969, Ser. No. 814,691

Int. Cl. A01k 97/00

U.S. Cl. 43-26.1

2 Claims



A motorized fishing line structure comprising a fishing line formed into a closed loop and passing around a pair of pulleys disposed in spaced-apart positions in a body of water. The line also passes around a third pulley on shore which has a motor connected thereto to rotate the line continuously around the pulleys. Fish hooks are secured to the line in spaced relationship so as to be movable therewith through the water.

3,654,724

FISHING LURE

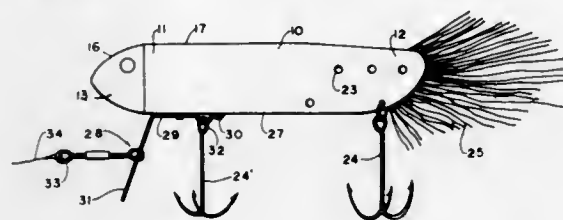
John R. E. Charron, 91 Sadler Ave., Winnipeg, 8 Manitoba, Canada

Filed Oct. 21, 1969, Ser. No. 868,163

Int. Cl. A01k 85/00

U.S. Cl. 43-42.06

1 Claim



A hollow lure with a spring-loaded detachable cap on one end so that lure materials such as blood, liver, worms, etc.,

together with weights, if desired, can be placed inside the lure. Apertures at the rear permit ingress of water and egress of particles or leached lure materials.

3,654,725

FISH BAIT DISPENSER

William Kingston, 47 Mespil Rd., Dublin 4, Ireland

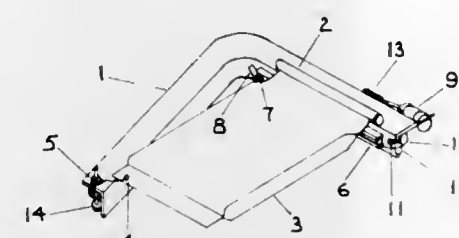
Filed Mar. 2, 1970, Ser. No. 15,356

Claims priority, application Ireland, Mar. 5, 1969, 285/69

Int. Cl. A01k 61/02

U.S. Cl. 43-44.99

4 Claims



A vacuum package containing a single dose of the material to be dispensed is held in a frame so that it can be cut open by a spring-loaded sliding blade. The blade is held off the package against the force of the spring by the timer, which is an arrangement of a metal shear pin in contact with another metal of lower electrode potential. Immersion of the timer in an electrolyte such as sea water initiates galvanic action which causes the shear pin to corrode to failure close to a predetermined time.

3,654,726

TOY BUILDING SET AND DISC-LIKE UNITS THEREFOR

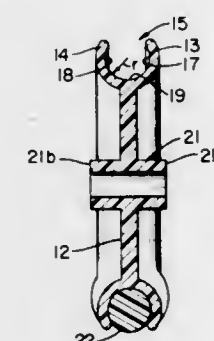
Don C. Witte, Salina Star Route, Boulder, Colo.

Filed May 7, 1969, Ser. No. 822,507

Int. Cl. A63h 33/00

U.S. Cl. 46-16

9 Claims



In a toy building set, disc-like toy unit each have spaced flexible rims defining a peripheral slotted portion between; the rims being undercut along their inner walls and terminating in an inner peripheral concave wall on the hub of the body. A modified form has radially slotted rims. The toy unit serves as a female connector for other toy members sized for a releasable fitted connection thereto or may define a wheel, gear, sprocket or the like in the building of mechanical toys.

3,654,727

TOY

Samuel Span, 447 Ogden Ave., Teaneck, N.J., and Walter Thum, 12-42 Sunnyside Dr., Fair Lawn, N.J.

Filed Sept. 25, 1969, Ser. No. 861,114

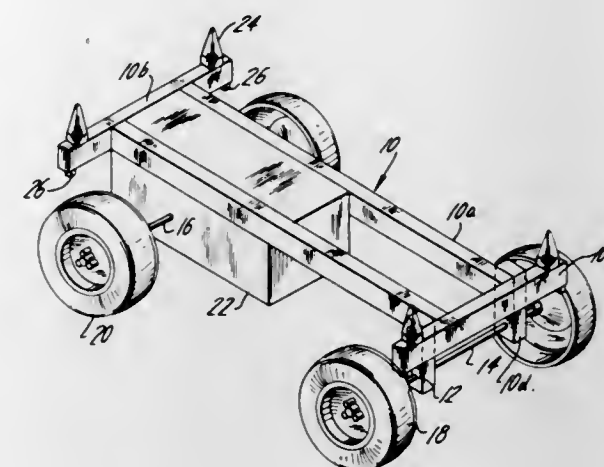
Int. Cl. A63h 33/06

U.S. Cl. 46-17

7 Claims

A toy in which random household articles may be assembled to a chassis for realizing a movable toy. The chassis frame retains a front axle and a rear axle upon which wheels

are rotatably mounted to enable the chassis to move translationally. Spike-shaped members project upward from the chassis frame for penetrating into an article made of soft material and mounted on top of the chassis to form the body



of a vehicle. Peg-shaped members projecting downward from beneath the chassis frame permit an article to be held to the chassis frame through flexible bands. Various elements are attachable to the article to render a vehicle-driven toy.

3,654,728

TOY MEANS FOR MEASURING TOY VEHICLE DRAG AND/OR DRIFT

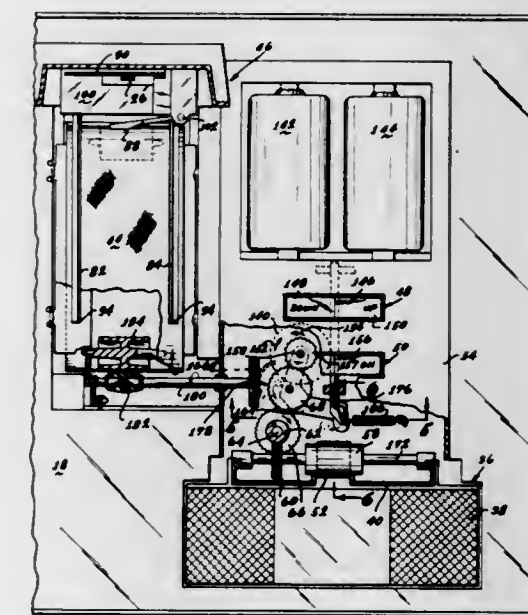
Janos Beny, Manhattan Beach; Denis V. Bosley, Palos Verdes Peninsula, and Melvin R. Kennedy, Carson, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Dec. 5, 1969, Ser. No. 882,525

Int. Cl. A63h 33/30

U.S. Cl. 46-39

4 Claims



A garage for toy vehicles including a housing having a lower platform coupled to a track layout for receiving vehicles from the layout, an upper platform coupled to the layout for delivering the vehicles back to the layout, and an elevator for carrying toy vehicles from the lower platform to the upper platform. A drift and drag meter is located on the upper platform, the meter including a motor driven belt on which cars are supported. The drag portion of the meter includes a member for abutting one end of the vehicle as it lies on the moving belt, to indicate the force applied to it by the vehicle. The drift portion of the meter includes a pair of rails on either side of the vehicle, which can be moved to either side if the vehicle tends to drift to one side on the moving belt, and a dial for indicating the force and direction of force applied to the rails.

3,654,729

MODEL AIRPLANE

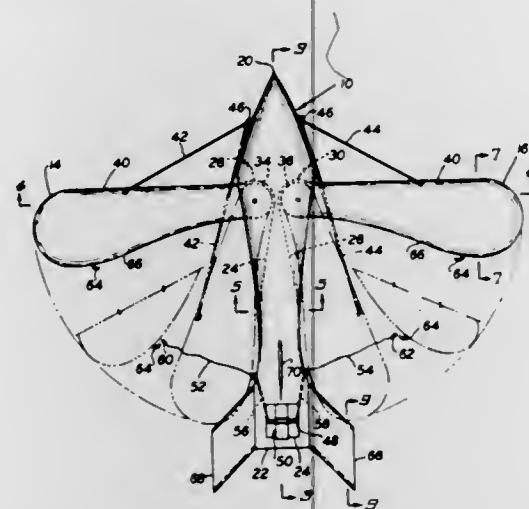
Joseph Imperato, Selden, N.Y., assignor to Sport Games, Inc.,
Great Neck, N.Y.

Filed Sept. 12, 1969, Ser. No. 862,626

Int. Cl. A63h 27/00

U.S. Cl. 46-80

3 Claims U.S. Cl. 49-504



A model airplane having a pivotable wing for imparting superior aerodynamic performance characteristics. Wings are folded toward fuselage during airplane launch and automatically extended outwardly during flight to provide airplane lift surfaces for a gliding descent.

3,654,730

FLEXIBLE BARRIER

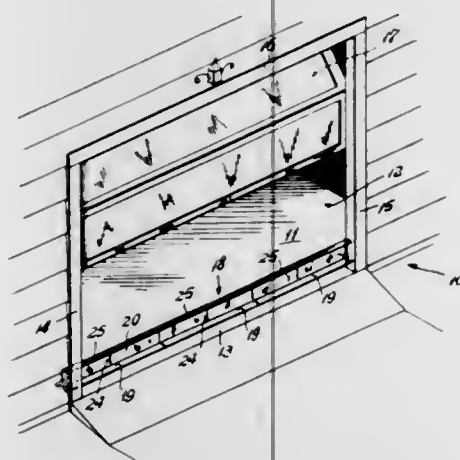
Alton L. Fraleigh, 7 Toilsome Ave., Norwalk, Conn.

Filed Jan. 26, 1971, Ser. No. 109,853

Int. Cl. E06b 1/70, 7/00

U.S. Cl. 49-34

8 Claims



A flexible barrier to be extended across the bottom portion of an opening, for example the door opening in a garage, to intercept foreign matter, such as leaves, snow or dirt. The barrier is preferably formed of elastomeric material and has a broad base to be secured to the floor of the garage and has a flexible wall projecting upwardly from the base in position to engage and prevent said foreign matter from entering the garage, said wall being deflectable to permit a heavy object, such as an automobile, lawn mower, work cart or the like, to pass thereover on entering or leaving the garage without interference and will then return to normal position. The wall can be provided with vertical slits to increase the flexibility thereof and can have a laterally disposed lip or deflector portion extending from the upper edge thereof to intercept the foreign material and deflect it back out through said opening.

3,654,731

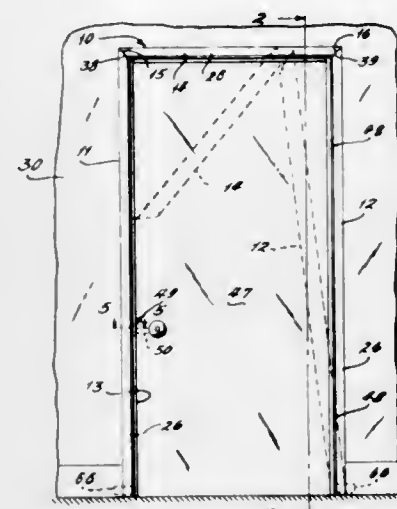
METAL DOOR FRAMES

Frank J. Jellinek, Bismarck, Mo., assignor to Jellico Mfg. Co.,
Bismarck, Mo.

Filed Nov. 4, 1970, Ser. No. 86,746

Int. Cl. E06b 1/04

10 Claims



A metal door frame having two vertical jamb members and an overhead cross-member is improved by providing means to reduce or eliminate door jamb vibration and looseness, and by providing an improved dustbox and strike plate assembly which is easier to install than conventional dustbox and strike plate assemblies and is not as subject as prior constructions to looseness and yet is fully adjustable.

3,654,732

REMOVABLE CLOSURE

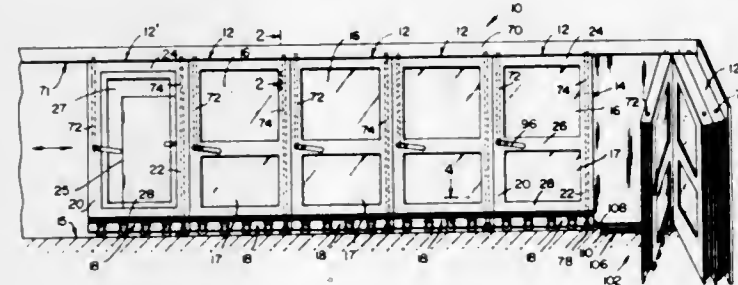
Louis L. Schacht, 205 East 63rd Street, New York, N.Y.

Filed Nov. 13, 1970, Ser. No. 89,276

Int. Cl. E05d 15/58

U.S. Cl. 49-127

10 Claims



The invention relates to an apparatus having a plurality of independent closure members such as wall panels, screens, partitions, etc. supported on moveable carriages. The carriages are equipped with spring loaded caster members for permitting smooth, translational movement along a trackless floor surface. The caster members on each of the respective carriages are further mechanically linked for synchronized turning. A ceiling guide rail is engageable by two members extending upwardly from the carriage and guide the movement of the closure members from a storage position into a pre-arranged pattern whereby the closure members are aligned in a vertical edge abutting interlocked closure position. One of the members engaging the ceiling guide rail is adapted for selective retraction and another of said members is adapted for continuous engagement within the ceiling guide rail and additionally has floor contacting shoe member which is slidably received within a guide channel located in the storage area. Upon disengagement of the retractable member from the ceiling guide rail, the closure member may

be pivoted and turned about the other rail engaged member and into which flanges are deformed to stake the elements and slid into a vertically stacked confronting face to back and draw them together at the corners; and in which the storage position.

3,654,733

PET-DOOR-CONTAINING INSERT UNIT FOR A
SLIDING-DOOR FRAME

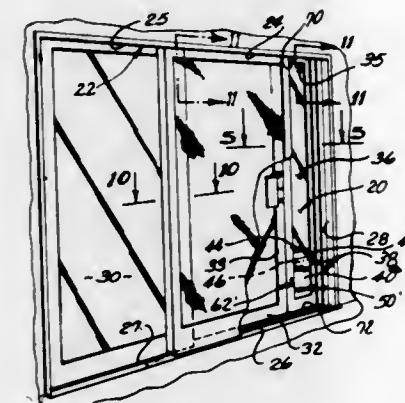
Ray E. Blackwell, c/o P.O. Box 18948, Hawthorne, Calif.

Filed Mar. 5, 1970, Ser. No. 16,900

Int. Cl. E06b 7/28

U.S. Cl. 49-168

4 Claims



A pet-door-containing insert unit for a sliding-door frame of the type including upper and lower, substantially parallel, laterally directed, sliding-door trackways, and end-positioned, vertically directed door jamb, and at least one sliding door cooperating with said sliding-door frame and normally lockingly abutable with said vertically directed door jamb. The pet-door-containing insert unit includes an insert unit frame adapted to be positioned vertically between the upper and lower trackways of the sliding-door frame, with one side portion thereof being adapted to abut the door jamb of the sliding-door frame and with the other side portion thereof being adapted to abut the laterally movable, vertical edge of a sliding door which normally abuts the door jamb, thus providing a complete closure of the opening defined by the sliding-door frame, said closure comprising, in part, the conventional sliding door and, in part, the pet-door-containing insert unit of the present invention which contains a pet-doorway-defining frame means provided with a normally closed, pet-openable door member positioned thereacross and, in certain forms of the invention, an additional auxiliary, controllably removable sealing door for completely and positively sealing the pet-doorway-defining opening, when desired. In one preferred form, the auxiliary door may be mounted on either side of the pet-doorway-defining frame means.

3,654,734

ADJUSTABLE DOOR OR WINDOW FRAME

Harry W. Lehman, Miami Beach, Fla., assignor to Stratford Industries, Inc., Hialeah, Fla.

Filed June 3, 1969, Ser. No. 829,886

Int. Cl. E06b 1/04

U.S. Cl. 49-505

8 Claims

For use in a door or window opening, an expansible, frame element, frame and corner joint, in which the frame includes pre-assembled U-shaped members which include assembly plates forming sockets receiving a face panel for width adjustments; jamb elements are secured over fastening elements securing the face plates together; the face plates include notches and holes accommodating fasteners after width adjustments have been made; and a corner connector having transverse, triangular ribs extending over mitered corners



jamb element includes on one side a lateral undercut slot for receiving a silencer strip therein.

3,654,735

AUTOMATIC CONTOURING MACHINE FOR FOAM
BLANKS

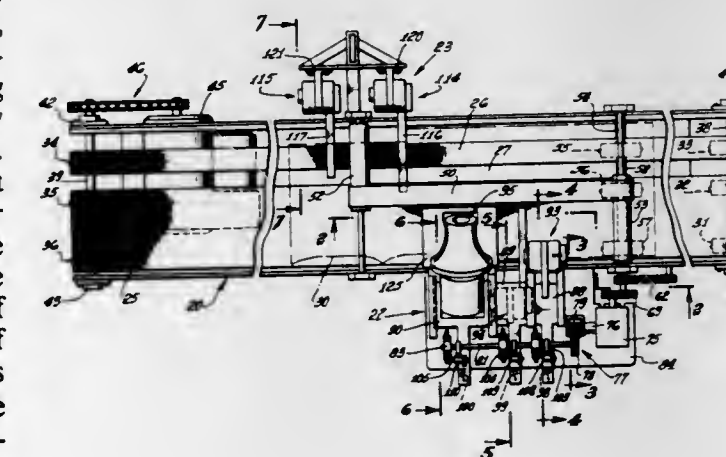
Carlos A. Gentile, Westminster, Calif., assignor to Califoam Corp. of America, Compton, Calif.

Filed Sept. 14, 1970, Ser. No. 71,759

Int. Cl. B24b 7/00

U.S. Cl. 51-5

12 Claims



Chain belt conveyor for continuous transport of foam blanks at predetermined speed past work stations where the forward edge portion of a blank is shaped, trimmed and buffed, by reciprocating knives and a buffer wheel, which are advanced into working position or retracted by programming cam mechanism driven in synchronism with the conveyor, and a reciprocating knife or knives operate on the rear edge portion of the blank to shape and trim such rear edge portion, the purpose being to produce from a foam blank of generally rectangular plan and cross section a pad of the desired plan form and cross sectional contour for use as a filler in a cushion or an upholstered automobile seat.

3,654,736

BLADE-RETENTION SYSTEM FOR A BLASTING
MACHINE

John E. De Groot, Grand Rapids, Mich., assignor to Benfur Engineering Company, Grand Rapids, Mich.

Filed Sept. 8, 1969, Ser. No. 856,079

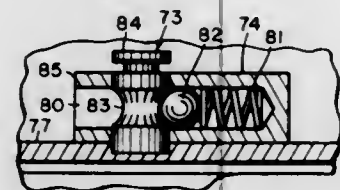
Int. Cl. B24c 3/04

U.S. Cl. 51-9

4 Claims

A locking system for blasting machine blades is based upon locking members mounted in the spacers maintaining the

relative position of axially spaced wheel discs receiving the blades in radial grooves. The blades extend radially beyond



the periphery of the wheel discs, and have an offset engaging the peripheral surface to limit inward blade movement.

3,654,737

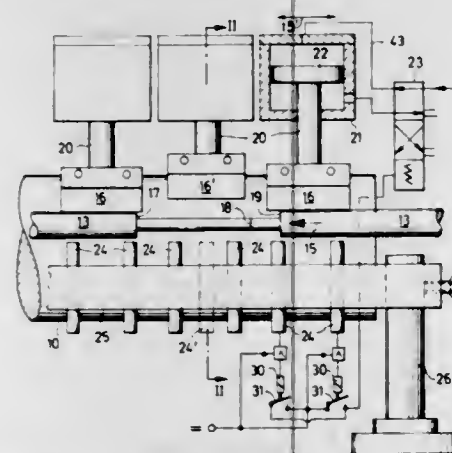
PRECISION HONING MACHINE

Thomas Schmidt, Munchingen-Kallenberg, Germany, assignor to Supfina, Wieck & Hantzen, Remscheid, Germany
Filed June 25, 1970, Ser. No. 49,715
Claims priority, application Germany, June 30, 1969, P 19 33 106.7

Int. Cl. B24b 5/04

U.S. Cl. 51-66

11 Claims



A honing machine for rods of stepwise varying diameters having sensors for sensing the diameter and controlling magnetic valves for hydraulically moving the honing members into and out of engagement with a workpiece. The sensors are contact-free magnetic circuits, the reluctance of which depends on the degree of proximity of a workpiece so as to variably couple a current source to circuits for actuating the valves.

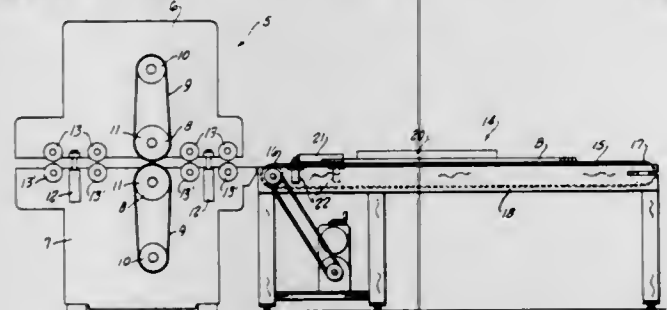
3,654,738

METHOD OF AND APPARATUS FOR EFFECTING SUPERIOR SANDING

Lambert S. Sternal, Wayzata, Minn., assignor to Timesavers Sanders, Inc., Minneapolis, Minn.
Continuation-in-part of Ser. No. 860,860, Sept. 25, 1969, abandoned
Filed Sept. 11, 1970, Ser. No. 71,546
Int. Cl. B24b 21/00

U.S. Cl. 51-139

8 Claims



A sanding machine with complementary upper and lower sanding heads which have fast moving abrasive belts trained

about and constantly shifted edgewise along superimposed contact drums between which the work is fed in a manner whereby the parallel narrow zones of work performing engagement of the abrasive belts with the opposite sides of the work extend at an oblique angle of not more than 75° to the lengthwise dimension of the work.

3,654,739

BELT GRINDING OR POLISHING MACHINE

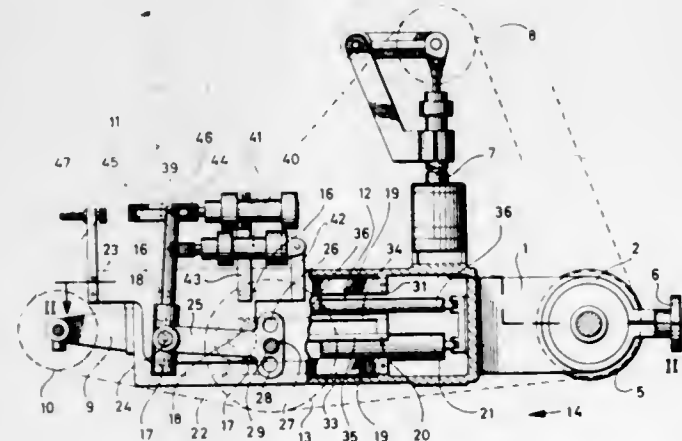
Franz Stoy, Grafenberg, and Heinz Eder, Nürtingen, both of Germany, assignors to Metabowerke KG, Closs, Rauch & Schnizler, Nürtingen, Württemberg, Germany
Filed Feb. 5, 1970, Ser. No. 8,768

Claims priority, application Germany, Feb. 12, 1969, P 19 07 060.1

Int. Cl. B24b 5/00, 24/00

U.S. Cl. 51-141

14 Claims



A belt grinding or polishing machine wherein the abrasive belt is trained over several pulleys so that it includes an elongated stretch which extends between two pulleys and the outer side of which removes material from travelling workpieces. A pressure applying wheel engages the inner side of the stretch and is movable in and counter to the direction of travel of the belt as well as at right angles to the stretch to thus enable the belt to remove material from flat or more complicated surfaces.

3,654,740

INSULATING CONSTRUCTION BLOCK

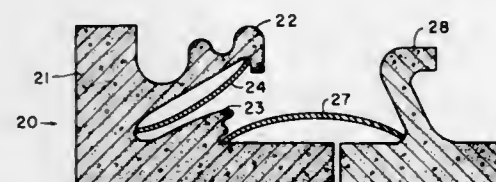
Howard S. Morton, 2637 N.E. 37th Street, Fort Lauderdale, Fla.

Filed Oct. 22, 1969, Ser. No. 868,442

Int. Cl. E04b 2/32; E04c 1/12

U.S. Cl. 52-222

4 Claims



A construction block having protruding flanged arms positioned on one side shaped so as to hold flexible radiant energy reflectors. The block arms are angled so that the radiant energy reflectors overlap. A corner block provides for the proper mating with either half of the normal construction block.

3,654,741

MANUFACTURE OF STRUCTURAL MEMBERS AND COMPONENTS

Murray MacDonell, Woking, England, assignor to Montague L. Meyer Limited, London, England

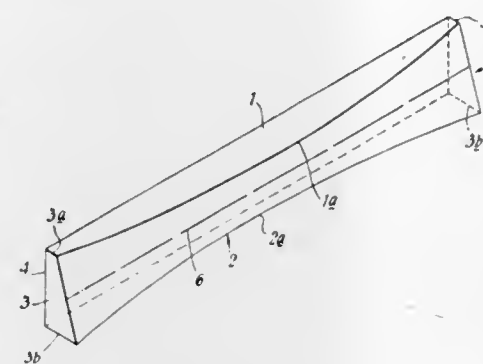
Filed Mar. 24, 1970, Ser. No. 22,360

Claims priority, application Great Britain, Mar. 27, 1969, 16,093/69

Int. Cl. E04d 3/36, 3/42

U.S. Cl. 52-720

13 Claims



An identical pair of bar-like structural components of novel shape may be produced from a straight length of timber of rectangular cross section by severing it lengthwise. The length of material may be mounted on a carriage arranged to feed the material axially forward in a straight line past a band saw, such carriage being capable of rocking about the axis which passes through the geometric center of the cross-section of the material, and so rocking the length relative to the saw blade about such axis that the saw divides the top and bottom surfaces into the two components, having complementary opposed convex and concave edges. The two resulting components are then secured together as by gluing to produce a composite beam the strength of which is greatly in excess of the strength of the original unsevered length of timber. Composite beams may be produced by assembling four identical components in pairs back to back. Components of similar shape may be formed in other materials by moulding so as to possess comparable strength characteristics, according to the nature of the material. A panel may be stiffened by securing to its under side a number of components so formed.

3,654,742

METHOD OF FORMING A CONCRETE BUILDING COMPONENT

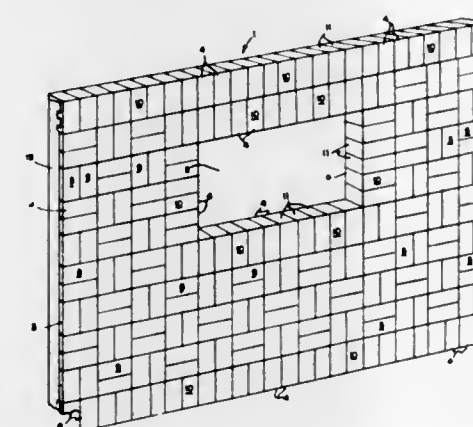
John A. Wilnau, 364 Rosewood, Eugene, Oreg.

Filed Jan. 26, 1970, Ser. No. 5,696

Int. Cl. E04b 1/04, 1/16

U.S. Cl. 52-744

6 Claims



A building component composed of concrete blocks and a concrete slab with the blocks being recessed along their frontal surfaces for placement within a jig. The concrete receive-

ing surfaces of the blocks are irregular for embedment within the poured concrete. The blocks are in contiguous, surface contact to retain and confine the concrete poured thereon. A method for the face down construction is disclosed.

3,654,743

CONTAINER FILLING

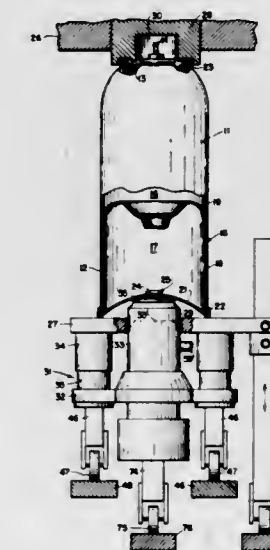
George Jerome McGeary, Bronx, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation of application Ser. No. 861,224, Sept. 17, 1969, now abandoned, which is a continuation of application Ser. No. 627,334, Mar. 31, 1967, now abandoned. This application June 19, 1970, Ser. No. 48,926

Int. Cl. B65b 7/16, 31/02

U.S. Cl. 53-88

7 Claims



Aerosol containers of the internal piston type have gas under pressure introduced thereinto at one side of the piston through the bottom wall of the container. This is done by advancing a gassing head into sealing engagement with the container bottom while automatically opening a passage through the head and the container bottom for discharge of the gas under pressure into the container and then sequentially automatically closing the passage at the bottom wall of the container. The container bottom wall may contain either a normally open valving structure that is automatically closed by a cam actuated impact mechanism after filling, or a normally closed valve that is opened when the gassing head moves against the container bottom wall and automatically closed by gas pressure within the container.

3,654,744

FLEXIBLE SKIN PACKAGE

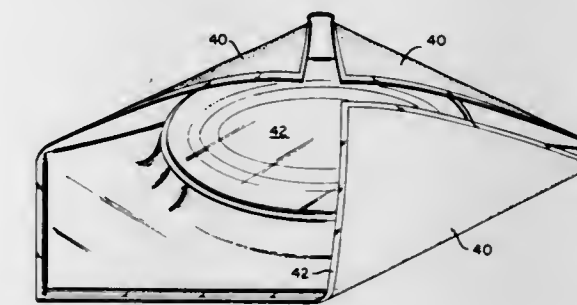
Harry A. Smith, Ballfall Road, Middletown, Conn.

Continuation-in-part of application Ser. No. 816,306, Apr. 15, 1969, now abandoned. This application Dec. 30, 1969, Ser. No. 889,356

Int. Cl. B65d 73/00, 81/14, 85/58

U.S. Cl. 53-22

4 Claims



A moisture and oil impervious package formed by a type of skin packaging technique. The present invention is charac-

terized by elimination of the paper board backing sheet of the prior art and employs a plastic drape sheet and a high density ionic copolymer base sheet.

3,654,745 METHOD OF AND APPARATUS FOR PACKING ARTICLES

Michael John Smith, and William Charles Lane, both of Maidstone, Kent, England, assignors to Reed Paper Group Limited, London, England

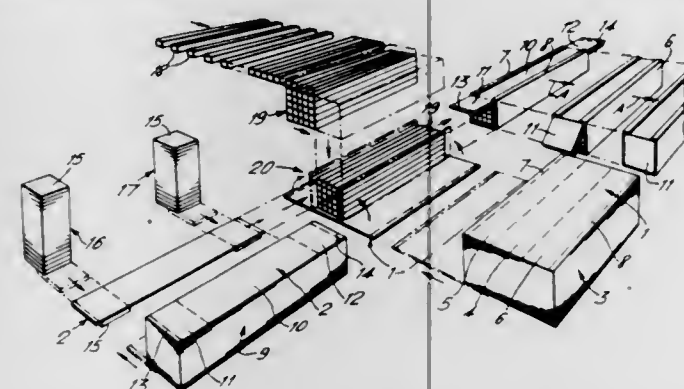
Filed Apr. 3, 1969, Ser. No. 813,089

Claims priority, application Great Britain, Apr. 10, 1968, 17,372/68

Int. Cl. B65h 35/50

U.S. Cl. 53—26

21 Claims



A method and apparatus for packing collated assemblies of elongate articles of rectangular cross-section in tubular cartons, which involves folding first and second rectangular cardboard blanks about the assembly so that the first blank forms three of the four side walls of the carton and the second blank defines the fourth side wall and end walls. Each blank is provided with connecting flaps outside of its three wall-forming panels, the connecting flaps of the first blank being secured to the outside of the side wall provided by the second blank, and those of the second blank being tucked into the open ends of the carton when such ends are closed by the end walls. The apparatus includes mechanisms for collating the articles into successive assemblies, delivering the assemblies and the respective blanks to a combining station, folding the blanks about the articles, and securing the connecting flaps to form a closed pack.

3,654,746 METHOD OF MAKING COMPOSITE PACKAGES

Hans Beckers, Viersen, Germany, assignor to Hamac-Hansella GmbH, Viersen, Germany

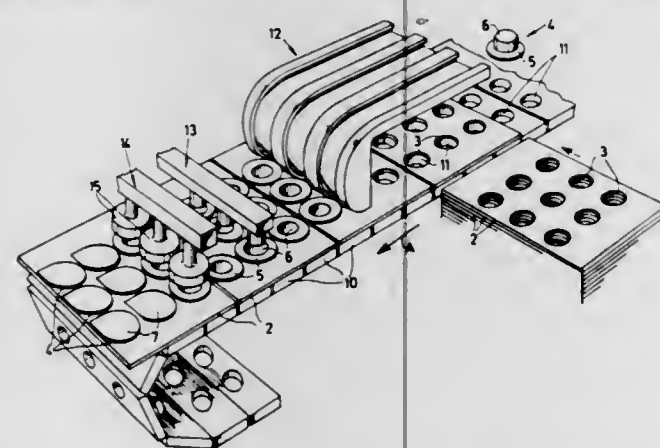
Original application Mar. 10, 1969, Ser. No. 805,763, now abandoned. Divided and this application June 19, 1970, Ser. No. 47,806

Claims priority, application Germany, Mar. 27, 1968, P 17 61 046.7

Int. Cl. B65b 3/04, 7/28

U.S. Cl. 53—37

5 Claims



A method of making composite packages. A support of sheet material is provided with a plurality of apertures. Each

aperture has lodged therein a receptacle provided with an opening. A cover overlies each opening. Either the cover or the associated receptacle is provided with a radially extending continuous or discontinuous flange which extends outwardly beyond the opening in which the receptacle is located. The cover is bonded to the receptacle and the flange is bonded to the support.

3,654,747 ELECTRICAL PRECIPITATOR

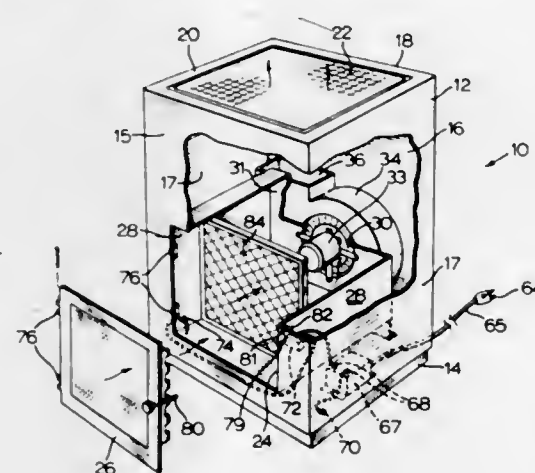
Cassius D. Remick, Waterloo, Ontario, Canada, assignor to Electrohome Limited

Filed Dec. 11, 1969, Ser. No. 884,150

Int. Cl. B03c 3/01

U.S. Cl. 55—126

3 Claims



An electrical precipitator in the shape of a cabinet of which the door supports the electrodes on its inside face. One electrode consists of a wire wound back-and-forth between projecting resilient fingers of insulative material, while the other electrode is made up of conductive plates interposed between the adjacent reaches of the wire. All the plates are in electrical communication with one another. The door closure includes a switch controlling the energization of the electrodes such that the circuit is broken immediately the door-opening procedure is initiated, and the door-opening procedure requires a number of seconds to complete, sufficient to permit the electrodes to discharge completely before the door can be swung open.

3,654,748 MULTISTAGE LIQUID AND GAS SEPARATOR

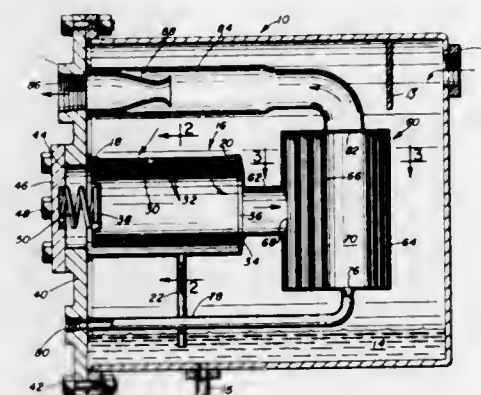
Carl Bloom, Springfield, Mass., assignor to Worthington Corporation, Holyoke, Mass.

Filed Feb. 26, 1970, Ser. No. 14,306

Int. Cl. B01d 45/12

U.S. Cl. 55—322

12 Claims



A liquid and gas separator having a primary stage including an agglomerator cartridge and a secondary stage providing

the discharge path for the gas and liquid mixture passing from the primary stage. The secondary stage includes a chamber in which a baffle formed by a plurality of convolutions guides the gas and agglomerated liquid in a spiral path to centrifuge the liquid. The centrifuged liquid is thrown against the baffle and chamber walls and drains to a scavenging port while the liquid-free gas is discharged through a separate port.

3,654,749 MOWER MOUNTING LINKAGE

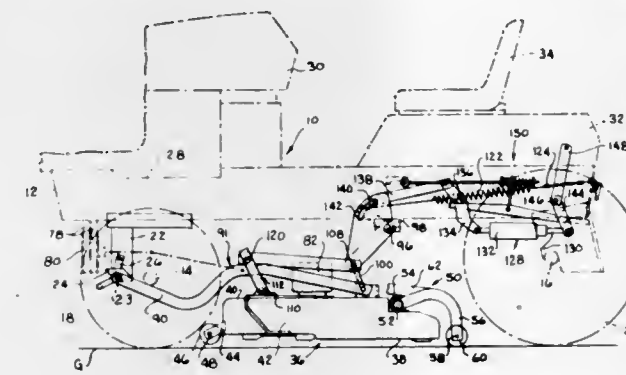
William F. Ostergren, Terre Hill, and Joseph C. Hurlburt, Leola, both of Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 5, 1970, Ser. No. 77,954

Int. Cl. A01d 35/26

U.S. Cl. 56—15.8

14 Claims



A linkage arrangement for mounting a rotary mower unit beneath the chassis of a tractor, between the front and rear wheels. The linkage arrangement includes draft and lift linkages, the draft linkage principally functioning to tow the mower unit while the lift linkage functions to move and guide the mower unit upwardly and downwardly, normally in a plane approximately parallel to the chassis.

3,654,750 MOWING MACHINES

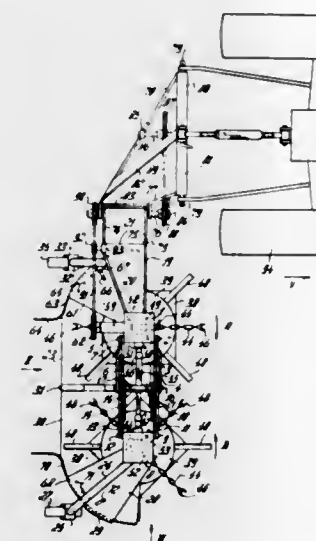
Cornelius van der Lely, 7 Bruschenrain, Zug, Switzerland

Original application Mar. 17, 1966, Ser. No. 535,199, now Patent No. 3,501,901. Divided and this application Jan. 16, 1970, Ser. No. 3,275

Int. Cl. A01d 35/26

U.S. Cl. 56—16.2

7 Claims



A mowing machine has a frame laterally mounted of a prime mover, a first part of the frame has coupling members for connection to a three point lifting device, and a further frame part has mowing members rotatably mounted on verti-

cal shafts which are supported above and below the mowing members. The further frame part has pivotally connected lower plates with bearings that support mowing members above the plates. The further frame part has frame portions articulated to one another so that the mowing members can follow ground undulations independently.

3,654,751 CUTTING APPARATUS FOR CORN DETASSELING AND SOYBEAN HARVESTING

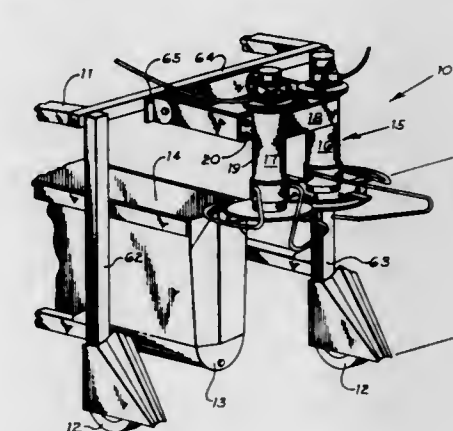
James L. Meharry, Wingate, Ind., assignor to Societe Nationale Des Petroles D'Aquitaine, Paris, France

Filed Feb. 12, 1971, Ser. No. 114,841

Int. Cl. A01d 45/02

U.S. Cl. 56—56

10 Claims



A cutting apparatus for use in detasseling stalks of corn and in harvesting soybeans. A cutter is mounted to a corn harvester or soybean combine and has a first disk slidably contacting a pair of disks spaced apart. The first disk is rotatably mounted to a first tube and is rotatably driven. The pair of disks are mounted to a second tube parallel with and spaced apart from the first tube by a cross member. The pair of disks are rotatably driven at a speed and direction different from that of the first disk. Each disk has serrated edges. Gathering fingers are radially mounted to the disks and arms project outwardly from the tubes forming a funnel.

3,654,752 MULTIPLE ROW FORAGE HARVESTER

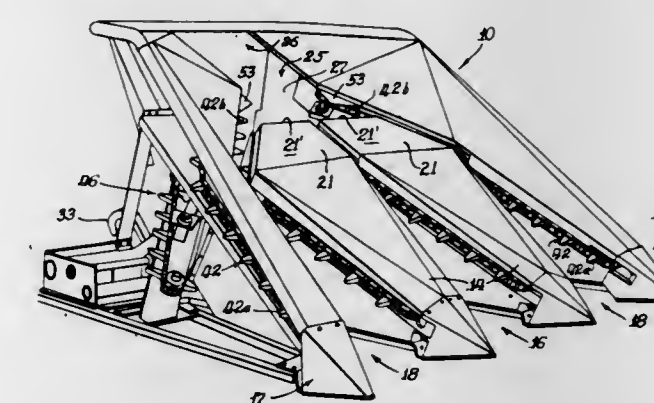
John D. Segredo, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Feb. 18, 1970, Ser. No. 12,213

Int. Cl. A01d 45/02

U.S. Cl. 56—98

15 Claims



A multiple row forage harvester having at least one center gathering divider and side gathering dividers forming a plurality of gathering passages including a pair of side gathering passages, with gathering chains on opposite sides of each gathering passage, the side gathering passages having rear portions inclined laterally inwardly toward each other, the gathering chains on the outer sides of the side gathering

passages following the direction of those passages and being made up of a plurality of corresponding sections, including a forward one at an angle closer to the forward direction of travel and a rearward one at a greater angle thereto.

3,654,753

TOBACCO HARVESTING MACHINE

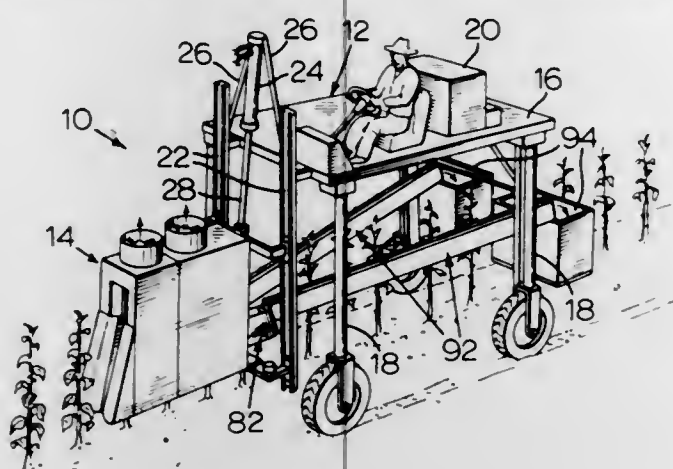
Adrien C. Gervais, Barrie Hill Farms R.R. No. 2, Barrie, Ontario, Canada

Filed Nov. 30, 1970, Ser. No. 93,559

Int. Cl. A01d 45/16

U.S. Cl. 56-27.5

18 Claims



A tobacco harvesting machine for cutting tobacco leaves from the stalk of the tobacco plant. The machine has a self-propelled frame which is formed with the passage through which the plants pass as the frame moves along a row of plants. The machine provides an upward draft of air about the plant as it enters the passage in the frame so that the tobacco leaves are all lifted upwardly by the air draft to be disposed parallel to the stalk of the plant. The leaves are clamped against the stalk when in this upwardly directed position by means of conveyers which are mounted on the frame and located on opposite sides of the passageway. An assembly of cutter blades are mounted in the frame so as to provide at least three upstanding cutting edges which are operable in response to movement of the tobacco plant through the passage to provide cutting actions disposed in planes which are spaced about 120° relative to one another so that as the frame moves relative to the stalk of a plant, any stems which are located within the path of any of the cutter blades will be cut. The cutter blades are mounted so as to pivot relative to their mounting in the event that the cutting edges strike a member, such as a sucker, which cannot be cut by the blades during the forward movement of the frame. The harvesting machine is also provided with conveyers for conveying the cut leaves to the storage receptacle in a manner such that all of the stems of the leaves are disposed generally parallel with one another and the cut ends are all located at the same end of the stack of leaves.

3,654,754

RAKE HEAD

Baxter I. Scoggin, Jr., Kansas City; Woodrow E. Vaughan, and Gerald D. Reed, both of Independence, all of Mo., assignors to Modern Plastic Sales, Independence, Mo.

Filed Dec. 21, 1970, Ser. No. 100,199

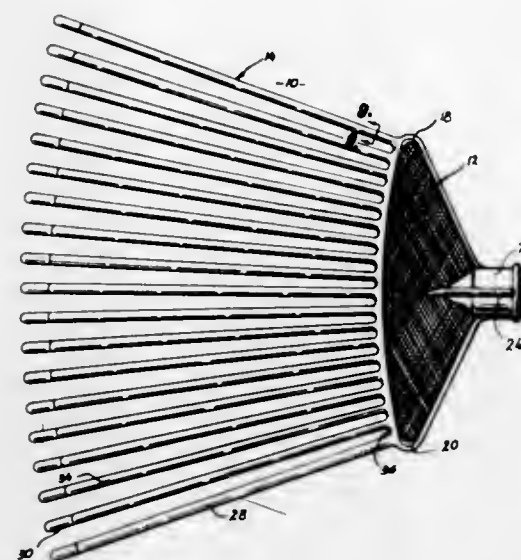
Int. Cl. A01d 7/00

U.S. Cl. 56-400.17

12 Claims

A multipurpose hand rake designed for rug and carpet rejuvenation, as well as lawn and garden use, has a virtually indestructible head molded from a thermoplastic resin and including a plurality of equally spaced, flexible teeth or tines extending in fan-shaped relation from a convex edge of a base plate to which a handle is removably attached. The

teeth are provided with elongated, entirely unconfined shanks that are highly vibratory in all directions and include angularly offset, pulsating fingers having flat, terminal ends which provide a trip-hammer action for beating into matted floor coverings to loosen dirt and raise the nap, all without



snagging and without damage, such as pulling out bonded tufts. The fingers also penetrate deeply into heavy turf and thick, dense mats to loosen and easily remove leaves, grass cuttings, thatch and other debris without damage to live, decorative growth.

3,654,755

ROPE SPLICING IMPLEMENT

Clarence R. Bell, c/o KM Cafe, Grays River, Wash.

Filed July 28, 1970, Ser. No. 58,841

Int. Cl. B65h 69/06; B25b 7/12

U.S. Cl. 57-23

11 Claims



A rope splicing implement which permits pointed jaw members to be inserted between adjacent strands of a rope and opened when its handle members are squeezed together. A locking lever member is pivotally secured to one of the handle members and cammingly engages the other handle member. A threaded bolt member serves as an adjustable stop member for the locking lever member whereby the amount of opening of the jaw members may be varied. A tension spring member coupled with an over-toggle action of the locking lever permits the implement to be locked in its open position whereby both hands of the user are free to effect the rope splicing or laminating. Thereafter, a release lever may be actuated with one hand to close the jaw members.

3,654,756

APPLIANCE FOR AUTOMATIC THREAD PIECING IN SPINNING OR SPINNING AND TWISTING MACHINES

Nadezhda Ivanovna Artamonova, ulitsa Sovetskaya, 27, kv. 14, Barnaul; Leonid Mikhailovich Bushin, ulitsa Gagarina, 6, kv. 9, Novoaltalsk; Leonid Nikolaevich Besedin, ulitsa Internationalnaya, 46, kv. 31, Barnaul; Anna Timofeevna Zhurenko, ulitsa Krupskoi, 82, kv. 7, Pavlodar; Leonid Mikhailovich Urvantsev, prospekt Komsomolsky, 50, kv. 3, Barnaul; Jury Dmitrievich Scherbakov, ulitsa Internationalnaya, 4a, kv. 5, Barnaul; Boris Ivanovich Yasjukovich, prospekt Lenina, 8, kv. 37, Barnaul; Anatoly Anisimovich Demin, ulitsa Nekrasova, 10, Novoaltalsk, and Evgeny Viktorovich Peshkov, ulitsa Chkalova, 50d, kv. 4, Barnaul, all of U.S.S.R.

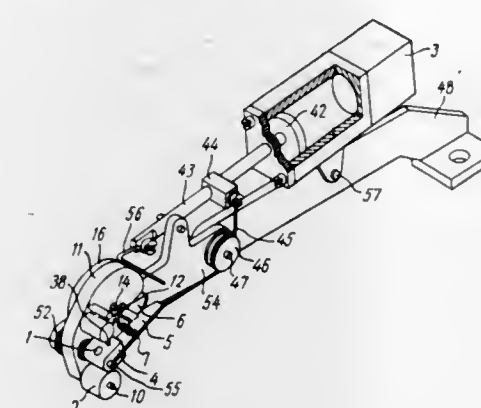
Filed Feb. 6, 1969, Ser. No. 796,969

Claims priority, application U.S.S.R., May 17, 1967, 1077606

Int. Cl. D01h 15/00

U.S. Cl. 57-34 R

5 Claims



A device for piecing broken ends in spinning and twisting machines in which a piecing roller cooperates with a catching mechanism. The catching mechanism includes a pair of plates movable relative to one another and forming a V-shaped slot for pinching a broken thread end. The plates are located in a first plane and are supported on a common pivotal connection for rotation in a second plane transverse to the first plane upon breaking of the thread.

3,654,757

AMPLITUDE ADJUSTER IN AN ELECTRONIC TIMEPIECE

Hirotohi Takamune, Tokyo, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

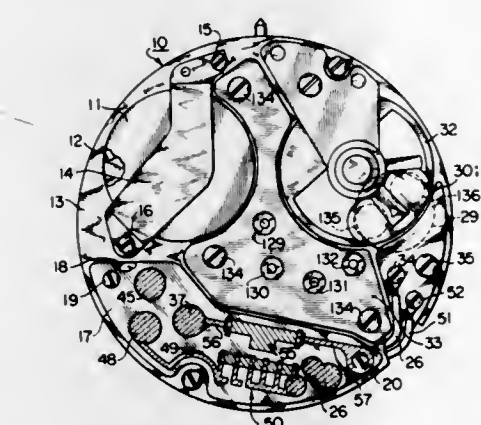
Filed Aug. 18, 1970, Ser. No. 64,716

Claims priority, application Japan, Aug. 18, 1969, 44/78261; Aug. 20, 1969, 44/78555; Aug. 25, 1969, 44/80599

Int. Cl. G04c 3/00; H03b 3/02

U.S. Cl. 58-23 A

8 Claims



The mechanical vibrator of an electronic timepiece is provided with a transistorized drive circuit having a driving coil and a sensing coil. A vibration amplitude adjusting resistor unit is provided in the circuit and is comprised of a series of

resistor elements and conductive elements arranged originally with a predetermined number of connectors which may be readily interrupted and/or a predetermined number of connectors having non-conductive gaps which may readily be closed to select the desired resistance to increase or decrease the amplitude of vibration.

3,654,758

INTERNAL COMBUSTION ENGINE STARTING SYSTEM IN A HYDRAULIC POWER TRANSMISSION SYSTEM

Ryozo Aoyama, Yokohama-shi; Akira Koizumi, Tokyo, and Kenji Yamada, Kawasaki-shi, Japan, assignors to Kabushiki Kaisha Komatsu Selsakusho (Komatsu Ltd.), Tokyo

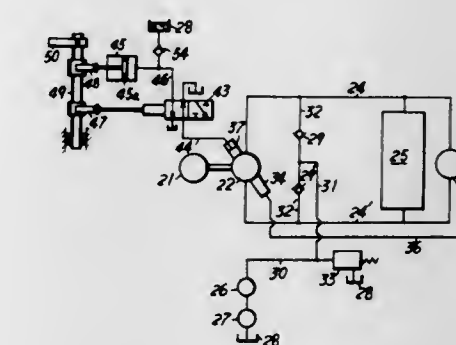
Filed Dec. 1, 1969, Ser. No. 881,161

Claims priority, application Japan, Dec. 4, 1968, 43/88310; Dec. 28, 1968, 43/96075 Int. Cl. F02n 7/00

Int. Cl. F02n 7/00

U.S. Cl. 60-19

4 Claims



A hydraulic power transmission system comprising an internal combustion engine, at least a variable displacement axial plunger pump having a swash plate, and at least an axial plunger motor, is further provided with a starting pump, which is adapted to be operated directly manually, indirectly manually or by a load, for starting the internal combustion engine, when it does not properly start, in such a manner that the swash plate of the variable displacement axial plunger pump is hydraulically brought out of the neutral position by the action of the starting pump and then the internal combustion engine is driven by the load.

3,654,759

APPARATUS FOR CONVERTING SOLAR ENERGY TO LOW COST POWER

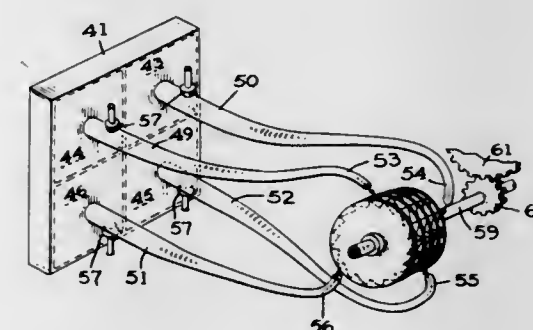
Charles G. Abbot, 4409 Beechwood Road, Hyattsville, Md.

Filed July 28, 1970, Ser. No. 58,838

Int. Cl. F03q 7/02

U.S. Cl. 60-26

6 Claims



Solar energy is converted to useful energy by dividing a reflected solar beam into a plurality of concentrated cones of

solar radiation. Each cone passes into a black box to heat air therein. The heated air is then converted to mechanical energy by suitable apparatus and the mechanical motion may in turn be converted to electrical energy. In simpler, but less efficient embodiments, said cones may be converted by thermoelectric means directly into electric currents.

3,654,760

CONTROL DEVICE FOR A HYDROSTATIC TRANSMISSION AND A HYDROSTATIC TRANSMISSION EMBODYING SUCH A DEVICE

Sydney Bennett, Batley, England, assignor to Joshua Shaw & Sons Limited, Batley, England

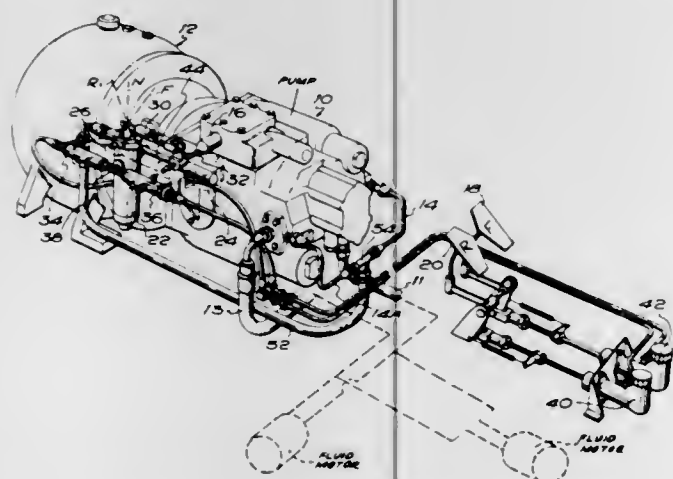
Filed Dec. 22, 1969, Ser. No. 887,142

Claims priority, application Great Britain, Jan. 3, 1969, 509/69

Int. Cl. F15b 7/00

U.S. Cl. 60—52 VS

4 Claims



In a hydrostatic transmission having a variable volume swash plate pump, a control device which automatically overrides the ratio setting controls of the transmission and reduces the swash plate angle in the event that there is a sudden increase in load on the transmission to prevent damage to the prime mover driving the pump. This is achieved by mounting a cylinder for rocking movement on the pump and connecting the piston thereof to the swash plate angle adjusting mechanism so that alteration of the cylinder's angular position by the transmission controls adjusts the pump swash plate angle and pump output. The automatic override is achieved by hydraulically coupling the pump output to the cylinder so that the piston of such cylinder is displaced along its axis should the output pressure of the pump increase above a predetermined limit, and the displacement of the piston reduces the swash plate angle until the increase in load is removed.

3,654,761

FLUID HANDLING DEVICE WITH RADially VARIABLE WORKING CHAMBERS

Karl Eickmann, 2420 Isshiki, Kanagawa-ken, Hayama-machi, Japan

Filed Jan. 29, 1970, Ser. No. 6,668

Claims priority, application Austria, Jan. 31, 1969, A 1014/69

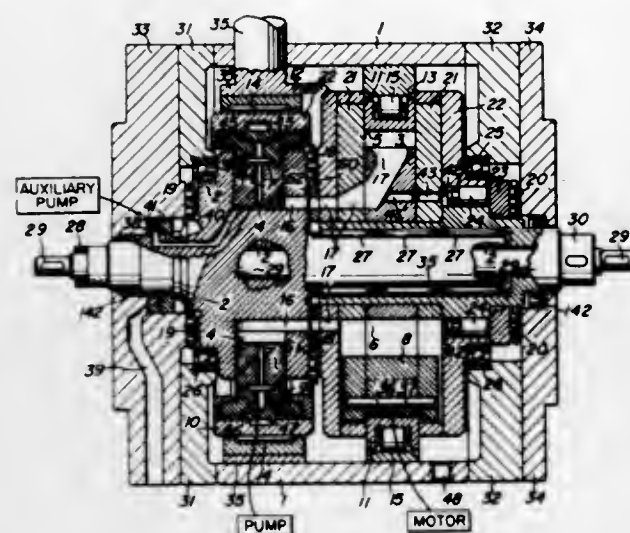
Int. Cl. F15b 15/18

U.S. Cl. 60—53 B

12 Claims

The two rotors of a fluid handling device, such as a pump-motor hydrostatic transmission, are positioned adjacent each

other in axial direction by thrust bearings at the outer axial ends of the rotors so that the confronting inner end faces of



the rotors form a fluid filled gap in which spacing means, such as a rotary disc and roller bearings, can be provided.

3,654,762

CONTROL ASSEMBLY

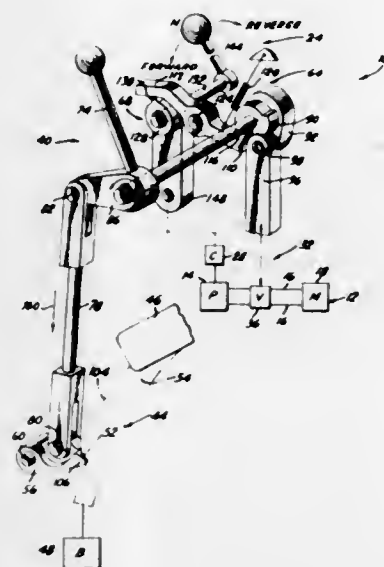
Gerald D. Damon, Plymouth, Mich., assignor to Eaton Corporation

Original application Mar. 25, 1968, Ser. No. 715,655, now Patent No. 3,517,790, dated June 30, 1970. Divided and this application Apr. 16, 1970, Ser. No. 33,126

Int. Cl. F16d 31/06

U.S. Cl. 60—53 R

1 Claim



Disclosed herein is an actuator means for use in a vehicle having a support surface engaging drive means, an engine, and hydrostatic transmission means for transmitting power from the engine to the drive means. The actuator means is responsive to operation of the brakes of the vehicle to render the hydrostatic transmission incapable of transmitting power. A lock assembly is provided for releasably locking the actuator means in an operated condition. A lock release means operates the lock assembly to a release condition in response to operation of a control assembly for the hydrostatic transmission to a neutral condition.

3,654,763

EXHAUST EMISSION PURIFYING DEVICE

Mikiji Ito, Nagoya; Kenji Yamada, Kariya, and Kazuo Noda, Aichi-ken, all of Japan, assignors to Nippondenso Kabushiki Kaisha, Aichi-ken, Japan

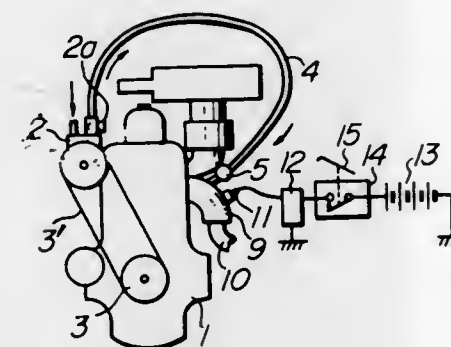
Filed Apr. 23, 1970, Ser. No. 31,247

Claims priority, application Japan, Sept. 12, 1969, 44/87516; July 16, 1969, 44/67707

Int. Cl. F01n 3/14

U.S. Cl. 60—294

11 Claims



Improvements in an air injection type exhaust emission purifying device for a gasoline engine, the improvements consisting of an air pump driven by the engine for supplying air to the exhaust port of each cylinder to cause an oxidizing reaction between the air and hot exhaust gases, and at least one sparking or heating plug provided in an exhaust manifold to fire and burn a good mixture of air and highly dense unburned hydrocarbon resulting from the misfiring caused during the deceleration of the engine, thereby preventing the occurrence of afterburn noises and minimizing the quantity of air required and accordingly reducing the capacity of the air pump and power consumption of the engine.

3,654,764

PLURAL DIAMETER TUBE

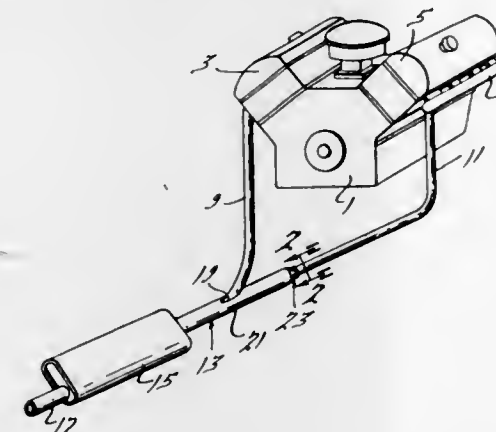
Franklin R. Hubbell, III, Brooklyn, Mich., assignor to Tenneco Inc., Racine, Wis.

Filed May 18, 1970, Ser. No. 38,021

Int. Cl. F01n 7/08; F16l 7/00

U.S. Cl. 60—324

1 Claim



A double diameter pipe or tube section suitable for use in a motor vehicle exhaust system comprises a large size thin-walled metal pipe that has folds formed in it which extend radially inside the pipe and serve as a means to reduce the cross sectional size of the pipe end and enable it to be connected to a small diameter pipe in the system.

3,654,765

SUBTERRANEAN WALL DRAIN

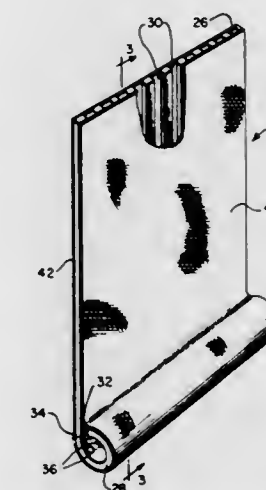
Kent A. Healy, Chaffeeville Road, R.R. 3, and Richard P. Long, 63 Northwood Apts., both of Storrs, Conn., assignors to Research Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 812,982, Apr. 3, 1969, now Patent No. 3,563,038. This application Feb. 10, 1971, Ser. No. 114,183

Int. Cl. E02b 11/00; E02d 31/02; B01d 35/02

U.S. Cl. 61—11

6 Claims



A subterranean wall drain unit including a drain pipe having openings therein and a longitudinally extending planar core defining channels normal to the pipe. Water pervious sheet material covering one face of the core and the openings in the pipe to form a filter therefor. The other face of core may be covered with a plastic sheet or other vapor barrier.

3,654,766

DRILLING

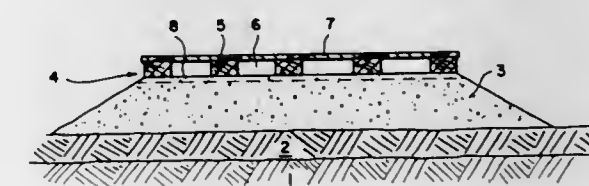
Frank J. Schuh, Dallas, Tex., assignor to Atlantic Richfield Company, New York, N.Y.

Original application Dec. 22, 1969, Ser. No. 887,207, now Patent No. 3,602,323, dated Aug. 31, 1971. Divided and this application Feb. 22, 1971, Ser. No. 117,358

Int. Cl. E02d 27/36, 27/44

U.S. Cl. 61—50

5 Claims



A pad for drilling at least one borehole through the earth, the pad being composed of a first layer of particulate material adjacent the earth, a second layer composed of spaced apart members to form a plurality of channels therein, and a third layer composed of support material. A method for drilling a borehole through tundra and permafrost without substantially thawing same by using the above described pad for carrying out the drilling procedure.

3,654,767

METHOD OF FORMING A COMPOSITE PILE

Lewis Fred Cavin, San Lorenzo, Calif., assignor to Raymond International, Inc., New York, N.Y.

Filed May 8, 1970, Ser. No. 35,693

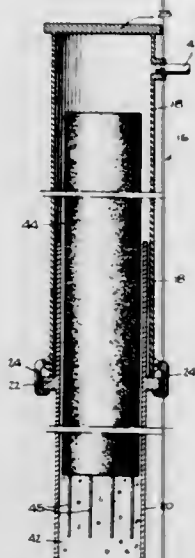
Int. Cl. E02d 5/34, 5/50

U.S. Cl. 61—53.64

9 Claims

This invention relates to a method of forming composite

piles by pouring in place the bottom portion of the pile in a



casing, thence installing an extension of fixed length on top of the bottom portion, and then withdrawing the casing.

3,654,768

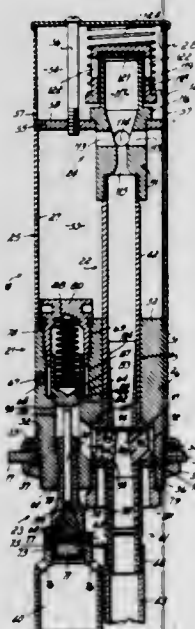
VORTEX TUBE COOLING SYSTEM

Leslie R. Inglis, and Joseph E. Peter, both of Cincinnati, Ohio, assignors to Vortec Corporation, Cincinnati, Ohio
Filed June 16, 1970, Ser. No. 46,631

Int. Cl. F25b 9/02

U.S. Cl. 62-5

22 Claims



A cooling system particularly adapted for sealed and substantially sealed, and unsealed enclosures, the system making use of a vortex tube. The cold tube portion of the vortex tube is ducted into the enclosure and the hot tube portion of the vortex tube is ducted to the atmosphere. In preferred form, a high pressure air inlet valve is interconnected with the vortex tube's generator, the inlet valve being controlled by a thermostat adapted to sense the temperature within the enclosure. An exhaust structure is provided to discharge enclosure air and hot tube air to the atmosphere, the exhaust structure being interconnected with the enclosure as well as with the hot tube. The exhaust structure admixes air exhausted from the enclosure and air exhausted from the hot tube prior to discharging the combined flows. The exhaust structure includes an aspirator for admixing the enclosure air and the hot tube air, and a single pressure relief type outlet valve for exhausting the admixed air to the atmosphere.

In operation, the thermostat senses the temperature inside the enclosure and causes the inlet valve to open when that temperature exceeds a predetermined level. The open inlet valve admits high pressure air to the vortex tube's generator where, through the well known action of the vortex tube, a cold air flow is developed in the cold tube toward the enclosure and a hot air flow is developed in the hot tube toward the exhaust structure. As the cold air flow is admitted into the enclosure, the air in the enclosure is driven out of the enclosure and at least part is piped to the exhaust structure where it is admixed with the hot air flow from the hot tube. Thereafter, the mixed flow of enclosure air exhaust and hot tube air exhaust are discharged to the atmosphere through the single relief type outlet valve. When the inside of the enclosure is cooled to the desired temperature level as sensed by the thermostat, the inlet valve is closed, cold air flow into the enclosure ceases, and the exhaust relief valve reseals the entire enclosure in the case of sealed and substantially sealed enclosures.

3,654,769

PROCESS AND APPARATUS FOR THE SEPARATION OF A HYDROGEN-CONTAINING GASEOUS MIXTURE

Hermann Linde, Pullach, Germany, assignor to Linde Aktiengesellschaft Zentrale Patentabteilung, Hoeftriegelskreuth, Germany

Filed Oct. 31, 1968, Ser. No. 772,283

Claims priority, application Germany, Nov. 3, 1967, P 16 67 594.8

Int. Cl. F25j 3/00, 3/08

U.S. Cl. 62-23

13 Claims

A process and apparatus is provided for separation of a hydrogen-containing gaseous mixture, wherein the gaseous mixture is separated into a condensate fraction and a crude hydrogen fraction containing the hydrogen in addition to other residual components. Separation is accomplished by refrigeration under pressure in at least two reversible regenerators which are charged alternately with crude gas and scavenging gas. The crude hydrogen, after further cooling by partial condensation or by a washing step with liquid nitrogen, is freed of the residues of other components. The purified hydrogen product, which can optionally contain nitrogen, is engine-expanded for the purpose of producing refrigeration and then conducted through heat exchange coils in at least one of the regenerators.

3,654,770

ICE MAKER CONSTRUCTION

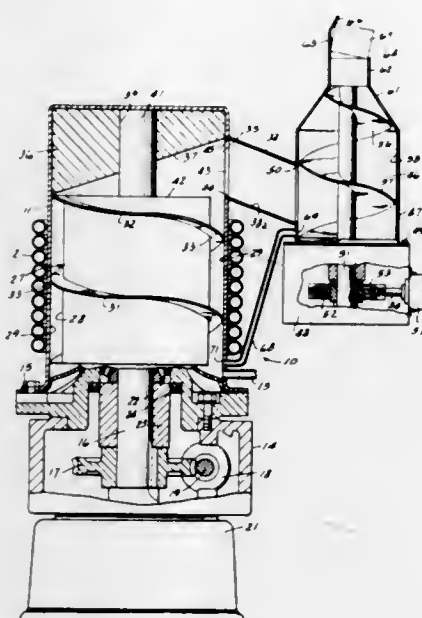
Jack F. Clearman, Stevensville, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Filed Oct. 17, 1969, Ser. No. 867,149

Int. Cl. F25c 1/14

U.S. Cl. 62-320

4 Claims



An ice maker of the type employing a refrigerated chamber and harvesting auger positioned with its flight in

scraping relation to an inner wall of the refrigerated chamber for continuously scraping ice particles from the wall thereof, and being provided with a vertical shaft for supporting the harvesting auger. Transfer means receive discharge from the harvesting auger and transfer the same under pressure developed by the harvesting auger into a separate compression chamber disposed adjacent to the refrigerated chamber. A helical compression auger rotatable within the compression chamber drives the ice product in the form of a confined columnar path through a restricting orifice to form a column of hard ice which may be broken into short lengths by any suitable means to obtain "ice cubes." A single common driving motor may be utilized to drive both augers or, if desired, separate gear means for the compression auger may be provided and driven by a separate motor unit or by a power take-off from a drive source utilized for the harvesting auger.

3,654,771

CAM AND ICE MACHINE COMBINATION

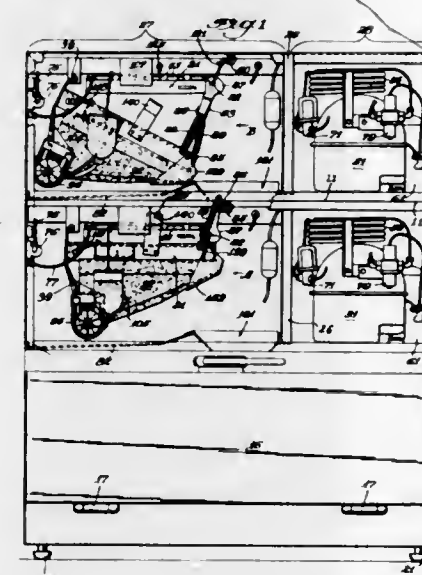
Thomas L. Kuebler, 225 Illinois Avenue, Erie, Pa.

Filed Jan. 19, 1970, Ser. No. 3,620

Int. Cl. F25c 1/08

U.S. Cl. 62-352

5 Claims



This specification discloses a machine for making ice cubes in an inverted tray having a closure platen and having an improved cam for forcing the platen open at the beginning of the harvest cycle. In its preferred form a double eccentric cam is used. Generally there is clearance or slack that must be taken up at the beginning of cam rotation before maximum force is required. The cam is so oriented relative to the follower that maximum force is developed by the cam at a point of rotation after the slack has been taken up between the parts and also at a time when the platen is to be broken loose from the ice. The force is applied to the platen continuously through the entire time the platen is being broken away from the ice.

3,654,772

ICE MAKER

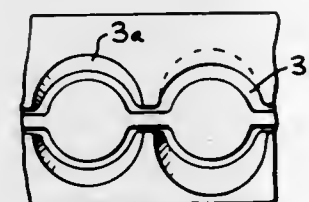
Robert W. Curry, III, Louisville, Ky., assignor to General Electric Company

Filed Sept. 8, 1970, Ser. No. 70,082

Int. Cl. F25c 1/06

U.S. Cl. 62-353

10 Claims



An ice maker of the type comprising a mold including a plurality of cavities interconnected by fluid passages and

ejecting means for ejecting ice pieces from the mold. In order to separate the ice pieces, the ejection axes of adjacent cavities slant relative to one another so that the connecting ice webs formed in the passages are broken during ejection of the ice pieces.

3,654,773

CONTROLLED TEMPERATURE BAIT BUCKET

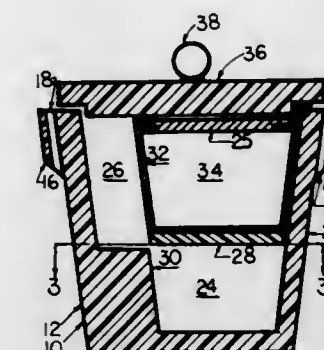
John D. White, 923 Valley Ridge Drive, Birmingham, Ala.

Filed Aug. 31, 1970, Ser. No. 68,408

Int. Cl. F25d 3/08

U.S. Cl. 62-371

7 Claims



A controlled temperature bait bucket which includes, generally a small inner container with an insulated bottom and heat conducting sides within a large outer insulated bucket. The bucket is divided into two compartments by the container. The bait which is to be maintained at a controlled temperature is placed within the container, and the two compartments of the bucket are filled with a cooling agent. Fixed heat transfer means between the upper compartment and the container achieve initial cooling to optimum bait survival temperature and a manually controlled variable heat transfer means provides variable rate of heat transfer between the lower compartment and the container to maintain this temperature.

3,654,774

EAR-ORNAMENT CLIPS

Johannes Antonius Wilhelmus Petrus Van Bergen, 109 Westward Deals, Kedington, Suffolk, England

Filed Aug. 7, 1969, Ser. No. 848,250

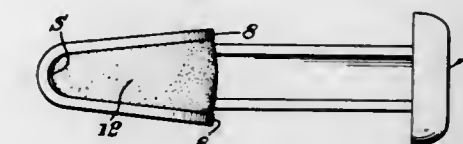
Claims priority, application Great Britain, Aug. 24, 1968,

40,554/68

Int. Cl. A44b 21/00

U.S. Cl. 63-14 C

1 Claim



A precious metal ear-ornament clip whose "grip" on the ear lobe is adjustable and is maintained by maintenance of the angular relationship of its two constituent clip members. Said maintenance is ensured by the frictional engagement of the inwardly directed surfaces of two limbs (which form a part of one clip member and whose free ends are pivotally connected to the other clip member) with the outwardly directed surfaces of two further limbs (carried by the other clip member) which are forced apart by a spring located between them. The spring is essential because the precious metal or precious metal(s) alloys may lack the requisite spring properties.

3,654,775

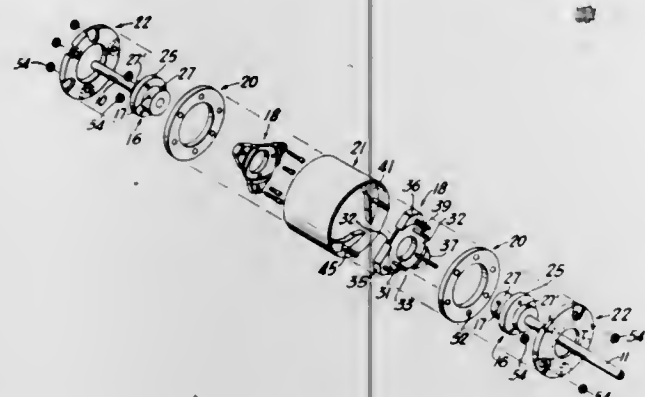
DISC TYPE FLEXIBLE SHAFT COUPLING

Charles H. Williams, Export, Pa., assignor to Koppers Company, Inc.

Filed Mar. 16, 1970, Ser. No. 19,803
Int. Cl. F16d 3/78

U.S. Cl. 64-13

16 Claims



A flexible shaft coupling of the laminated disc-pack type having multi-element mounting hubs enabling the disc-packs to be axially separated outboard of the hubs and yet be removable without moving the coupling-connected shafts. The coupling includes a hub for each shaft, a triangular adapter connected to each hub and its respective disc-pack, a sleeve axially connecting the disc-packs and arranged to cover both the disc-packs and adapters and preferably a shroud at each end of the sleeve to close the coupling.

3,654,776

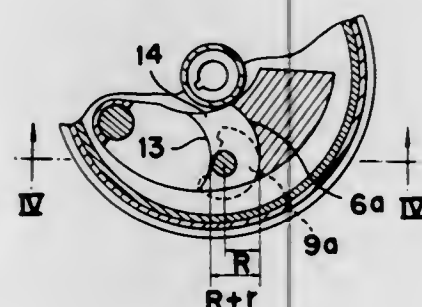
CENTRIFUGAL-TYPE INJECTION TIMING ADJUSTING DEVICE FOR INTERNAL COMBUSTION ENGINES

Tomoyasu Jingu, and Tokio Yamamoto, both of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Kabushiki Kaisha, Skibuya-ku, Tokyo, Japan

Filed June 11, 1970, Ser. No. 45,494
Int. Cl. F16d 5/00

U.S. Cl. 64-25

9 Claims



A centrifugal-type injection advance device for internal combustion wherein a protrusion is provided on each flange pin and a groove is provided in each flyweight to reduce operating noise of an engine and to assure a stable in function.

3,654,777

TORQUE TRANSMITTING DEVICE

Roger V. Grundman, Roseville, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

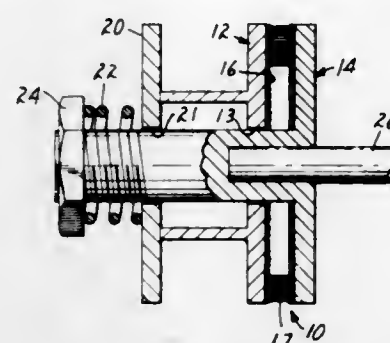
Filed Nov. 25, 1970, Ser. No. 92,761
Int. Cl. F16d 7/02

U.S. Cl. 64-30

23 Claims

A torque transmitting device in which a plurality of fibers extend perpendicularly from one of a pair of normally opposed, generally parallel surfaces to engage circumferentially spaced protuberances defining the other surface. The torque

transmitting surfaces are defined on a pair of relatively rotatable members and the extent of fiber engagement is adjustable to permit adjustment of the torque transmitted between the members by engagement of the fibers with the protuberances upon relative rotation of the members.



3,654,778

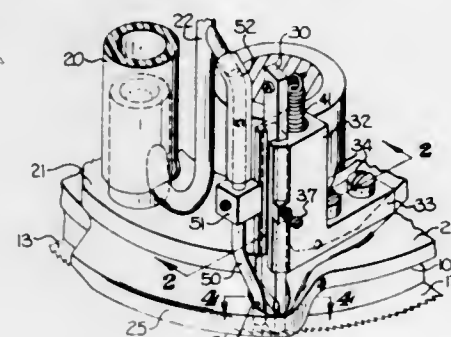
YARN CUTTER FOR HOSIERY KNITTING MACHINES

Clarence W. Minton, Nashville, Tenn., assignor to Americal Corporation, Henderson, N.C.

Filed Dec. 4, 1970, Ser. No. 95,267
Int. Cl. D04b 15/61

U.S. Cl. 66-145 S

9 Claims



An improved stationary cutter element for use with the rotating cutter ring of a circular hosiery knitting machine having contiguous peripheral teeth extending into close proximity to the rotating circle of needles. The cutting edge of the stationary cutter element is properly shaped to be cammed upwardly as it engages the radially extending leading edges of successive teeth to provide a scissors action therewith and effectively cut any yarn engaged thereby.

3,654,779

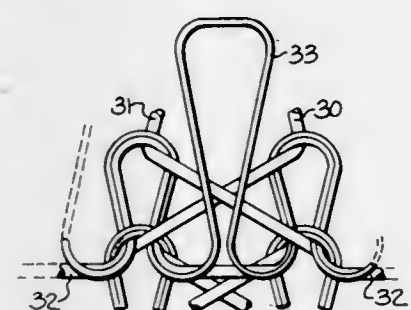
PANTY TYPE GARMENT AND METHOD OF KNITTING THE SAME ON A FLAT KNITTING MACHINE

Juan Rovira Fors, Pinar 20, bis Canet de Mar, Barcelona, Spain

Filed Apr. 13, 1970, Ser. No. 27,729
Claims priority, application Spain, Apr. 23, 1969, 366360
Int. Cl. A41b 9/02

U.S. Cl. 66-171

6 Claims



The panty type garment is knit on a full-fashioned type knitting machine which is modified to feed warp yarns to the needles to form warp knit fabric with weft knit yarn and terry

3,654,780

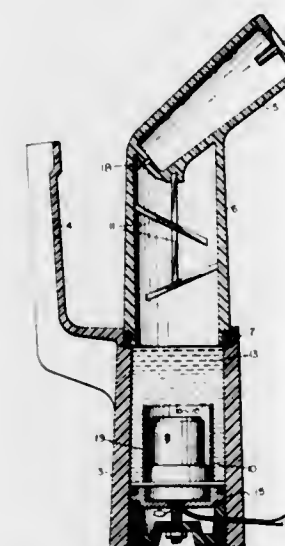
CLOTHES STEAMER DEVICE

Bernard Frank, Shamokin, Pa., assignor to Dart Industries, Inc., West Bend, Wis.
Continuation of application Ser. No. 817,932, Apr. 21, 1969, now abandoned. This application Apr. 21, 1971, Ser. No. 136,220

Int. Cl. D06c 1/00; D06f 75/00

U.S. Cl. 68-222

5 Claims



A portable hand held clothes steamer has structure therein to prevent sputtering and dispensing of water droplets with the steam under various operating conditions. The structure includes a circulating type heater immersed in water, a circuitous passageway to a steam dispensing head and structure adapted to separate condensed water droplets from live steam.

3,654,781

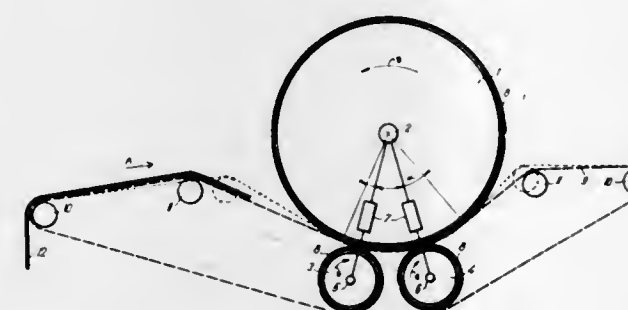
APPARATUS FOR THE CONTINUOUS EXTRACTION OF WATER FROM FLAT MATERIAL

Bohuslav Plechac, Otrokovice, Czechoslovakia, assignor to Statni vyzumny ustav kozedelny, Gottwaldov, Czechoslovakia

Filed Apr. 3, 1970, Ser. No. 25,415
Claims priority, application Czechoslovakia, Apr. 17, 1969, PV 2727-69
Int. Cl. C14b 1/08

U.S. Cl. 69-41

7 Claims



Apparatus for the continuous extraction of water from flat material such as leather comprising a drum and at least one counter pressure roller contiguous therewith. A permeable belt is arranged to run between the rollers to carry the

3,654,782

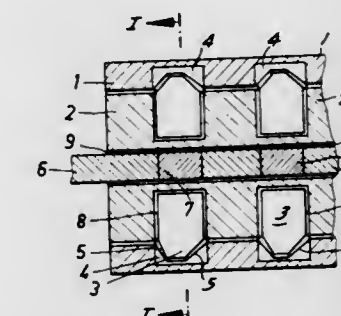
MAGNETIC LOCK

Georg Heimann, Wendelinusstrasse 61, 5171 Stettelnich, Germany

Filed July 26, 1968, Ser. No. 748,029
Claims priority, application Germany, Aug., 1967, H 59763
Int. Cl. E05b 47/00

U.S. Cl. 70-276

34 Claims



A magnetic lock wherein an actuating member is turnable or reciprocable to and from a starting position by means of a key which has magnetic inserts adapted to change the orientation of magnetic tumblers which are rotatable in the actuating member and normally assume positions in which they prevent movement of the actuating member from starting position. The actuating member is adjacent to and is locked by the tumblers to a base member when the key is removed. Like poles of the tumblers are adjacent to each other when the key is applied so that such poles repel each other as soon as the key is removed and cause the tumblers to assume positions in which the actuating member is locked to the base member.

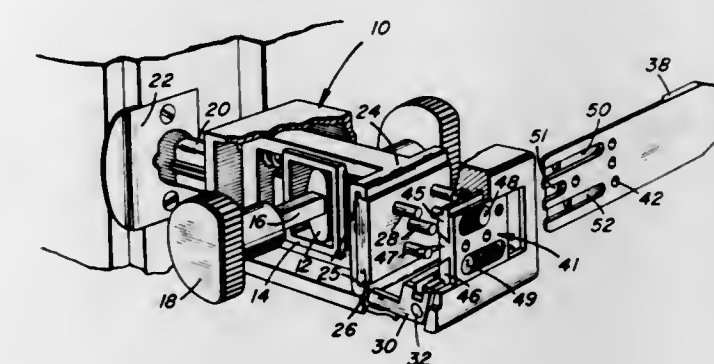
3,654,783

LOCK WITH READILY INTERCHANGEABLE KEY

Fred G. Sinclair, 1330 N. E. 144th Street, North Miami, Fla.
Continuation-in-part of application Ser. No. 751,873, Aug., 1968, now Patent No. 3,505,841. This application Apr. 1, 1970, Ser. No. 24,594
Int. Cl. E05b 35/14

U.S. Cl. 70-349

8 Claims



A key operated, permutation lock having a housing in which a pin plate support is slidably mounted and actuated by a lock bolt support. A back plate having openings to align with a pin plate support is positioned to be in registry with the pins when a proper key is inserted between the pin plate and the back plate. A stop lever prevents movement of the pin plate support until the lever is pushed aside by a properly fitting key.

3,654,784

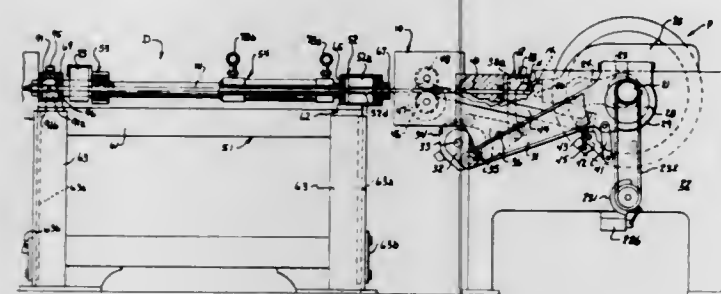
WIRE DRAWING AND FEEDING APPARATUS

Richard A. Alcock, Robert M. Guthrie, and Robert B. Johnston, all of Rockford, Ill., assignors to Fastener Engineers, Inc., Rockford, Ill.

Filed Dec. 15, 1969, Ser. No. 885,198
Int. Cl. B21d 55/00; B21c 1/14

U.S. Cl. 72-5

8 Claims



A wire drawing apparatus for use with a wire processing machine having an intermittently operated wire feed mechanism in which the wire drawing die is moved by a hydraulic actuator in a draw stroke to an extended position under the control of the wire processing machine, and the drawing die remains in the extended position until it is subsequently advanced with the wire by the feed mechanism of the processing machine so that the work stroke of the hydraulic actuator is automatically changed in accordance with the length of the wire advanced by the processing machine feed mechanism, and the cycling of the wire drawing apparatus is automatically varied in accordance with the cycle of the processing machine. Apparatus is also provided on the wire drawing machine for assisting the feed mechanism of the wire processing machine to advance the draw die and wire.

3,654,785

LIQUID PRESSURE BULGE FORMING APPARATUS

Terumori Ueda, Nagoya, and Tunemichi Imai, Aichi-ken, both of Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

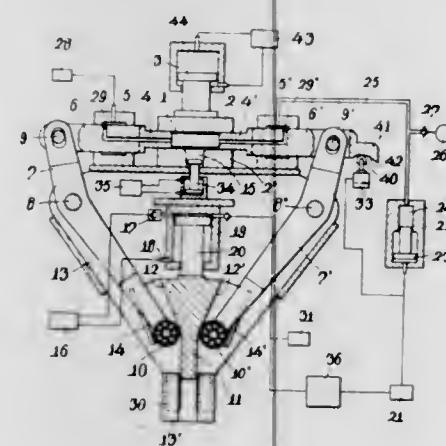
Filed Jan. 27, 1970, Ser. No. 6,258

Claims priority, application Japan, Jan. 29, 1969, 44/6516

Int. Cl. B21d 15/10

U.S. Cl. 72-28

4 Claims



A pipe to be formed is placed into a die having a cavity corresponding to the form desired. High pressure liquid is introduced into the pipe, while both ends thereof are compressed thus bulging the pipe, without heating it, in the die cavity to the form desired.

3,654,786

METAL SURFACE TREATING APPARATUS FOR INTERNAL SURFACES

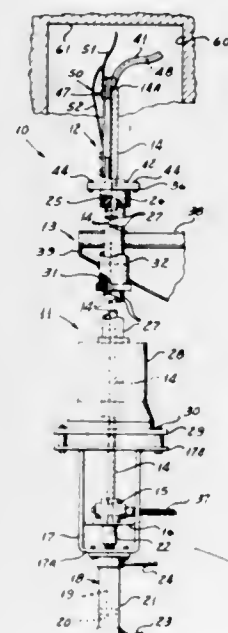
William J. Koenecke, Glen Rock, N.J., and Joel R. Lazar, New York, N.Y., assignors to Metal Improvement Company, Inc.

Filed Sept. 15, 1970, Ser. No. 72,391

Int. Cl. C21d 7/06

U.S. Cl. 72-53

10 Claims



The metal surface treating apparatus comprises a tubular lance, which is supported for rectilinear movement and connected to receive pressurized fluid and solid particles and discharge the same from one end thereof, and a deflector mounted adjacent to the discharge end of the lance and for rotation about the lance to direct the discharging stream of fluid and particles. The deflector is constructed and arranged to coact with the lance, upon rectilinear movement of the lance relative to the deflector, to automatically alter the direction of the stream of fluid and particles between one extreme position where the stream discharges in a direction substantially normal to the longitudinal axis of the lance and another extreme position in which the stream is directed coincident with the longitudinal axis of the lance.

3,654,787

ELECTROMAGNETIC FORMING APPARATUS

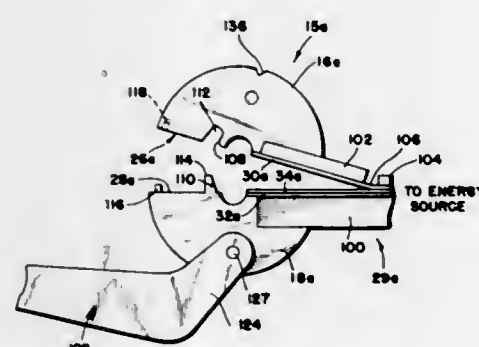
David F. Brower, San Diego, Calif., assignor to Gulf Oil Corporation, San Diego, Calif.

Filed Oct. 15, 1968, Ser. No. 767,777

Int. Cl. B21d 26/14

U.S. Cl. 72-56

4 Claims



An electromagnetic forming apparatus utilizes a forming coil having separable die portions for receiving a workpiece which is configured in such a manner that it could not otherwise be worked by a high intensity magnetic field. An improved design of the forming coil increases its operating life.

3,654,788

METHOD OF DISCHARGE FORMING BULGED ARTICLES

Tadao Kimura, Tokyo, Japan, assignor to Lead Metal Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 17, 1969, Ser. No. 877,393

Claims priority, application Japan, Nov. 20, 1968, 43/85365

Int. Cl. B21d 26/12

U.S. Cl. 72-56

3 Claims

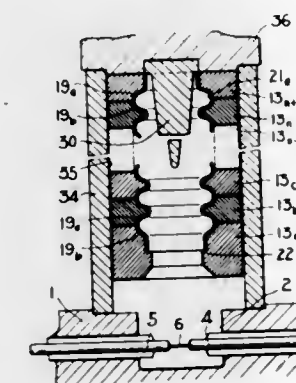
3,654,790
MEANS FOR MAKING PULLEYS

Lester T. Zatzko, Gates Hills, Ohio, assignor to Philip L. Moskowicz, trustee

Continuation of application Ser. No. 687,695, Dec. 4, 1967, now abandoned. This application May 15, 1970, Ser. No. 37,855

Int. Cl. B21d 22/16

23 Claims



A method of discharge forming bulged articles comprising the steps of inserting a hollow tube-like metallic workpiece in an axially movable mold member, releasing an energy by high voltage discharge so that said movable mold member may be caused to move axially thereof toward a fixed mold member, and compressing said hollow tube-like workpiece axially thereof to cause a portion of the wall of the workpiece to expand outwardly whereby a tube-like article with a bulge can be produced.

3,654,789

SWAGING MACHINE

Hans Brauer, Leichlingen, Germany, assignor to Th. Kieserling & Albrecht, Solingen, Germany

Filed Oct. 22, 1969, Ser. No. 868,320

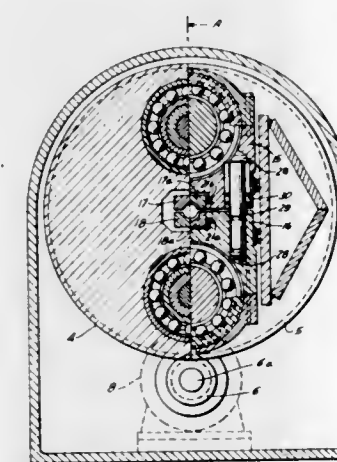
Claims priority, application Germany, Oct. 24, 1968, P 18 04

781.9

Int. Cl. B21j 7/16, 13/04

U.S. Cl. 72-76

9 Claims



A swaging machine wherein the housing which accommodates radially movable dies is rotatable in a frame and wherein the holders for the dies receive motion from eccentric portions of shafts which are rotatable in the housing when the latter rotates in the frame. The shafts carry pinions meshing with a gear which is fixedly or rotatably mounted in the frame. The gear rotates the shafts and thereby reciprocates the dies in response to rotation of the housing in the frame.

3,654,791

TOOTHED TOOL AND DEVICE FOR CHIPLESS GENERATION OF GEARS

Herbert Loos, and Karl Kretzschmar, both of Munich, Germany, assignors to Carl Hurth Maschinen und Zahnradfabrik, Munich, Germany

Filed Dec. 15, 1969, Ser. No. 884,870

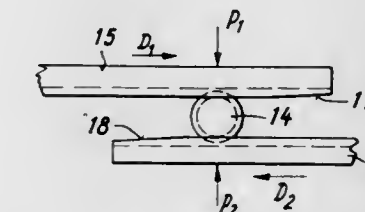
Claims priority, application Germany, Dec. 18, 1968, P 18 15

289.1

Int. Cl. B21h 5/02

U.S. Cl. 72-88

9 Claims



A toothed tool for the chipless generation of gears of the type wherein the teeth have pressure concentrating serrations extending from at least near the addendum thereof to a point at least near the dedendum thereof. These serrations define ribs on the toothed flanks by which the pressure part of the tool is transmitted in a concentrated manner onto the workpiece. In the present invention, the tool is of generally elongated or rack-like shape and moves substantially rectilinearly with respect to the periphery and teeth of the workpiece. Any suitable means are provided to create the necessary pressure between the tool and the workpiece.

3,654,792

APPARATUS AND METHOD FOR INSTALLING BLIND FASTENERS

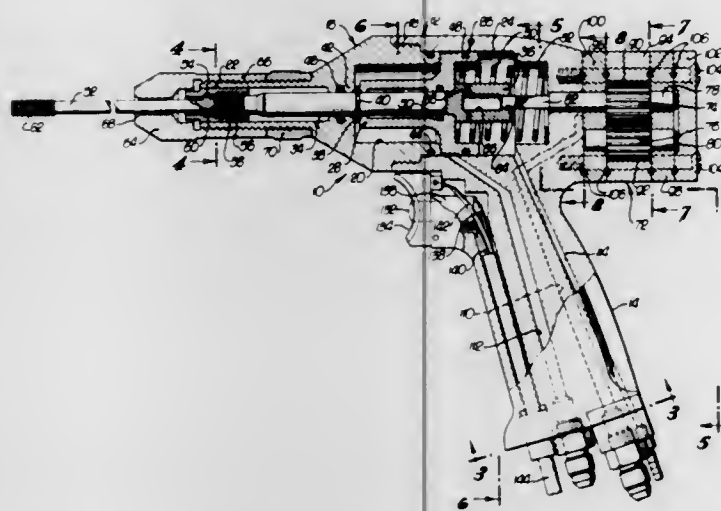
Daniel R. Mead, Hawthorne, Calif., assignor to Briles Manufacturing, El Segundo, Calif.

Filed July 25, 1969, Ser. No. 844,894

Int. Cl. B21d 9/05

U.S. Cl. 72-114

23 Claims



An automatically sequencing, hydraulically powered pre-entry pull-up tool for upsetting blind fastener sleeves on the blind side of a structure, and a novel sequencing method employed by said tool to assure complete and uniform fastener upsetting. The tool includes a hand gun having a protruding threaded mandrel insertable into a blind fastener sleeve to be upset, the mandrel rotating in one direction to engage with the sleeve, axially retracting to pull up and upset the sleeve, and then rotating in the opposite direction to disengage from the sleeve, these three steps being hydraulically powered in the hand gun by hydraulic power from a remote source, and being electrically controlled. According to the method of the disclosure uniform upsetting is assured by effecting the automatic shifting from stage to stage of the operation by sensing back pressure in the hydraulic system.

3,654,793

KNURLING TOOL

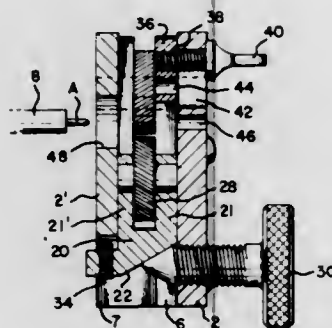
George William Ziegler, Jr., Carlisle; Armand Samuel Apa, Camp Hill, and Donald Elwood Heffner, Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 27, 1970, Ser. No. 15,173

Int. Cl. B21d 19/00

U.S. Cl. 72-125

6 Claims



The disclosure relates to a knurling tool of small dimensions which can locate a knurl about the periphery of an outer conductor of a coaxial cable at a selected one of a plurality of fixed distances from the end of the conductor. The manual controls for effecting the selection of the location and for positioning the knurling wheels against the conductor are both on one side of the tool and protrude in a direction parallel to the wheel axes.

3,654,794

DRAWBENCH

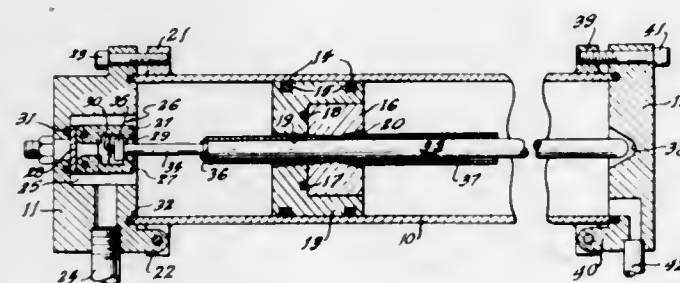
Stephen B. Brak, Tinley Park; Clarence Steves, Hickory Hills, both of Ill., and Ross M. Mayfield, deceased, late of Glen Ellyn, Ill. (by Georgia P. Mayfield, sole heir), assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 7, 1969, Ser. No. 805,383

Int. Cl. B21c 3/12

U.S. Cl. 72-285

6 Claims



A device and method for drawing tubes and rods wherein the workpiece is fixed within a hydraulic cylinder and the die, acting as a piston, is moved along the workpiece.

3,654,795

PROCESS FOR PRODUCING CUP-SHAPED OBJECTS HAVING AXIALLY EXTENDING LIPS

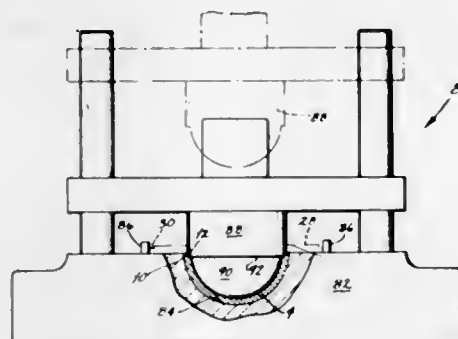
Elmer C. Freber, St. Louis, Mo., assignor to Marquette Tool and Die Company, St. Louis, Mo.

Filed Jan. 14, 1970, Ser. No. 2,855

Int. Cl. B21d 31/02, 28/00

U.S. Cl. 72-329

10 Claims



A cup-shaped object having an axially extending lip is produced by blanking a disk from flat stock, coining a recess into the periphery of the disk, and finally forming the disk into a cup-shaped configuration. During the forming step, the peripheral portion of the disk at the coined recess is transformed into an axially extending lip.

3,654,796

METHOD AND APPARATUS FOR STRIPPING CONTAINER BODIES FROM A RECIPROCAL MANDREL

Lloyd G. Dunn, Lower Burrell, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 17, 1970, Ser. No. 20,297

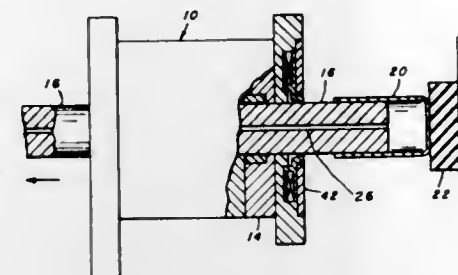
Int. Cl. B21d 45/00

U.S. Cl. 72-345

1 Claim

A method and apparatus are provided for stripping container bodies from a reciprocal mandrel in an ironing press at the completion of the ironing stroke, which includes a resilient pad which is positioned adjacent the exit end of the last ironing ring and aligned with the mandrel for abutment of a container body on the mandrel against the pad at the completion of the ironing stroke, and means for introducing compressed gas into the container body being ironed prior to

completion of the ironing stroke. The compressed gas in the container will hold the container body against the resilient



pad whereby the mandrel may be withdrawn from the container during its return stroke.

3,654,797

EXPANDING ARBOR FOR TAPERED HOLES

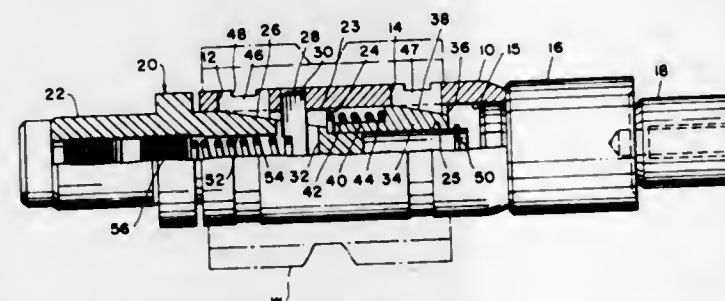
Lily G. Skalsey, Detroit, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.

Filed Mar. 5, 1970, Ser. No. 16,748

Int. Cl. B23b 31/40

U.S. Cl. 72-393

7 Claims



An expanding arbor having at least two axially spaced sets of radially movable keys, wedge means for effecting positive outward movement of one set of keys, and resiliently urged wedge means for producing outward movement of the other set of keys to provide accurate centering irrespective of possible variations in diameter in an opening in which the arbor is engaged.

3,654,798

APPARATUS FOR MAKING A SNAP ACTING THERMOSTATIC ELEMENT

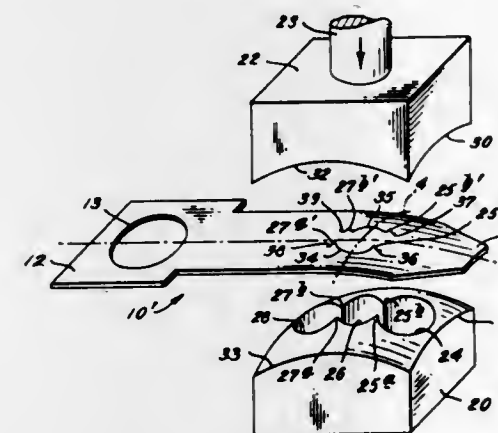
Hamlet D. Vezza, Seekonk, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application Apr. 28, 1969, Ser. No. 819,868, now Patent No. 3,562,690. Divided and this application July 30, 1970, Ser. No. 59,386

Int. Cl. B21j 13/02

U.S. Cl. 72-412

2 Claims



A thermally responsive multimetallic element formed with a dished area to make it snap acting is provided with a plu-

ality of deformations formed in pairs in the dished portion of the strip with each pair comprising two points and ridge connecting each point in a pair with a corresponding point in the adjacent pair. These deformations enhance the snap characteristics of the element and reduce creep prior to snap action of the element from one configuration to another at a critical temperature.

3,654,799

PRESS ASSEMBLY

Helmut Dischler, Am Kreuzfeld, Germany, assignor to Becorit Grubenausbau GmbH, Recklinghausen, Germany

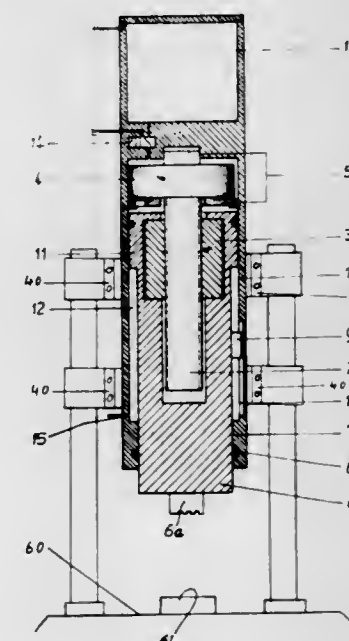
Filed Feb. 20, 1970, Ser. No. 13,103

Claims priority, application Germany, Mar. 1, 1969, P 19 10 507.8

Int. Cl. B21j 9/12

U.S. Cl. 72-454

8 Claims



A sheet metal working or other press is operated say pneumatically. Movement of the press moves a freely rotatable screw relative to a freely rotating nut of a screw-and-nut mechanism so both spin in opposite directions storing energy which is released when the movement of the press is arrested during deformation of the workpiece. Either the screw or nut moves with the movable part of the press and the other is immovable in a casing. No rotary impact couples are transmitted to the frame of the machine when the press is arrested.

3,654,800

SELF-POINTING THREAD ROLLING DIES

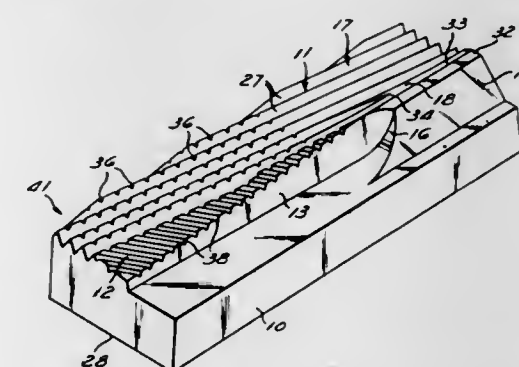
Herbert L. Yankee, North Royalton, Ohio, assignor to Pratt & Whitney Inc., Cleveland, Ohio

Filed Nov. 24, 1969, Ser. No. 879,255

Int. Cl. B21h 3/06

U.S. Cl. 72-469

20 Claims



A pair of self-pointing thread rolling dies is illustrated for forming a threaded and pointed screw from an unpointed

blank having excess material in the shank. During the rolling operation the excess material is formed into a slug which is separated from the finished screw. Each die includes a slug forming surface formed with driving serrations thereon. The projections of the serrations into the plane of movement of the axis of the blank are inclined with respect to a referenced plane perpendicular to the direction of relative die movement. The inclined serrations provide a smoother drive for the slug and improve the uniformity of location of slug separation so that the uniformity of the screws formed by the dies is improved. The point burning of the screw is also reduced and die life is improved. In one embodiment the serrations are inclined in the same general direction with respect to the referenced plane and in another embodiment, they are inclined in opposite directions with respect thereto.

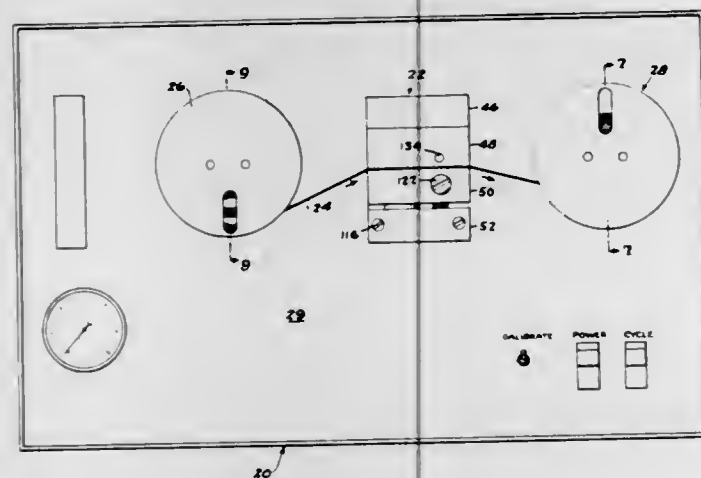
3,654,801

GAS SAMPLING DEVICE

Richard D. Keefer, and John S. Wyman, Jr., both of Ann Arbor, Mich., assignors to The Bendix Corporation
Filed Feb. 14, 1969, Ser. No. 799,367
Int. Cl. G01n 21/28

U.S. Cl. 73—28

8 Claims



A gas sampling device having a sampling head with supply and take-up reels mounted on opposite sides of the head to accommodate a filter material in tape form. The sampling head has two blocks which are yieldably urged toward each other to clamp a portion of the filter tape between the blocks. Each block is formed with a gas chamber which is positioned so that a sample of gas can be passed through the filter tape between the blocks. A spool with cam surfaces having serrated teeth is connected to one of the blocks and positioned so that when the spool is rotated the cam surfaces momentarily shift one of the blocks away from the other block and advance the filter tape through the head. The supply reel is connected to a drag clutch and the take-up reel is driven through a friction clutch so that the tape is always under a slight tension.

3,654,802

MEASUREMENT AND CONTROL APPARATUS

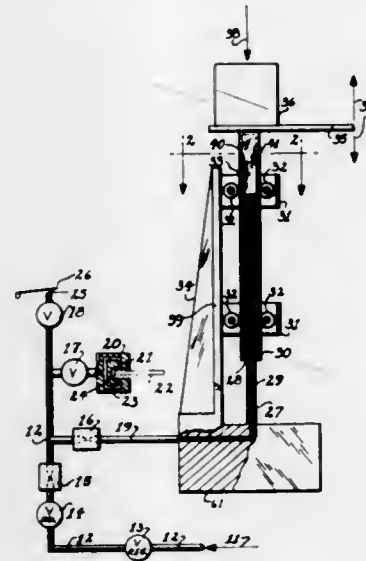
David G. Falconer, 3931 Benton St. N.W., Washington, D.C.
Filed May 11, 1970, Ser. No. 36,135
Int. Cl. G01b 13/00

U.S. Cl. 73—37.5

14 Claims

In a pneumatic measuring device of the leakage input type, a shaft of uniform diameter moves in a reciprocal manner within a conformably shaped bore. The shaft and the bore are substantially of the same length so that if the shaft is moved axially the portion which is still encompassed by the bore is shortened. This annular passage between the shaft and the bore is used as a variable flow area. Pressure regulated compressed air on the upstream side of a line restriction is fed into a conduit which branches; one branch goes to

a leakage input signal; the other branch goes to a chamber between the end of the shaft and the end bore; this chamber is closed except for the annulus. Opposing the movement of the shaft is either a weight (when the shaft and bore are pointed vertically) or a pneumatic cylinder. If the leakage input is varied the flow to the chamber between the shaft and the bore varies. As the pressure forces the shaft to move the annulus shortens, thereby admitting more flow until the force



moving the shaft (the pressure X the area) is equal to the opposing force of the pneumatic cylinder or the weight. The output of the device is the axial movement of the shaft with sufficient power to operate switches and like operations.

In another species of the invention a tapered piston is fitted into a like tapered bore. As the tapered piston is moved axially in the tapered bore the annulus between them is widened to vary the flow.

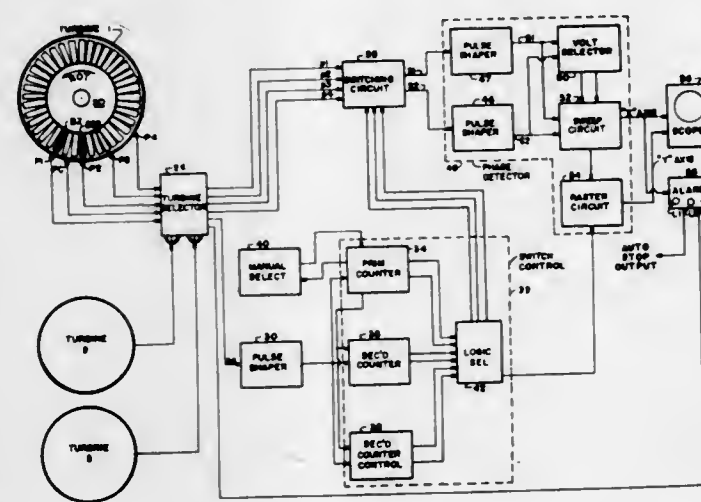
3,654,803

SYSTEM FOR MEASURING ROTOR BLADE VIBRATION

Raymond A. Robinson, Lake Circle Drive, Tullahoma, Tenn.
Filed Oct. 2, 1970, Ser. No. 77,628
Int. Cl. G01h 11/00

U.S. Cl. 73—71.4

11 Claims



A system for measuring rotor blade vibration in a compressor or turbine in which magnetic type sensors are positioned at selected points about the periphery of the rotor to produce pairs of signals generated by passing blades. These signals are then phase compared and a voltage obtained which is indicative of whether one signal leads or lags another and the magnitude of the lead or lag.

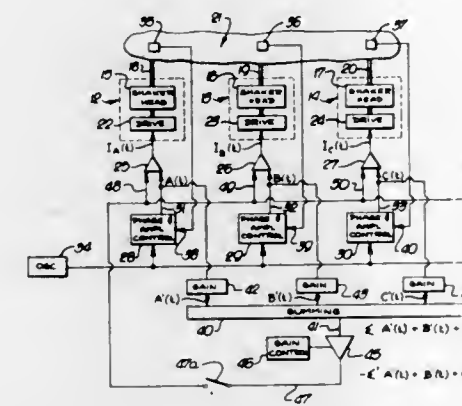
3,654,804

STABILIZATION OF MULTIPLE SHAKER SYSTEMS

James G. Helmuth, Monrovia, Calif., assignor to Chadwick-Helmuth Electronics, Inc., Monrovia, Calif.
Continuation-in-part of application Ser. No. 606,657, Jan. 3, 1967, now abandoned. This application Apr. 8, 1970, Ser. No. 26,602
Int. Cl. G01m 7/00

U.S. Cl. 73—71.6

10 Claims



The problem of multiple shaker system instability due to cross-coupling of shaker drives via the load is significantly reduced by furnishing a bias signal which is a function of force application to the load via at least one shaker, and by applying the bias signal to bias the vibratory drive applied to the load via another shaker. The amplitude and phase of the bias signal are also controllable to effect reduction of instability.

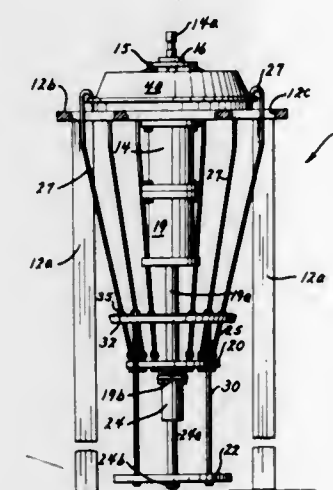
3,654,805

CLUTCH REBUILDING AND TESTING MECHANISM

Robert L. Ashby, 3018 Ashwood Avenue, Evansville, Ind.
Filed June 19, 1970, Ser. No. 47,766
Int. Cl. G01m 13/02

U.S. Cl. 73—118

7 Claims



A clutch rebuilding and testing mechanism characterized by the use of three cooperating power members arranged to simply and positively control structure which positions the clutch for servicing without the need for any superstructure above such clutch.

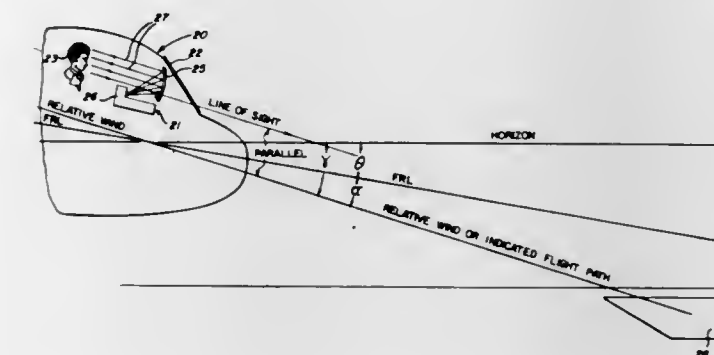
3,654,806

AIRCRAFT INSTRUMENT

Charles Donald Bateman, Bellevue, Wash., assignor to Sundstrand Data Controls, Inc.
Filed June 18, 1970, Ser. No. 47,517
Int. Cl. G01c 21/00

U.S. Cl. 73—178 R

9 Claims



An aircraft instrument utilizing a signal which represents the aircraft angle of attack, in a head-up display, to direct the pilot during the approach to a landing. The signal drives a bar in the display to indicate the touchdown point, with reference to the outside world. The angle of attack signal is pitch stabilized to improve its flyability. A signal representing a change in aircraft pitch attitude is combined with a signal representing a change in aircraft attitude caused by the pilot to distinguish wind gusts from pilot commands and the resulting signal combined with the angle of attack signal to compensate the movement of the bar for the effect of gusts on the aircraft.

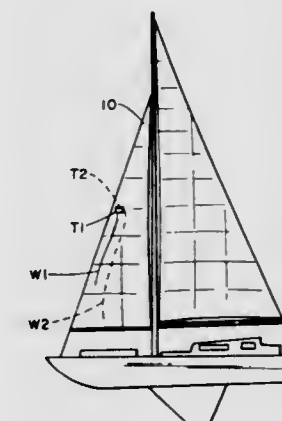
3,654,807

ANGLE OF ATTACK INDICATING SYSTEM

Donald Stephen Deskey, 9838 Burgen Avenue, Los Angeles, Calif.
Filed Jan. 30, 1970, Ser. No. 7,287
Int. Cl. G01c 21/00

U.S. Cl. 73—180

6 Claims



An electronic angle of attack indicating system is provided which may be used, for example, to indicate the sail trim of a sailboat, or the angle of attack of an aircraft, or the like, so that the sail or the aircraft may be maintained at any preset attack angle. The system of the invention uses a pair of temperature sensitive devices, such as thermistors, which are mounted on either side of the leading edge of an airfoil, such as a sail or wing, and which sense the air flow differential on the opposite sides of the airfoil, by virtue of the resulting temperature differences. An electric indicating system coupled to the temperature sensitive devices indicates the ex-

istence of the air flow differential, so that the appropriate adjustments may be made to maintain the preset attack angle.

3,654,808

BAROMETER

Shoichi Fukumoto, Osaka, Japan, assignor to Fujiya Co. Ltd., Osaka, Japan

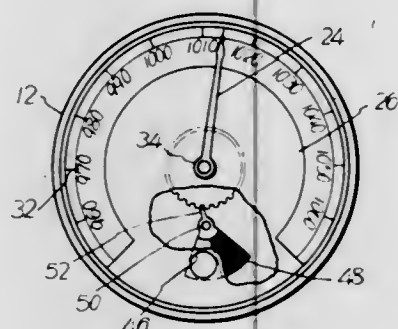
Filed June 29, 1970, Ser. No. 50,856

Claims priority, application Japan, July 2, 1969, 44/52897

Int. Cl. G011 7/12

U.S. Cl. 73—384

1 Claim



A barometer comprising means for measuring atmospheric pressure, a barometric scale for indicating the measure atmospheric pressure, a scale pointer operatively connected to the measuring means and indicator means for directly indicating whether the atmospheric pressure is rising or falling. The indicator means is operated in response to movements of the measuring means to selectively give pressure rise and pressure fall indications.

3,654,809

TEMPERATURE MEASUREMENT TECHNIQUE AND APPARATUS

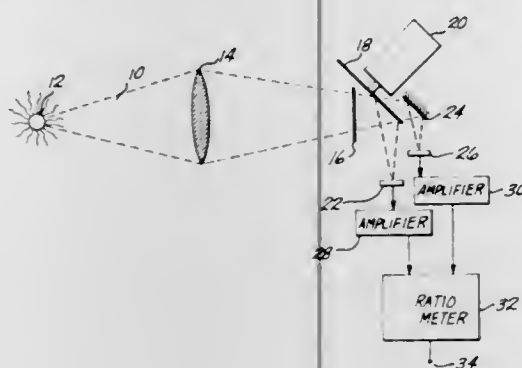
John R. Worden, Tacoma, and Albert W. Kratzke, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 5, 1969, Ser. No. 821,602

Int. Cl. G01j 5/10, 5/60

U.S. Cl. 73—355 R

6 Claims



Method and apparatus for remotely measuring absolute color temperature wherein radiation emitted from a source is collected, divided into two parts at least one of which is subjected to spatial spectral filtering, and directed upon a time shared detector to generate two sets of electrical signals which, when ratioed, provide an output signal proportional to a selected power of the absolute color temperature of the source. In another embodiment, the source radiation is directed upon both an energy and a quantum detector, and the respective detector output signals ratioed to obtain a signal directly proportional to the absolute color temperature of the source.

3,654,810

CAN WELDING INDEXER

Anton A. Aschberger, Oak Lawn, and Herbert D. Bartels, Palos Heights, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Original application Jan. 23, 1969, Ser. No. 793,271, now

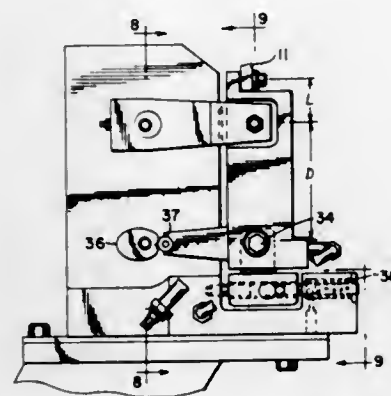
Patent No. 3,544,743. Divided and this application May 12,

1970, Ser. No. 36,541

Int. Cl. F16h 25/08

U.S. Cl. 74—54

7 Claims



An indexer for turning a can on which the seam has not been fully welded so that the welding current goes through different parts of the electrode as successive can seams are turned and the electrode erodes across a wide area instead of at one point. This prolongs electrode life.

3,654,811

FOLDABLE LOAD BEARING MECHANISM AND ACTUATING DEVICE

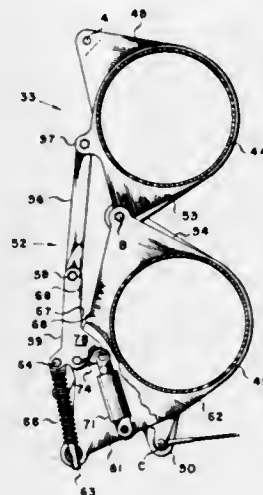
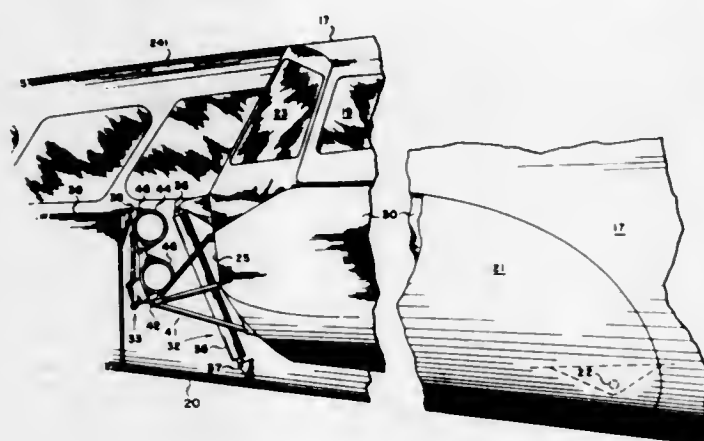
Carlton G. Peterson, Altadena, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Jan. 2, 1970, Ser. No. 324

Int. Cl. F16h 21/44

U.S. Cl. 74—101

11 Claims



1. A structural load bearing mechanism for transmitting loads, moments and couples from an aircraft nose to its

fuselage, rigidity between nose and fuselage being likewise transmitted through such mechanism;

2. means for locking such mechanism in either of two positions; and

3. an actuating mechanism for positioning nose relative to fuselage upon adapting 1 and 2 above to a supersonic aircraft. for supersonic and subsonic flight conditions.

Such adaptation provides a streamlined configuration of nose to fuselage for supersonic flight conditions, while for either supersonic or subsonic flight, maximized visual observation from a pilot's station in the aircraft is achieved.

3,654,812

BALL-DISK DRIVE

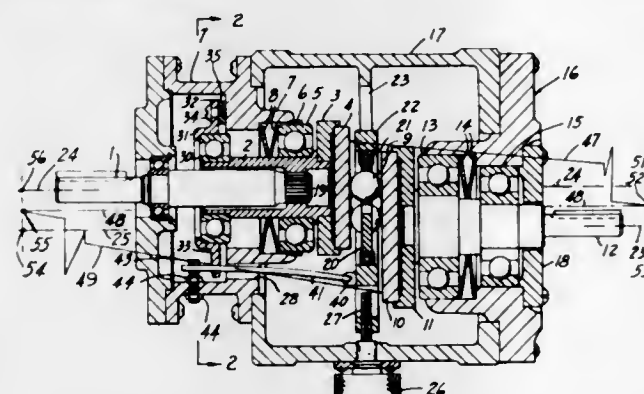
William S. Rouverol, Boite Postale, No. 8, 20 Saint Florent, Corse, France

Filed June 29, 1970, Ser. No. 50,536

Int. Cl. F16h 15/38

U.S. Cl. 74—200

21 Claims



A construction for a ball-disk drive wherein the bearings for one disk are mounted in a manner insuring perfect self-alignment of the disks and hence equal load on all the cage balls. The cage-positioning mechanism is utilized to apply a variable couple to one of the disk shafts sufficient to exactly offset the cocking moment due to cage eccentricity.

3,654,813

ANNULAR STRUCTURES REINFORCED WITH TEXTILE ELEMENTS, IN PARTICULAR, RUBBING ELEMENTS FOR CARDING MACHINES

Ermenegildo De Santis, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Continuation of application Ser. No. 654,767, July 20, 1967, now abandoned. This application Aug. 19, 1970, Ser. No. 65,249

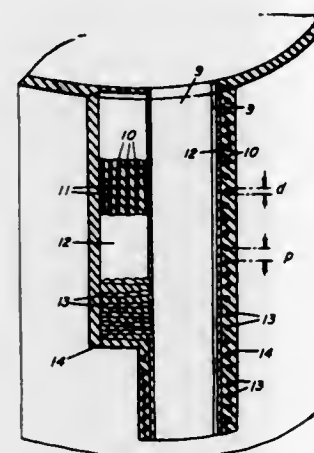
Claims priority, application Italy, July 27, 1966, 17355/66;

May 11, 1967, 1598A/67

Int. Cl. F16g 1/26; D01g 25/00, 27/00

U.S. Cl. 74—232

18 Claims



A rubber structure adapted for use as an accessory in machines for the textile industry, which includes an annular

sheet of rubber composition forming the underlayer of the structure, a layer of cord fabric suitably treated or made adhesive and disposed over the sheet with its cords extending parallel to the axis of the structure, and an additional sheet of rubber composition extending over the layer of cord fabric. A layer of textile reinforcement constituted by a cord or twisted yarn is helically wound up at a small pitch on the additional sheet of rubber composition and is covered by an additional sheet of rubber composition.

3,654,814

SPROCKET

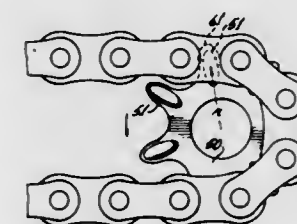
Moscow K. Richmond, 2819 Butler Avenue, Los Angeles, Calif.

Filed Sept. 8, 1970, Ser. No. 70,389

Int. Cl. F16h 55/30

U.S. Cl. 74—243 R

6 Claims



A sprocket having a raised head on each side of every tooth can be used to reduce noise, wear and vibration in chain driven power transmission systems.

3,654,815

MECHANICAL GEAR DRIVE

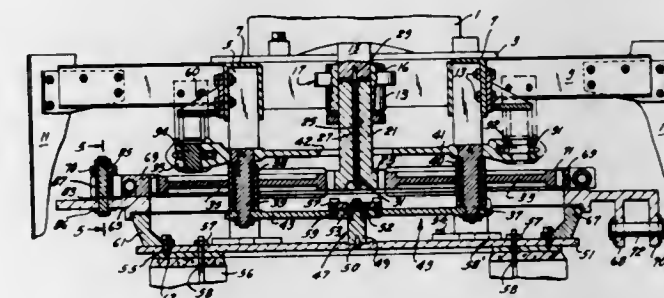
Hans D. Dehne, King of Prussia, Pa., assignor to Crane Co., Chicago, Ill.

Filed Dec. 14, 1970, Ser. No. 97,601

Int. Cl. F16h 57/00

U.S. Cl. 74—410

14 Claims



A gear drive arrangement for rotating a ring gear of large diameter, as commonly used for rotating the rake structure for a slurry agitator, sedimentation tank, or the like. The gear drive incorporates a novel mounting and torque reactor device on which a plurality of gear members are positioned which equally distribute the torque to the ring gear. The planetary gears are driven by a pinion gear which is flexibly suspended from a gear reduction device. The tension device includes an indicator means for visual observation of the torque being transmitted to the ring gear and rake structure at a given time.

3,654,816

SCREW ENGAGING DEVICE

Jack Beery, Farmington, and Zong-Shyong Luo, Plymouth, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Dec. 1, 1970, Ser. No. 94,107

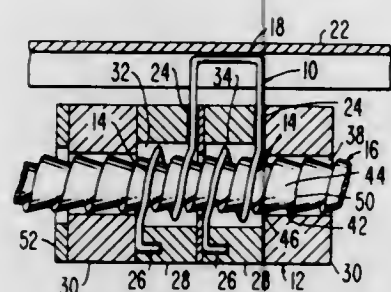
Int. Cl. F16h 1/18, 55/22

U.S. Cl. 74—424.8 R

10 Claims

A device for controllably engaging the helical thread of a screw wherein a spring member is disposed concentrically

about a portion of the outer diameter of the screw in substantial alignment with the helical thread thereof, one end of the spring member being rotatably restrained by a support and



the other end of the spring member being bidirectionally rotatable about the screw for diametrically contracting and dilating the spring member into and out of engagement with the helical thread of the screw.

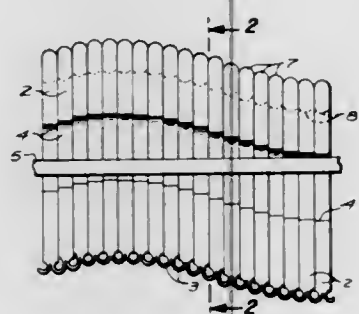
3,654,817

ADJUSTABLE CAM AND ADJUSTING MEANS THEREFOR

Neil G. Kane, Hacienda Heights, Calif., assignor to Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.
Filed May 6, 1970, Ser. No. 35,091
Int. Cl. F16h 53/00

U.S. Cl. 74—568 R

7 Claims



An adjustable cam formed of a single piece injection molded part in which a plurality of narrow strips are joined at common ends by yieldable loops and are disposed side-by-side; the adjacent strips being relatively movable longitudinally within the limits of the connecting loops and forming cam elements at their ends opposite from the loops which may be displaced to define collectively an adjustable cam surface. An embodiment of the adjustable cam includes a lateral extension on each strip forming opposed cam elements, and the cam is arranged in a circle. A cam adjusting means, including cam adjusting rollers, is rotatably mounted within the circle, and pivotal about a transverse axis so that by turning and pivoting the adjusting means, the cam strips are moved longitudinally to change the contour of the cam.

3,654,818

UNIVERSAL MILLING AND BORING MACHINES

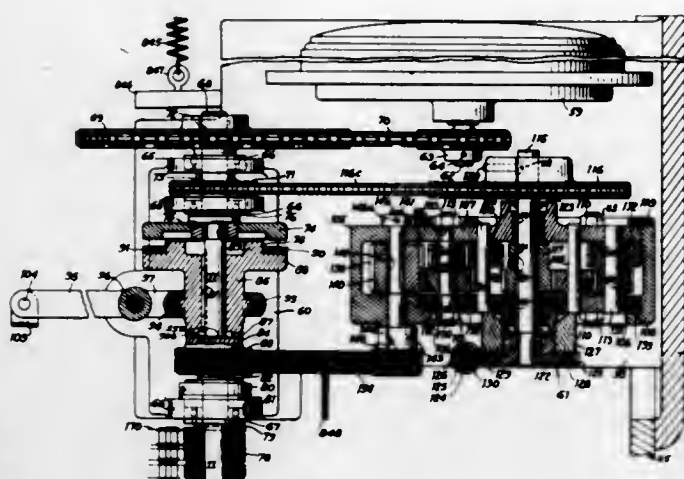
Leo L. Hengehold, 5963 Harrison Avenue, Miami Township, Hamilton County, Ohio
Continuation of application Ser. No. 806,259, Apr. 14, 1959, now Patent No. 3,232,171. This application Apr. 23, 1965, Ser. No. 450,466
Int. Cl. F16h 3/08

U.S. Cl. 74—331

3 Claims

The technical disclosure of the following specification is of a universal jig boring and milling machine for performing a wide variety of operations upon a workpiece mounted on the table of the machine. The machine's speed of feed operation

is selected by positioning of a feed turret carrying a gear train so that power from the principal power source is fed to the



feed turret and through the portion of the gear train selected by positioning of the turret.

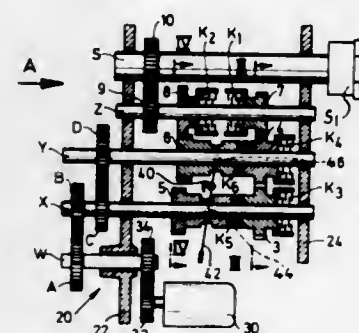
3,654,819

SPEED CHANGE TRANSMISSION

Helmut Link, Esslingen/Neckar, Germany, assignor to Index-Werke KG Hahn & Tessky, Esslingen/Neckar, Germany
Filed Sept. 2, 1970, Ser. No. 68,855
Claims priority, application Germany, Sept. 10, 1969, P 19 45 721.7
Int. Cl. F16h 3/08, 3/00

U.S. Cl. 74—360

10 Claims



A speed change transmission including four transmission shafts, six transmission gears, six clutch means, and change gears, is arranged in such a manner that at the output shaft, four reversible different speeds are obtained.

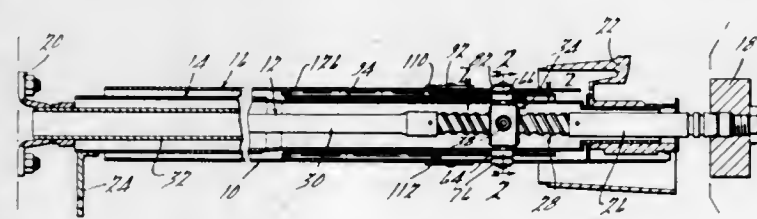
3,654,820

STEERING SYSTEM WITH POWERED RECOVERY MECHANISM

Moses Shachter, Oak Park, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed July 6, 1970, Ser. No. 52,307
Int. Cl. B62d 1/16

U.S. Cl. 74—495

4 Claims



A steering system for a motor vehicle which in its presently preferred embodiment has a power steering gear, a steering

wheel and a steering shaft connecting the steering wheel to the steering gear. The steering shaft has a worm gear portion and a ball nut operably engaging the worm gear portion. A coil spring engages the nut and exerts a force tending to maintain the steering wheel and steering shaft in a central position.

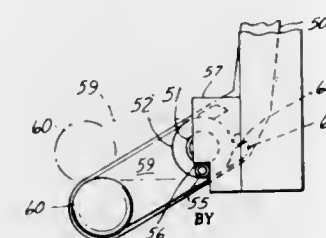
3,654,821

PERSONNEL SAFETY GUARD FOR MACHINERY

Tom T. Mikulin, 1469 Bellevue Avenue, Burlingame, Calif.
Filed May 11, 1970, Ser. No. 36,266
Int. Cl. F16p 3/00

U.S. Cl. 74—612

4 Claims



A safety guard to prevent injury to personnel in connection with the operation of machinery. The guard comprises a plurality of horizontally disposed elongated panels supported in a closed position with the panels in substantially edge to edge relationship and combining to cover the hazardous area. Means is provided for moving the panels vertically in unison to an open position wherein the panels are in side by side stacked relationship to provide a clear area for access to the machine. The guard is arranged to be readily operated without effort by the operator and to provide optimum safety.

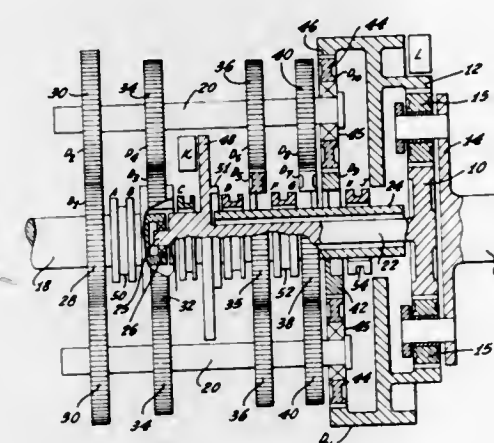
3,654,822

MULTIPLE COUNTERSHAFTS TRANSMISSION

Robert B. Singer; Earl B. Muir, both of Palos Verdes, and Andrew J. Kotzar, Lynwood, all of Calif., assignors to White Motor Corporation, Cleveland, Ohio
Continuation of application Ser. No. 708,254, Feb. 26, 1968.
This application May 1, 1970, Ser. No. 31,851
Int. Cl. F16h 37/08, 3/00

U.S. Cl. 74—681

32 Claims



A gearset including an input shaft, multiple identical countershafts, a quill shaft and appropriate gears and clutches provides choice among multiple paths of power flow to a ring gear and as well as to a sun gear of a set of planetary gearing, the planet gear carrier of the set being connected to an output shaft. In addition, brake means are provided to selectively immobilize the ring gear and the sun gear. The clutches and brakes may be operated in various combinations to provide

vide a progressive series of 32 ratios of speed output to speed input. Gear shift control units may be mounted on the basic transmission assembly interchangeably to provide gear ratios selected from the 32 overall ratios to transform the basic transmission assembly into anyone of five, six, seven, eight, nine, 10, 11, 12, 13 and 15 speed transmissions, there being a family of transmissions available in each category.

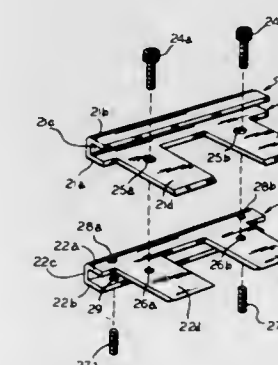
3,654,823

BLADE SHARPENING GUIDE

John R. Juranitch, 932 South Layton Boulevard, Milwaukee, Wis.
Continuation-in-part of application Ser. No. 757,952, Sept. 6, 1968, now abandoned. This application May 1, 1970, Ser. No. 33,790
Int. Cl. B21k 11/02

U.S. Cl. 76—82

7 Claims



A clamp-type blade holder including blade edge angle determining bars for guiding the sharpening of a blade edge on a flat sharpening surface, such as a hone. The blade holder includes guide bars coacting with the blade edge to engage the hone and maintain the sharpening angle the same during all stroking on the hone, thereby producing an accurate sharpening angle that will enable a razor edge.

3,654,824

FUSE EXTRACTOR UNIT

James M. Reed, Elk Grove Village, Ill., assignor to Littelfuse, Inc., Des Plaines, Ill.
Filed Mar. 11, 1970, Ser. No. 18,670
Int. Cl. B25b 27/14

U.S. Cl. 81—3.8

10 Claims



A fuse extracting unit comprising an elongated body made of insulating materials and having a handle portion to be grasped by one hand of the user and a fuse grasping portion at each end thereof, each fuse-grasping portion having a fuse-receiving aperture extending through the body and adapted to receive the fuse therein, the aperture extending to one lateral side of the body to provide a lateral entryway to the aperture.

3,654,825

APPARATUS FOR LOOSENING THREAD PROTECTORS FROM TUBULAR BODIES

Jan H. Moddemeijer, Heiloo, and Dirk Jogchum Zijlstra, Jakarta, both of Netherlands, assignors to Hoogovens Delfstoffen N.V., IJmuiden, Netherlands

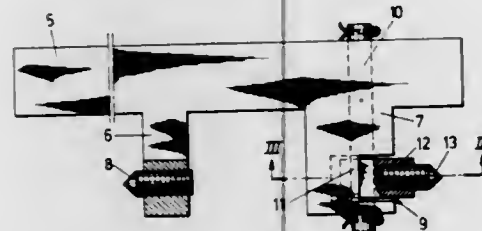
Filed Mar. 9, 1970, Ser. No. 17,372

Claims priority, application Netherlands, Mar. 11, 1967, 69,03768

Int. Cl. B25b 13/48

U.S. Cl. 81-72

5 Claims



An apparatus for removing substantially hollow articles from other articles into which or around which they are clamped, the article to be removed being mainly symmetrical around an axis and the surface of the other article to which it is clamped also being symmetrical with respect to an axis so that the removing is mainly possible by rotation. The apparatus comprises a rod with two lugs at a distance from each other along the rod, the lugs having sharp protruding parts for engaging into the wall of the article to be removed. The protruding parts are directed away from each other if the article to be removed has to be engaged from the inside and are directed towards each other if the article to be removed has to be engaged from the outside. Means are present to move the protruding part(s) of at least one lug towards and away from the protruding part(s) of the other lug to allow the apparatus to be brought into the correct position with respect to the article to be removed in an easy manner and to thereafter cause the protruding parts to engage the article firmly to remove it by rotating the apparatus.

3,654,826

ADJUSTABLE TOOL BLOCK ASSEMBLY

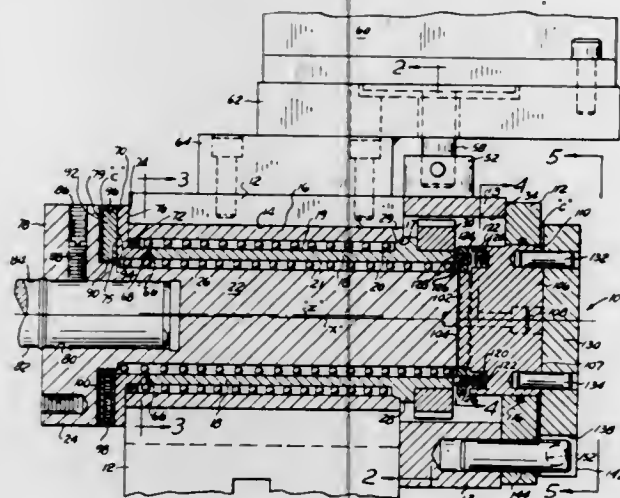
Richard C. Gersch, 27401 Red Leaf Lane, Southfield, Mich.

Filed May 9, 1969, Ser. No. 823,343

Int. Cl. B23b 39/00

U.S. Cl. 82-1.2

7 Claims



A tool block for a boring, turning, facing machine or the like in which a boring bar is adjustably supported within a housing of the block for axial and radial adjustment relative to the work surface. The boring bar is supported for axially

sliding movement and is supported for radial movement within an eccentric rotatable sleeve surrounding the axial support, which is actuated for adjustment of retraction of the cutting tool from the workpiece by a reversible motor operating a gear arrangement to rotate the eccentric sleeve. When the eccentric sleeve is rotated in one direction, the cutting tool is adjusted relative to the work in response to wear of the tool and, if rotated in the other direction, the tool is retracted from the work surface.

3,654,827

TOOL HOLDER AND ATTACHMENTS FOR A LATHE

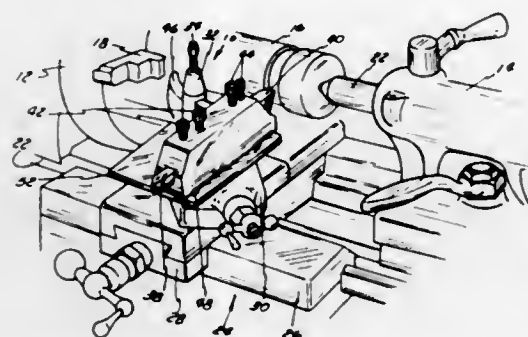
Savarian F. Lemanski, 109 Taylor Street, Detroit, Mich.

Original application May 29, 1968, Ser. No. 732,995, now abandoned. Divided and this application Sept. 15, 1970, Ser. No. 72,525

Int. Cl. B23b 21/00

U.S. Cl. 82-25

7 Claims



A lathe tool holder having an elongated body for supporting a tool in which the cutting ends of the tool extend from both ends of the body. A laterally extending arm joined to the body and adapted for mounting in the tool post of the lathe allows the holder to be mounted in two positions with the tool off-center from the tool post. In one position the cutting end of the tool extending from one end of the body is in a cutting position, and in its reversed position, the cutting edges at the other end of the body are in a cutting position. Adjustable feet under the tool holder provide means for precisely adjusting the height of the tool above the compound rest without shims. A pivotal arm on the body carries a second, finishing tool that can be mounted on a rough finish tool in the body; and a locator attachment on the tool holder provides means for locating the cutting tools for cutting a series of regularly spaced grooves in a workpiece.

3,654,828

TIRE BUILDING MACHINE

Jean Leblond; Jean Biet, and Guy Danneels, all of Compiègne, France, assignors to Uniroyal Englebert France S.A., Neuilly-sur-Seine, France

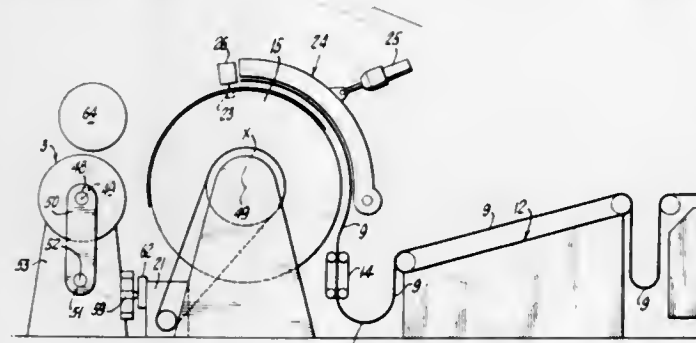
Filed Aug. 5, 1970, Ser. No. 61,285

Claims priority, application France, Aug. 6, 1969, 6927064

Int. Cl. B26d 5/20, 5/42

U.S. Cl. 83-23

16 Claims



The invention contemplates an improved structure and method for building breakers or belts for vehicle tires,

through precise pre-cutting of ply strips from web material and precise transfer to a breaker-building drum. Pre-cutting to length is accomplished by a ply-preparation device which includes a continuous and endless surface for supporting the lead strip in transiently adhered relation to said surface, plus means for the precise indexing displacement of the strip-laden surface to measure the predetermined ply length to be severed upon cut-off. Means are disclosed for the stress-free transfer of the severed ply strip and for the automatic recycled measurement and cut-off of the next ply strip. Means are also disclosed for the interlaced delivery of such plies from successive different stations to accomplish desired multiple-ply building of a particular breaker on the same drum, and for tread-application as part of the same machine cycle.

3,654,829

APPARATUS FOR PUNCHING HOLES IN HEAT SHRINKABLE WEB MATERIAL

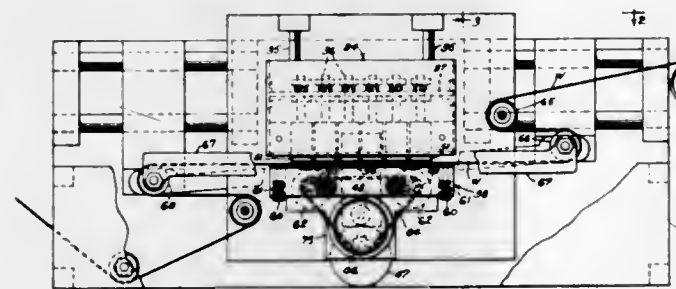
Andrew W. Anderson, West Caldwell, N.J., assignor to Scandia Packaging Machinery Company, North Arlington, N.J.

Filed July 29, 1969, Ser. No. 845,841

Int. Cl. B29c 17/08

U.S. Cl. 83-78

8 Claims



A method and apparatus for punching holes in a web of material used in wrapping packages is provided. The web of material has a composition that will change shape when subjected to heat. Heated punches are used to form holes in the web of material and the heat from the punch affects the material along the periphery of the hole to form a thickened ridge therearound. The ribbed edges are reinforcements which prevent tearing of the material used in the wrapping process. The apparatus includes feed means for the web of material to move between a base support and at least one punch member. A more specific feature of the invention includes the use of a vacuum forming means to remove punchings from the apparatus when they are obtained from the web of material. Wrapping material that is adaptable to the method and apparatus of this invention includes compositions such as polypropylene.

3,654,830

SHEET METAL BLANKING AND SHEARING MACHINE

Fred C. Werner, Jr., St. Louis County, Mo., assignor to Engel Industries, Inc., Ballwin, Mo.

Filed June 24, 1970, Ser. No. 49,322

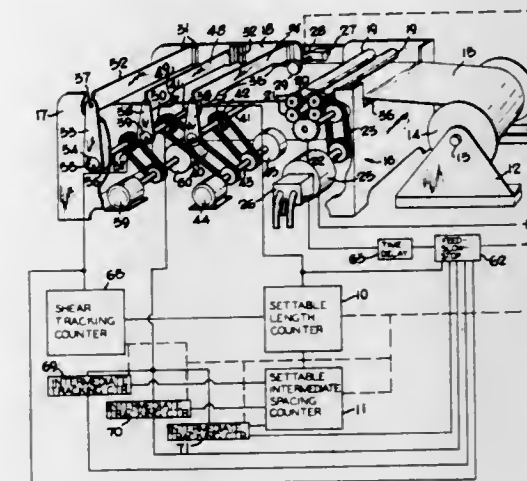
Int. Cl. B26d 5/40

U.S. Cl. 83-208

4 Claims

Drawings of sheet metal blanks, for example those for ducts, are usually dimensioned from a leading edge. A machine having spaced-apart rams for blanking and shearing is provided with adjustable counters which may be set to dimensions called forth on the drawings. Electrical pulses generated by the flow of strip metal are counted from a datum position to the position of the first ram, used for

blanking end notches. The physical spacings to an intermediate ram and to the shear are accounted for by preset



tracking counters whose count is additive to those of the adjustable counters.

3,654,831
KEYBOARD

Umberto Grilli; Bruno Sturba, and Artemio Vivani, all of 60020 Sirolo, Italy

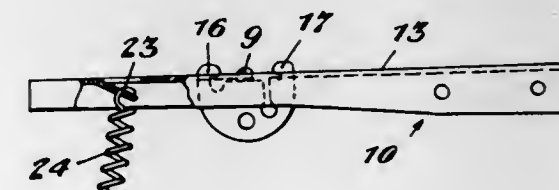
Filed June 20, 1969, Ser. No. 835,137

Claims priority, application Italy, Aug. 29, 1968, 39379 A/68

Int. Cl. G10c 3/12

U.S. Cl. 84-435

14 Claims



A key and mounting assembly for use in a keyboard of a musical instrument and the like. The assembly includes a key lever and a mounting element for pivotally mounting the key lever in the keyboard. Improved means are provided for connecting the mounting element to the key lever.

3,654,832

NAIL SCREW FASTENING SYSTEM

Garnet L. Lana, 20133 Delita Drive, Woodland Hills, Calif.

Filed Oct. 21, 1968, Ser. No. 769,294

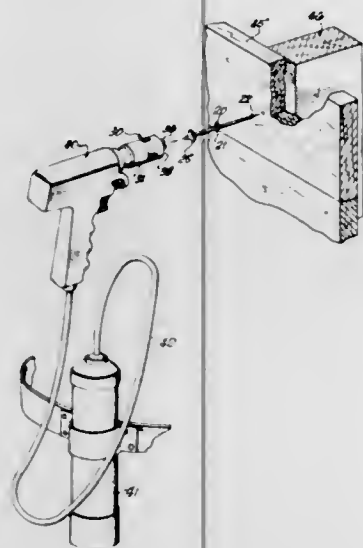
Int. Cl. F16b 23/00, 25/00

U.S. Cl. 85-45

3 Claims

A nail screw fastening system comprising a novel nail screw together with a tool head for driving it, the nail screw being easily fabricable by rolling or stamping threads on the pointed end of stamped nail stock so that the thread ridges project radially outward beyond the nail shank, and by cutting V-shaped peripheral notches in the nail head to form flanges. The driving tool head is a cylindrical body adapted at

one end for coupling to a source of rotary motion and its other end having an axial passageway of uniform cross sec-



tion complementary to the cross section of the screw nail head flange and terminating in a permanent magnet end wall.

3,654,833

HYDRAULIC CONTROL CIRCUIT

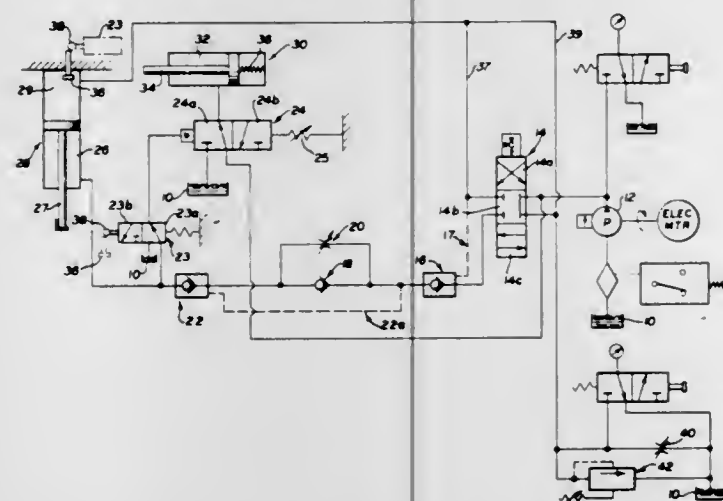
Thomas C. Griffiths, Chardon, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed June 29, 1970, Ser. No. 50,443

Int. Cl. F15b 15/26, 11/08

U.S. Cl. 91-41

5 Claims



A hydraulic control circuit for raising or lowering a load includes a hydraulic ram having a movable load engaging piston therein and a pressure compensated hydraulic pump for supplying fluid thereto for raising a load. Means are provided in the circuit between the pump and the hydraulic ram for controlling the raising and lowering operations of the ram. Further means are provided for locking the position of the load in the event of mechanical or hydraulic failure of any portion of the load raising mechanism.

3,654,834

FLUID BYPASS VALVE

Elle C. Sifri, and Matthew Shlbahara, both of Portland, Oreg., assignors to Cascade Corporation, Portland, Oreg.

Filed May 27, 1970, Ser. No. 41,012

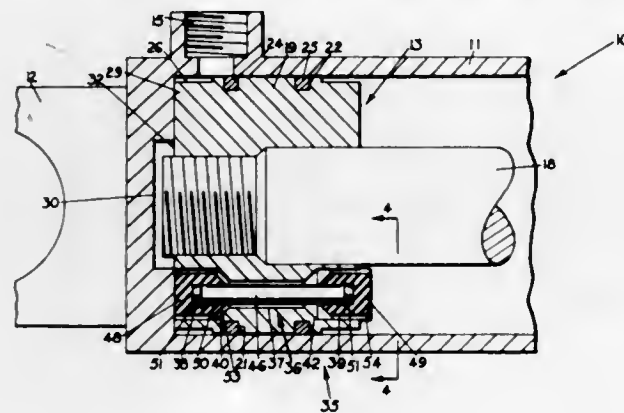
Int. Cl. F15b 15/22

U.S. Cl. 91-399

4 Claims

A fluid bypass valve for a hydraulic ram. A fluid bypass channel is provided through the piston of a ram, that includes enlarged recessed portions opening on either side of the

piston. A pair of elastomeric seals are reciprocally mounted in the recesses, secured to a pin that is slidable within the channel. Fluid pressure on either side of the piston acts upon the seal on that side of the piston forcing it into the recess to



seal the bypass channel, with the seal at the other end of the pin extending beyond the surface of the piston. When used to reduce shock at the end of a piston stroke the seals move to open up the bypass channel.

3,654,835

REGENERATION VALVE

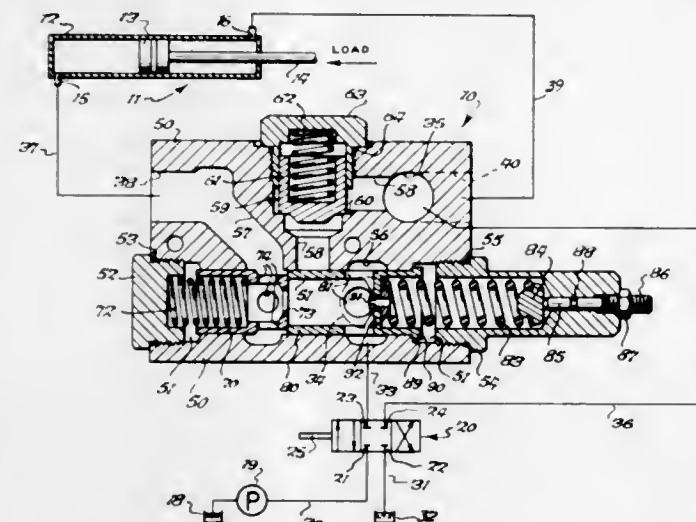
Donald A. Stevenpiper, Alden, N.Y., assignor to A-T-O Inc., Cleveland, Ohio

Filed May 25, 1970, Ser. No. 40,222

Int. Cl. F15b 11/08

U.S. Cl. 91-436

9 Claims



A valve comprising a housing having an elongated chamber therein and first, second and third passages intersecting the chamber for connecting the chamber to corresponding valve ports. A generally hollow cylindrical flow controlling member is biased by a spring in a position normally closing the third passage from the chamber, and a generally hollow cylindrical flow responsive member is biased in the chamber axially adjacent and normally abutting the flow controlling member. The flow controlling member and the flow responsive member together define a flow path between the first and second passages, and the flow responsive member is provided with a restricted passage which defines a constriction in the flow path. In an illustrative application, the second and third passages of the valve are connected to the piston and rod ends, respectively, of a hydraulic cylinder, and fluid is supplied to and exhausted from the valve in a direction and at a rate determined by a conventional directional control valve. The valve of the present invention functions to provide a direct flow path from the piston to the rod end of the hydraulic cylinder when the rate of fluid flow, as controlled externally by the direction control valve, reaches a predetermined magnitude.

3,654,836

FLUID MOTOR CONTROL SYSTEM

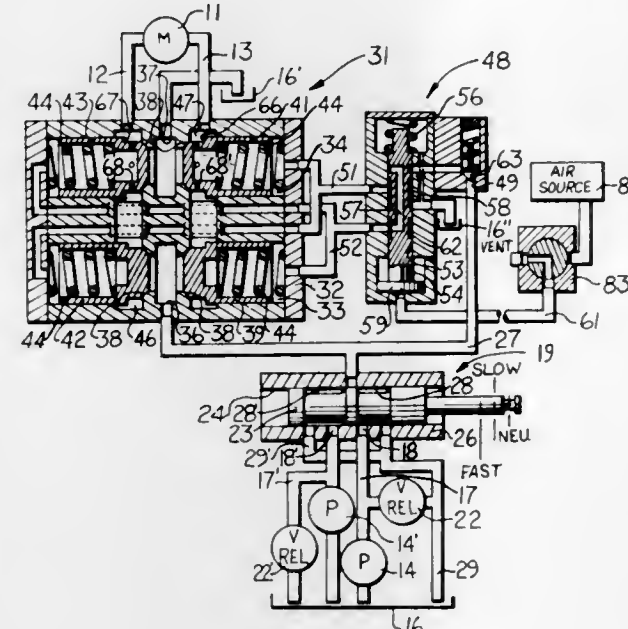
Lawrence F. Schexnayder, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed June 3, 1970, Ser. No. 42,934

Int. Cl. F15b 13/042

U.S. Cl. 91-448

3 Claims



An operator's actuator lever provides for starting, stopping and speed control of a fluid motor and a separate direction lever provides for selecting forward or reverse motor operation. The two levers are supported for pivoting motion along arcs which extend at right angles to each other and a stop carried on the actuator lever blocks shifting of the directional lever except when the motor is stopped thereby avoiding damage to mechanism driven by the motor from sudden reversal at high speeds. Through fluid lines, the levers condition a compact simplified valve assembly which directs driving fluid to a selected side of the motor at a selected rate and which also functions as a make-up valve to avoid cavitation and as a lock valve to resist motor movement by external load forces acting on the mechanism connected to the motor.

3,654,837

HYDRAULIC CONTROL SYSTEMS

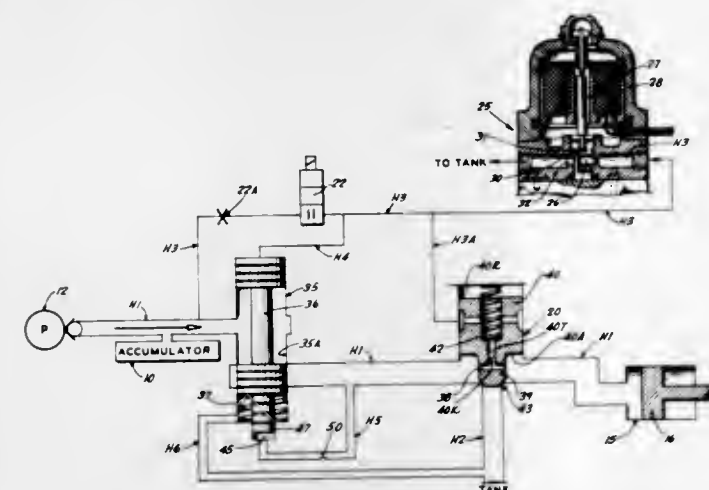
Kenneth K. Knapp, Columbus, Ohio, assignor to Abex Corporation, New York, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,533

Int. Cl. F15b 13/042

U.S. Cl. 91-461

3 Claims



A hydraulic system comprises a source of fluid under pressure, supplying working fluid through a supply line, and a

flow control valve of the spool type is interposed in the supply line between the source and the work performing means. The flow control valve is itself controlled by pressure in two pilot lines. One pilot line tends to open the valve, and pressure therein is controlled by a variable pressure control valve. The second pilot line is connected to the supply line downstream of the flow control valve so that pressure in the second pilot line is an analog of the working pressure. The analog pressure in the second pilot line shifts the spool to its closed position at a value determined by the pressure in the first pilot line.

In the specific embodiment, the effect of the second pilot line closing the valve is to prevent an accumulator, the source of pressure, from being dumped or vented to the tank at a time when a relief valve in the supply line is opened.

3,654,838

POWER HYDRAULIC CYLINDER

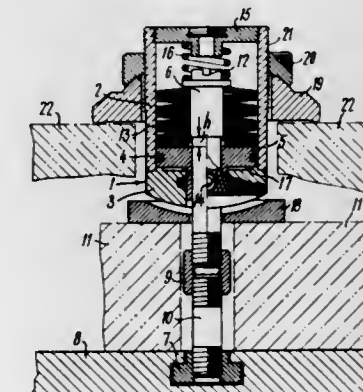
Izrail Yakovlevich Shimilevich, ulitsa Chernyshevskogo, 3/7 kv. 43, Moscow, U.S.S.R.

Filed Mar. 16, 1970, Ser. No. 19,845

Int. Cl. F15b 15/26

U.S. Cl. 92-24

3 Claims



A power hydraulic cylinder for fastening workpieces to be machined in which a piston and a rod of the cylinder are mounted so as to be capable of displacing relative to each other. The cylinder is provided with an accumulating spring which is acted upon by the piston and the rod under the action of the working liquid pressure, and which, while being deformed, provides for preservation of a constant clamping force and autonomous operation of the cylinder when the latter is disconnected from the pipe line supplying the high pressure working liquid.

3,654,839

PISTON AND ROD ASSEMBLY

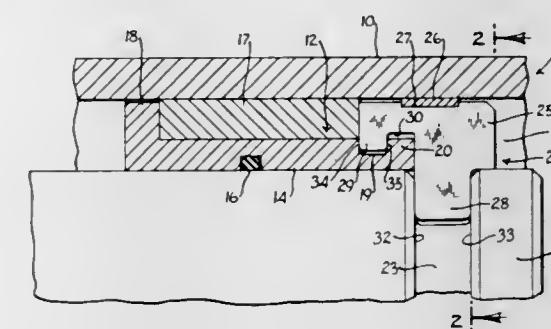
Glenn S. Thompson, Brown Deer, Wis., assignor to Koehring Company, Milwaukee, Wis.

Filed Mar. 6, 1970, Ser. No. 17,125

Int. Cl. F01b 13/04

U.S. Cl. 92-200

5 Claims



A single split ring retainer is cooperable with abutments on a rod encircled thereby and with other abutments on an an-

nular piston seated on the rod to establish an axial thrust transmitting connection between the piston and rod. The thrust transmitting connection is maintained effective only as long as the retainer is held against lateral displacement from the rod by the wall of the cylinder for which the assembly is intended.

3,654,840

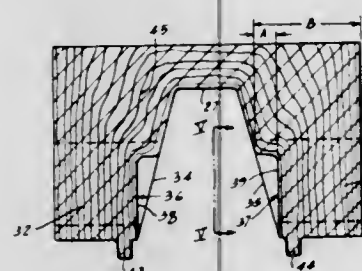
FORGED PISTON WITH CIRCUMFERENTIAL GRAIN FLOW AROUND UPPER REGION OF WRIST PIN BORE AND METHOD OF PRODUCING SAME

Robert L. Elliott, Pepper Pike Village, Ohio, assignor to TRW Inc., Cleveland, Ohio

Filed Sept. 8, 1970, Ser. No. 70,205
Int. Cl. F16j 1/00; B23p 15/10

U.S. Cl. 92-222

5 Claims



Heavy duty piston and method of making the same, the piston including confronting wrist pin boss portions, the walls defining the inner extremities of the boss portions being convergently inclined toward the head of the piston, and the boss portions having recessed portions formed therein of a contour such that the metal grain flow lines surrounding the recessed portions are at least partially circular in the area of the wrist pin holes which are formed in the bosses.

3,654,841

MACHINE FOR MAKING PLASTIC BAGS

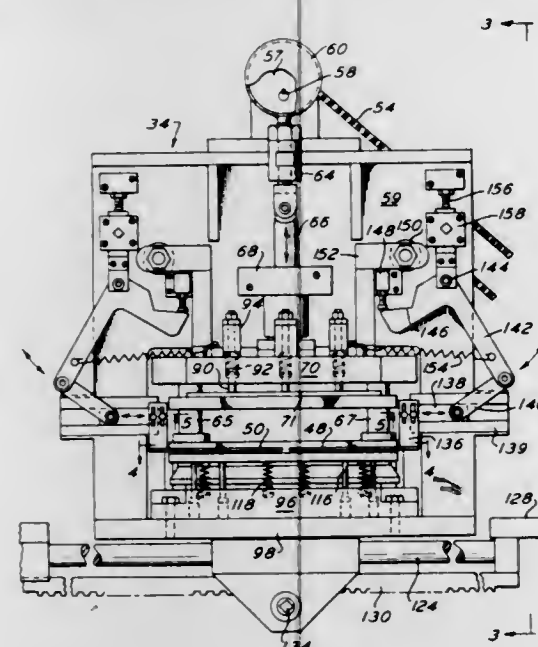
Francis A. Davis, Jr., Lansdale, Pa., assignor to Paramount Packaging Corporation, Chalfont, Pa.

Continuation-in-part of application Ser. No. 726,897, May 6, 1968, now Patent No. 3,534,665, dated Oct. 20, 1970. This application Oct. 20, 1970, Ser. No. 82,257

Int. Cl. B31b 1/14

U.S. Cl. 93-33 H

10 Claims



A machine for making open-gusset bags from thermoplastic material is disclosed. Reciprocating blades are disposed within the gusset to open the gusset after a generally

V-shaped notch is removed from the gusset and before the web is divided into bags by transverse welds.

3,654,842

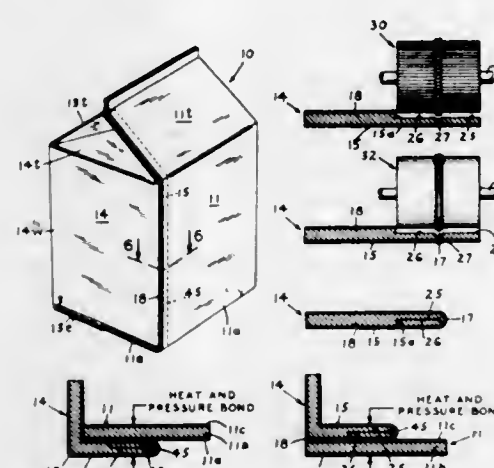
METHOD OF MAKING SIDE SEAM SEALED CONTAINER

William E. Schwenk, Norristown, Pa., assignor to International Paper Company, New York, N.Y.

Filed Oct. 13, 1969, Ser. No. 865,592
Int. Cl. B31b 1/22, 1/64; B31c 5/00

U.S. Cl. 93-94 PS

1 Claim



A container for packaging fluids is made from a scored folded blank of coated paperboard. The container is made resistant to leakage by preventing the uncoated edge of a side sealing panel from taking up fluid. This edge is protected by skiving a strip adjacent to the edge of the sealing panel, skiving a narrow region in the center of the skived face into a square-topped notch, scoring the center of the notch and folding the strip on the scoring so that the skived faces are in intimate contact with each other. If the skived strip becomes unfolded, it may be refolded by means of a rounded wedge. The container is then seam sealed.

3,654,843

AUTOMATIC FLASH CAMERA

Hiroshi Ueda, Nara, and Motonobu Matsuda, Sakai, both of Japan, assignors to Minolta Camera Kabushiki Kaisha

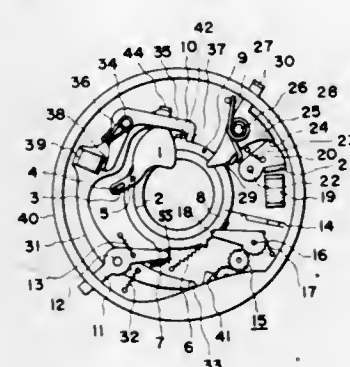
Filed Feb. 11, 1970, Ser. No. 10,424

Claims priority, application Japan, Feb. 24, 1969, 44/13707

Int. Cl. G03b 7/08, 7/16, 15/05

U.S. Cl. 95-10 CE

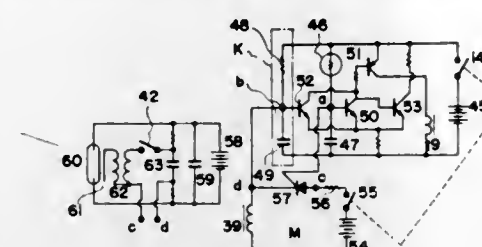
6 Claims



A mechanism for switching from daylight to flash photography and for automatically adjusting the diaphragm aperture to an opening determined by the focusing mechanism. Both the diaphragm aperture and focusing settings are obtained from respective rotating members with a lever riding on a cammed surface of the focusing means and a stop lever mechanism having an angular position determined by the

setting of the focusing mechanism. When the brightness of the object is lower than a threshold level, an electromagnet is

energized, they react with the magnetic field of the magnet to cause the drive ring to turn, to open and close the shutter blades. An electronic circuit provides the pulses which energize the coils to operate the shutter.



3,654,846

ELECTRO-MECHANICAL SHUTTER ARRAY

Robert E. Wernikoff, Belmont; David M. Perozek, Watertown, and Jana M. Roten, Brookline, all of Mass., assignors to Electronic Image Systems Corporation, Cambridge, Mass.

Filed Apr. 1, 1970, Ser. No. 24,715

Int. Cl. G03b 9/08

U.S. Cl. 95-53 E

13 Claims

actuated to cause the stop lever to engage a protrusion on the diaphragm adjustment means thereby stopping the aperture at a setting determined by the focus.

3,654,844

REFLEX CAMERA APPARATUS

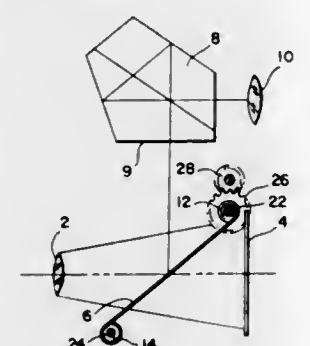
Robert W. Hampton, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed June 4, 1970, Ser. No. 43,525

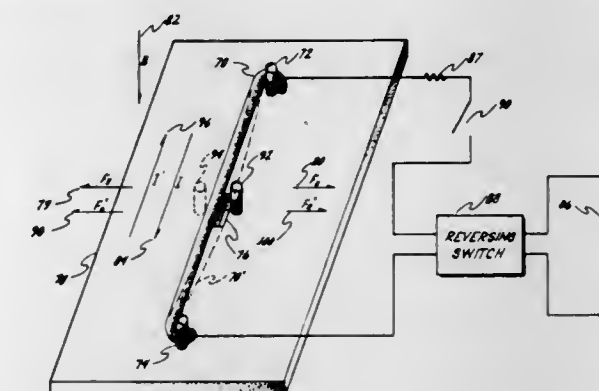
Int. Cl. G03b 19/12

U.S. Cl. 95-42

6 Claims



A flexible mirror in a reflex camera is normally positioned in the optical path of the camera lens to reflect a scene image to the viewfinder, and is displaced from the optical path to permit the scene image to be formed in the exposure plane by being moved into a non-viewing position when the shutter is released, wherein the mirror is in a rolled configuration.



An electromagnetically driven mechanical shutter including a conductor element in a magnetic field for enabling the element to be moved laterally between first and second predetermined positions as a function of the current through the element, means, associated with the element, for introducing current therethrough and stop means associated with the element and adjacent one or both of the positions for positively establishing one or both of the positions of the element. A plurality of such shutters may be included in a linear array which may be combined with a source of radiation to be gated by the shutters to expose a photosensitive material to be printed upon and further combined with photosensitive means for sensing radiation from an object carrying information to be read.

3,654,845

PHOTOGRAPHIC SHUTTER WITH ELECTRO-MAGNETIC DRIVE MEANS

Paul Fahlenberg, Baierbrunn, and Wilhelm Pross, Munich both of Germany, assignors to Compur-Werk Gesellschaft mit beschränkter Haftung & Co., Munich, Germany

Filed Mar. 30, 1970, Ser. No. 22,351

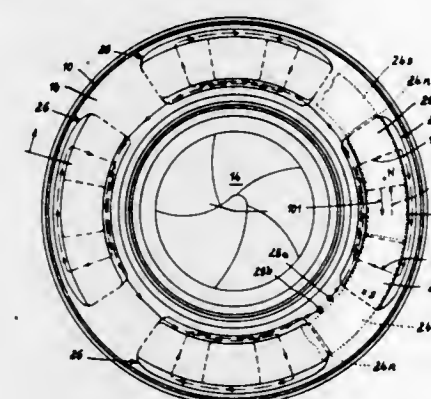
Claims priority, application Germany, Apr. 28, 1969, G 69

17 120.6

Int. Cl. G03b 9/08

U.S. Cl. 95-53 EB

10 Claims



A photographic shutter having a shutter blade drive ring provided with magnetic coils disposed in the magnetic field of a magnet which is fixed in the housing. When the coils are

3,654,847

ELECTRICALLY OPERATED SHUTTER MECHANISM FOR CAMERA

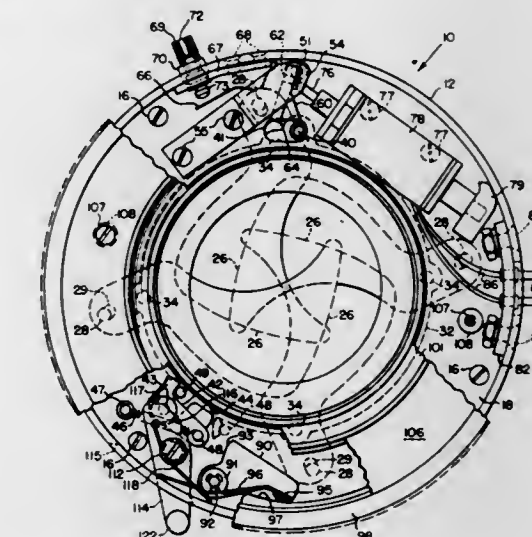
Joseph E. Schwartz, Irondequoit, N.Y., assignor to Victronic, Inc., Victor, N.Y.

Filed Apr. 21, 1970, Ser. No. 30,493

Int. Cl. G03b 9/24

U.S. Cl. 95-63

14 Claims



This mechanism comprises a housing containing overlapping shutter blades, which are pivoted between open and

closed positions by an oscillatable ring that is spring-loaded to a blade-closing position. The ring is connected by a flexible arm to the armature of a solenoid, which is mounted in the housing to be pulse energized momentarily to advance its armature in a direction to cause the flexible arm to rotate the ring to open the shutter blades. An adjustable aperture stop is engagable with a pin on the ring to limit the extent of its rotation and therefore the size of the shutter opening. Each time the solenoid is energized its armature advances far enough to close a switch for controlling a flash attachment. The blades can be held open for focusing by a cam latch which can be released manually or by operation of the solenoid.

3,654,848

SYSTEM FOR PROCESSING A STRIP OF PHOTOGRAPHIC MATERIAL

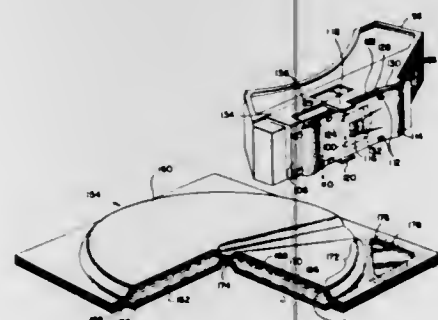
John R. Sharp, Squantum, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jan. 2, 1970, Ser. No. 209

Int. Cl. G03d 5/02

U.S. Cl. 95—89 R

23 Claims



Motion picture film processing system employing a dispensing container adapted to express processing fluid onto a strip of exposed film as the film is progressively drawn thereacross. A pair of sheet materials are bonded together to define a substantially flat circular cavity in which a processing fluid is initially stored. A bond is further formed between these materials extending radially of the cavity while a section of the peripheral bond adjacent thereto is weaker than the other sections of the peripheral bond. This weakened bond section is connected to the dispensing container. Thus, when a force applying member is rotated around this collapsible container in a circular path, the radially extending bond acts as a weir to resist movement of the fluid therein. The resulting hydraulic pressure ruptures the weakened bond section causing the fluid to be expelled therethrough into the dispensing container. This system can advantageously be incorporated into a compact, multipurpose, film handling cassette adapted to be mounted in both a camera and a projector and in which the collapsible container is positioned in operative relationship with a rotatably mounted section of the cassette's housing.

3,654,849

LIGHTING UNIT STRUCTURE AND ARRANGEMENT COMPRISING A PLURALITY OF SUCH STRUCTURES

Charles G. Shepherd, Oakville, Ontario, Canada, assignor to Wilson Lighting Limited, Toronto, Ontario, Canada

Filed Nov. 6, 1969, Ser. No. 874,140

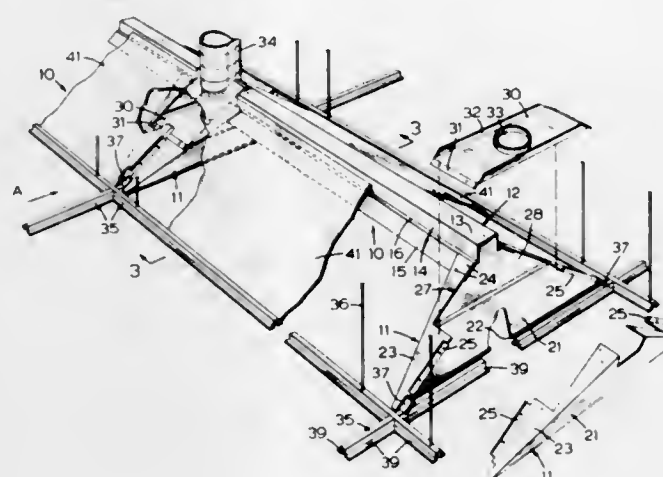
Int. Cl. F21s 3/14

U.S. Cl. 98—40 DL

7 Claims

An arrangement of adjacently disposed lighting unit structures in which in each structure a member comprising part of a lighting element rigidly interconnects spaced end walls, the lighting element including a fluorescent lighting lamp or

lamps which are supported by the member. Each end wall includes an inner wall portion together with side flange portions which project outwardly from the inner wall portion, the side flange portions of each end wall having outer edges which are secured in an air-tight manner to the outer edges of the side flange portions of the adjacent end wall of the adjacently disposed, lighting unit structure. An air chamber is



thus provided between these adjacent end walls, a ventilation air inlet to the air chamber being provided, and the inner wall portion of each end wall having a lower edge which is so disposed inwardly of the outer edges of the side flange portions of the end wall that a ventilation air outlet is thereby provided between the lower edge and the lower edge of the inner wall portion of the adjacent end wall of the adjacently disposed lighting unit structure.

3,654,850

VENT UNIT

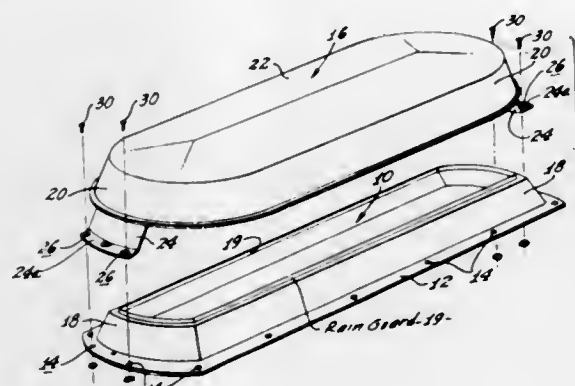
Clyde C. Berkus, Encino, Calif., assignor to Diversified Designs Services, Mission Hills, Calif., a part interest

Filed Aug. 26, 1970, Ser. No. 66,968

Int. Cl. F23i 17/02

U.S. Cl. 98—61

2 Claims



An improved vent unit assembly is provided for particular use in a mobile home gas refrigerator ventilation system, but which has general utility. The vent assembly of the invention is of a two-piece construction, each of the components of which may be nested with other like components for compact packaging when shipping, and for ease of dismantling when cleaning the ventilation system in which the assembly is incorporated.

3,654,851

DIFFUSERS FOR CONDITIONED AIR CONDUITS

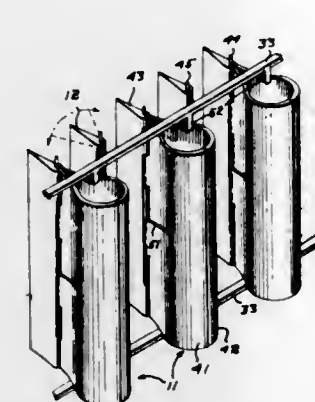
Mannie Bertin, 110 Revere Street, Portland, Maine, and Ira L. Bertin, Box 56, Limington, Maine

Filed Apr. 8, 1970, Ser. No. 26,613

Int. Cl. F24f 13/10

U.S. Cl. 98—110

21 Claims



Diffusers are disclosed that are for use in distributing conditioned air from a ceiling-supported conduit. Each diffuser has side frames and a hanger frame attachable to the ceiling, the conduit, or the framework of a suspended ceiling. Each side frame carries a plurality of damper-fin units, each unit having a pair of dampers and a fin mounted on a common pivot to be independently adjustable, the dampers being internally of the diffuser. The frames are shown as formed from extruded stock enabling side frames to be joined at right angles or in alignment and providing marginal portions establishing a panel-supporting frame.

3,654,852

APPARATUS AND METHOD FOR EXTRACTING THE ESSENCE FROM A FOOD SUBSTANCE BY CONTROLLED AGITATION

Jose Rosan, Sr., Rancho San Juan, San Juan Capistrano, Calif.

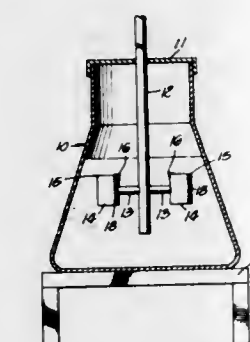
Continuation-in-part of application Ser. No. 675,736, Aug. 23, 1967, now abandoned. This application Apr. 22, 1970,

Ser. No. 30,771

Int. Cl. A47j 17/62

U.S. Cl. 99—323

9 Claims



This invention relates to an apparatus and method for extracting the essence from a food substance such as coffee by placing the food substance in a porous basket, bag or other porous container and agitating the same in an ambient liquid.

3,654,853

MAGNETIC ELECTRICAL CONNECTOR FOR A FOOD PREPARATION SYSTEM

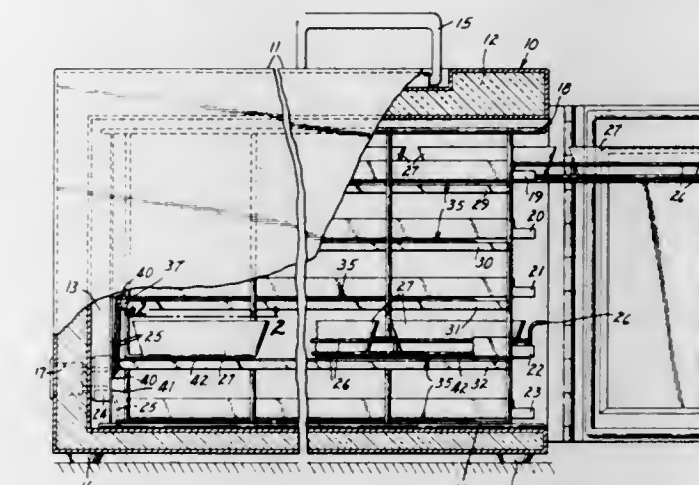
Richard E. Fayling, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 14, 1968, Ser. No. 775,625

Int. Cl. A23i 3/00

U.S. Cl. 99—359

2 Claims



This invention is directed to magnetic electric connectors. Each connector is composed of at least two units. The first unit is comprised of a nonconductive permanent magnet partially encased by electrically conductive contact plates bonded or form fitted to the magnet. The second unit may be of similar construction or conversely comprise a magnetically permeable electrically conductive platen of desired configuration. When connected, the contact plates of two similar units or the contact plates of one unit and the magnetically permeable platen contact each other and act as electrical conductors. The units are held together by magnetic attraction. The juncture of the plates or the platen and plates forms an electrically conductive connection so that current from a power source connected to one unit can pass to a load connected to the other unit. Either or both units can be integrally formed with electrical appliances, devices, etc.

3,654,854

REFUSE PACKER

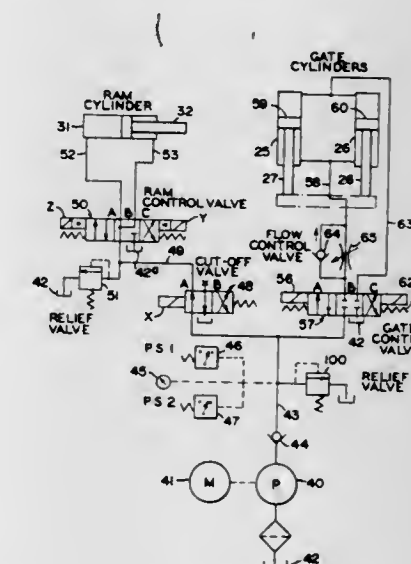
Kenneth L. Cook, Uhrichville, and Thomas R. McCartney, New Philadelphia, both of Ohio, assignors to Uhrden, Inc., Sugarcreek, Ohio

Filed Feb. 4, 1970, Ser. No. 8,551

Int. Cl. B30b 15/16

U.S. Cl. 100—52

6 Claims



An automatic cycling refuse packer and its method of operation are provided. The packer includes an elongate

receptacle with a discharge end and a gate operably attached to the discharge end for movement to and from closing and opening positions. A ram and hydraulic cylinder assembly is provided within the receptacle and controls axial movement of a ram plate extending transversely of the receptacle. Pressure actuated control means and an electrical control circuit control the automatic cycle of the ram for moving the ram plate towards the gate, raising the gate, moving the ram forwardly at a high pressure and ultimately retracting the ram and lowering the gate.

3,654,855

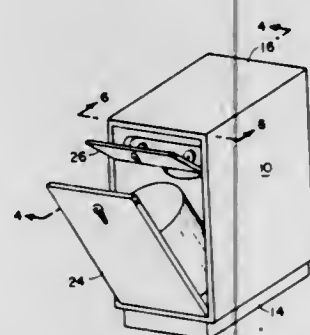
TRASH COMPACTION UNIT

Joseph F. Longo, New Canaan, Conn., assignor to International Dynetics Corporation, Norwalk, Conn.
Filed Dec. 29, 1969, Ser. No. 888,788

Int. Cl. B30b 15/06

U.S. Cl. 100-229

8 Claims



A household compaction unit having a receptacle for collection of trash and a hydraulic ram operated by household water supply to compact said garbage.

3,654,856

SCREEN PRINTING MACHINE FOR DECORATING MULTI-SIDED ARTICLES

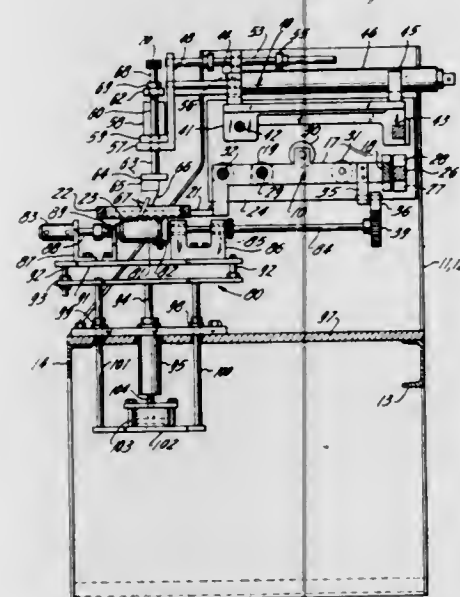
Thomas W. Olsen, Wayne, N.J., assignor to Modern Decorating Company, Passaic County, N.J.

Filed June 6, 1969, Ser. No. 831,068

Int. Cl. B41f 17/24; B41f 13/00

U.S. Cl. 101-40

11 Claims



A screen printing machine for decorating articles having a rectangular section whereby the three sides of such articles are decorated by printing in consecutive order in one setting. Mechanisms in the machine for indexing the articles to be decorated in register together with the printing screen which carries the indicia to be printed on the three of the four sides of the articles in side-by-side relationship.

3,654,857 PRINTER HAVING FEWER HAMMER ACTUATING MEANS THAN HAMMERS

Lynn W. Marsh, Jr., Melrose, Mass., assignor to Mohawk Data Sciences Corporation, East Herkimer, N.Y.

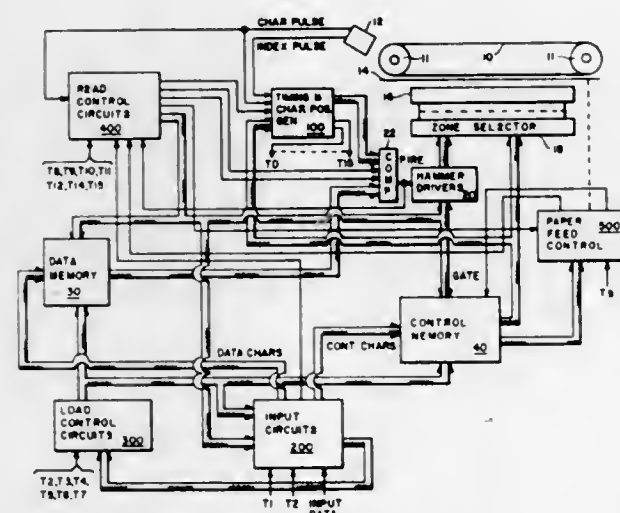
Original application Oct. 16, 1967, Ser. No. 675,483. Divided

and this application June 16, 1969, Ser. No. 843,271

Int. Cl. B41j 9/10

U.S. Cl. 101-93 C

3 Claims



A telecommunications line-printer employs a segmented line print control and data buffering system wherein the serially received data and format control characters are temporarily stored in data groups corresponding to segments of a print line. Each group is scanned during printout operations until all data in the group have been printed. A switching matrix connects hammer driver circuits only to hammers in the line segment being printed, thus conserving hardware by time-sharing the drivers. Each data group has a control character defining format control operations, which operations are executed before printing of the group begins. In ordinary circumstances, each format control character occurring at the input opens a new data group to receive the next data characters, regardless of whether the previous group was completely filled. However, in "short line" situations memory is conserved by not closing the group until it is full and the rate of extraction of data from the memory is increased by temporarily suspending the performance of format operations. This preserves real time printing while insuring against loss of input data. In short line situations, received format control characters are ignored by the format control means and instead trigger the printing of a special character indicating that a format operation was deleted.

3,654,858

TRAVELING CYLINDER PRINTER WITH TILTING CARRIAGE RETAINED IN A SLOT IN THE BASE

Lawrence B. Rick, 1131 Pfingsten Road, Glenview, Ill.

Filed Apr. 16, 1970, Ser. No. 29,066

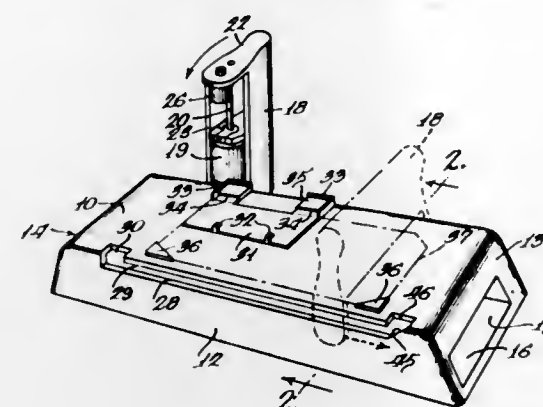
Int. Cl. B41f 3/20

U.S. Cl. 101-269

2 Claims

A device for imprinting documents by means of portable printing plates which can be of different sizes, and having a

manually movable carriage which is pivotally mounted for operative engagement over and for permitting it to be swung



away from the bed which supports the printing plate and the documents to be imprinted thereby.

3,654,859

INTERMITTENT MOTION DEVICE FOR HIGH-SPEED ROTATING PRINT DRUMS

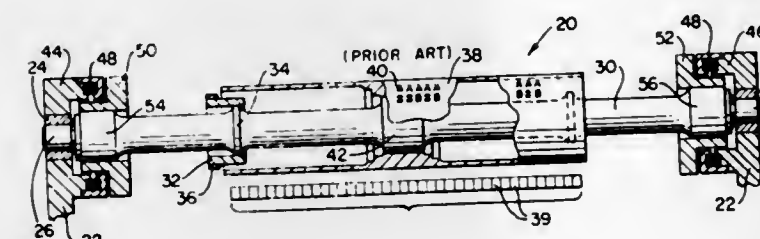
William S. Touchman, Kettering, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

Filed Jan. 19, 1970, Ser. No. 3,690

Int. Cl. B41j 1/34; B23p 11/02; E03b 1/00

U.S. Cl. 101-93 C

21 Claims



An intermittent, rotary motion mechanism which operates at the resonant frequency of its rotating system. The rotating system includes an input member, at least first and second output members (like first and second printer drums in a high-speed printer), and a resilient member (like a torsion shaft) interconnecting the first and second drums. An exciter (like a magnetic oscillator) is used to start the rotating system and keeping it oscillating at its resonant frequency to cause the first and second printer drums to dwell a predetermined number of times for each complete revolution of the input member as the input member is rotated at a constant velocity. The first printer drum experiences a dwell at a time when the second printer drum is rotating at substantially twice the velocity of the input member. More than two output members are utilized in other embodiments.

3,654,860

POSITION INDICATOR FOR A MULTIPLE CHARACTER MARKING DEVICE

Edwin W. Speicher, Pittsburgh, and Charles E. Fry, Jr., Coraopolis, both of Pa., assignors to M. E. Cunningham Company, Ingomar, Pa.

Original application Oct. 21, 1968, Ser. No. 749,112, now Patent No. 3,541,954, dated Nov. 24, 1970. Divided and this application Aug. 10, 1970, Ser. No. 62,299

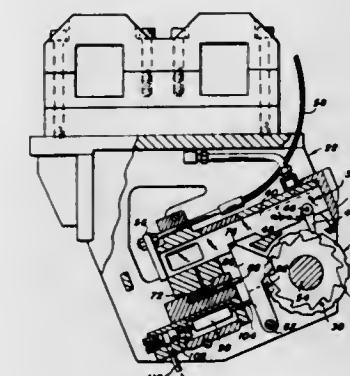
Int. Cl. B41j 1/54; B44b 5/00

U.S. Cl. 101-110

5 Claims

This disclosure relates to a marking device with a plurality of marking wheels for marking slabs, billets or the like with a group of characters. Each marking wheel has a plurality of characters on the outer periphery and character selection is accomplished by rotating the marking wheel until the desired

character on the wheel periphery is in marking position. Each wheel has a ratchet on one side that is actuated by a pawl connected to an actuating slide. The pawl on the actuating slide engages a segment of the ratchet and rotates the marking wheel for character selection. On the other side of the wheel there is a spiral cam with different preselected radial dimensions for each of the characters. A linear transducer is biased against the cam surface and generates a voltage signal that is proportional to the radial dimension of the



portion of the cam aligned with the transducer to thus indicate the particular character in the marking position. The voltage signal from the transducer is compared with fixed reference voltages and when the voltages match, a relay is actuated to indicate the character on the wheel in marking position. The circuitry includes a logic section to count sequentially so that a transducer malfunction at the steeply sloping portion of the cam between the longest and shortest dimension of the cam cannot produce an incorrect character indication.

3,654,861

SHEET CARRIER CYLINDER FOR USE IN A POLYCHROME ROTARY PRINTING PRESS ADAPTED FOR BOTH ONE-SIDE AND TWO-SIDE PRINTING

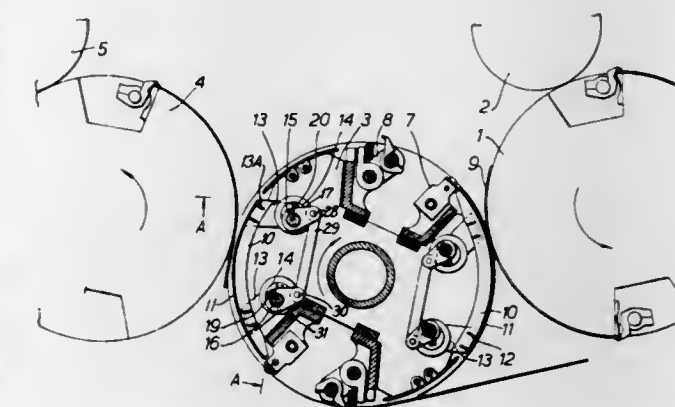
Otfried Rudolph, Dresden, and Wilfried Kuhn, Radebeul, both of Germany, assignors to Veb Druckmaschinenwerk Planeta, Radebeul, Germany

Filed Apr. 6, 1970, Ser. No. 25,765

Int. Cl. B41f 7/06, 21/06

U.S. Cl. 101-183

4 Claims



Sheet guide or transfer cylinder for use in a polychrome rotary printing machine adapted for one-side or two-side printing, in which the sheet printed in the first printing device is pressed against the solid jacketed surface of the printing cylinder at the point of tangent, i.e., at the point of contact between the sheet guide or transfer cylinder and the printing cylinder arranged before it, in the direction of movement, by directing and carrier elements arranged on the sheet guide or

transfer cylinder, and is securely carried thereby until the suction means disposed on the sheet guide or transfer cylinder grasp the end of the sheet and lift it off from the cylinder. The directing and carrier elements are arranged on the periphery of the sheet guide or transfer cylinder so as to be radially movable, whereby they permit crease-free transfer of the sheet to a further printing device.

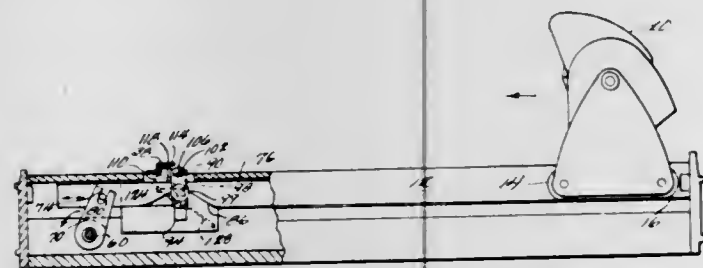
3,654,862

TRAVELING CYLINDER PRINTER WITH PLATEN MOVEMENT RESPONSIVE DOCUMENT CLAMPING MEANS

Heinz F. Strohschneider, Alexandria, Va., assignor to Farrington Business Machines Corporation, Springfield, Va.
Filed July 31, 1970, Ser. No. 59,950
Int. Cl. B41f 3/20, 1/28

U.S. Cl. 101-269

8 Claims



Document holding apparatus for use with an imprinting device having two document guides disposed on the print bed and two openings in the print bed under the document guides. Operative through the two openings are two document holding means which are lowered when the imprinting head is in its rest position. Actuator means are responsive to the imprinting head when it is in its rest position to lower the document holding means to thereby permit insertion of the document into the document guides. In response to the imprinting head being moved from its rest position, the actuator means raises the document holding means so that it presses the document against the document guides and stretches it therebetween to hold the document in position as the printing operation is effected.

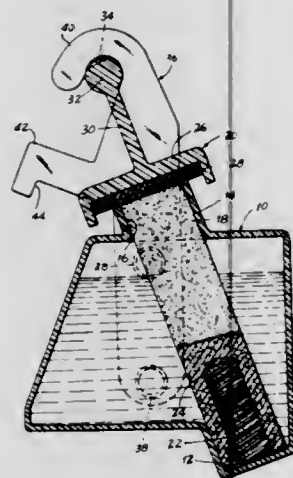
3,654,863

INKING CARTRIDGE FOR TAPE CODER

Forrest G. Hill, East St. Louis, and Samuel H. Kelly, Belleville, both of Ill., assignors to Marsh Stencil Machine Company, Belleville, Ill.
Filed July 11, 1969, Ser. No. 840,955
Int. Cl. B41f 31/02, 31/24

U.S. Cl. 101-335

7 Claims



The novel inking cartridge for tape coders disclosed includes a plastic bottle or container for ink. A felt wick-type

ink pad of rectangular configuration is disposed in the container and extends through a suitable opening provided in the latter, a cap for the container opening sealing the ink pad within the container against the action of spaced coil springs in the container biasing the ink pad towards and against the cap. Opposed brackets are secured to the sides of the container which engage the cap to maintain it in position, and are adapted to mount the cartridge upon a tape coder in operative position.

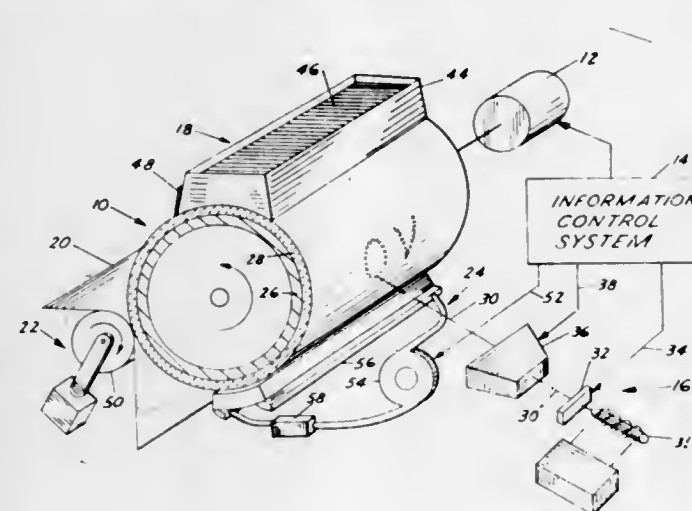
3,654,864

PRINTING EMPLOYING MATERIALS WITH VARIABLE VOLUME

Stanford R. Ovshinsky, Bloomfield Hills, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.
Filed Jan. 16, 1970, Ser. No. 3,453
Int. Cl. B41n 1/00

U.S. Cl. 101-426

6 Claims



A printing drum is coated with a glassy material which is switched between an amorphous state and a crystalline state by the application of a laser beam. The coating occupies less volume in the crystalline state than in the amorphous state. In one mode of operation the coating is initially in the amorphous condition and is selectively switched into the crystalline condition at discrete locations by writing thereon with a laser beam. The crystalline areas form depressions which are filled with ink. A doctor blade cleans the surface of the coating leaving ink in the depressions for printing. In another mode of operation the coating is initially in a crystalline or more ordered condition and the laser beam switches it to an amorphous or disordered condition thereby raising the surface of the coating at the points where the laser beam strikes the coating. A pressure sensitive paper is rolled against the coating and an image appears on the paper corresponding to the pattern of peaks formed on the coating. The depressions and peaks on the coating are erased by reapplication of the laser at a different energy level.

3,654,865

METHOD FOR FORMING DYE IMAGE USING AN ELECTROPHOTOGRAPHIC DEVELOPER CONTAINING A GELATIN TONER

Yasuo Tamai, Asaka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Feb. 5, 1970, Ser. No. 9,077
Claims priority, application Japan, Feb. 5, 1969, 44/8518
Int. Cl. B41m 5/06

U.S. Cl. 101-463

3 Claims

A color printing process which comprises the steps of (1) processing with an acid an electrophotographic sensitive layer of a photoconductor mainly consisting of photoconductive zinc oxide, the layer having a gelatin image prepared by forming an electrostatic latent image on the layer and then converting the latent image into the gelatin layer by processing with an electrophotographic developer containing

fine particles of gelatin, whereby the zinc oxide contained in the electrophotographic sensitive layer is removed, (2) bringing the gelatin layer into contact with a solution of a dye in a solvent mainly consisting of water to provide the dye to the gelatin image, (3) rinsing the layer with acid water to remove the excessive solution of the dye wetting the gelatin image, whereby the dye is once insolubilized, and (4) bringing the dyed gelatin image into contact with a layer capable of being readily dyed by the dye to transfer the dye onto the layer.

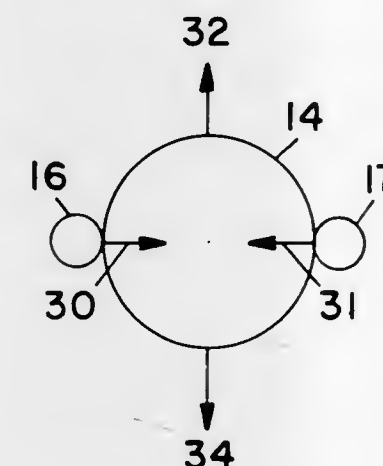
3,654,866

MACH EFFECT IN PRESPLITTING

Fred A. Fritz, Hockessin, Del., assignor to Hercules Incorporated, Wilmington, Del.
Filed June 18, 1970, Ser. No. 47,507
Int. Cl. F42d 1/04, 3/04

U.S. Cl. 102-23

10 Claims



An improved method of presplitting is provided in which a high concentration of energy released upon detonation of a blasting charge in a blasting hole is focused along the desired presplit line. The focusing of the energy of detonation is achieved employing blasting charges having a configuration capable of producing a Mach Effect. Positioning of the blasting charges in the blasting holes permits the concentration of energy to be focused along the desired presplit line.

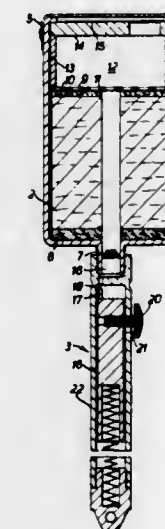
3,654,867

PYROTECHNIC DEVICES

Dudley Charles Murray, Homington, near Salisbury, England, assignor to Pains-Wessex Limited, Salisbury, England
Filed May 19, 1969, Ser. No. 825,794
Claims priority, application Great Britain, July 2, 1968, 31,598/68
Int. Cl. C06d 1/10

U.S. Cl. 102-37.4

9 Claims



A signal device comprising signal composition which is housed within a casing and which remains therein during

combustion and a firing device which releasably engages the casing and which can be hand-held during the combustion of the composition.

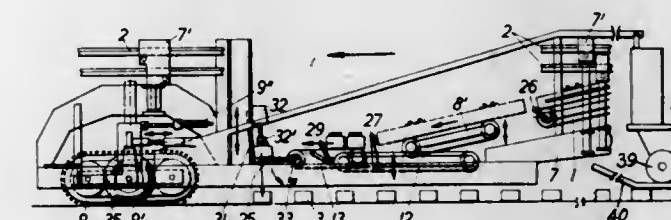
3,654,868

MOBILE TRACK MAINTENANCE APPARATUS

Franz Plasser, and Josef Theurer, both of Johannesgasse 3, 1010 Vienna, Austria
Filed Oct. 7, 1969, Ser. No. 864,384
Claims priority, application Austria, Oct. 16, 1968, 10089/68
Int. Cl. E01b 37/00

U.S. Cl. 104-2

12 Claims



In a mobile track laying apparatus, the forward end of an overhanging portion of a support frame is supported on a full-track running gear extending in the direction of track elongation. The support frame bridges the location where the new ties are laid and supports a plurality of mechanisms for transporting the new ties to this location.

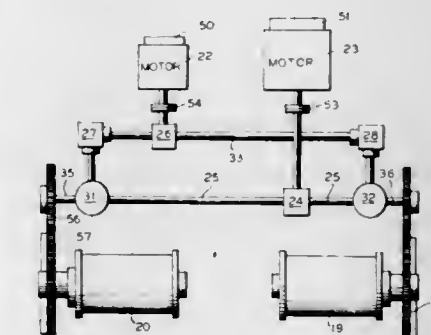
3,654,869

SHIP TRANSFER SYSTEM

Alexander Lehrer, Alexandria, Va., assignor to Litten Systems, Inc., College Park, Md.
Filed July 27, 1970, Ser. No. 58,455
Int. Cl. B65g 67/58

U.S. Cl. 104-114

7 Claims



A less complex and more easily maintainable ship transfer system employing a pair of electrical motors, a double drum winch, and a direct mechanical gearing system interconnecting one of the motors to oppositely drive the drums, and the other motor to drive the drums in the same direction.

3,654,870

DAMPENED RAILWAY TRUCK

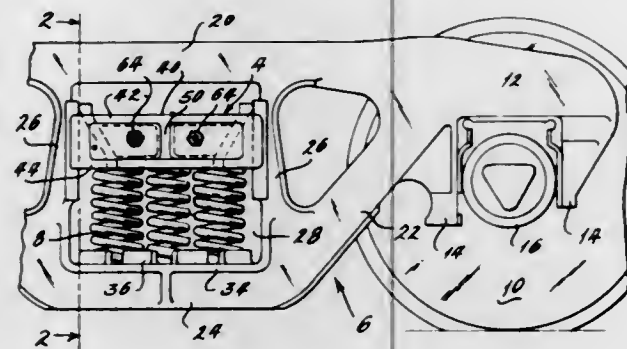
George O. Wallace, St. Louis, Mo., assignor to Diversified Industries, Inc., St. Louis, Mo.
Filed Apr. 29, 1970, Ser. No. 32,813
Int. Cl. B61f 5/06, 5/12, 5/50

U.S. Cl. 105-197 DB

18 Claims

A railway truck dampened bolster which at its ends is provided with laterally opening sockets into which replaceable bearing blocks are fitted. These bearing blocks bear against wedge-shaped friction blocks which snub the movement of the bolster relative to the side frames in which it is mounted. The bearing blocks may be spring biased outwardly so that they are always firmly engaged with the wedge-shaped fric-

tion blocks, thus enabling the friction blocks to provide the snubbing effect even at light car loads. The blocks are easily



replaced when the friction surfaces on them wear out, and this avoids the expense of replacing an entire bolster casting.

3,654,871

DAMPENED RAILWAY TRUCK

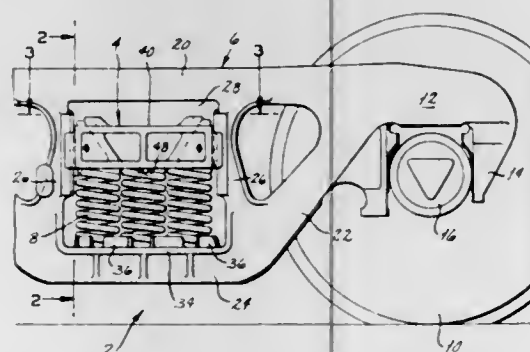
George O. Wallace, St. Louis, Mo., assignor to Scullin Steel Company, St. Louis, Mo.

Filed May 4, 1970, Ser. No. 34,326

Int. Cl. B61f 5/06, 5/12, 5/50

U.S. Cl. 105-197 DB

12 Claims



A railway truck having a dampened bolster which at its ends is provided with triangular pockets into which wedge-shaped friction blocks fit. The inner end of each pocket is defined by an inclined backing wall which connects the top and bottom walls at the bolster end. A hardened wear plate is positioned against the backing wall and has a tab at its lower end which turns inwardly along the bottom wall of the bolster end. The tab is fastened to the bottom wall to secure the wear plate in place.

3,654,872

RAILWAY HOPPER CAR PIVOTED CLOSURE CHUTE

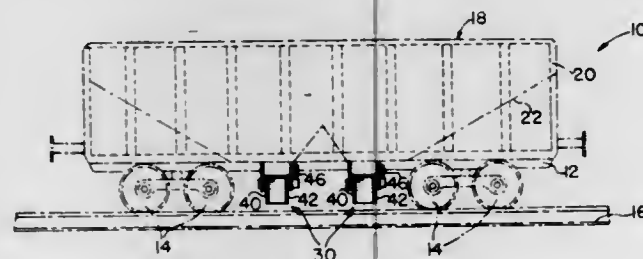
Joseph G. Fearon, Libby, Mont., assignor to Morrison-Knudsen Company, Inc., Boise, Idaho

Filed May 11, 1970, Ser. No. 35,977

Int. Cl. B61d 7/06, 7/18, 7/26

U.S. Cl. 105-239

3 Claims



Ballast is distributed in controlled amounts between or outside parallel rails of a railroad from a railway ballast or hopper car having discharge openings in the lower end of

each of the hoppers. Discharge control members, in their normal position, cover each of the discharge openings of the ballast car hoppers. The discharge control members are pivotally supported from the car body for rotation about pivot points directly above each rail. When the discharge control members are rotated in one direction ballast is distributed between the rails. When rotated in the opposite direction ballast is discharged outside the rails. The amount of ballast discharged is controlled by the degree of rotation of the discharge control members.

3,654,873

TANDEM TOGGLE HOPPER DOOR OPERATING MECHANISMS

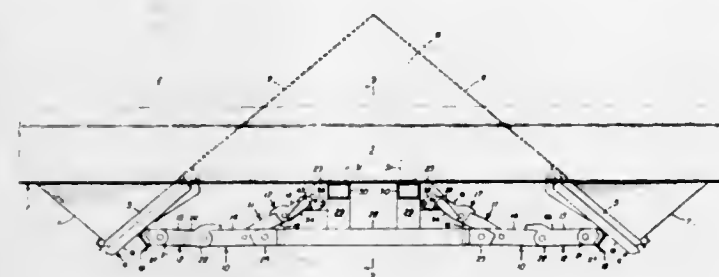
Walter L. Floehr, Toledo, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Apr. 20, 1970, Ser. No. 30,116

Int. Cl. B61d 7/18, 7/26; E05f 11/28

U.S. Cl. 105-248

8 Claims



Mechanism for operating a full width drop bottom door of a sill-less hopper car for quick dumping of bulk lading by swinging the door in opening beyond the vertical to a positively stopped open position. The mechanism has as a drive linkage a toggle connected between the door and the car body and a lever fulcrumed on the body and so linked to an adjoining arm of the toggle as to swing through a lesser arc than the door. In closed position the toggle and the lever and its link are both substantially fully extended and over-center for providing a double tandem lock against opening of the door and a locking device connected to an automatically releasing capstan on the operating shaft of the lever enables the operating mechanism to be locked in either open or closed position.

3,654,874

PALLET CONSTRUCTIONS

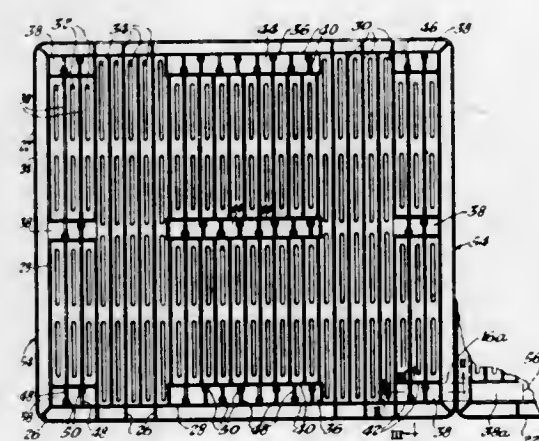
Harvey G. Skinner, Ligonier, Pa., assignor to Vulcan, Inc., Latrobe, Pa.

Filed Apr. 28, 1970, Ser. No. 32,544

Int. Cl. B65d 19/18

U.S. Cl. 108-51

15 Claims



A pallet construction comprising a prefabricated pallet component having transverse stiffening means, a plurality of

longitudinally extending support member engagement means formed on said pallet component, each of said engagement means including a pair of spaced extensions disposed for substantially flush engagement with an associated support member, support members inserted between each pair of said extensions, and fastening means for securing said pallet component to each of said support members at said engagement means.

3,654,875

PALLET FOR HANDLING SHIPPING DRUMS

Albam M. Vik, New Brighton, Minn., assignor to Inventors Engineering Inc., Fridley, Minn.

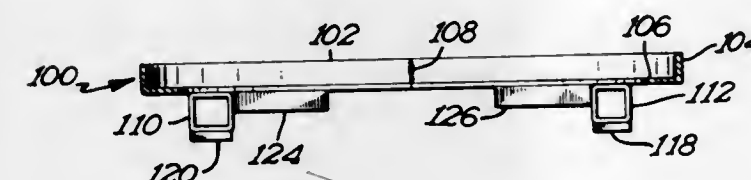
Continuation of application Ser. No. 698,898, Jan. 18, 1968, now abandoned, which is a continuation-in-part of

application Ser. No. 673,609, Oct. 9, 1967, now Patent No. 3,521,771. This application Oct. 28, 1969, Ser. No. 871,983

Int. Cl. B65d 19/44

U.S. Cl. 108-51

4 Claims



A pallet is described which is to be used for handling and transporting shipping drums, such as fiber drums, steel drums or barrels by fastening the pallet to the base of the drum. The pallet is of just sufficient size to accommodate a single drum. The drum is filled and transported while maintaining it secured to the pallet at all times. The pallet includes a circular extension, comprising a ring of strip material adapted to fit telescopically over the lower end of the drum and a plurality of horizontally disposed legs fastened rigidly to the ring.

3,654,876

PALLET

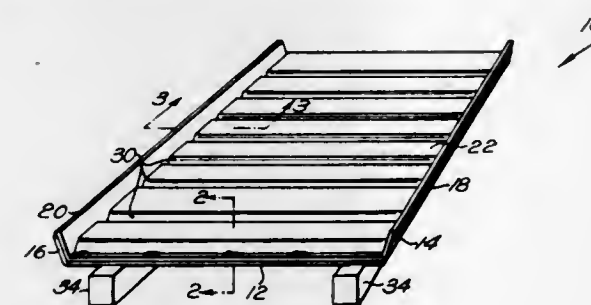
Horst J. Achs, Prospect Heights, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 11, 1969, Ser. No. 884,293

Int. Cl. B65d 19/18

U.S. Cl. 108-51

2 Claims



A pallet for supporting material thereon includes a base having a substantially flat portion of a rectangular shape lying in a plane. The pallet has two opposing sides extending in one direction from the plane and forming flange portions for retaining the material supported by the pallet. The pallet also includes a reinforcing member secured to the base and which strengthens the pallet and provides a surface for supporting the material carried by the pallet.

3,654,877

KNOCKDOWN WAREHOUSE PALLET

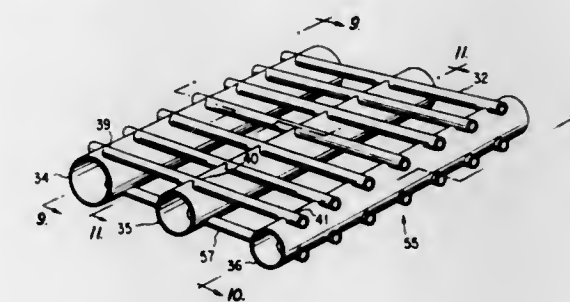
Lawrence G. Barrett, Lynchburg, Va., assignor to The American Novawood Corporation, Lynchburg, Va.

Filed May 16, 1969, Ser. No. 825,310

Int. Cl. B65d 19/18

U.S. Cl. 108-56

7 Claims



A knockdown warehousing pallet having a plurality of tubular base members of progressive cross-sectional dimensions suitable for nesting one within the other in the knockdown condition and a plurality of load supporting tubular members which extend in the assembled pallet condition normally across and which are partially received within the base members. The load supporting members and base members may be attached to each other by dowel pins, and all the parts may be inserted in the largest tubular member, which may have end caps, for storage or easy transport.

3,654,878

DISC PACK STORAGE APPARATUS

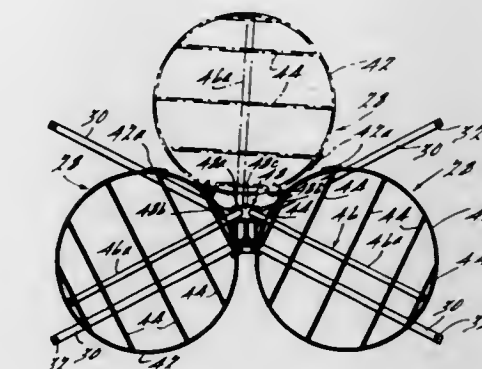
Boris M. Osojnak, Birmingham, Mich., assignor to Engineered Data Products, Inc., Ferndale, Mich.

Filed Dec. 29, 1969, Ser. No. 888,309

Int. Cl. A47b 11/00

U.S. Cl. 108-103

8 Claims



A storage apparatus, for computer disc packs or the like, comprising a central upstanding post and two vertical rows of trays mounted on the post for receiving and storing the disc packs. The two tray rows are pivotally mounted on the post with the trays of one row all mounted on essentially a common vertical pivot axis and the trays of the other row all mounted on another essentially common vertical pivot axis spaced circumferentially on the post from the first axis. Each tray is individually pivoted on the post so that a selected tray from either row may be pivoted into the circumferential space between the rows to provide access to the disc pack on that tray. A gang cord interconnects the trays of each row and operates to permit displacement of only one tray at a time from that row into the circumferential access space with the displaced tray being automatically returned to its stored position in the row in response to movement of another tray of that row into the circumferential access space.

3,654,879

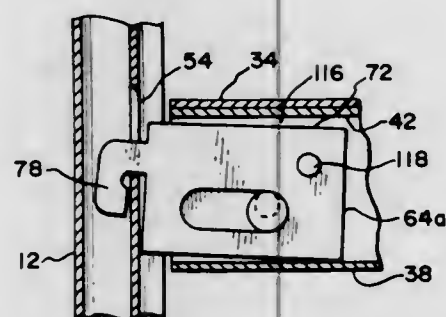
TWIST CAM LOCK FOR KNOCKDOWN SHELVE

Irwin J. Ferdinand, Glencoe, and Irwin R. Kulbersh, Morton Grove, both of Ill., assignors to The Hirsh Company, Skokie, Ill.

Filed Apr. 16, 1970, Ser. No. 29,029
Int. Cl. A47b 47/02

U.S. Cl. 108—110

2 Claims



Knockdown steel shelving is disclosed wherein each corner of a shelf is provided with a slidably mounted hook member that extends into the cut-out corner of the shelf. The hook members are guided within the box flange for retraction to clear an upright support member for level adjustment and for extension to a position for engagement within an opening in an upright support member and then tightened to a retracted position by a cam whereby the shelf corner and support are brought into rigid, weight-supporting relationship. The cam operates within a slot in the hook member and can have one of several locked positions including a position wherein the cam is rotated so that the lobe retracts the hook member into a locked position with a bottom edge of the hook member against the bottom wall of the box flange or with a top edge of the hook member against the top wall of the box flange. In either position, the cam may lock at a side-dead-center position in relation to the other parts. The hook attaching means and cam are essentially concealed, easily installed and adapted for use with various designs of shelves and corner supports. Other embodiments are disclosed.

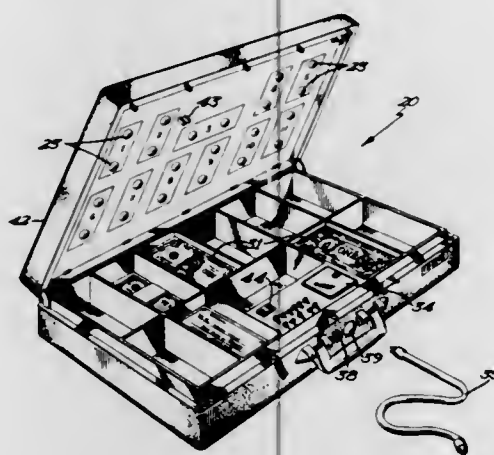
3,654,880
PORTABLE SAFE

Leroy R. Schesso, 821 Minnesota Avenue, St. Paul, Minn.

Filed Nov. 10, 1970, Ser. No. 88,326
Int. Cl. E05g 3/00

U.S. Cl. 109—25

7 Claims



A depository for the storage and/or transport of negotiable papers, including currency, is disclosed, which includes a means for punching at least one hole through the papers by an electrically activated punch in the event the container for the paper is forced open by a thief.

3,654,881

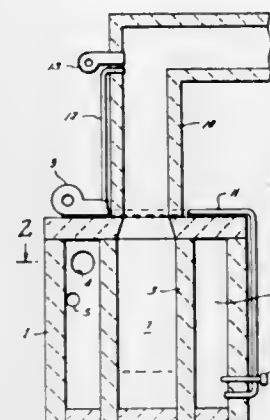
CYCLONE INCINERATOR

Harry L. Bowles, Houston, Tex.

Filed May 4, 1970, Ser. No. 34,274
Int. Cl. F23g 5/12

U.S. Cl. 110—8 C

5 Claims



An incinerator for combustion of wastes fed from a cyclone waste deposit, having narrow chambers through which the flue stream passes, provided maximum scrubbing action and providing complete heat retention in the chambers to complete oxidation of particulate matter before the flue stream enters the stack for emission.

3,654,882

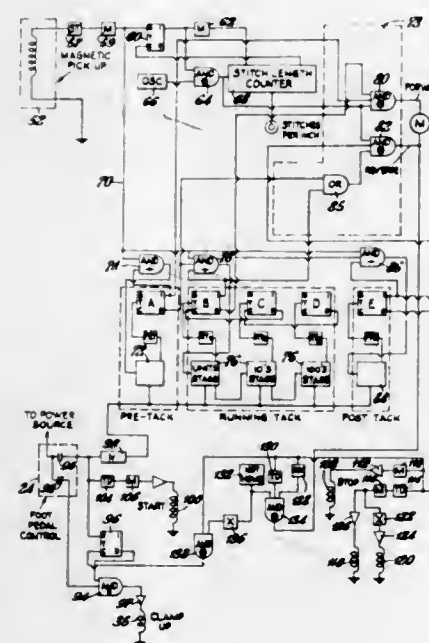
AUTOMATIC CONTROL SYSTEM FOR SEWING MACHINES

David H. Kamena, Parsippany, N.J., assignor to Pneumatic Systems Inc., New York, N.Y.

Filed Aug. 11, 1969, Ser. No. 848,998
Int. Cl. D05b 19/00

U.S. Cl. 112—121.11

9 Claims



An automated control system for a sewing machine which includes a stepping motor for pulsatingly feeding the work material into the path of the sewing head needle assembly and control means for driving said stepping motor in response to programmed instructions preset by the operator at the outset of the sewing operation. The control means preferably comprises digital logic circuitry which generates control pulses for the stepping motor to govern stitches per inch and back tack.

3,654,883

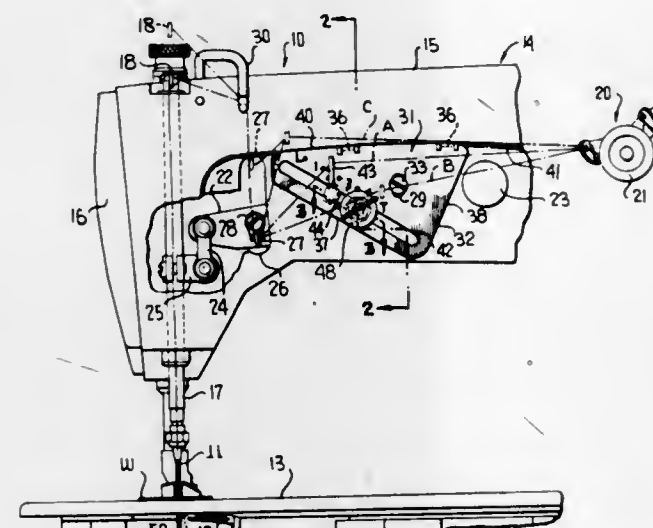
THREAD CONTROL MECHANISM FOR SEWING MACHINES

George M. Reimer, Elmwood Park, and Frederick M. Klose, Chicago, both of Ill., assignors to Union Special Machine Company, Chicago, Ill.

Filed May 14, 1970, Ser. No. 37,108
Int. Cl. D05b 49/00

U.S. Cl. 112—245

9 Claims



This disclosure relates to a thread control mechanism for sewing machines which will permit the machine operator to adjust the tightness of the stitch in accordance with the requirements of the particular work being sewn. The needle thread control mechanism includes a bracket plate which is conveniently mountable on a conventional sewing machine frame and which has mounted thereon an eyelet assembly for movement along a predetermined path and selected positioning thereof along such path so as to vary the extent of a thread loop which is formed between a thread tensioning device and the needle lever thread eyelet of the sewing machine, thereby controlling the tightness of the stitch being formed.

3,654,884

TUFTED PILE FABRIC

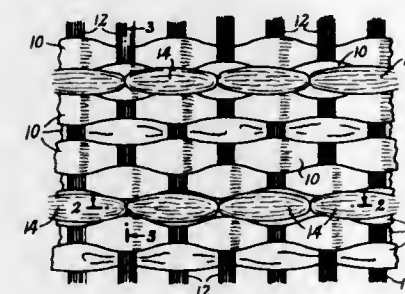
Henry D. Dawbarn, Waynesboro, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Continuation-in-part of application Ser. No. 487,402, Sept. 15, 1965, now abandoned, and 840,594, June 30, 1969, now abandoned, said Ser. No. 840,594 is a continuation of Ser. No. 487,402. This application Dec. 11, 1969, Ser. No. 884,083

Int. Cl. D05c 17/02

U.S. Cl. 112—410

6 Claims



A primary backing adapted to be used in making tufted pile fabrics and woven from polyolefin yarns, the warp yarns being closely spaced flat ribbon monofilaments of substantially rectangular cross-section and the weft yarns being widely spaced relatively round multifilament or monofilament yarns. The warp yarns are crowded together to give a

spacing index of 1.3 to 1.6. The weft or filling yarns are preferably untwisted multifilament yarns with a spacing index of 0.15 to 0.45. The tufted backing is also claimed.

3,654,885

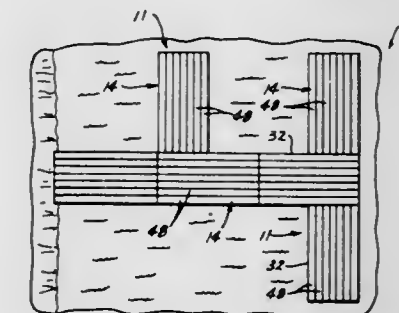
FLOATING DOCK SECTION

Byron L. Godbersen, Ida Grove, Iowa

Filed Apr. 6, 1970, Ser. No. 25,810
Int. Cl. B63b 35/00

U.S. Cl. 114—0.5 F

10 Claims



This invention relates to a floating dock section which is rigidly securable to adjacent sections. A first member extends centrally and longitudinally of the dock section and terminates proximate opposite ends of the dock section. Second members mate with the ends of the first members of adjacent sections and secure adjacent sections together. The entire dock is rigid in the water and very stable laterally as the first members distribute torque over the entire dock.

3,654,886

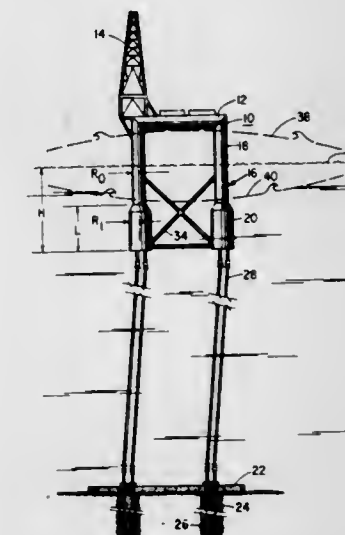
TETHERED PLATFORM FLOTATION

Daniel Silverman, Tulsa, Okla., assignor to Amoco Production Company, Tulsa, Okla.

Filed June 24, 1970, Ser. No. 49,417
Int. Cl. B63b 35/00, 35/44

U.S. Cl. 114—0.5 D

18 Claims



This invention relates to a structure floating on a body of water. The structure comprises a working deck with buoyancy means supporting the deck. The buoyancy means comprises one or more slender vertical floats which have a unique structure having two parts. The first part comprises a straight, vertical, prismatic volume which runs the entire vertical length of the vertical floats. The volume of the prismatic portion comprises between about 40 and 80 percent of the total displacement. There is a second or auxiliary volume of displacement which is submerged below the trough up the maximum wave to be expected. The relative buoyancy of the two parts can be adjusted so as to minimize the vertical forces on the structure due to passing waves. This invention

is concerned with additional means to vary the flotation of the prismatic part and to control the water plane area of the floats so as to reach smaller minimum variations of vertical forces on the structure.

3,654,887

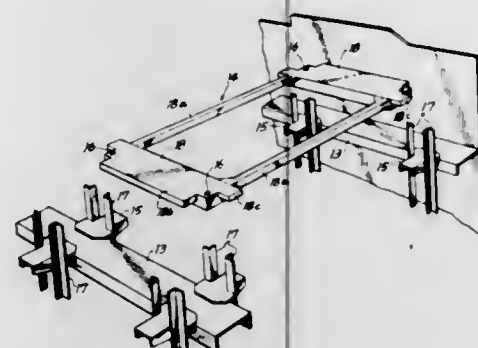
CONTAINER SUPPORTING APPARATUS FOR CONTAINER SHIP

Akira Iwami, Tokyo, Japan, assignor to Mitsui Shipbuilding and Engineering Co. Ltd., Tsukiji, Chuoku, Tokyo, Japan
Filed Mar. 18, 1970, Ser. No. 20,632

Claims priority, application Japan, Mar. 19, 1969, 44/21147
Int. Cl. B63b 25/22

U.S. Cl. 114-72

3 Claims



Apparatus in a container ship to permit more than the usual limit of six containers to be stacked within each container guideway comprising a removable supporting member operable to span across the guideway and to be supported by supporting structure of the ship outside of the guideway and independently of the angular container guides which define the guideway.

3,654,888

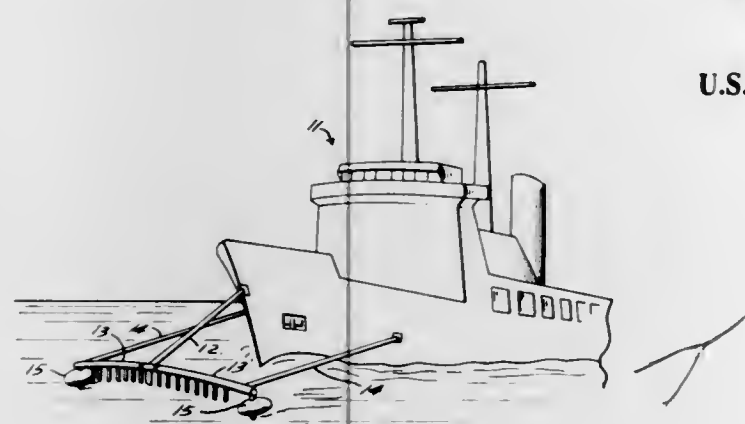
MARINE MINE SELF PROTECTION SYSTEM
Roddie F. Bailey, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 3, 1970, Ser. No. 94,655

Int. Cl. B63g 9/00

U.S. Cl. 114-240 R

10 Claims



This invention discloses a guard to protect a ship against floating mines. The invention comprises a rake-like device held in front of the ship. The device is supported by hydrofoils mounted thereon when the ship is underway at moderate speeds and by float means when the ship is at low speeds or stationary. The mine engaging members depend downwardly into the water in front of the ship from a horizontal support member. The mine engaging members and hydrofoil members pivot to produce minimum drag during turning maneuvers.

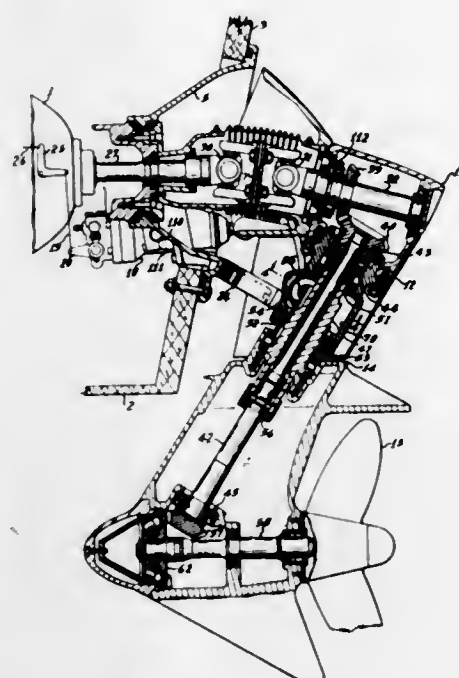
3,654,889
HYDRAULIC SYSTEM FOR A BOAT DRIVE
Karl Abdon Bergstedt, Goteborg, Sweden, assignor to AB Volvo Penta, Gothenburg, Sweden

Filed Sept. 28, 1970, Ser. No. 75,909

Int. Cl. B63h 25/42

U.S. Cl. 115-35

8 Claims



A hydraulic system for steering and tilting an outboard drive unit for a boat including a pump, a steering sub-system including a double acting cylinder and piston connected to provide steering movement to a steerable part of the unit and provided with hydraulic liquid from the pump, and a trimming and tilting sub-system including a cylinder and piston assembly provided with liquid from the steering sub-system. Manual valves control tilting and trim positioning of the unit, and steering, while pressure relief valves are arranged to prevent damage to the unit and system upon excess steering control, striking of external objects, and the like.

3,654,890

TABLET DISPENSER

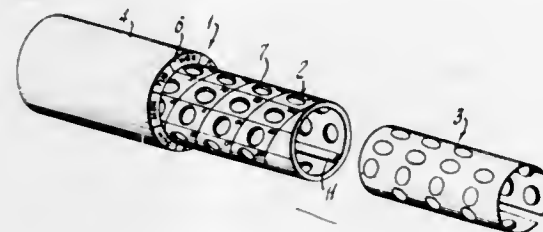
William R. Rigney, Watchung; Robert A. Luciano, Warren, and Dirk Tump, Lebanon, all of N.J., assignors to Ortho Pharmaceutical Corporation

Filed Sept. 22, 1970, Ser. No. 74,438

Int. Cl. G09f 9/00

U.S. Cl. 116-121

3 Claims



A tablet dispenser is provided in which both the calendar element and tablet element are hollow cylinders. The tablet element is both slidably and rotatably mounted within the calendar element. Indicia identifying days of the week are disposed on the surface of the calendar element adjacent its interface with the tablet element. The tablets are aligned in a series of axially oriented columns disposed circumferentially around the tablet element. In use, the tablet element is rotated with respect to the calendar element to align the first tablet to be taken with the indicia representing the day on

which it is to be taken, thus automatically aligning each column of tablets with the indicia representing the day of the week on which they are to be taken. The tablet element is moved in and out of the calendar element to expose the next tablet to be taken on the day in question. The tablet is pushed inward through the tablet element into the hollow center of the same and into the patient's hand.

3,654,891

GAUGE CYLINDER ASSEMBLY FOR POSITION INDICATOR AND INDICATOR SYSTEM INCLUDING SUCH CYLINDER

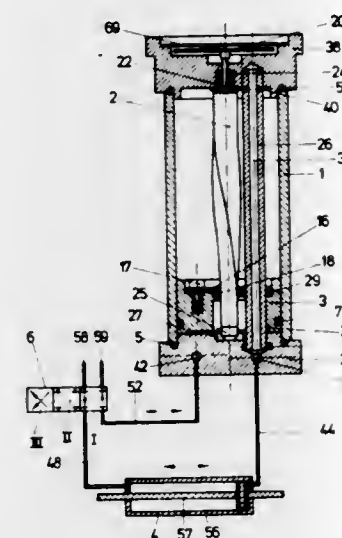
Saebjorn Aas, Tynemouth, England, and Kare Brathen, Rjukan, Norway, assignors to Norsk Hydro Verksteder A/S, Rjukan, Norway

Filed Dec. 29, 1969, Ser. No. 888,494

Claims priority, application Norway, Dec. 30, 1968, 5235/68
Int. Cl. G09f 9/00

U.S. Cl. 116-124

1 Claim



A volumetric gauge cylinder for a position indicator comprising a closed cylinder having connections for pressure fluid at its ends. A non-rotatable axially movable piston is capable of movement within the cylinder under the fluid pressure, and a rotatable spindle extends along the length of the cylinder and has a helical external configuration cooperating with, and forming a sealed fit with a correspondingly shaped opening in the piston so that linear movement of the piston is translated into rotary movement of the spindle. The spindle is operationally connected to an external indicator which is caused to rotate in accordance with movement of the spindle.

3,654,892

ZONAL DEVICE AND COMBINATION THEREOF WITH A DIMENSIONAL DIAL INDICATOR

Stanley G. Johnson, W. Hartford, Conn., assignor to The Johnson Gage Company, Bloomfield, Conn.

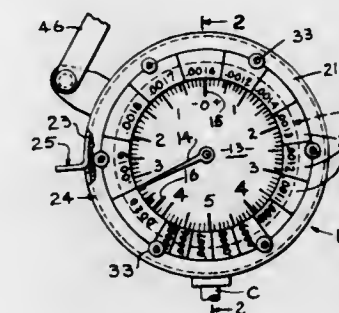
Filed July 17, 1970, Ser. No. 55,896

Int. Cl. G09f 9/00

U.S. Cl. 116-129

13 Claims

A zonal device and a combination of a dial indicator and the zonal device is disclosed for cooperative use on a gage or gages in differentially gaging a screw thread. The indicator has a casing with an outer cylindrical surface, a dial having dimensional graduations in thousandths or preferably in ten-thousandths of an inch, and a pointer movable over the dial in response to a contactor. The zonal device is a ring means mounted on the cylindrical surface of the casing and includes or is a turnable ring with a flange extending radially inwardly adjacent to the dial graduations. This flange which is the end



face of the ring carries at least one of a plurality of zones of fixed circumferential dimension and radially corresponding

with a desired dimension of the dial graduations. The fixed zones on the ring may be provided in any one of three ways.

3,654,893

AUTOMATIC BIAS CONTROL FOR ELECTROSTATIC DEVELOPMENT

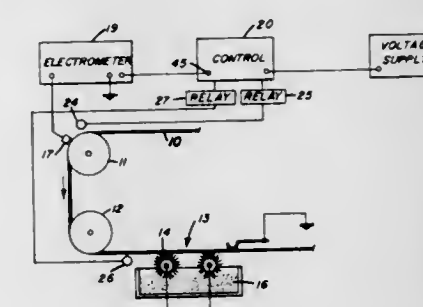
Douglas E. Piper, James G. Jarvis, and Dale L. Smith, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 1, 1970, Ser. No. 33,571

Int. Cl. G03g 13/08, 15/08

U.S. Cl. 118-2

8 Claims



An automatic bias control for development of a latent electrostatic image comprises an electrometer for continuously measuring the level or amplitude of the electrostatic charge in the areas comprising said image and for providing a proportional signal that is used to control the electrical bias applied to development means. The proportional signal is used to drive a circuit containing three serially connected operational amplifiers which are interconnected in accordance with and in timed relation to the location of the image relative to a probe head connected to the electrometer and to a development station. The control signal generated by the circuit is used to drive a voltage supply means whereby a bias field corresponding generally to the amplitude of the charge level of the image background areas is provided so that a minimum of toner particles will be applied to these areas.

3,654,894

PASTRY COATING APPARATUS

James T. Rohrbacher, Chicago, and Richard C. Wagner, Clarendon Hills, both of Ill., assignors to Integral Process Systems, Inc.

Continuation-in-part of application Ser. No. 755,592, Aug. 27, 1968, now Patent No. 3,537,404. This application May 11, 1970, Ser. No. 36,206

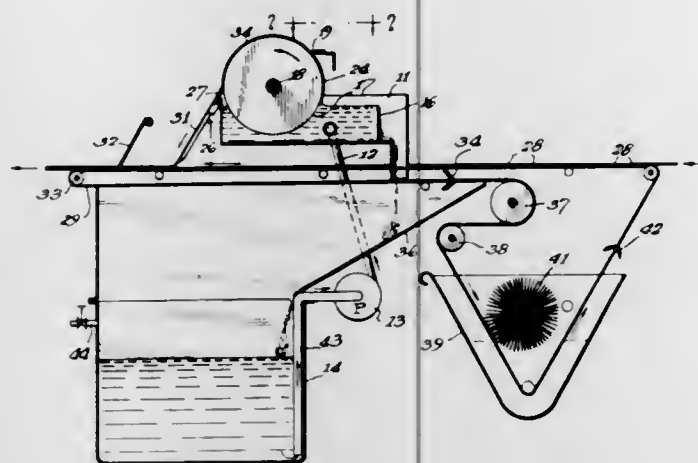
Int. Cl. A23g 3/20; B05c 5/02

U.S. Cl. 118-17

9 Claims

An apparatus and method for automatically and continuously providing a coating on an upper surface of individual pastries including a liquid reservoir at a dispensing station, means for maintaining a preselected level of liquid within said reservoir, a rotary drum having a portion disposed below

the liquid level in said reservoir for picking up liquid by surface adhesion, said drum having a portion disposed above the level of liquid in said reservoir, stripping means for removing



liquid from the exposed portion of said drum and for depositing the liquid on said pastries on a continuously movable foraminous conveyor with excess liquid passing through said conveyor for recycle to said reservoir.

3,654,895

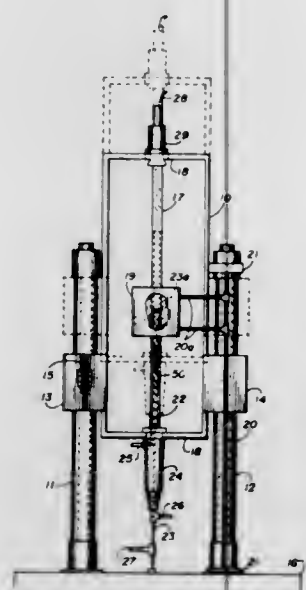
APPARATUS FOR FORMING A REFRACTORY COATING ON THE INNER PERIPHERY OF A TUBULAR OBJECT

John A. Bloom, Dallas; Durward L. Spruill, Garland, and Gene F. Wakefield, Richardson, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 15, 1969, Ser. No. 850,543

Int. Cl. C23c 11/00

U.S. Cl. 118-48



Means to vapor-coat the inside of a tubular object includes an annular heater surrounding a portion of the object, a lance-nozzle extending within the object. The nozzle is transversely aligned with and fixed with respect to the heater. Means effect relative longitudinal motion between the tubular object and the aligned heater and nozzle.

3,654,896 APPARATUS FOR DEVELOPING ELECTROSTATIC IMAGES

Gerhard Marx, Wiesbaden-Kastel, and Hans Heist, Wiesbaden-Schierstein, both of Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany

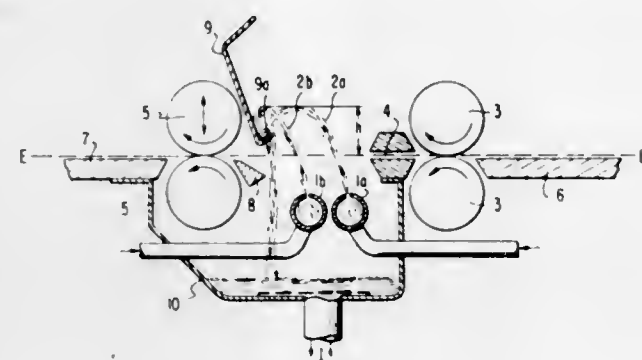
Filed Aug. 18, 1966, Ser. No. 573,294

Claims priority, application Germany, Aug. 21, 1965, K 56946

Int. Cl. B05c 5/00, 11/02

U.S. Cl. 118-50

8 Claims



Apparatus for developing latent electrostatic images with liquid developer including means for passing a carrier past a developing station and a nozzle means for applying the developer at the station. The nozzles are placed below the carrier path and produce an upwardly directed laminar flow curtain which impinges the carrier at an angle between 10° and 45° to the vertical and in the direction of carrier motion. Means are provided for deflecting the curtain in the absence of the carrier and returning the liquid to a storage container.

3,654,897

APPARATUS FOR COATING COPPER WIRES

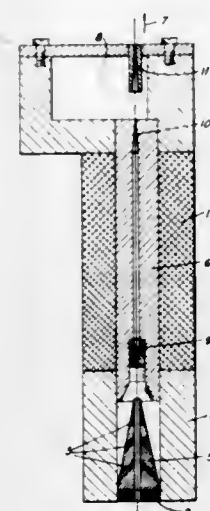
Herman Trattner, and Erich Liebhard, both of Muenchen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Original application Mar. 15, 1968, Ser. No. 713,491, now Patent No. 3,540,918. Divided and this application Jan. 12, 1970, Ser. No. 7,441

Int. Cl. B05c 11/00

U.S. Cl. 118-69

7 Claims



An apparatus for continuously coating a copper wire with a solder layer comprising a chamber in which molten solder is disposed, a nozzle disposed at the bottom of said chamber, having a vertically extending passageway therein, for the en-

trance of the wire to be coated, which communicates with the solder bath through laterally extending passages communicating with the chamber, means disposed above the nozzle forming a counter current section having a counter flow passageway through which the upwardly moving wire passes and in which solder may flow in downward counter direction, said counter flow passageway tapering in cross-section at the beginning and end of the passageway whereby the clearance with respect to the wire is less at such ends than at an intermediate portion thereof and a stripping nozzle disposed above the outlet of said counter flow passageway, the nozzles and the inlet portion of said counter current section preferably being formed from a material not wettable by the solder.

3,654,898

OUTSIDE SIDE-STRIPPING DEVICE

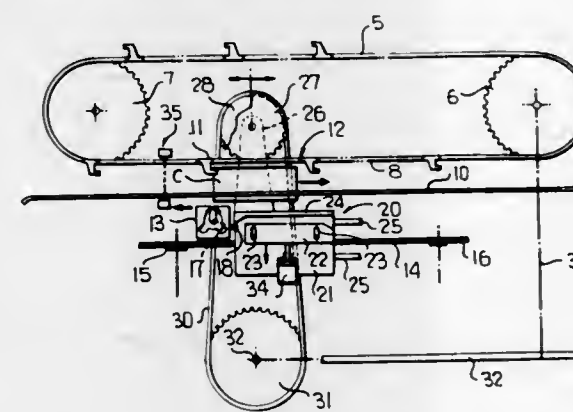
Raymond F. Gallitz, La Grange Park, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed July 17, 1970, Ser. No. 55,655

Int. Cl. B05b 9/06

U.S. Cl. 118-323

11 Claims



This disclosure relates to a mechanism for side-stripping can bodies utilizing a spray gun moving in a direction opposite to the direction of movement of a can body to provide a thin striping or coating on the side seam thereof. The striping apparatus includes a synchronizing mechanism which is in engagement with a conveyor chain moving the can bodies to be side striping and which varies the position of the control mechanism of the side striping apparatus in accordance with the variations in the links or other constructional elements of the conveyor chain.

3,654,899

APPARATUS FOR COATING FOILS OR BANDS ON ONE SIDE WITH SOLUTIONS OF HIGH VISCOSITY

Peter Herzhoff, Leverkusen; Hans Gref, Cologne, and Stephan Platz, Leverkusen, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

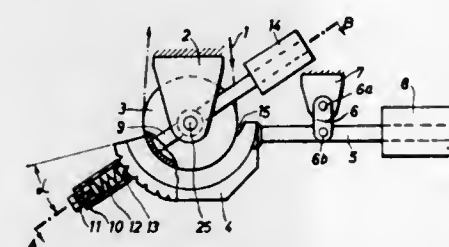
Filed June 22, 1970, Ser. No. 48,037

Claims priority, application Germany, July 12, 1969, P 19 35 554.5

Int. Cl. B05c 3/152, 3/12

U.S. Cl. 118-419

9 Claims



In an apparatus for coating foils or bands on one side with solutions of high viscosity as the foils or bands are passed through a gap, the surface of one wall of which is wetted with the solution of the gap is formed by a rotatably mounted sup-

port roller for the band which is to be coated and the other wall surface is formed by a cup which is adapted to the circumference of the roller and which is suspended via a weight loaded lever system in such a manner that it is three-dimensionally displaceable on it.

3,654,900

FLUIDIZED DEVELOPMENT OF ELECTROSTATIC IMAGES

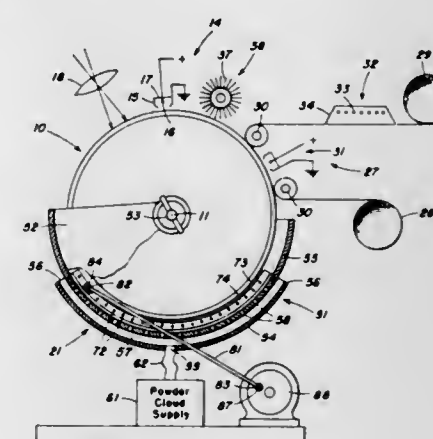
Frank Y. Yang, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sept. 17, 1970, Ser. No. 72,997

Int. Cl. G03g 13/00

U.S. Cl. 118-637

14 Claims



Development of a latent electrostatic image is effected by vibrating a mass of two-component developer on a support surface to maintain the developer mass in a fluidized state in close proximity to a latent electrostatic image bearing surface whereby toner is attracted to image areas to effect development thereof. The toner is replenished by passing toner from a suitable toner supply, such as a toner powder cloud, through apertures in the supporting surface which are larger than the toner particles and smaller than the carrier particles, whereby an adequate toner supply is maintained in the development zone without recirculating the carrier.

3,654,901

TONER RECLAIMING SYSTEM

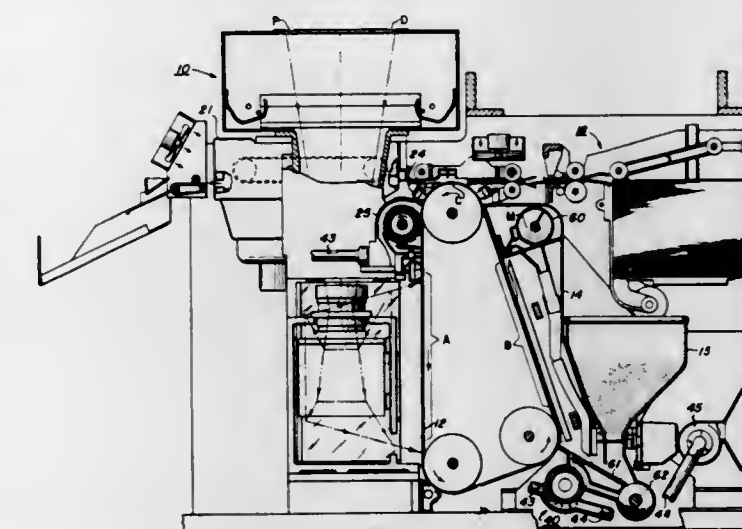
James M. Donohue, Rochester, and Dennis P. Gerbasi, West Webster, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Aug. 6, 1969, Ser. No. 847,866

Int. Cl. G03g 13/00

U.S. Cl. 118-637

5 Claims



A toner powder reclaiming apparatus for use with the developing system of an electrostatic reproduction machine

including a rotating drum in the path of movement of an air flow containing electrically charged toner particles which become attracted to the drum. Means such as carrier beads are brought into contact with the drum for cleaning the toner off the collecting surface thereon. After the toner particles become triboelectrically attracted to the carrier beads, they are directed automatically into the developing system for the machine.

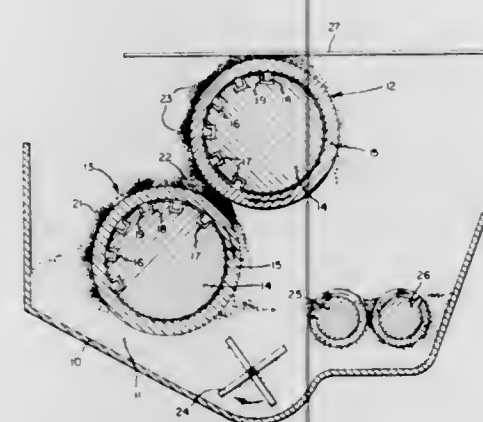
3,654,902

TONER UNIT FOR PHOTOELECTROSTATIC REPRODUCTION

Nils L. Hakanson, West Springfield, Mass., assignor to The Plastic Coating Corporation, South Hadley, Mass.
Filed Nov. 28, 1969, Ser. No. 880,600
Int. Cl. B05b 5/02

U.S. Cl. 118-637

4 Claims



Apparatus for applying toner to an electrostatic image carried by an insulating surface by contacting the surface with a toner mix comprising toner particles and magnetic carrying particles, which apparatus utilizes tandem magnetic brush units cooperatively arranged so that their adjacent surfaces move counter to one another, one of the magnetic brush units being arranged to form a magnetic brush from toner mix supplied thereto and to transfer toner mix in the magnetic brush to the other magnetic brush unit for formation of a second magnetic brush which may be brought into contact with the electrostatic image on the insulating surface.

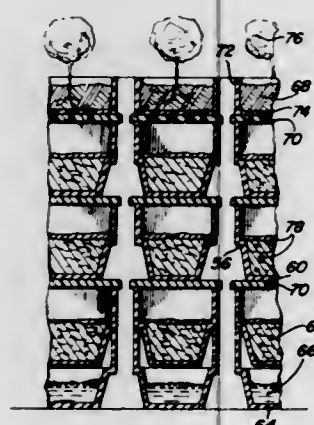
3,654,903

METHOD OF GROWING EARTHWORMS AND PLANTS AND PRODUCING COMPOST

Morris M. Montgomery, P. O. Box 536, Cottonwood, Ariz.
Filed Oct. 30, 1970, Ser. No. 86,154
Int. Cl. A01k 67/00

U.S. Cl. 119-15

10 Claims



A building structure providing a controlled environment for growing earthworms and plants and producing compost

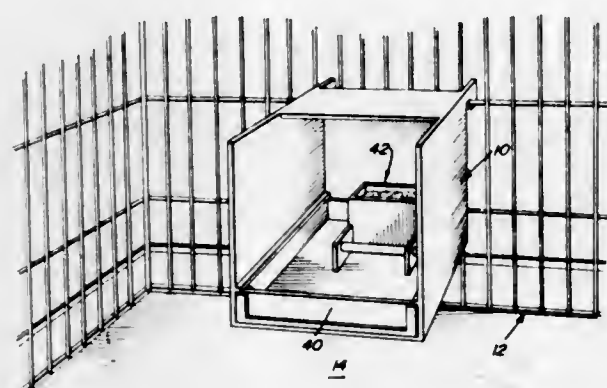
by the use of a plurality of leaching and growing columns each having a plurality of stacked containers having a quantity of bedding therein except for the bottom container which receives compost from the stack. All of the containers above the bottom container have drain holes therein whereby leaching liquid may be poured into the uppermost container for leaching compost from the containers for collection in the bottom container. Plants may be grown in the upper container.

3,654,904
BIRD FEEDER

Clement E. Krueger, P.O. Box 4144 Walnut Creek, Calif.
Filed Apr. 3, 1970, Ser. No. 25,510
Int. Cl. A01k 31/00

U.S. Cl. 119-18

3 Claims



A housing has an opening formed in the forward portion thereof to allow insertion and removal of a tray. A feeding cup is attached to the tray and serves as a receptacle for bird feed. The housing serves as a shield against outward scattering of feed and the tray prevents feed from being dropped downwardly into a surrounding cage. Feed is easily replenished and the tray is conveniently cleaned by removing the tray from the housing.

3,654,905

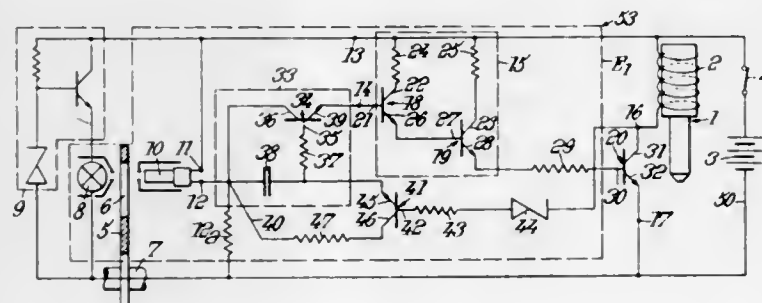
IMPROVEMENTS IN OR RELATING TO FEED DEVICES FOR INTERNAL COMBUSTION ENGINES

Andre Louis Mennesson, Neuilly-sur-Seine, France, assignor to Societe Industrielle De Brevets Et D'Etudes S.I.B.E., Neuilly-sur-Seine, France

Filed Oct. 14, 1969, Ser. No. 866,219
Claims Priority, application France, Oct. 23, 1968, 171095; Mar. 12, 1969, 6907041
Int. Cl. F02d 5/00

U.S. Cl. 123-32 EA

6 Claims



The invention relates to fuel feed devices for internal combustion engines, of the kind comprising at least one fuel valve

openable by an electromagnet for as long as the same is energized under the control of a signal delivered by an energizing system brought into operation simultaneously with the engine ignition system and adapted to transmit, in synchronism with the rotation of a rotating member drivable after the bringing into action of the engine ignition system, signals whose duration depends upon engine operating conditions. The energizing system comprises means which interrupt transmission of the signal and close the valve when the duration of the signal reaches a predetermined maximum value.

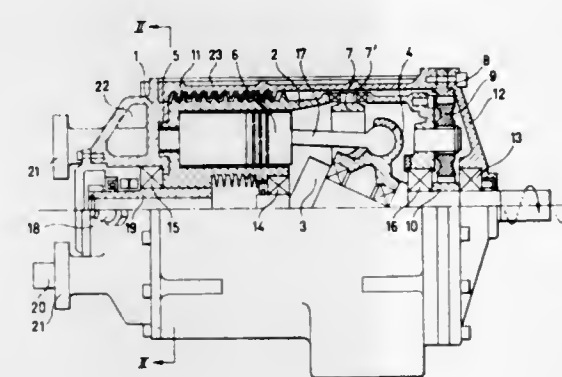
3,654,906

AXIAL CYLINDER ROTARY ENGINE

Timo Airas, Puistokatu 3 A, Helsinki 14, Finland
Filed May 7, 1970, Ser. No. 35,542
Claims priority, application Finland, May 9, 1969, 1376/69
Int. Cl. F02b 57/04

U.S. Cl. 123-43 A

3 Claims



An internal combustion engine has a rotating group of axial cylinders around a swash plate driven crankshaft. Each cylinder has only one port for intake and exhaust this port ending directly at a sliding seal against a plain or substantially plane distributor surface on the gable of the stationary engine frame. This stationary distributor surface is provided with at least two sets of intake and exhaust ports as well as ignition devices so arranged that during a full revolution of the cylinder group two full series of four-cycle sequences occur in each cylinder. The cylinder group and crankshaft rotate at different speeds and the relation between these speeds to each other and to the stationary frame, are determined by a gear. The gear arrangement and ratio is depending of the number of cylinders and the number of four cycle sequences per cylinder group revolution.

3,654,907

ROTATING CYLINDER ENGINE

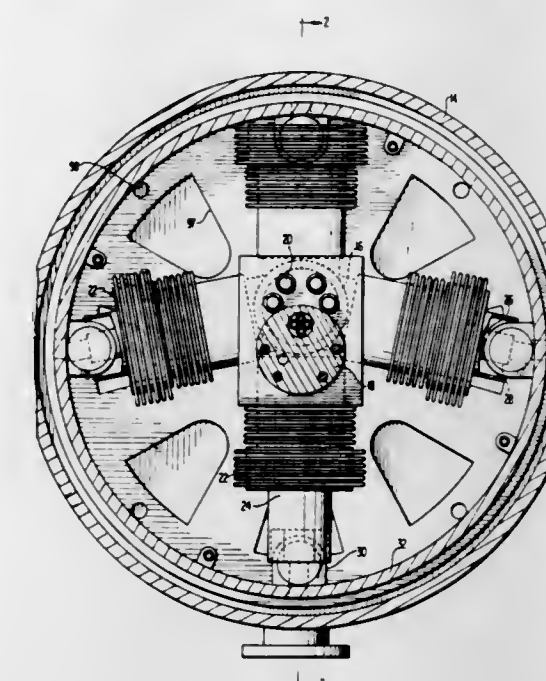
Clarence Bartlett; Laurence D. Bartlett, and Dale Bartlett, all of Route 2, Hartford, Ky.

Filed Apr. 20, 1970, Ser. No. 29,995
Int. Cl. F02b 57/00

U.S. Cl. 123-44

11 Claims

A rotating cylinder internal combustion engine includes an eccentric shaft carrying an air supply and fuel injection outlet for each engine cylinder, a plurality of engine cylinders mounted to rotate about the shaft so as to receive air from the associated air supply outlet on the shaft at the bottom of a piston stroke when the internal cylinder volume is at a maximum and fuel near the top of the stroke when the air is com-



pressed, and a rotor structure surrounding the eccentric shaft and the engine cylinders and connected to the pistons, and

3,654,908

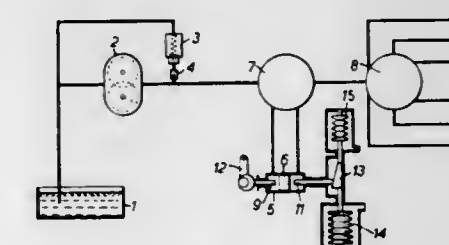
FUEL INJECTION SYSTEMS

John Kammerer Harding, Cheltenham, England, assignor to Dewy Technical Developments Limited, Brockhampton, Cheltenham, England

Filed July 25, 1969, Ser. No. 844,790
Claims priority, application Great Britain, July 30, 1968, 36,218/68
Int. Cl. F02d 1/06

U.S. Cl. 123-140 MC

2 Claims



A fuel-injection apparatus for a multi-cylinder internal combustion engine comprising a fuel pump, a free piston mounted for reciprocation in a cylinder between stops and defining two variable-volume working spaces and a face valve adapted to be driven at a speed proportional to engine speed which includes ports for performing a commutating function comprising the successive alternate connection of one working space to the fuel pump delivery and the other working space to the engine fuel supply connection and of the one working space to the engine fuel supply connection and the other working space to the fuel pump delivery and a distributor function in which the engine fuel supply connection is connected to the injectors for the cylinders of the engine in a regularly recurring sequence.

3,654,909

CARBURETOR HAVING AUXILIARY TURBINE AND IDLE FUEL SHUTOFF MECHANISM

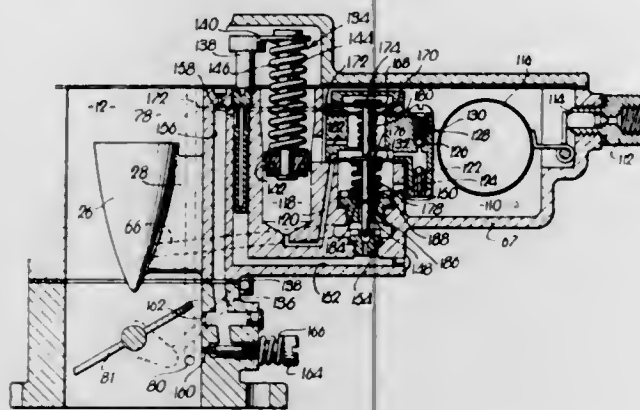
Eugene C. Rollins, P.O. Box 1484, Ogden, Utah
Filed Aug. 6, 1970, Ser. No. 61,624
Int. Cl. F02m 29/00, 23/00, 13/04

U.S. Cl. 123-141 R

32 Claims

A carburetor for an internal combustion engine utilizes a rotatable air motor to achieve intimate mixing of fuel and air

and hence provide a combustible mixture of enhanced burning qualities to the engine. The air motor utilizes a hollow, rotatable hub with fuel jets to deliver the fuel and a plurality of vanes to atomize the same. The air motor is driven by the flow of air through the air horn except when airflow is minimal (closed or nearly closed throttle positions). During this minimal airflow, the engine creates a suction head which is utilized to cause air to flow over a turbine that is coupled with the air motor, thereby rotating the turbine to, in turn, drive the motor. During deceleration, fuel is not required to be supplied to the engine and hence mechanism is provided to block the flow of fuel to the engine in response to closing of the engine throttle valve. The mechanism is also operable



by the decrease in pressure, caused by the suction head created when the engine descends a long steep grade and hence will continue to block the flow of fuel during such a descent as long as the throttle valve remains closed.

Fuel is delivered to the air motor as a result of a suction conduit which has an outlet into the interior of the air horn. Thus, during the minimal airflow this fuel is atomized effectively by the rotation of the air motor and when fuel is not needed, the flow is completely shut off. When it is desirable to increase the quantity of fuel delivered to the air motor to meet the power requirements of the engine, one or more venturi boost rings are employed in the vicinity of the suction conduit outlet to increase the suction and hence the quantity of fuel delivered to the air motor.

3,654,910

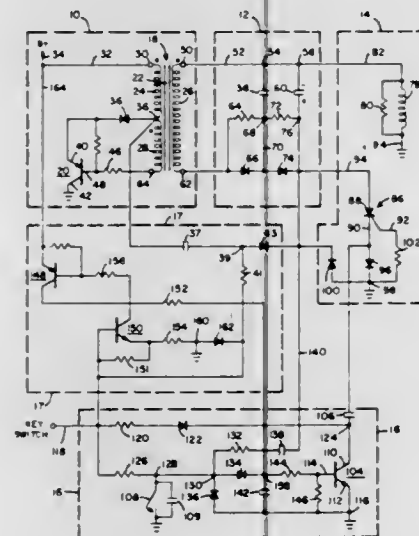
CAPACITOR DISCHARGE IGNITION CIRCUIT

Andrew Kuehn, III, St. Paul, Minn., assignor to Systematics, Inc., St. Paul, Minn.

Filed Aug. 10, 1970, Ser. No. 62,398
Int. Cl. F02p 3/06

U.S. Cl. 123-148 E

9 Claims



A capacitor discharge ignition circuit for an internal combustion engine, the active components of which are substan-

tially entirely solid state devices. An energy generation circuit is provided which includes a re-generative pulse amplifier and saturable transformer to convert the normal battery potential to a higher voltage. A capacitive energy storage circuit is coupled to the energy generation circuit and a triggerable switching device permits the stored energy to be discharged through the primary winding of the ignition coil. A triggering circuit which preferably has variable timing properties is coupled to the ignition breaker points and is used to time the triggering of the switching device.

3,654,911

SURGICAL DRILL

Hans Loge, Biberach (Riss), Germany, assignor to Kaltenbach & Voigt, Biberach (Riss), Germany

Filed Mar. 23, 1970, Ser. No. 21,680

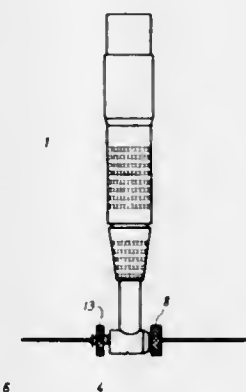
Claims priority, application Germany, Mar. 27, 1969, P 19

15 667.3

Int. Cl. A61b 17/32; B25g 3/22; B23b 5/34

U.S. Cl. 128-305

8 Claims



A surgical drill wherein a driven spindle is formed with an axial through bore and accommodates an axially movable clamping member which can either engage or release an elongated drilling tool. A nut is employed to move the clamping member between a first axial position in which the clamping member receives torque from the spindle and rotates the tool, and a second axial position in which the tool can be shifted axially of the clamping member and spindle so as to move a desired length of the tool beyond the spindle, to wit: a length which is sufficient to permit deeper penetration into a bone or the like but not enough to permit uncontrolled flexing of the tool. The axial length of the tool may exceed several times the axial length of the spindle.

3,654,912

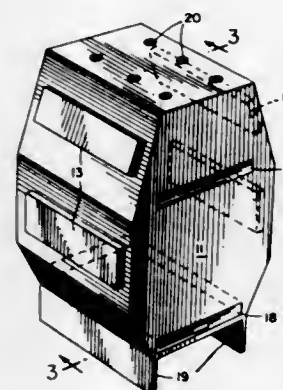
FOOD-BROILING APPARATUS

Charles Jere Albright, 313 West North Avenue, Chicago, Ill. Continuation-in-part of application Ser. No. 682,033, Nov. 13, 1967, now abandoned. This application May 21, 1969, Ser. No. 826,503

Int. Cl. A47j 37/06; F24c 3/04

U.S. Cl. 126-41 R

9 Claims



The essential concept of this invention involves a cabinet defining a cooking chamber and wherein are mounted a plu-

rality of incandescent-type heating elements vertically and horizontally disposed with respect to the central area of the cooking chamber, the cabinet having horizontally-disposed therein at least one elongated opening medially of the heating elements for the insertion and positioning of food-supporting facility, to expose the food to cooking on all areas by the simultaneous action of the heating elements, subject to a withdrawal of the facility with cooked food thereon.

3,654,913

GAS-BURNING WALL FIREPLACE

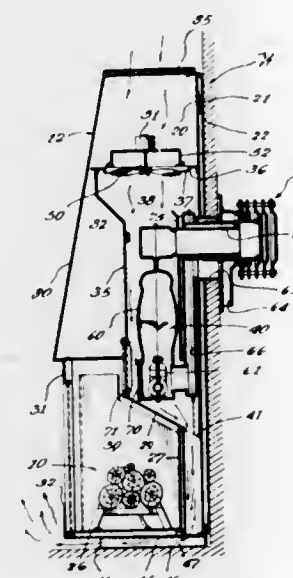
Ray Derringer, Port Edwards, and Francis L. Faehling, Wisconsin Rapids, both of Wis., assignors to Preway Inc.

Filed Jan. 30, 1970, Ser. No. 7,196

Int. Cl. F24b 1/18; F24h 3/02

U.S. Cl. 126-121

1 Claim



A gas-burning wall fireplace, mountable on a wall and having a frame with a log display area and a heat exchange chamber located above said log display area with a sealed combustion unit therein, an air flow passage through said chamber including an outlet extending across and beneath the log display area, blower means for inducing air flow through the air passage with cool air entering near the top of the fireplace, and a decorative hood which can be removed for access to the blower means and the combustion unit.

3,654,914

COSMETIC SURGICAL PROCESS

Robert Alan Franklyn, 8706 Sunset Boulevard, Los Angeles, Calif.

Filed Aug. 21, 1970, Ser. No. 66,108
Int. Cl. A61b 19/00

U.S. Cl. 128-1 R

3 Claims

There is disclosed a process for achieving a subcutaneous padding during cosmetic surgery. Subcutaneous tissue and fat is recovered from redundant skin which is surgically removed during plastic surgery. The tissue and fat are formed into a homogeneous mixture as by mixing it with a saline solution or Ringers solution in a high speed blender. The homogenized mixture is then spray injected through the incision underneath the tightened skin of the patient's face. This results in a well contoured appearance of the skin due to restoration of subcutaneous padding.

3,654,915

APPARATUS FOR AUTOMATICALLY MEASURING AND INDICATING BLOOD PRESSURE

Clifford Sanctuary, Palos Verdes, Calif., assignor to Del Mar Engineering Laboratories, Los Angeles, Calif.

Filed Dec. 19, 1969, Ser. No. 886,654

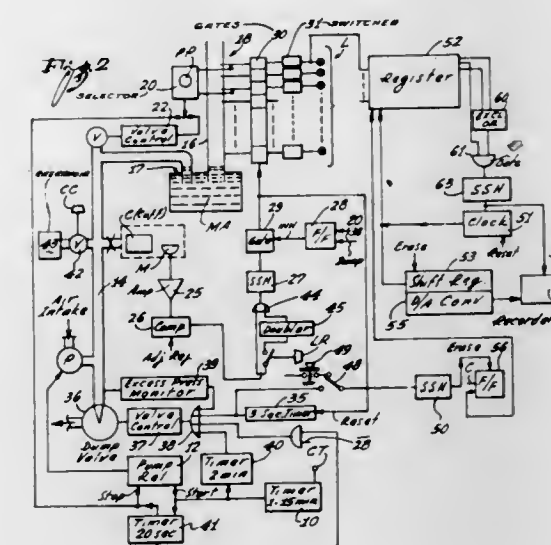
Int. Cl. A61b 5/02

U.S. Cl. 128-2.05 M

18 Claims

An automatic blood pressure measuring and indicating instrument is controlled with fail-safe features such as fast

dumping pressure from an inflated cuff upon actual detection of diastolic pressure, a predetermined period after pump starting. The pump is turned off either when a selected pressure has been reached, or a predetermined period after starting. If measurement has not begun at that time, fast dumping



is initiated. Signal processing to eliminate artifacts includes the elimination of Korotkoff sound detect signals neither preceded nor succeeded by another. Synthesized Korotkoff sounds are used to accommodate very low heat beat conditions. Different size cuff adaption is provided for.

3,654,916

APPARATUS FOR MONITORING RECURRENT WAVEFORMS

James McEwan McIntyre Neilson, Edinburgh, Scotland, assignor to The University of Edinburgh, Edinburgh, S.C.

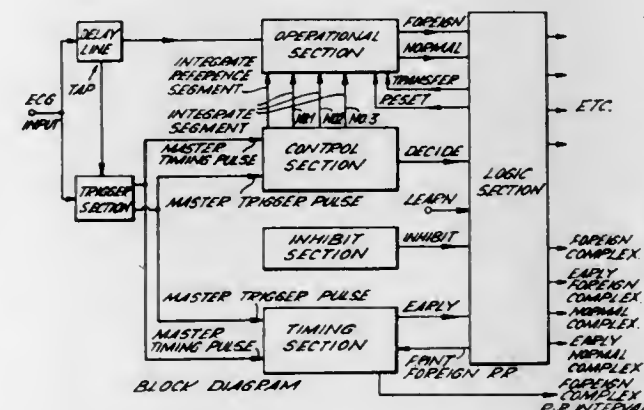
Filed Mar. 16, 1970, Ser. No. 19,715

Claims priority, application Great Britain, Mar. 14, 1969, 13,659/69

Int. Cl. A61b 5/04

U.S. Cl. 128-2.06 A

14 Claims



An electrocardiogram waveform is monitored by superimposing the waveform complexes upon a stored waveform complex representative of a 'normal' complex, using derived reference levels and timing data and then integrating successive segments of a waveform complex, measuring the difference between the integrated value of each segment in the complex and the integrated value of a corresponding segment of a normal waveform complex, quantitatively summing the differences and producing a signal and/or record if the total difference exceeds a predetermined value.

3,654,917

THERAPEUTIC DEVICE FOR ARTHRITIS

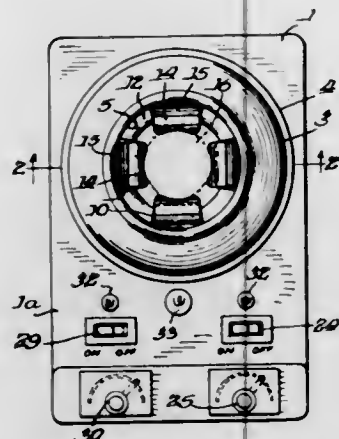
John A. Diener, 53 West Jackson Boulevard, Evanston, Ill.

Filed Nov. 23, 1970, Ser. No. 91,886

Int. Cl. A61h 1/02

U.S. Cl. 128-26

5 Claims



This is an electro-magnetic device having a plurality of movable applicators adapted to be brought into yielding engagement with an affected finger, and vibrated. The applicators, as a group, surround the finger and are pressed against the sides of the finger and are moved lengthwise of the finger back and forth over one or the other of the two free finger joints with a stroking motion.

3,654,918

EQUIPMENT FOR AIDING CARDIOVASCULAR CIRCULATION

Petrus Blok, Coymastraat 7, Moerkapelle, and Taco Jan

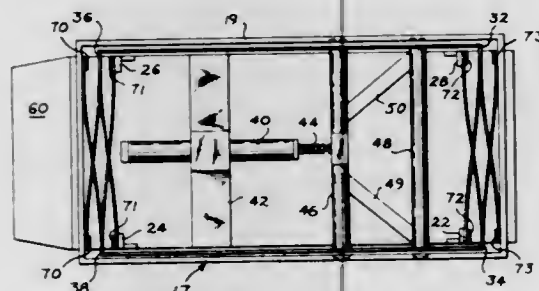
Viersma, Julianalaan 26, Pijnacker, both of Netherlands

Filed May 15, 1970, Ser. No. 37,744

Int. Cl. A61h 1/00

U.S. Cl. 128-33

9 Claims



A reciprocable table, for supporting a supine human body, moving through a substantial stroke in a reciprocating planar motion, which may be synchronized with the body heartbeat, is supported by a pair of horizontally mounted bifurcated springs at each end of the table. By mounting the table on a hollow base, the unit may be self-contained without external hoses, or the like.

3,654,919

PROCESS AND APPARATUS FOR SYNCHRONOUS ASSISTING OF BLOOD CIRCULATION

William Clifford Birtwell, North Scituate, R.I., assignor to

Medical Innovations, Inc., Newton, Mass.

Filed Nov. 25, 1970, Ser. No. 92,606

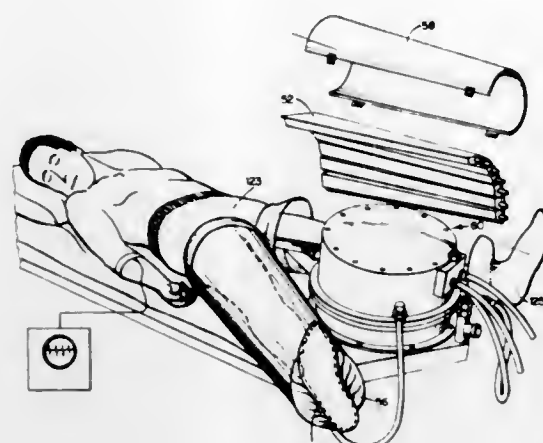
Int. Cl. A61h 7/00

U.S. Cl. 128-64

13 Claims

Apparatus useful in enhancing or assisting the circulation of blood, reducing the work of the heart and increasing the coronary blood flow, said apparatus comprising a rigid, incompressible system which provides an external pulsatile

pressure environment on a portion of the body which is synchronous and phased with cardiac action. A rigid chamber or chambers with a liquid filled system of non-



distensible, yet expandable, seals houses a portion of the body (e.g., the limbs) in such a way that the pressure exerted on the body can be varied above and below atmospheric pressure by adding or removing liquid from the system.

3,654,920

TRACTION DEVICES FOR ORTHOPEDIC TABLES

Armando Staib, deceased, late of Guanabara, Brazil (by Erika Esch, executrix)

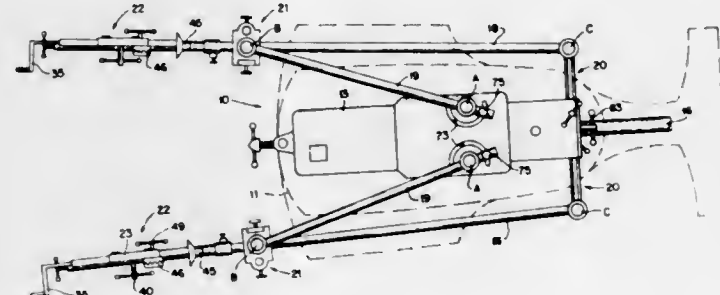
Filed Oct. 16, 1968, Ser. No. 768,041

Claims priority, application Brazil, June 6, 1968, 199,660

Int. Cl. A61f 5/00

U.S. Cl. 128-71

4 Claims



An orthopedic table including traction arms for performing orthopedic traction in the upper and lower limbs of the patient includes a traction device mounted at the free end of each traction arm, said traction device includes a worm and worm gear arrangement, first manual means for operating the worm so as to produce traction displacements in a range of millimeters and a second manually operable means producing traction displacements of a greater magnitude.

3,654,921

MECHANICAL TRACTION

Benjamin John Neuhardt, Jr., 5501 Riggs Road, Gaithersburg, Md.

Filed July 1, 1970, Ser. No. 28,349

Int. Cl. A61h 1/02

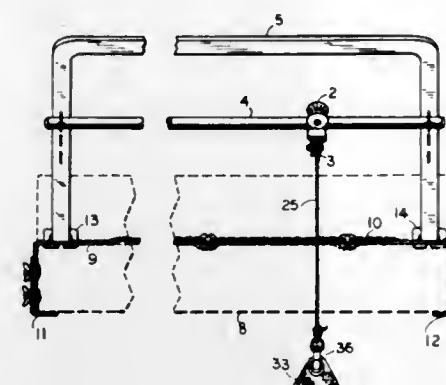
U.S. Cl. 128-75

1 Claim

A mechanical traction device, mountable on the foot portion of a bed, for allowing one in traction a freedom in motion with minimal effort while maintaining a constant traction

pressure. Lateral movement is effected by the use of a traveling wheel assembly mounted on a horizontally supported

each of the skull pins is mounted for limited or restricted



member with vertical movement rendered possible by the use of a pulley connected to the wheel assembly.

3,654,922

DOOR MOUNTED CERVICAL VARIABLE WEIGHT TRACTION UNIT

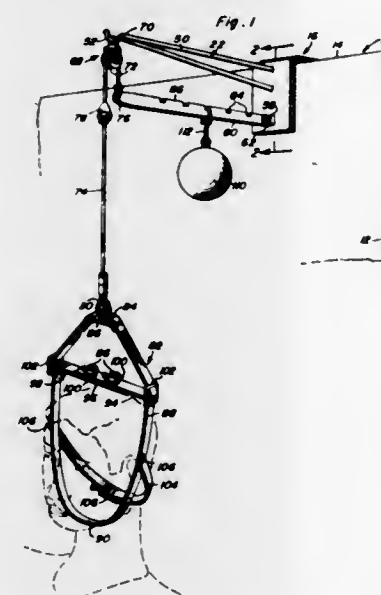
Dale E. Outcalt, P.O. Box 84, Flat Rock, Ill.

Filed July 10, 1970, Ser. No. 53,911

Int. Cl. A61h 1/02

U.S. Cl. 128-75

6 Claims



A support assembly for stationary support from a suitable structure and including a support arm pivotally supported therefrom for swinging in a vertical plane about a horizontal transverse axis. An elongated upright tension member is provided and one end portion of the arm defines an anchor point to which the upper end of the upright tension member is attached. The lower end portion of the tension member has a head sling supported therefrom and a weight is carried by the arm and adjustable therealong relative to the axis of oscillation of the arm for swinging the arm, by gravity weighting, in a direction causing the lower end portion of the tension member and the head sling supported therefrom to be urged upwardly, whereby an upward force may be exerted upon a person's head engaged by the sling.

3,654,923

SKULL TONGS

William Gayle Crutchfield, School of Medicine, University of Va., Charlottesville, Va.

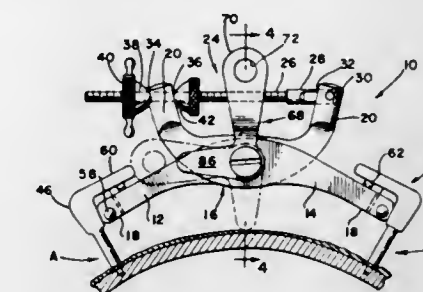
Filed Apr. 8, 1970, Ser. No. 26,535

Int. Cl. A61f 5/04

U.S. Cl. 128-84 R

1 Claim

A skull tong is provided for use in applying skeletal traction in treatment of injuries to the cervical spine wherein



pivotal movement on an axis generally transverse to the longitudinal axis of the respective skull pins.

3,654,924

BLOOD COLLECTION ASSEMBLY

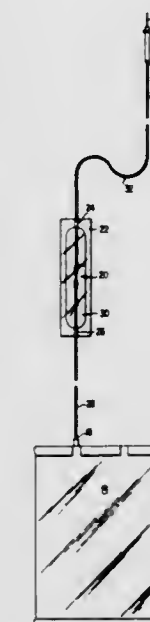
Earl D. Wilson, Ingleside, and Norbert W. Ellmann, Libertyville, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed May 14, 1970, Ser. No. 37,205

Int. Cl. A61m 05/14

U.S. Cl. 128-214 D

12 Claims



Disclosed herein is a blood collection assembly including an auxiliary sample pouch with a pass-through tube for filling the blood bag. The pass-through tube is the same diameter as the remaining tubing of the assembly and is frangible within the pouch so that the tubing can be placed in communication with the pouch.

3,654,925

PLASMA SEPARATOR SYSTEM

William J. Holderith, Wyckoff, N.J., assignor to Becton, Dickinson and Company, East Rutherford, N.J.

Filed Sept. 23, 1969, Ser. No. 860,191

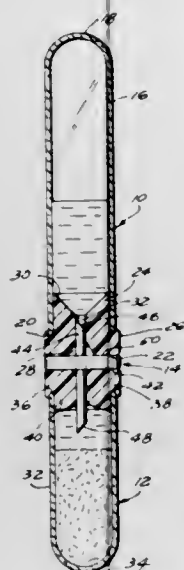
Int. Cl. A61j 01/00

U.S. Cl. 128-272

1 Claim

A blood-collecting tube of the evacuated type containing an anticoagulant receives through normal techniques whole blood to be tested. Thereafter, a cell-collecting tube is interconnected with the blood-collecting tube through the intermediary of a double-ended needle assembly including an external discoidal hub intermediate the ends thereof, such that the interior of both tubes communicate with one another. The tubes with the interconnecting needle assembly are then subjected to centrifugation with the cell-collecting tube being spaced radially outwardly relative to the blood-collecting tube and the axis of rotation. Upon generation of sufficient

centrifugal forces, the plasma separates from the heavier constituents with the latter and particularly the blood cells being forced out into the cell-collecting tube and packed therein. The relative capacities of the tubes are such that in



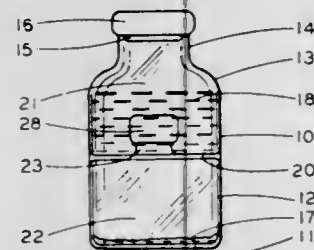
the blood-collecting tube only plasma will remain following completion of centrifugation. The needle assembly is then removed from the blood-collecting tube to effectively separate and remove plasma from the remaining constituents of the blood.

3,654,926 MIXING VIAL

Harry J. Rietman, Washtenaw, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

Filed Nov. 17, 1969, Ser. No. 877,108
Int. Cl. A61j 1/06

U.S. Cl. 128—272



A pharmaceutical mixing vial having a separate axial compartments for storing dissimilar component medicaments, at least one of which comprises water suitable as a vehicle for injection. A wall between the compartments includes a needle-pierceable static seal or plug. In use, the operator having a hypodermic syringe invades the vial and takes up liquid in one compartment, transfers it to a different compartment for mixing there with the separate component, and in turn aspirates the dispenses the resulting mixture.

3,654,927 PROTECTIVE SHIELD FOR HOLDING SANITARY NAPKINS AND METHOD OF MAKING

Susan R. Surpluss, Metuchen, N.J., assignor to Johnson & Johnson

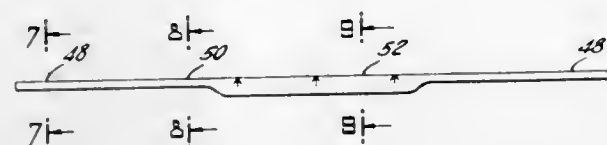
Filed Mar. 5, 1970, Ser. No. 16,801
Int. Cl. A61f 13/16

U.S. Cl. 128—290 H

1 Claim

A protective shield for holding sanitary napkins in place during use comprising an elongated nonwoven fabric of overlapping, intersecting fibers having a primary or predominant

direction of fiber orientation substantially in the long direction of the elongated nonwoven fabric whereby the elongated nonwoven fabric possesses excellent strength in its long direction and considerable extensibility in its cross



direction, the side edges of the central portion of the protective shield being gathered together to form a boatlike configuration capable of securely holding a sanitary napkin in place therein during use.

3,654,928 FLUSHABLE WRAPPER FOR ABSORBENT PADS

David V. Duchane, Menasha, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Feb. 24, 1970, Ser. No. 13,588

Int. Cl. A61f 13/16

U.S. Cl. 128—290

10 Claims

A flushable wrapper for sanitary napkins and other absorbent pads. The wrapper comprises a non-woven fiber web bonded by cold-water soluble polyvinyl alcohol and subsequently treated with an insolubilizing agent which renders the polyvinyl alcohol resistant to solubilization in a moisture laden environment. A web thus bonded has enough wet strength and abrasion resistance to perform satisfactorily at moisture levels encountered during normal use, yet disintegrates sufficiently fast after soaking in excess water to permit disposal by flushing.

3,654,929 BODY-FLUID ABSORPTION ARTICLE

Marit Gunnel Matilda Nilsson, Kalarne; Ruth Gunvor Anna Britt Udden; Per Edward Carl Udden, both of Timra, and Bengt Axel Wennerblom, Sundsvall, all of Sweden, assignors to Svenska Cellulosa Aktiebolaget, Sundsvall, Sweden

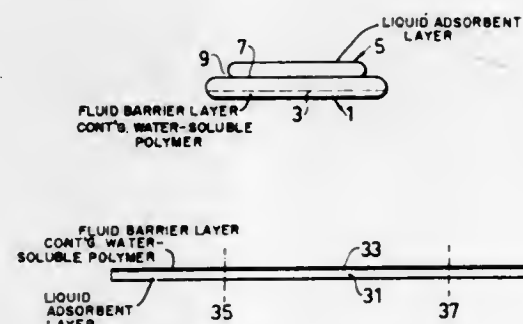
Filed Nov. 9, 1967, Ser. No. 681,706

Claims priority, application Sweden, Nov. 15, 1966, 15634/66

Int. Cl. A61f 13/16

U.S. Cl. 128—287

8 Claims



The invention resides in a body-fluid absorption article which comprises at least two elongated and substantially flat members which, in use of the article, are relatively superimposed with opposed flat surfaces, said members being physically separated throughout, or over a substantial portion of, their interface. The article is further characterized in that its inner member, i.e., the member adapted to be worn next to the skin, mainly consists of a liquid-absorbent material, whereas its outer member comprises one or a plurality of fluid-barrier layers of a water-soluble polymer, such as carboxy-methyl cellulose, capable of preventing any passage of body fluids, at least for the time of use of the article.

3,654,930 EXPENDABLE HEMOSTAT

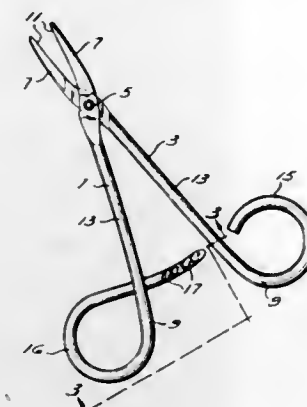
James C. Hobbs, II, 4383 Ingraham Highway, Miami, Fla.

Filed June 18, 1970, Ser. No. 47,436

Int. Cl. A61b 17/12, 17/28

U.S. Cl. 128—325

2 Claims



An expendable, strong, resilient, springy hemostat composed of two soft wire parts pivotally connected together between their jaw and handle ends and having loops at their finger ends and notches on one loop engageable with a latch on the other handle for maintaining the jaw ends in gripping relation.

3,654,931 DISPOSABLE TOURNIQUET COVER

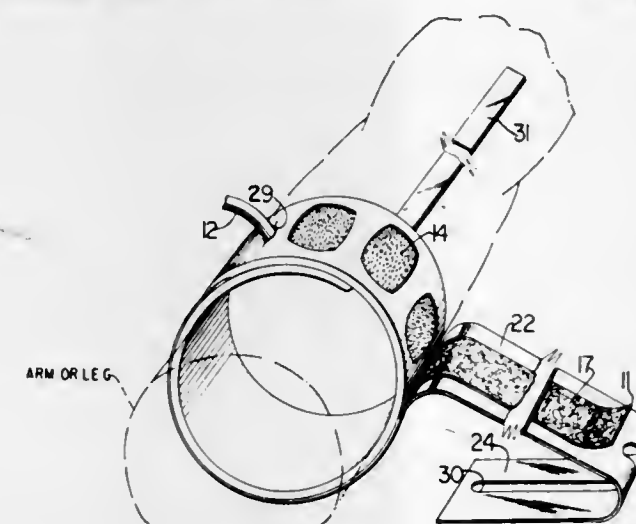
Lewis F. Hazlewood, Marlton, N.J., assignor to Walter Kidde & Company, Inc., Belleville, N.J.

Filed Feb. 11, 1970, Ser. No. 10,511

Int. Cl. A61b 17/12

U.S. Cl. 128—327

8 Claims



A disposable cover for an inflated tourniquet which has an elongated inflatable member and a tongue that wraps over and fastens to the outside of the inflatable member. The cover includes an elongated plastic envelope for receiving and covering the inflatable member and a plastic sheet extending from one end of the envelope for covering the tongue. The elongated envelope is provided with a plurality of spaced openings through which the tongue is fastened to the inflatable member.

3,654,932 SURGICAL DRAIN FOR SHUNTING FLUID

John B. Newkirk, 2551 East Floyd Avenue, Englewood, Colo.; Paul K. Predecki, 3045 South Clermont Street, Denver, Colo., and Wolff M. Kirsch, 635 Bellaire, Denver, Colo.

Filed Nov. 26, 1969, Ser. No. 880,178

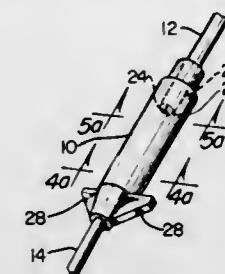
Int. Cl. A61m 27/00

U.S. Cl. 128—350 V

4 Claims

Hydrocephalus shunt which includes a subcutaneous pump, devoid of rigid or metallic parts, characterized by a one-way slit valve which may be distorted and opened by

digital pressure in the plane of the slit to break up and dislodge any particulate matter which may be clogging the valve. The body of the pump includes means for positioning said pump, following subcutaneously implanting thereof, within the body tissue such that the slit is maintained in a



position generally normal to the surface of the cranium. Said means of said pump may include projections which may be sewed to soft tissue beneath the scalp or may include a pump of predetermined cross section such as of oval cross-sectional configuration.

3,654,933 IMPLANTABLE ELECTRODE

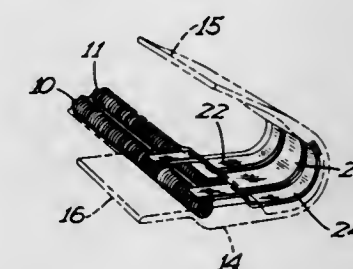
Norman R. Hagfors, Minneapolis, Minn., assignor to Medtronic Inc., Minneapolis, Minn.

Filed Nov. 18, 1968, Ser. No. 776,348

Int. Cl. A61n 1/04

U.S. Cl. 128—418

35 Claims



An improved electrode for implantation into a body including one or more electrical conductor leads adapted to be connected to a source of electrical signal, and one or more flexible electrodes attached to the leads, so that the electrodes may be bent around the portion of the body to which they are to make electrical contact. The leads and the portion of the electrode not to be in contact with the body are encapsulated in a substance substantially inert to body fluids and tissue.

3,654,934 TOBACCO SMOKE FILTER

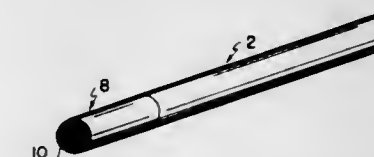
Joseph F. Martin, Painesville, Ohio, assignor to Joseph F. Martin; Marmanac Inc., Cleveland, Ohio and Chemfilt Corp. of America, North Tarrytown, N.Y., part interest to each

Original application Feb. 1, 1967, Ser. No. 613,351, now Patent No. 3,490,462. Divided and this application Oct. 8, 1969, Ser. No. 864,761

Int. Cl. A24b 15/02

U.S. Cl. 131—267

9 Claims



A tobacco smoke filter and in particular a cigarette filter is disclosed which comprises an absorbent non-tobacco filter

support which carries an impregnation of a hydrocarbon constituted of a normal paraffin having 11 to 18 carbon atoms in the molecular chain. The normal paraffin has the general formula C_nH_{2n+2} and constitutes approximately 1 to 12 percent by weight of the fitter. The hydrocarbon is liquid at ambient temperature and has a vapor pressure not substantially in excess of one millimeter Hg at ambient temperature. The hydrocarbon impregnation may include also a normal paraffin having more than 18 carbon atoms in the molecular chain. The paraffin mixture is likewise liquid.

3,654,935

HAIR PROSTHESIS FOR A BALD HEAD AND A METHOD OF MAKING IT AND A METHOD OF SECURING IT

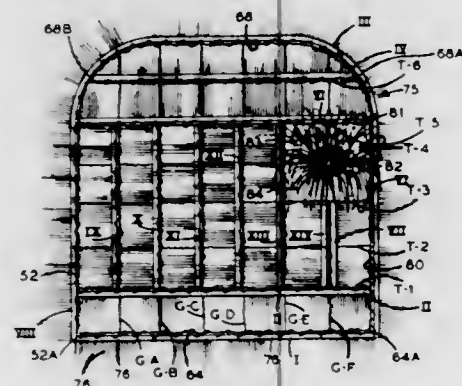
Manuel Brown, 95 Marcus Avenue, New Hyde Park, N.Y.

Filed May 25, 1970, Ser. No. 40,045

Int. Cl. A41g 5/00

U.S. Cl. 132-5

9 Claims



A hair prosthesis or hairpiece to fit a measured bald area on a human head, consisting of a mesh network with a contour perimeter thread formed and disposed to lie along the contour of the bald area, with the mesh network having warp and woof loop and lock-stitched threads within the internal space defined by the contour perimeter thread, with the warp and woof threads tied securely at all crossovers to avoid relative slippage of warp and woof threads; and with their wefts fastened to the warp and woof threads and held with pre-selected lay position thereon; and with anchoring means on the bald head to be fitted, such means consisting of head base rails anchored to a series of growing their tufts in full or part outline around the bald area, with means on the prosthesis, such as Velcro pile sections for anchoring on co-operating Velcro hook sections tied to the head base rails to releasably hold the Velcro pile sections and thereby the hair prosthesis.

3,654,936

PROCESS FOR STRAIGHTENING HUMAN HAIR

Theodor Wajaroff, Darmstadt, Germany, assignor to Wella Aktiengesellschaft, Darmstadt, Germany

Filed Oct. 29, 1970, Ser. No. 85,276

Claims priority, application Germany, Nov. 6, 1969, P 19 55 823.7

Int. Cl. A45d 7/00

U.S. Cl. 132-7

12 Claims

Human hair is straightened by a two-stage process wherein the hair is first submitted to the action of a keratin softener and after removal of at least part of the softener from the hair is then treated with a swelling or penetration-promoting agent, while being straightened mechanically. The hair is finally subjected to the action of a fixation or neutralizing agent.

The treatment reduces damage to the hair due to chemical or mechanical action.

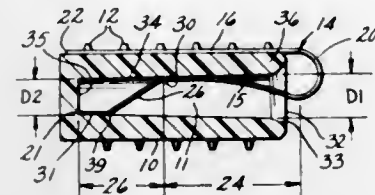
3,654,937
HAIR RETAINING DEVICE
Fredrick T. Meeks, Asheboro, N.C., assignor to General Electric Company

Filed Apr. 29, 1970, Ser. No. 32,977

Int. Cl. A45d 2/14

U.S. Cl. 132-40

6 Claims



A clip for application to hair curlers of different diameters. The clip comprises two legs joined at one end by an open loop, one of the legs being disposed in a cavity in the curler and having a portion spanning the cavity to contact opposite walls thereby securing the clip to the curler.

3,654,938

STRETCH WIGS

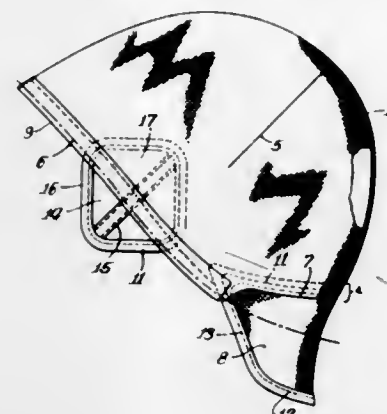
Ross Spangler, and Christine Materre, both of Chicago, Ill., assignors to Helene Industries, Inc., Chicago, Ill.

Filed Oct. 7, 1970, Ser. No. 78,846

Int. Cl. A41g 3/00

U.S. Cl. 132-53

6 Claims



A stretch wig adapted to fit a range of head sizes consists of an elastic mesh fabric wig base having a stiff inelastic frictional stay at the rear edge portion adapted to curve around and engage the nape of the neck to prevent the wig creeping up at the rear. Optionally inelastic stiff stays are provided at the temple portions. The base and stays have hair strands posted thereon to form a wig. The base is cup shaped and is formed by sewing together two or more segments of elastic mesh fabric on substantially radial lines.

3,654,939

PIVOTAL CONNECTION FOR PLASTIC PRODUCT

Emil Davidson, Scarsdale, N.Y., assignor to Guild Molders, Inc., Elmsford, N.Y.

Filed Sept. 14, 1970, Ser. No. 71,913

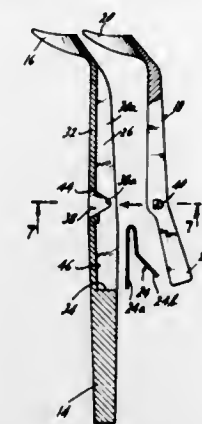
Int. Cl. A45d 40/26

U.S. Cl. 132-88.7

12 Claims

A pivotal connection for a plastic product which includes two members wherein one of the members is provided with opposed seating parts forming a pivot seat which seating parts are in flexible walls and the other of the members is formed with opposed pivot pins and camming means such

that the camming means will be effective to flex and spread the walls of the one member to thereby enable the pivot pins



to enter the respective seating parts to hingedly interconnect the two members. In a typical application, the two members may be constructed to form an eyelash applicator.

3,654,940

METHOD FOR REMOVING RESINOUS OR RUBBER DEPOSITS WITH ORGANIC PEROXIDES

Jack Ritzl, Hamilton, Ohio, assignor to Chemed Corporation, Cincinnati, Ohio

Filed Nov. 25, 1970, Ser. No. 92,837

Int. Cl. B08b 3/08

U.S. Cl. 134-2

9 Claims

Method for removing resinous and rubber films and other deposits from processing equipment or other coated surfaces comprising first applying to the deposit a catalyzed organic solvent solution of an organic peroxide, then activating decomposition of the peroxide-treated deposit by heating for about 15 minutes to about 4 hours at temperatures of about 100° to about 240° Fahrenheit, and simultaneously or subsequently subjecting the "scorched" deposit to the action of an alkaline aqueous cleaning solution.

3,654,941

SHACKLE CLEANING SYSTEM

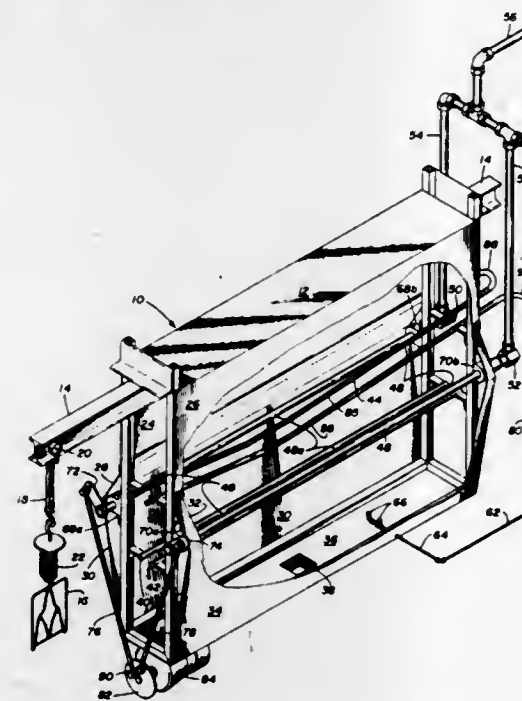
Janus J. Dillon, Irving, Tex., assignor to Food Equipment, Inc., Dallas, Tex.

Filed Apr. 9, 1970, Ser. No. 26,920

Int. Cl. B08b 3/02, 3/10

U.S. Cl. 134-59

5 Claims



Shackles are transported by an overhead conveyor through a housing. Elongated pipes are disposed on opposite sides of

the housing along the path of travel of the shackles, with spray nozzles being positioned along the lengths of the pipes. A source of pressurized fluid is connected to each of the pipes. Each of the pipes are oscillated about a prescribed angle such that oscillating sprays of high pressure fluid are directed against the shackles as they are transported through the housing. Additional sprays are disposed on the bottom of the housing for directing a higher pressure fluid spray upwardly against the shackles. Structure is provided to trip automatic shackles open as they are transported through the housing to facilitate cleaning thereof.

3,654,942

MECHANICALLY LOCATED VALVE AND METHOD OF USING SAME

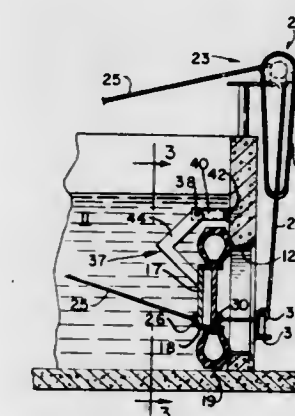
Harry E. Mayer, Newberry, S.C., assignor to Mayer Flood Systems Inc.

Filed June 8, 1970, Ser. No. 44,442

Int. Cl. F16k 1/20, 31/44

U.S. Cl. 137-1

15 Claims



A valve for controlling the flow of fluid through a passage defined in a fluid distribution system and the method of using such a valve for controlling fluid flow, for example, to clean the stall area in a barn located adjacent to the passage. The valve includes a fluid impermeable member which is selectively located relative to the passage to prevent fluid flow, or to permit fluid flow at a selected rate through the range from no flow to maximum flow conditions. A resilient, elastomeric sealing member cooperates with the fluid impermeable member in the passage to prevent fluid flow when the valve is in its closed position. Means are provided for selectively locating the position of the fluid impermeable member throughout its range. The locating means include a winch for controlling cable connected to opposite sides of the valve member. In a preferred embodiment, the fluid impermeable member is secured to a vehicle wheel rim on which is mounted a pneumatic vehicle tire. Means are provided to cause the pivoting of the member, rim, and tire as a unit into and out of a sealing relationship with the passage.

A method of using the valve includes the steps of providing a source of fluid, positioning the valve to control the flow of fluid through the passage, and controlling the movement of the valve member to control the flow of fluid. In a preferred embodiment, the method includes the step of cleaning an area adjacent to the valve, for example, the stall area of a barn.

3,654,943

VORTEX FLUID AMPLIFIER CIRCUIT FOR CONTROLLING FLOW OF ELECTRICALLY CONDUCTIVE FLUID

Donald L. Rexford, Schenectady, N.Y., assignor to General Electric Company

Filed Apr. 8, 1970, Ser. No. 26,503

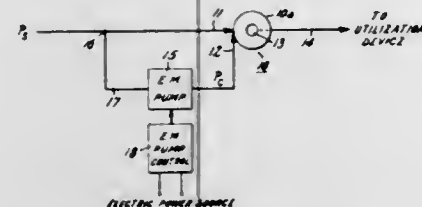
Int. Cl. F15c 1/16

U.S. Cl. 137-9

5 Claims

A small electromagnetic pump connected in the control fluid passage of a vortex type fluid amplifier controls the flow

of a pressurized electrically conductive fluid through the vortex fluid amplifier. The use of a second vortex fluid amplifier supplied from the same source of electrically conductive fluid as the first vortex amplifier, and a second small elec-



tromagnetic pump connected in its control fluid passage provides a circuit for controlling the flow to load circuits connected to the outputs of the two vortex amplifiers. A push-pull control of the two pumps produces a desired proportioning of the flows to the load circuits.

3,654,944

FLUID MIXING CONTROL APPARATUS

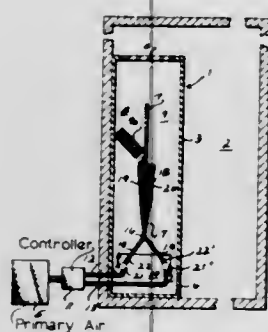
Richard N. Laakaniemi, Milwaukee; Otto R. Munch, West Allis, and Paul H. Sorenson, New Berlin, all of Wis., assignors to Johnson Service Company, Milwaukee, Wis.

Filed Oct. 29, 1969, Ser. No. 872,098

Int. Cl. F15c 1/14, 1/16, 1/20

U.S. Cl. 137-81.5

15 Claims



The present disclosure includes a conditioning air induction unit for conditioning and circulating air in a room. A fluidic amplifier establishes a primary air flow in accordance with room temperature to control the aspiration of the secondary air flow. The fluidic amplifier is an impact modulator, a beam deflector, an inductance device or a vortex device. In all but the latter, the primary flow is vectored into two streams, one directed into a passageway including a coil and the second through a direct air passageway. The primary air streams may be continuously controlled by a mechanical or fluid signal input to control the relative air flow through the two passageways.

3,654,945

REGULATING DEVICE IN WHICH THE PRESSURE OF A FLUID IS REGULATED

Gilles Andre Paul Soviche; Jean Pierre Bues, both of La Celle Saint-Cloud; Cyrille Francois Pavlin, Saclay, and Edouard Maurice Eugene Aime Mace, Saint-Cyr L'Ercole, all of France, assignors to Entreprise de Recherches et D'Activites Petrolieres-Elf, Paris and Bertin & Cie, Plaisir, France

Filed Dec. 30, 1969, Ser. No. 889,162

Claims priority, application France, Dec. 31, 1968, 182515

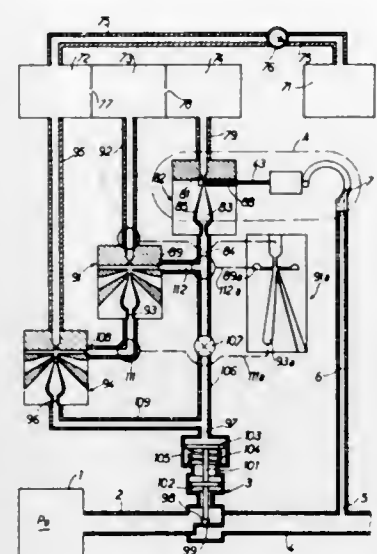
Int. Cl. F15c 3/14

U.S. Cl. 137-81.5

6 Claims

An improved regulating device, in which the regulation is effected by regulating the pressure of a fluid the generating pressure of which is variable, wherein the improvement comprises, in combination, a detector of changes in a physical magnitude, displacement of this detector moves by mechani-

cal means a variable obstruction placed at the outlet of a power jet, the output of which is amplified and supplies an



output pressure which controls a pneumatic device acting on the said physical magnitude.

3,654,946

FLUIDIC DIODE

Andre Wieme, Zwevegem, Belgium, assignor to N.V. Bekaert S.A., Zwevegem, Belgium

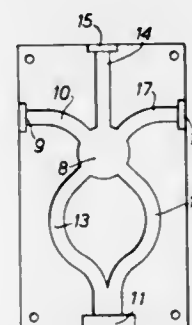
Filed June 10, 1970, Ser. No. 45,020

Claims priority, application Netherlands, June 17, 1969, 6909193

Int. Cl. F15c 4/00

U.S. Cl. 137-81.5

10 Claims



A switch element with irreversible operation for fluid-controlled logical circuits, particularly a fluidic diode, i.e., an element the purpose of which is to allow a flow of fluid to pass between two connections in one direction, and to channel a flow which is introduced into the element in the opposite direction towards a ventilation aperture via which the fluid then escapes.

3,654,947

FLUID SWITCHING DEVICE

Richard W. Hatch, Jr., Norwell, and Paul M. Blaiklock, Newton Centre, both of Mass., assignors to Fluidic Industries, Inc., Hingham, Mass.

Filed Oct. 1, 1970, Ser. No. 77,244

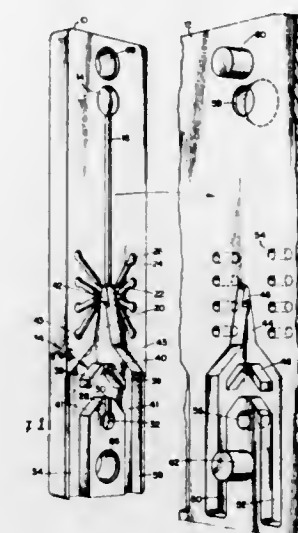
Int. Cl. F15c 1/04

U.S. Cl. 137-81.5

13 Claims

A pure fluid device for providing extremely fast switching between two digital states. A laminar input stream is caused to interact with a control stream within an interaction zone which includes an apertured target through which the input stream flows. In the presence of a control stream, the input

stream is caused to diffuse and distort into engagement with the target, resulting in a rapid reduction in output pressure.



The device features extremely low control flow which permits driving by a single device of a large number of like devices in a logic system.

3,654,948

BALANCED PRESSURE REGULATOR

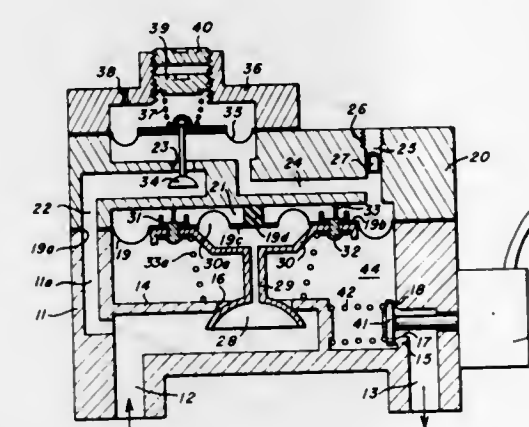
Richard E. Nelson, Palos Verdes Peninsula, Calif., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 2, 1970, Ser. No. 86,239

Int. Cl. F16k 31/365

U.S. Cl. 137-118

10 Claims



A balanced pressure regulator valve having a pressure chamber between a diaphragm actuator for the valve and a portion of the valve stem to provide an inlet pressure in the pressure chamber which is substantially equal to the inlet pressure on the inlet side of the valve. The portion of the diaphragm forming the balancing pressure chamber has a fixed portion for the adjoining portion of the diaphragm to react against while permitting the remaining portion of the diaphragm to respond to outlet pressure to variably position the valve.

3,654,949

GAS LIFT VALVE

Everett D. McMurry, Houston, Tex., assignor to McMurry Oil Tools, Inc., Houston, Tex.

Filed Jan. 18, 1971, Ser. No. 107,027

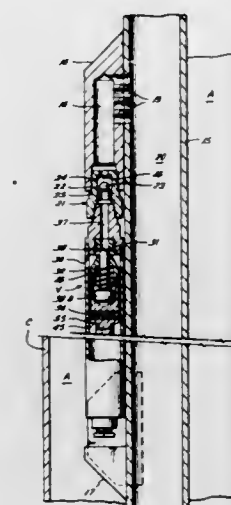
Int. Cl. F04f 1/08

U.S. Cl. 137-155

16 Claims

There has always been a never ending pursuit of greater efficiency in gas lift operations by which the nearest possible, to optimum amount of gas and of gas pressure energy, is used to lift liquid from wells. One important factor in the never ending pursuit of this goal, is effective control of "valve

spread," and convenience of modification of valve spread to accommodate system parameters. This invention is an improvement in gas lift valves, which improvement relates to valve spread in valves embodying "lost motion" features, to



ease and convenience of modification the valve opening and/or valve closing responses, by the combination of "lost motion" valve features with a certain detent means operating between the valve chassis or housing and a valve actuator or carrier.

3,654,950
VALVE

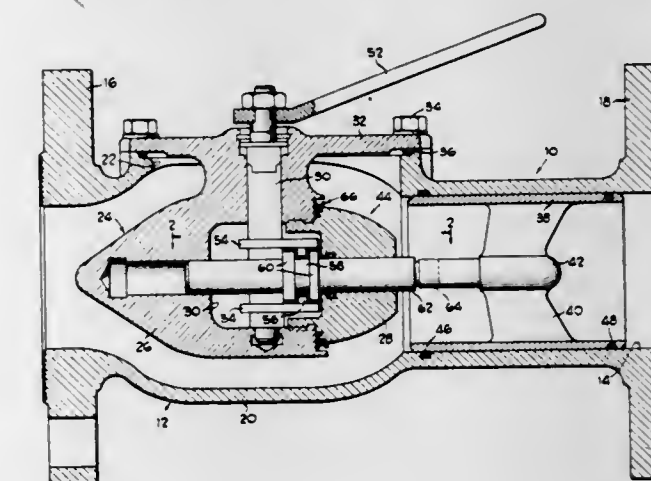
John R. Hamm, Mentor, Ohio, assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Apr. 20, 1970, Ser. No. 29,815

Int. Cl. F16k 1/06, 1/12

U.S. Cl. 137-219

3 Claims



An axial sleeve valve movable by a toggle mechanism between open and closed positions with respect to an interchangeable shroud cooperates with a pressure energized valve seat carried by the shroud to close the valve for the passage of fluid. The sleeve valve is moved to be slightly spaced from or to barely contact the valve seat which is flexed by the pressure differential created essentially by the position of the sleeve valve, i.e., is pressure energized, to perfect the seal with the sleeve valve. An operating mechanism permits quick operation of the valve and also limits the movement of the sleeve valve when the sleeve valve is moved to its closed position.

3,654,951

LIQUID STORAGE FACILITY INCLUDING SELF-ACTUATING DISCHARGE CONDUIT

Ivo C. Pogonowski, and Paul D. Carmichael, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed July 1, 1970, Ser. No. 51,426

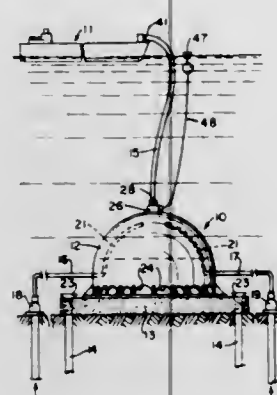
Int. Cl. B65h 75/38

U.S. Cl. 137-355.16

7 Claims

The invention relates to an underwater storage facility particularly adapted for holding a hydrocarbon liquid having a

specific gravity less than the specific gravity of water. The facility includes a liquid storage tank fixedly positioned beneath the water's surface usually at the ocean floor. A network of conductors communicates the storage tank with one or more offshore wells whose production is delivered to the



tank. A discharge conduit communicated with said tank, when in operating position extends to the water's surface. When in a non-operating position, the conduit is coiled into a compact bundle at the tank whereby to be beyond the reach of floating vessels, and yet not subject to abrasive wear at the ocean's floor.

3,654,952

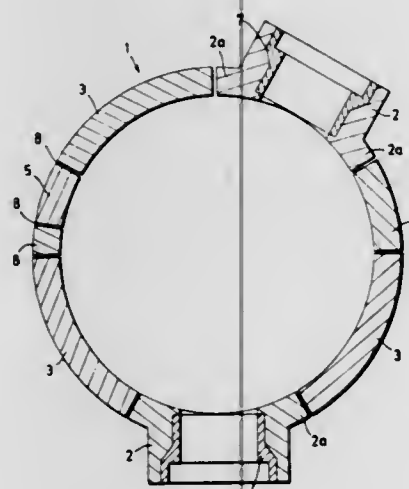
MANHOLE SETUP FOR SEWER SYSTEMS

Harald O. Howe, Ahrstr 40, 5023 Lovenich, and Wolfgang Zschke, Gobenstr 16, Cologne 1, both of Germany
Filed Nov. 24, 1970, Ser. No. 92,409

Claims priority, application Germany, May 26, 1970, P 20 25 540.7

Int. Cl. E02d 29/14

U.S. Cl. 137-363



A manhole setup is provided for sewer systems which consists of at least two connecting points for an inlet and/or an outlet by means of subsequent pipe connecting adapters, such as clay pipes. Manhole rings are mountable on the manhole setup which are characterized in that the manhole setup and wall parts have vertical subdivision. The wall parts are subdivided in wall segments, each having arch length with graduated radians.

3,654,953 VALVE MEANS FOR CONTROLLING DISCHARGE OF WASTE LIQUID INTO PNEUMATIC SEWAGE DISPOSAL SYSTEM

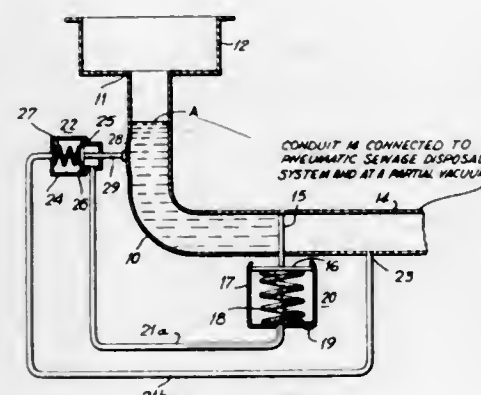
Manfred Otto Hagdorn, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Nov. 12, 1970, Ser. No. 88,539

Claims priority, application Sweden, Nov. 13, 1969, 15590/69
Int. Cl. F16k 21/18, 31/12

U.S. Cl. 137-395

11 Claims



Waste liquid is discharged into a pneumatic sewage disposal system from a drain conduit into which such liquid flows from a place in a kitchen or laundry or a fixture in a bathroom like a bathtub or wash basin, for example. A main valve of valve structure, which is operatively associated with the drain conduit for controlling flow of waste liquid into the sewage system, moves from its closed position toward its open position and back to its closed position with increase and decrease, respectively, in the hydrostatic pressure of waste liquid in the drain conduit.

3,654,954

METERING VALVE ARRANGEMENT FOR OIL CONTROL

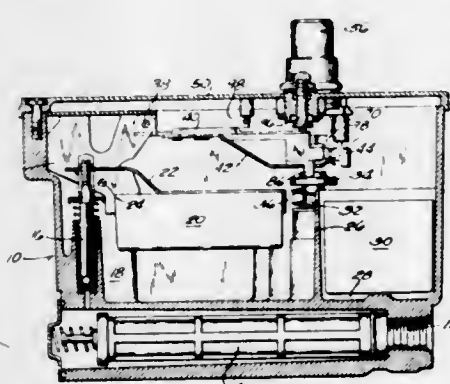
Harry L. Giwosky, Milwaukee, Wis., assignor to Controls Company of America, Melrose Park, Ill.

Filed Jan. 4, 1971, Ser. No. 103,632

Int. Cl. F16k 31/524

U.S. Cl. 137-400

5 Claims



The float controls the inlet valve to maintain a constant level in the float chamber. Flow from the chamber is metered by the stem which is positioned by an idler lever which follows the configuration of the cam carried by a gear segment which is rotated by pinion gear on the lower end of the manually actuated knob. The cam contour is easily controlled and will remain the same in service. The cam is spring loaded against adjusting screws positioned to permit independent adjustment of the low (pilot) and high flow rates. The adjusting screws are respectively accessible and adjustable through the knob when it is in the pilot and high flow positions.

3,654,955

KINETIC ENERGY CISTERNS

Ronald John Roach, and Graham George Mitchell, both of Blair Athol, Australia, assignors to Gramall Industries Proprietary Limited, Blair Athol, Australia

Filed Dec. 8, 1970, Ser. No. 96,178

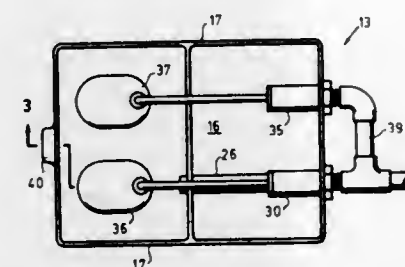
Claims priority, application Australia, Dec. 11, 1969,

65124/69

Int. Cl. F16k 31/28

U.S. Cl. 137-423

5 Claims



A cistern for connecting to a low pressure hot water supply network containing two float valves, one float valve being positioned above an ejector contained within the cistern and arranged to eject water from the cistern upon opening of that float valve to thereby further lower water level and open that float valve still further, so that kinetic energy of flow of discharge from the float valve is utilized in lieu of elevation of the cistern to provide head for hot water flow, the second float valve being arranged to discharge directly into the cistern after the first has partially opened to thereby prevent hunting of the first float valve.

3,654,956

SEALED RESERVOIR FOR HYDRAULIC BRAKE SYSTEMS

Kaoru Tsubouchi, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

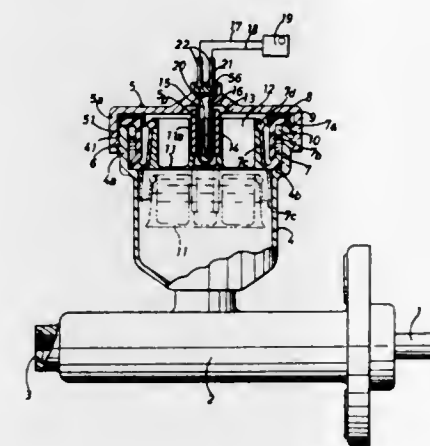
Filed Dec. 22, 1970, Ser. No. 100,633

Claims priority, application Japan, Dec. 25, 1969, 44/1107

Int. Cl. B65d 25/00; F16l 55/04

U.S. Cl. 137-558

9 Claims



Disclosed herein is a reservoir of a master cylinder for hydraulic brake systems in which a cap is screw threaded over a casing, and the screw threads of the cap and the casing form a spiral air-passageway to communicate atmospheric pressure onto a brake fluid seal. The seal includes a float member and a resilient member having a radially extended annular portion, a thick-walled portion to form a chamber against the casing wall and a vertically expansible portion to hold the floating member at the top end thereof. The chamber between the casing wall and the resilient member stores excess brake fluid as well as contaminants therein and the resilient member lets the float member float up and down

in accordance with increases and decreases of the brake fluid quantity so as to maintain constantly good sealing effect.

3,654,957

FLUIDIC CONTROLLED REFILL SYSTEM

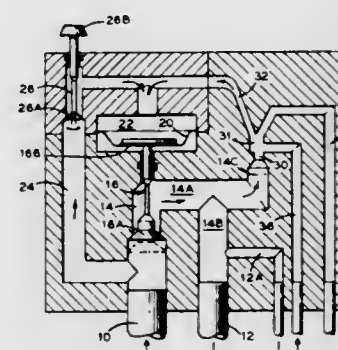
Barry Fichter, Dunellen, N.J., assignor to American Standard Inc., New York, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,326

Int. Cl. F15c 3/06; F16k 31/145

U.S. Cl. 137-596.14

11 Claims



A fluidically controlled refill system which automatically maintains the flow of the refill fluid until a predetermined liquid level or fluid pressure is achieved in the container to be filled. The system includes a diaphragm which interacts with the main valve to hold the valve in the open position during the filling operation, and a fluid switching device which causes the pressure on the diaphragm to decrease in response to predetermined conditions and thus close the main valve.

3,654,958

SEQUENCE VALVE

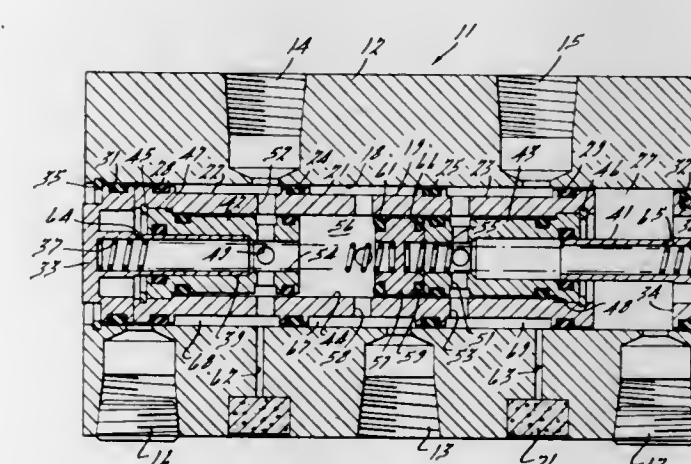
Paul A. Bitonti, Dearborn Heights, Mich., assignor to Ross Operating Valve Company, Detroit, Mich.

Filed Dec. 18, 1970, Ser. No. 99,416

Int. Cl. F16k 11/07, 11/10

U.S. Cl. 137-596.14

7 Claims



A valve which alternately pressurizes two outlet ports from a single inlet port in response to successive signal pulses at the inlet port. The valve comprises a spool with end chambers and a central spring-controlled shuttle. A plurality of such valves may be stacked to form a series air index, so that the outlet ports will be pressurized in sequence. By altering the construction of one or more valves so that their end chambers can be pressurized only from an external source, a binary counter may be formed from stacked valves, whereby the input signals will pressurize the outlet ports non-serially to pressurize a particular outlet port after a fixed member of input signals.

3,654,959

FLUID SUPPLY CONTROL METHOD AND APPARATUS FOR PERIODIC, PRECISE FLUID MERGER

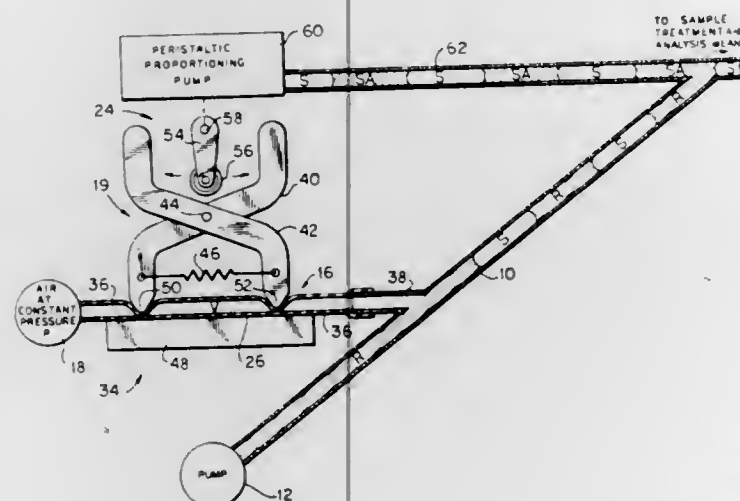
Aaron Kassel, Tarrytown, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Sept. 4, 1970, Ser. No. 69,830

Int. Cl. F17d 1/08; F16k 19/00

U.S. Cl. 137-605

7 Claims



New and improved fluid supply control method and apparatus for periodic fluid merger which are particularly adapted to the periodic, precisely timed introduction of precisely and uniformly sized fluid segments into a fluid stream are disclosed and comprise a segmenting fluid supply line which respectively connects with a pressurized source of said segmenting fluid at substantially constant pressure and with the line in which said fluid stream is flowing. First and second, quick-acting flow interrupting means are operatively associated with said fluid supply line at spaced locations thereon, and a cavity of substantially constant volume is formed between said flow interrupting means. In operation, and for the formation of each of said segments, said first flow interrupting means are opened to effect the filling of said cavity with said pressurized fluid whereupon said first flow interrupting means are closed and said second flow interrupting means are opened to effect the flow of said pressurized fluid from said cavity into said fluid stream to form said segments. A form of the invention is disclosed wherein said fluid supply line is constituted by a compressible, resilient tube and said flow interrupting means comprise means to compress and close said tube at spaced locations thereon. In this disclosed form, the cavity is formed by the volume of the tube which extends between said flow interrupting means.

3,654,960

MODULAR HYDRAULIC SYSTEM

Henry E. Kiernan, Huntington Station, N.Y., assignor to Hydro-Stack Mfg. Corp., Huntington, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,524

Int. Cl. F17d 1/00

U.S. Cl. 137-608

17 Claims

A modular hydraulic system is provided. Each of the components of the system is contained in a generally rectangular housing unit formed of a plurality of opposed pairs of walls including end walls, front and rear walls, and top and bottom walls. At least one passageway extends into each unit between the component and at least one of the walls of that unit. One of the walls of each opposed pair is adapted to be coupled to the other wall of the corresponding pair of another unit of the system with the walls in surface-to-surface contact and the passageways terminating on the abutting

walls in aligned registry. The units are coupled to one another by means of a plurality of fasteners with each



fastener passing partially through each of the housings to be coupled.

3,654,961

ROTARY PERCUSSION DRILL HAVING A HYDRAULICALLY ACTUATED PERCUSSION DEVICE

Albert Phillips, 465 Kiwanis Avenue, Morgantown, W. Va.

Original application Mar. 14, 1969, Ser. No. 807,388, now

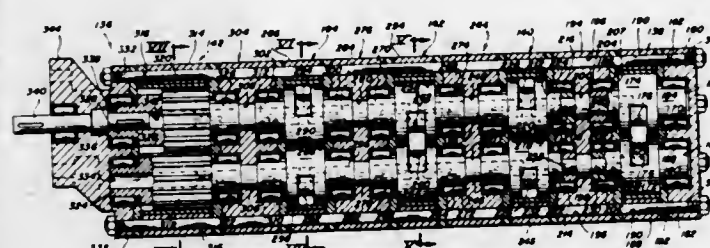
Patent No. 3,547,206, dated Dec. 15, 1970. Divided and this

application July 31, 1970, Ser. No. 60,023

Int. Cl. F15b 21/02

U.S. Cl. 137-624.13

9 Claims



The percussive forces are imparted to the drill rod by a hydraulically actuated reciprocating piston housed in a cylinder having fluid openings on opposite sides of the piston. Fluid under pressure is supplied alternately to the respective openings to reciprocate the piston in the cylinder from a multi-valve control device. A timing mechanism is included in the multi-valve control device to open and close the valve ports within the valve to supply pressurized fluid alternately to the openings in the cylinder on opposite sides of the piston and to alternately vent the pressurized fluid from the cylinder. Pressure accumulators are employed as surge devices for excess fluid supplied to the cylinder for each stroke of the piston.

3,654,962

VALVES

John V. Fredd, Celina, and Jack W. Tamplen, Dallas, both of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Oct. 3, 1969, Ser. No. 863,524

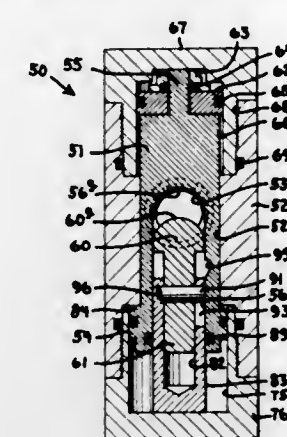
Int. Cl. F16k 5/02, 5/04, 5/06, 11/14

U.S. Cl. 137-625.11

68 Claims

Valves of the sliding gate and rotary plug types having a body with inlet and outlet ports, an apertured closure as-

sembly controlling flow therethrough including a primary closure member and a secondary closure member, and a soft seal means surrounding at least one of said ports and sealing between the body and the closure assembly, said secondary



closure member co-acting with said primary closure to close said aperture means of said closure assembly prior to movement of said aperture means past said seal means to maintain effectiveness of said seal means between the body and closure assembly. Single and multiple port sliding gate valves and cylindrical, tapered, and ball type plug valves provided with such closure assemblies are disclosed.

3,654,963

ELECTRIC CONTROL VALVE

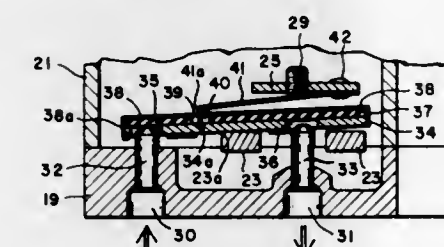
Frederik J. Ages, Rolling Hills Estates, Calif., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 4, 1970, Ser. No. 34,226

Int. Cl. F16k 31/06

U.S. Cl. 137-625.65

1 Claim



A relay operated valve wherein a rectangular armature is pivoted intermediate its ends on a side edge of a U-shaped magnet core near its open end and is rockable to selectively engage one or the other of two valve seats. An L-shaped leaf spring has its long leg extending generally parallel to the armature and an end thereof fixed on the valve body, with the short leg thereof extending substantially at a right angle from the other end of the long leg and into a transverse groove in the armature to yieldably pivot the armature away from the magnet and into engagement with one of the valve seats and to operably hold the armature in the valve.

3,654,964

PRESSURE VESSELS

Jean Mercier, 501 Bloomfield Avenue, Caldwell, N.J., and Jacques H. Mercier, 49 Rue de Naples, Paris, France

Filed Feb. 20, 1970, Ser. No. 13,089

Claims priority, application France, Mar. 3, 1969, 690563

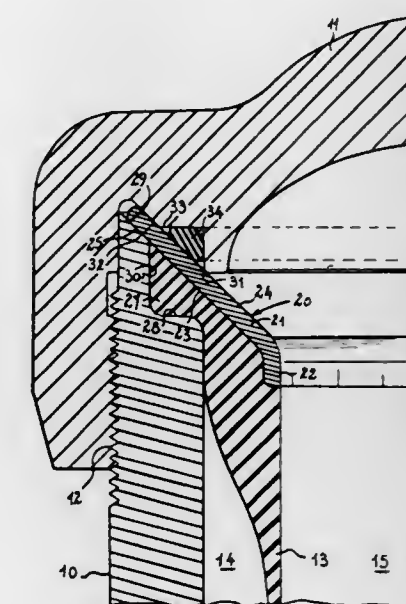
Int. Cl. F16l 55/00

U.S. Cl. 138-30

11 Claims

The present invention relates to a pressure vessel in the form of a container having an enlarged mouth with an externally threaded outer periphery. A cover member having a depending internally threaded wall portion is adapted to be screwed onto the threaded mouth of the container, the cover

member and the container having ports leading thereinto. A deformable partition in said container divides the latter into two variable volume chambers in communication respectively with said ports, said deformable partition having a mouth which is secured to a portion of a thin annular supporting member of resilient material, said supporting member having



an additional portion extending outwardly from said first portion and two concentric annular zones of retention are provided for said additional portion of said annular supporting member, the innermost annular zone providing a resilient seal and the outermost annular zone providing rigid retention of the outer periphery of said annular supporting member.

3,654,965

CLOSURE MEMBERS FOR PIPE SECTIONS

Jean Charles Marie Gramain, Paris, France, assignor to Pneumatiques, Caoutchouc Manufacture et Plastiques Kleber-Colombes, Colombes, France

Continuation-in-part of application Ser. No. 737,500, June 7,

1968, now abandoned. This application June 1, 1970, Ser.

No. 42,308

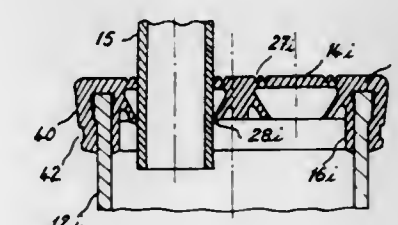
Claims priority, application France, June 25, 1967, 111805;

Oct. 12, 1967, 124,310

Int. Cl. F16l 55/10

U.S. Cl. 138-89

2 Claims



This invention relates to closure members for closing the open end of a pipe section which is so arranged that it will allow the connection of a pipe having a diameter less than that of the pipe section. The closure member itself comprises a plug which has means incorporated therewith to limit axial movement and thus the depth of its passage into the open end of the pipe section and also resilient joint means for application to the internal wall of this open end. The plug also includes diaphragm means composed of an easily cuttable material so that a pipe can be passed therethrough that has a diameter less than that of the open end of the pipe section to which it is to be connected.

3,654,966

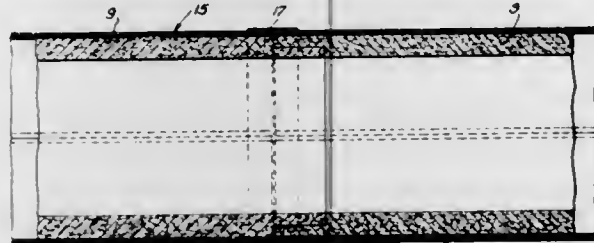
JACKETED FIBROUS DUCT

David Waksman, Roeland Park, Kans., assignor to Certain-Feed Saint Gobain Insulation Corporation, North Bala Cynwyd, Pa.

Filed Jan. 26, 1970, Ser. No. 5,537
Int. Cl. F16l 9/14

U.S. Cl. 138—141

8 Claims



A duct comprising a tubular body of glass fibers and a surrounding jacket formed of laminated sheet material of which the inner layer comprises a substantially vapor impervious heat sealable thermoplastic resin and of which the outer layer is formed of sheet material, contributing strength to the joint and which is also substantially vapor impervious, the opposite edges of the sheet laminate being brought together around the tubular body and having the thermoplastic resin layers of said opposite edges heat sealed together. A method for applying the jacket is also disclosed, comprising heat sealing edge portions of the jacket together to form a slack loop larger than the perimeter of the duct body, assembling the loop and duct body and thereafter tightening the slack loop on the body by a further heat sealing operation.

3,654,967

TEXTILE-REINFORCED ALL-POLYMERIC HOSE AND METHOD OF MAKING SAME

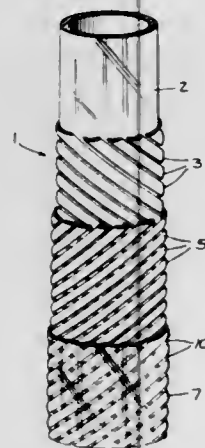
William J. Atwell, Bloomingdale, and Lawrence Cranston, Ramsey, both of N.J., assignors to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of application Ser. No. 818,236, Apr. 22, 1972, now abandoned. This application July 17, 1970, Ser. No. 55,784

Int. Cl. F16l 9/14

U.S. Cl. 138—144

7 Claims



An all-polymeric textile-reinforced hose particularly suited for pressure service, typically an all-nylon hose, and a method of making same are disclosed. The hose comprises an inner thermoplastic tube, two or more successive layers of thermoplastic textile reinforcement wound helically (spirally), each successive helically disposed reinforcing layer being disposed oppositely to the preceding layer, and a polymeric outer protective jacket. The innermost reinforcing layer is fused to the inner tube and successive reinforcing layers are fused to one another. This fusion is typically accomplished by softening with a resorcinol-water solution fol-

lowed by juxtaposition of the components to be joined after which the resorcinol softening agent is removed with a water bath. Before the outer polymeric jacket is applied, the assembly is softened with a softening agent which is thereafter removed; this effects activation of the plastic in the outer helical textile layer and such activation, coupled with the activation in the rest of the structure as a result of previous treatments with a softening agent and removal thereof, enhances bonding of the outer jacket to the assembly.

The textile reinforcement may be constituted by synthetic multifilament yarns made of continuous thermoplastic filaments, having a total twist (including any so-called producer's or manufacturer's twist) of from 0 to 15 turns per inch, preferably from 1 to 5 turns per inch. Alternatively, but generally less preferably, the reinforcement may be formed of thermoplastic staple yarns or of so-called monofil.

3,654,968

STEEL WIRE CAGE WIRE FOR CHEMICALLY PRESTRESSED CONCRETE PIPE

Katsuhisa Mizuma, Fujisawa, Japan, assignor to Koushuha-Netsuren Kabushiki Kaisha, Tokyo, Japan

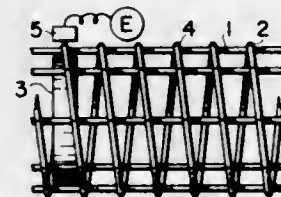
Filed Feb. 18, 1970, Ser. No. 12,363

Claims priority, application Japan, Mar. 13, 1969, 44/18571

Int. Cl. F16l 9/08

U.S. Cl. 138—176

5 Claims



A wire used in the wire cage of chemically prestressed concrete pipe is effective to restrain the expansion of expansion concrete over a wide range and with a uniform stress during the manufacture of the pipe. The plane of the wire which applies stress to the concrete is approximately straight or mildly curved in section, its width being larger than the diameter of a circular wire having the same cross sectional area and its thickness being smaller than said diameter. The plane which acts on the concrete is provided with projections for spot welding in the formation of the wire cage.

3,654,969

OIL CAN OPENER DRIP COLLECTOR

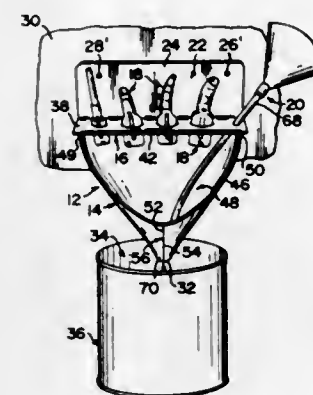
Eugenio A. Vazquez, and Manuel Barcia, both of 2741 S.W. 1st Street, Miami, Fla.

Filed Nov. 3, 1969, Ser. No. 873,594

Int. Cl. B67c 11/00

U.S. Cl. 141—106

4 Claims



For use in automobile service stations, a collector for can opening spouts, which includes a funnel, shelf means having seats to hold the can opening and pouring spout tools, in

3,654,972

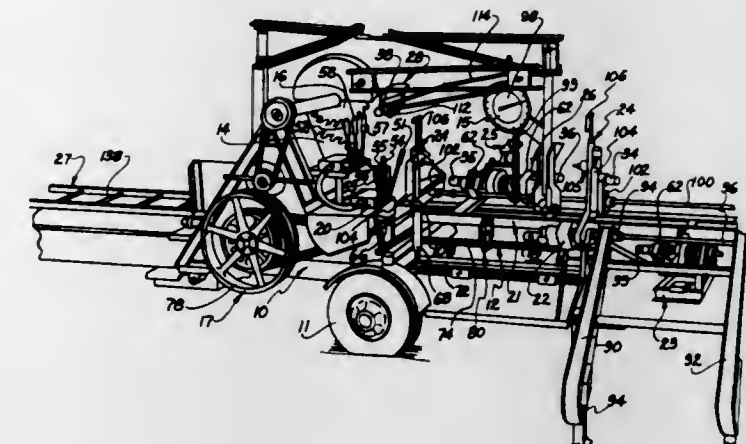
SAWMILL

Frank H. Pryor, Angle Street, Fredericksburg, Ohio
Filed Mar. 21, 1969, Ser. No. 809,169

Int. Cl. B27b 7/00, 29/10

U.S. Cl. 143—52

1 Claim



3,654,970

DEVICE FOR FEEDING POWDERED MATERIAL

Albert Teboul, Lapalud, France, assignor to Commissariat A L'Energie Atomique, Paris, France

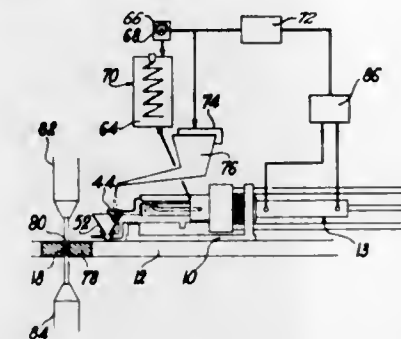
Filed Apr. 27, 1970, Ser. No. 32,178

Claims priority, application France, Apr. 30, 1969, 6913828

Int. Cl. B67c 3/26; B67d 5/00

U.S. Cl. 141—284

6 Claims



A device for automatically supplying successive charges of powder to the die of a press, comprises a spoon carried by a flexible strip fitted with a strain gage associated with an apparatus for continuous weighing of the spoon and a vibratory feeder for pouring the powdered material progressively into the spoon. When the total weight of the powder and spoon attains a predetermined value, the flow of powder into the spoon is stopped and the spoon is moved forward and inverted so as to discharge its contents into the die chamber.

3,654,971

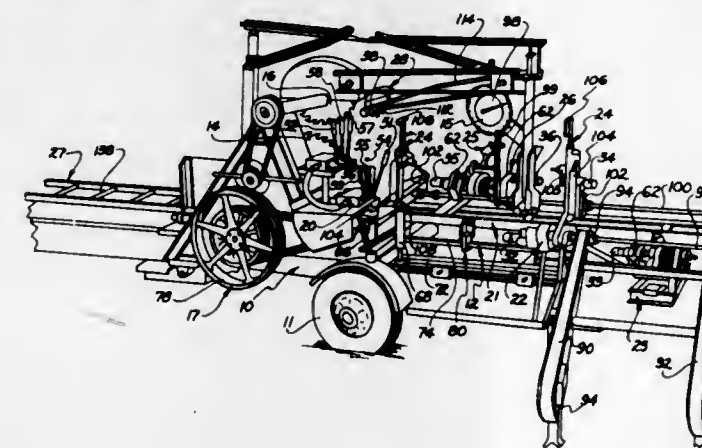
SAWMILL

Frank H. Pryor, Angle Street, Fredericksburg, Ohio
Filed Mar. 21, 1969, Ser. No. 809,246

Int. Cl. B27b 7/00, 31/00

U.S. Cl. 143—52 R

12 Claims



A sawmill of the type which can be controlled by a single operator from a central control station which is characterized by a novel conveyor apparatus which is uniquely adapted for three-way delivery of sawn boards from a cutting station. The sawmill is further characterized by a remote control apparatus that enables the operator to selectively deliver sawn timbers from either side of the discharge end of said conveyor or, if desired, straight from the end of the conveyor in the direction of axial extent thereof.

3,654,973

HYDRAULICALLY CONTROLLED PRESSURE CAP

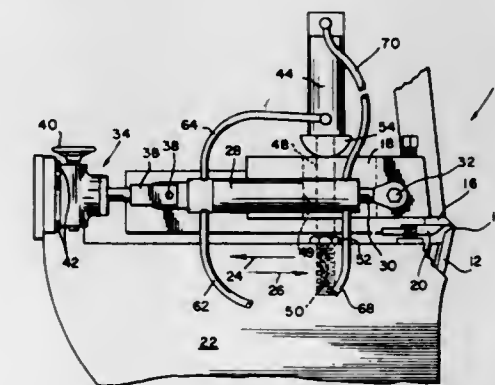
Louis J. Koss, Carmel, Ind., assignor to Capital Machine Company, Inc., Indianapolis, Ind.

Filed Oct. 19, 1970, Ser. No. 81,684

Int. Cl. B27l 5/06

U.S. Cl. 144—178

11 Claims



In a veneer slicer including a knife having a cutting edge, a knife carrier, a pressure bar, and a carriage or pressure cap for the pressure bar, the carriage being movable relative to the knife carrier and arranged to hold the pressure bar in a predetermined spaced relationship relative to the cutting edge, the improvement comprising first fluid motor means for moving the carriage to move the pressure bar toward and away from the knife, clamping means, and second fluid motor means for operating the clamping means to clamp the carriage in a selected position to hold the pressure bar in a selected position relative to the cutting edge.

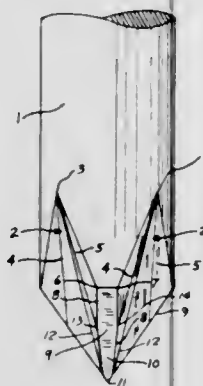
3,654,974 SCREW DRIVERS

Bertron Otis Barnes, 6054 Claremont Avenue, Oakland, Calif.

Filed Apr. 8, 1970, Ser. No. 26,657
Int. Cl. B25b 15/00

U.S. Cl. 145—50 A

1 Claim



A Phillips type screw driver bit in which the four radially extending vanes at the bit end of the screw driver shank are provided with wall portions near the apex of the bit that will contact with the adjacent wall surfaces in the cruciform slot in the screw when the bit is inserted into the cruciform slot. The point of novelty lies in providing the wall portions of the vanes with relieved areas that will be spaced from the adjacent wall surfaces in the cruciform slot that lie at the top surface of the screw head. In other words, when the screw driver bit is seated in the cruciform slot in the screw, the relieved portions of the side walls of the vanes will be spaced from the adjacent surfaces of the cruciform slot so that there can be no contact between these opposed surface portions and the upper portion of the cruciform slot (in the screw head) cannot become marred or damaged.

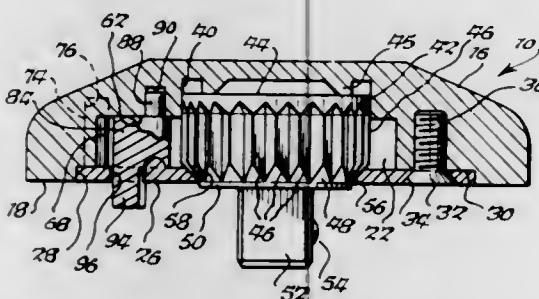
3,654,975 AUXILIARY TOOL HANDLE

George C. Ballsmith, 243 Forbes Avenue, and Richard C. Knoche, 6 Maple Street, both of Tonawanda, N.Y.

Filed Sept. 5, 1969, Ser. No. 855,581
Int. Cl. B25g 1/00, 3/24

U.S. Cl. 145—75

1 Claim



An auxiliary tool handle for attachment to the free end of a hand operable, rotatable tool comprises a body having a cavity therein for receiving a ratchet mechanism. A cover plate closes the cavity and covers the ratchet mechanism. The ratchet mechanism comprises a rotatable circular disc member having teeth about the periphery thereof and an axial extension projecting through the cover plate for insertion in a corresponding recess of the regular handle of a tool. A pair of pawl members are mounted in the cavity of the body and are normally biased by springs into driving engagement with the teeth of the disc member. A pivoted cam member having an operating portion projecting through the cover plate is operative selectively to move either of the pawl members out of teeth engaging position to determine the direction of rotation of the body relative to the disc member.

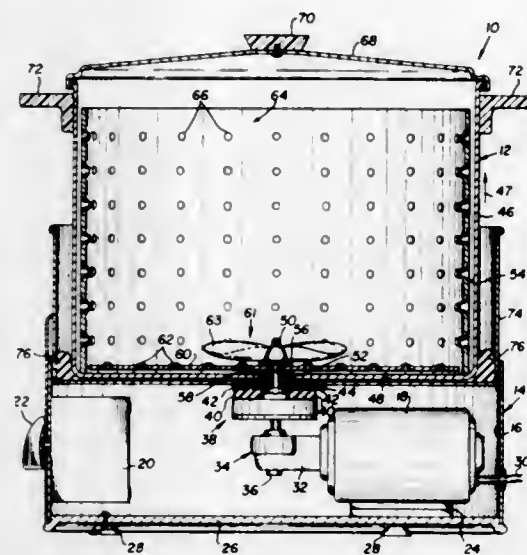
3,654,976 PEELING DEVICE

Louis H. Loeffler, 1247 Minerva Avenue, W. Islip, N.Y.

Filed Feb. 26, 1970, Ser. No. 14,532
Int. Cl. A23n 7/02

U.S. Cl. 146—49 B

9 Claims



A vegetable peeling device including a pot-like housing unit effectively containing a rotary and a relatively stationary cooperating arrangement of peeling members, wherein the drive for said rotary member is readily completed when said unit is placed in a seated position on a stand, and yet said unit is readily movable from said stand, for transport to a work or cleaning station.

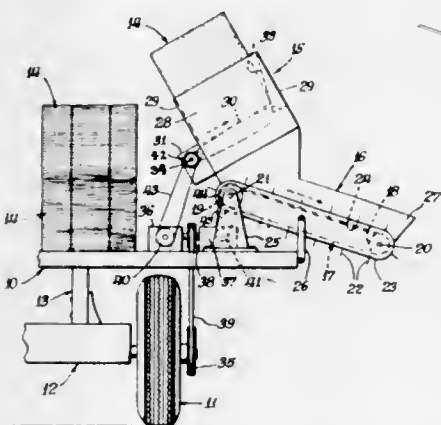
3,654,977 LIVESTOCK FEEDING MACHINE

Edward L. Benno, Route 1, P.O. Box 198, Grayslake, Ill.

Filed Mar. 17, 1970, Ser. No. 20,269
Int. Cl. A01f 29/00, 31/00

U.S. Cl. 146—70.1

2 Claims



A livestock feeding machine comprising a mobile platform carrying bales of hay and a bale cutter wherein the bale cutter comprises a plurality of elongated linear type cutting assemblies arranged above a discharge conveyor and operating to cut bales of hay gravity fed thereto and drop the cut hay on the discharge conveyor.

3,654,978 POWERED CUTTER APPARATUS

Floyd S. Gabel, 5008 N.W. Steason, Oklahoma City, Okla.

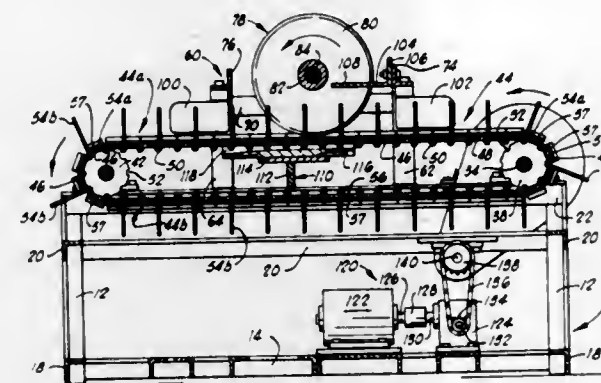
Filed Sept. 29, 1969, Ser. No. 861,771
Int. Cl. B26d 1/28

U.S. Cl. 146—98

5 Claims

A powered machine for slicing bulk meat into relatively thin slices, the machine including a framework which carries rotatably mounted, spaced, disk cutter elements, and stripper

fingers which project between the cutter elements and prevent the sliced meat from being diverted by the cutter elements from an intended path of travel. An endless conveyor



selected differential local resistance. An extruded resilient ring having a seam formed by abutting the two ends of an extruded cross section and wherein the portion at or adjacent the seam provides a differential resiliency whereby the extender gasket formed by the ring is guidably moved when radial and axial pressures are applied to the ring. Several cross sections and surface treatments are indicated which provide superior performance in controlling the movement of the extender and a dimple may be provided in the surface of the resilient ring to index the flow of the ring from between the wheel and tire and in avoidance of scuffing of the ring by the inflation valve base where scuffing is a problem.

3,654,981 EVAPORATORS

Thomas Edmondston Aitchison, 86 Upper Park, Harlow, England

Filed Jan. 19, 1970, Ser. No. 3,803

Claims priority, application England, Jan. 30, 1969, 5,238/69
Int. Cl. B01d 1/22, 1/00; B04b 15/08, 15/02

U.S. Cl. 159—6

3 Claims

is movably mounted on the framework for moving the bulk meat into the cutter elements, and sliding guide plates are mounted on the framework to position the meat on the conveyor before and after slicing.

3,654,979 CARVING BOARD ATTACHMENT FOR PLATTER

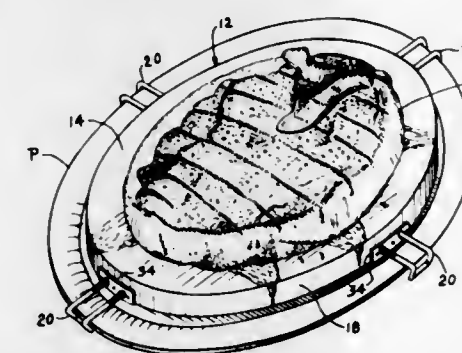
Raymond A. Montgomery, North Racebrook Road, Woodbridge, Conn.

Filed Sept. 24, 1970, Ser. No. 75,069

Int. Cl. A47j 43/18

U.S. Cl. 146—215

5 Claims



Carving board attachment has flat upper and lower faces for easy use, cleaning, and storage. Outward hooks hold it firmly in place on a serving platter.

3,654,980 BEAD SEATER

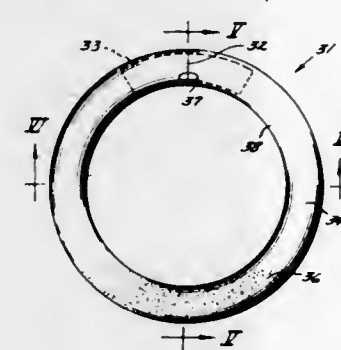
Ian K. Rosen, and William C. Holmgren, both of Muskegon, Mich., assignors to AGSRAD, Inc., Muskegon, Mich.

Filed Jan. 26, 1970, Ser. No. 5,728

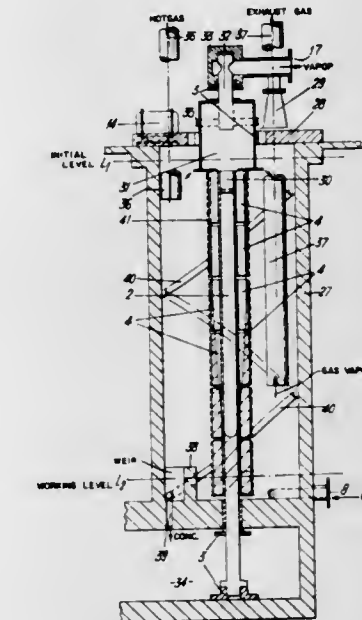
Int. Cl. B60c 25/12

U.S. Cl. 157—1.1

3 Claims



A bead extending resilient ring, one portion of which offers less resistance than the balance of the ring to provide a



An evaporator comprises an enclosure which receives liquid for evaporation, and in said enclosure there is set up by rotor means a substantially vertical rotating cylindrical vortex column of the liquid surrounded by a gaseous medium. The column is either contained in a sleeve which rotates with the column and the rotor, or has an outer surface, without any rigid surround, in open contact with the gaseous medium. The column is vaporized by heat transferred to it from the gaseous medium, and the vapor is conducted from the enclosure. Additional liquid is fed into the enclosure to replace that lost by evaporation and thus to maintain the vortex column.

3,654,982 PROTECTIVE GRILLE

Henri Marcel Robert Labelle, Greenfield Park, Quebec, Canada, assignor to Dynafair Corporation Ltd., Pointe Claire, Quebec, Canada

Filed May 18, 1970, Ser. No. 38,286

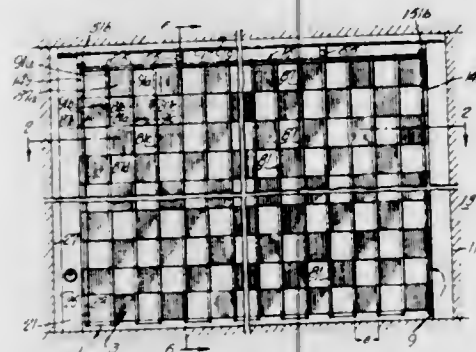
Claims priority, application Canada, Nov. 7, 1969, 067029
Int. Cl. E05d 15/26

U.S. Cl. 160—199

12 Claims

A folding closure having an open pattern curtain formed from a plurality of rods and panels interconnected together. The curtain is movable between open and closed positions supported by an extensible hinge. The hinge is constructed to permit the curtain to follow a curved track when in the open or folded position. Both the hinge and curtain are supported

by frames in the opening to be closed, some of which have a reversible wall panel permitting the frame to be used at dif-



ferent locations to support the curtain either at its ends or intermediate its ends.

3,654,983

DEVICE FOR FORMING PLEATS ON CURTAINS

Wilhelm Hachtel, 6994 Niederstetten, Germany

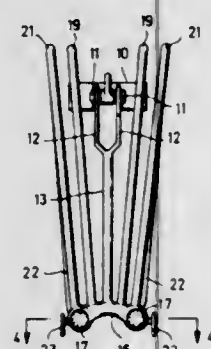
Continuation of application Ser. No. 770,612, Oct. 25, 1968, now abandoned. This application Sept. 15, 1970, Ser. No. 72,518

Claims priority, application Germany, Dec. 30, 1967, H 64 926; May 18, 1968, P 17 78 643.5

Int. Cl. A47h 13/16

U.S. Cl. 160—348

11 Claims



A one-piece pleat forming curtain hanger has a stiff crossbar on a hanging arm which extends in the direction in which the curtain is drawn. Upward pointing pleat-holding arms, forwardly extending horns, and optionally, hooking devices all extend from the crossbar.

3,654,984

PORCUPINE SHELL MOLDS AND METHOD OF MAKING SAME

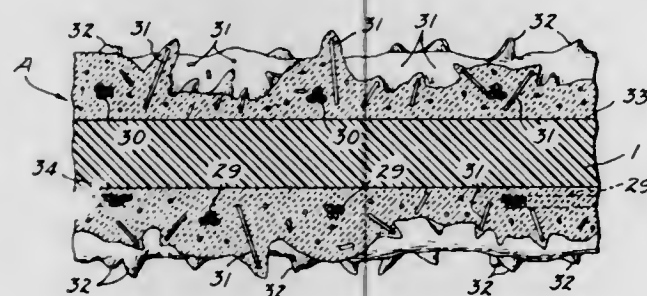
Edward J. Mellen, Jr., East Cleveland; Edmond M. Baker, Minerva, and John M. Webb, Chagrin Falls, all of Ohio, assignors to said Mellen, by said Baker and said Webb

Continuation-in-part of application Ser. No. 781,069, Dec. 4, 1968, now Patent No. 3,508,602, Original application Dec. 2, 1965, Ser. No. 511,129, now Patent No. 3,452,804. Divided and this application Jan. 27, 1970, Ser. No. 6,241

Int. Cl. B22c 9/12

U.S. Cl. 164—26

5 Claims



A thermally insulated, unbacked, porcupine shell mold made by applying to a wax pattern a series of layers of

ceramic material, adhering to the ceramic layers in a single application a multiplicity of stiff destructible threadlike fibers with a length of about 0.4 inch to about one inch, said fibers being randomly disposed to project outwardly in closely spaced relation, thereafter applying a plurality of layers of additional ceramic material to cover said fibers and to cause the outer ceramic layers to form projections conforming to the shape of said fibers, and firing the mold to remove the wax and burn out said fibers.

3,654,985

PROCESS FOR DIE CASTING BRASS USING A SILICONE LUBRICANT

Edwin M. Scott, Jr., Tujunga, Calif.

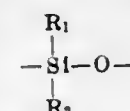
Continuation-in-part of application Ser. No. 684,497, Nov. 20, 1967, now abandoned. This application May 14, 1970, Ser. No. 37,340

Int. Cl. B22c 3/00

U.S. Cl. 164—72

8 Claims

The invention solves a persistent problem in die casting of brass alloys, wherein lubrication of the steel die or mold is generally difficult. In accordance with the invention, the surfaces of the mold to come in contact with the molten brass are coated with a film of a phenyl methyl silicone fluid which is a linear polymer having repeating units of the element



wherein R_1 is methyl and wherein R_2 is chosen selectively to be methyl or phenyl so that the resulting polymer has a phenyl-methyl ratio of between about 0.60:1.0 and about 0.85:1.0 and a viscosity at 77° F. of from about 250 to about 1,000 centistokes. The fluid may be applied in the form of a dilute aqueous dispersion, or as a dilute solution in a suitable solvent such as petroleum naphtha.

3,654,986

AUTOMATIC MOLDING APPARATUS AND MOLD-MAKING MACHINE THEREIN

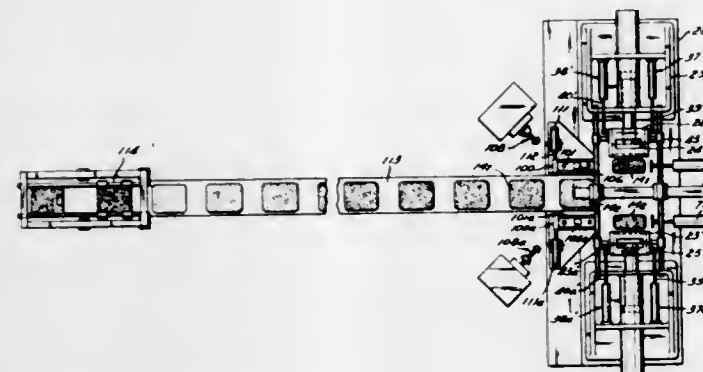
Karl Jansen, Cleveland, Ohio, assignor to The Austin Company

Filed June 19, 1970, Ser. No. 47,715

Int. Cl. B22c 15/08

U.S. Cl. 164—173

16 Claims



Automatic molding apparatus having a mold making machine with horizontally reciprocable operating parts for simultaneously making mold pieces with cope and drag cavities. The mold pieces are transferred onto one end of a conveyor or conveyors with each drag cavity facing upward to facilitate core setting. At the opposite end of the conveyor the mold pieces are stacked for pouring with the cope cavity in one facing downwardly and registering with the upwardly facing drag cavity in another.

3,654,987

GASIFIABLE CASTING CARE

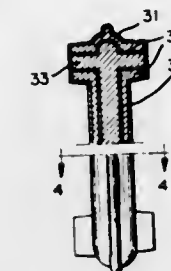
Adalbert Wittmoser, Lampertheim, Germany; Johannes Schade, Pettit-Lancy-Geneve, Switzerland, and Erich Krzyzanowski, Ludwigshafen (Rhine), Germany, assignors to Full Mold Process, Inc., Lathrup Village, Mich.

Original application Nov. 1, 1966, Ser. No. 615,866, now Patent No. 3,498,360, which is a division of application Ser. No. 298,678, July 30, 1963, now Patent No. 3,314,116, which is a continuation-in-part of application Ser. No. 270,085, Apr. 2, 1963, now abandoned. Divided and this application Aug. 8, 1969, Ser. No. 871,096

Int. Cl. B22c 9/10, 7/02

U.S. Cl. 164—369

3 Claims



A casting pattern disposed in a molded material and having the configuration of the article to be cast. A core member is located within the outer body member and has the configuration of a cavity to be formed and the casting. The outer body member and the core member are each composed of a material gasifiable substantially without residue upon being subjected to the elevated temperature of a molten casting charge. A first layer of refractory gas permeable material covers the outer body member and remains solid at the elevated temperature of the molten casting charge. A second layer of refractory material covers the entire outer surface of the core member which is exposed to the body member for preventing contact between the casting charge and the core member and being operative to retard the transmission of heat from the molten casting charge to the core member to prevent the gasification of core member until a portion of the metal adjacent the second layer has solidified.

3,654,988

FREEZE PROTECTION FOR OUTDOOR COOLER

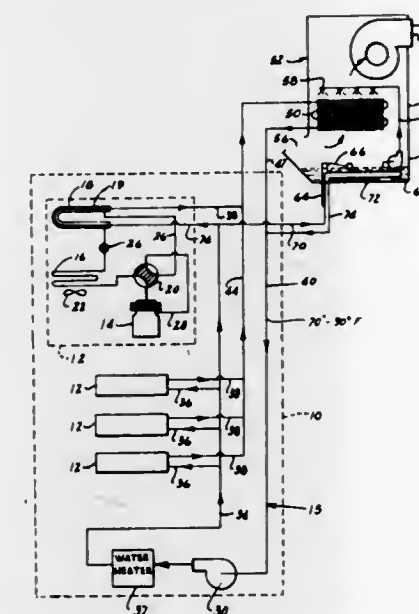
John B. Clayton, III, Shaker Heights, Ohio, assignor to American Standard Inc., New York, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,498

Int. Cl. F25b 29/00

U.S. Cl. 165—17

3 Claims



A room heating-cooling system of the type wherein a water loop extends through a plurality of room air conditioning units to exchange heat therewith, said water loop comprising

an outdoor evaporative cooler and an indoor water heater: the improvement comprising branch water lines connecting the water loop with a heat exchange coil in the sump of the evaporative cooler for keeping the sump liquid above freezing level when the outdoor temperature drops below 32° F.

3,654,989

APPARATUS FOR COOLING CONTINUOUS CASTINGS

Walter Meier, Winterthur; Max Burkhardt, Zurich, and Armin Thalmann, Uster, all of Switzerland, assignors to Concast AG, Zurich, Switzerland

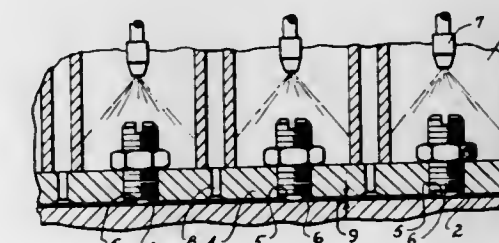
Filed May 28, 1970, Ser. No. 41,203

Claims priority, application Switzerland, May 30, 1969, 8229/69

Int. Cl. B22d 11/12

U.S. Cl. 165—47

9 Claims



A continuously cast strand as it leaves the casting mold is cooled by cooling elements comprising cooling plates having surfaces spaced from the strand by guide elements, preferably adjustable, which protrude from the surfaces of the plates to engage the surface of the strand and establish and maintain a gap between the strand surface and the plate surfaces to permit flow of coolant introduced into the gap through said plates.

3,654,990

HYDRAULIC FRACTURING METHOD

Bobby G. Harnsberger, and Joy T. Payton, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed June 19, 1970, Ser. No. 47,878

Int. Cl. E21b 33/138

U.S. Cl. 166—281

3 Claims

An improved method of fracturing an underground fluid bearing formation penetrated by a well bore for the production of fluids therefrom by injecting a composition capable of forming a fluid permeable barrier in said formation at a pressure sufficient to form fissures therein extending from said well bore, and thereafter maintaining pressure on the composition to set and form a fluid permeable barrier in the formed fissures.

3,654,991

FRACTURING METHOD

Bobby G. Harnsberger, and Joy T. Payton, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed June 19, 1970, Ser. No. 47,879

Int. Cl. E21b 33/138

U.S. Cl. 166—281

8 Claims

An improved method of fracturing an underground fluid bearing formation penetrated by a well bore for the production of fluids therefrom by injecting a composition comprising cement, sand and oil, capable of forming a fluid permeable barrier in said formation at a pressure sufficient to form fissures therein extending from said well bore, and thereafter maintaining pressure on the composition for a predetermined period to permit the composition to set and form a fluid permeable barrier in the formed fissures.

3,654,992

FRACTURING METHOD

Bobby G. Harnsberger, and Joy T. Payton, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed June 19, 1970, Ser. No. 47,880
Int. Cl. E21b 33/138

U.S. Cl. 166—281

3 Claims

An improved method of fracturing an underground fluid bearing formation penetrated by a well bore for the production of fluids therefrom by injecting a composition capable of forming a fluid permeable barrier in said formation at a pressure sufficient to form fissures therein extending from said well bore, and thereafter maintaining pressure on the composition for a predetermined period to permit the composition to set and form a fluid permeable barrier in the formed fissures.

3,654,993

METHOD FOR INHIBITING CORROSION IN A WELL

Frank W. Smith, Plano, and Patrick N. Parker, Allen, both of Tex., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Apr. 6, 1970, Ser. No. 26,144

Int. Cl. C02b 5/06; C23f 11/10, 11/14

U.S. Cl. 166—279

17 Claims

A corrosion inhibiting composition containing, inter alia, (1) a corrosion inhibitor, (2) at least one material selected from the group of polyacrylic acid, salts thereof, hydrolyzed polyacrylamide, salts thereof, and certain organophosphorus compounds, and (3) at least one acid including and/or in addition to polyacrylic acid if present. A method for treating a well wherein the composition is injected into a subterranean geologic formation and the pH of the composition is raised to cause the formation of a precipitate in situ in the formation.

3,654,994

FRICTION REDUCING IN FLOWING HYDROCARBON FLUIDS

Robert Clayton Slagel, Pittsburgh, and Arnold Eugene Bloomquist, Bethel Park, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

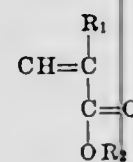
Filed Aug. 6, 1970, Ser. No. 61,852

Int. Cl. C10m 7/26; E21b 43/26; F17d 1/16

U.S. Cl. 166—308

12 Claims

This disclosure is directed to a method and composition useful in reducing the friction loss in flowing hydrocarbon fluids. The composition is an emulsion consisting essentially of a homopolymer or copolymer of



where "R₁" is H or CH₃ and "R₂" is an alkyl group of eight to 18 carbon atoms, a glycol and water. The method comprises mixing the emulsion with the hydrocarbon fluid and then adding a lower alkyl alcohol which causes the polymer to be transferred from the emulsion phase to a hydrocarbon solution.

3,654,995

FLUID CIRCULATING METHOD AND SYSTEM FOR WELLS

Phillip S. Sizer, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed July 8, 1970, Ser. No. 53,186

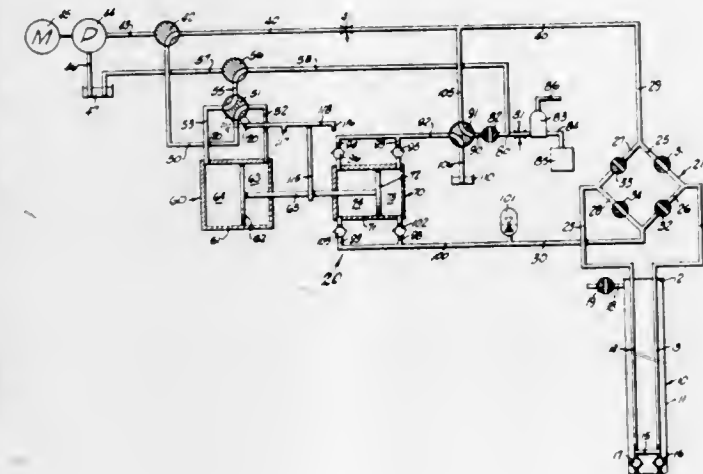
Int. Cl. E21b 43/00

U.S. Cl. 166—131

13 Claims

A system and apparatus for circulating well fluids in a well having a U-tube flow path therein, wherein the well fluids are

utilized to pump loading fluids or dead or gas-free fluids into the well to kill the same, or to circulate well tools in the flow conduit by the pump-down through the flow line method without wasting the circulating fluids, or to displace the circulating fluids from the well, and to load the well with a load-



3,654,996

CEILING CONSTRUCTION

Michael Naglowsky, 709 Walnut Street, Erie, Pa.

Filed Sept. 12, 1969, Ser. No. 857,370

Int. Cl. A62c 35/10

U.S. Cl. 169—2

1 Claim



A ceiling panel and a ceiling constructed of such panels. The panels are made of a powder or finely divided fiber like material supported on a material which will be melted by heat. When the sheet of support material is melted away, the powder will fall and put out the fire without damage to adjacent materials, which is inherent in water fire fighting.

3,654,997

ROOT HARVESTER

Andrei Ivanovich Partyanko, ulitsa Zhikhorskaya, 49, kv. 2, Kharkov; Valentin Andreevich Lastovenko, ulitsa Lermontovskaya, II, kv. 3, Kharkov; Viktor Vasilievich Dudka, prospekt Gagarina, 201, Kharkov; Fedor Leontievich Rodenko, poselok Zhikhov, pereulok Tsiolkovskogo 4, Kharkov; Grigory Ivanovich Onischenko, ulitsa Karavaeva, 15, kv. 17, Dnepropetrovsk; Adolf Senenovich Vatkin, prospekt Karla Marxa, 81, kv. 3, Dnepropetrovsk; Alexri Alexandrovich Pokusa, ulitsa Artema, 28, kv. 36, Dnepropetrovsk, and Ivan Mikhailovich Ruzin, ulitsa Fabrika, 27, Dnepropetrovsk, all of U.S.S.R.

Filed Nov. 4, 1970, Ser. No. 86,889

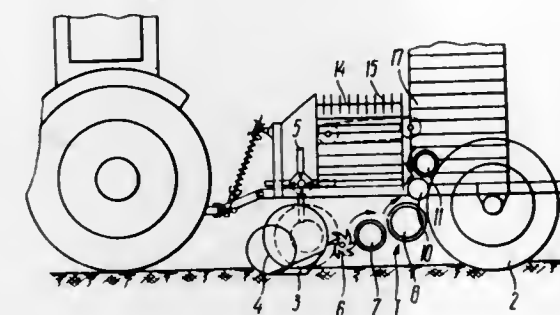
Int. Cl. A01d 17/06

U.S. Cl. 171—58

4 Claims

A root harvester having separating tools located directly

following dig-out tools and consisting of two rows installed transport, particularly over roads and through gates and the one above the other, the separating tools of the first row like, draft transmitting members extending from the outer



being in the form of two pairs of coaxial rotating auger screws, each pair being threaded in different directions.

3,654,998

PHOTO-ELECTRIC PLANT THINNERS

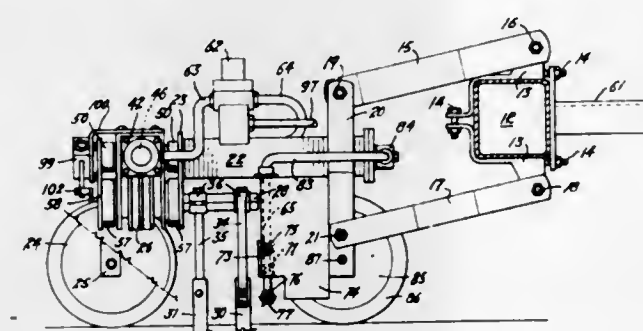
Benjamin A. Shader, Denver, Colo., assignor to The Eversman Mfg. Company, Denver, Colo.

Continuation-in-part of application Ser. No. 673,598, Oct. 9, 1967, now Patent No. 3,512,587. This application Feb. 18, 1970, Ser. No. 12,288

Int. Cl. A01b 63/00, 33/00

U.S. Cl. 172—6

9 Claims



This application employs a plurality of photo-electric pneumatically actuated, plant-row-thinning assembly, there being a plurality of said assemblies in side-by-side relation on a transverse tool bar, each assembly having a pair of similar, axially spaced, integrally connected, pendulously suspended, relatively narrow, arcuate, photo-electrically actuated, root-cutting knives positioned upon opposite sides of a plant row which simultaneously and reciprocally swing laterally of the row so that when one knife exits from the row the other knife will simultaneously enter the row forwardly of the point of exit of the first knife to leave standing seedlings between the successive axial root-cutting paths of said knives. The knives of each thinning assembly are suspended from an axially extending knife shaft which is reciprocally rotated by means of an actuating lever extending upwardly from the knife shaft and terminating between a pair of horizontally aligned pneumatic pistons which are alternately pressurized to actuate the lever back and forth so as to reciprocate the pair of knives laterally of the row.

3,654,999

IMPLEMENT CARRIER

Raymond C. Fischer, Hinsdale, Ill., assignor to International Harvester Company, Chicago, Ill.

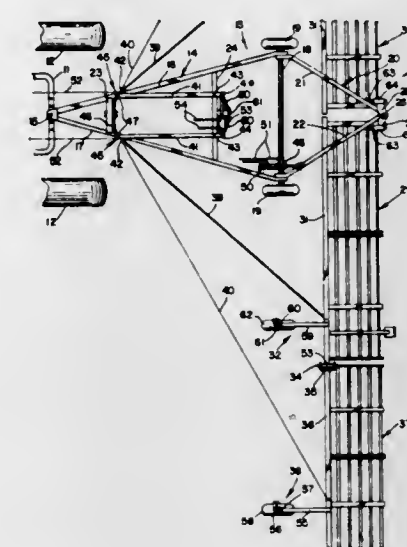
Filed Jan. 19, 1970, Ser. No. 3,702

Int. Cl. A01b 65/02; B60d 1/18

U.S. Cl. 172—311

2 Claims

A relatively wide, winged field implement has transversely aligned tool-carrying wing sections hinged together on a vertical axis so that the wings can be swung to a longitudinally extending position behind the propelling tractor to facilitate



ends of the wings to the main implement frame being connected to the main frame by latch means which can be controlled by the operator from his station on the tractor.

3,655,000

POWER PITCHING BULLGRADER

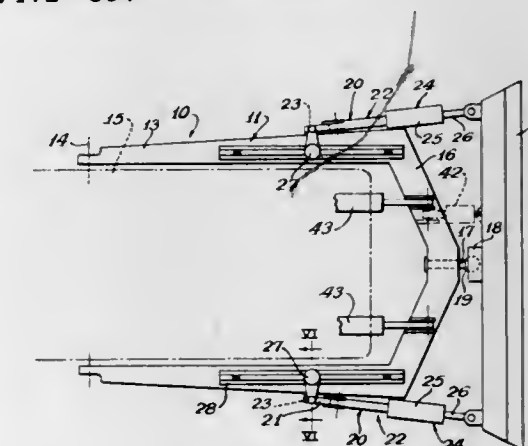
Bernard L. Winkler, Chicago, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Jan. 12, 1970, Ser. No. 2,207

Int. Cl. E02f 3/76

U.S. Cl. 172—804

3 Claims



Power-adjusted bulldozing attachment for a tractor having a C-frame and a bullgrading blade capable of pitching, tilting, and angling. A mid-region of the blade has a universal mounting on the base of the C-frame. Pairs of strut member incorporating power units are connected to the ends of the blade and the legs of the C-frame for pitching and tilting the blade. The blade is angled by shifting the struts along tracks on the legs of the C-frame. The struts are fixed at various locations on the frame by the use of lock pieces on the struts and spaced slots in the tracks receiving the lock pieces.

3,655,001

LARGE DIAMETER EARTH DRILL

Bernard A. Hoffman, West Chester, Pa., assignor to Schramm, Inc., West Chester, Pa.

Filed Feb. 4, 1970, Ser. No. 8,664

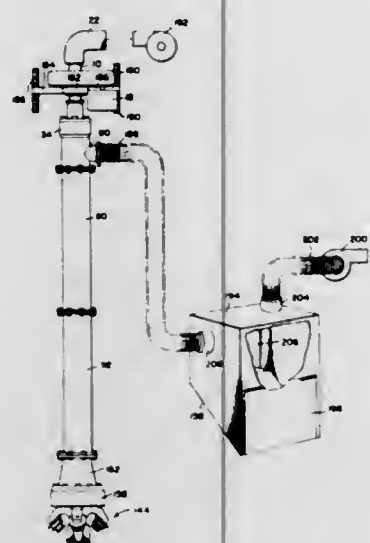
Int. Cl. E21b 21/00

U.S. Cl. 175—213

16 Claims

A system for producing large-diameter, air-drilled holes through rock comprises a hollow, rotatable drill stem having a large bit at its lower end, and surrounded by a pipe which is relatively narrow compared to the hole diameter, which forms between itself and the drill stem, an annular passage.

Air is blown downwardly through the drill stem, emerges at an opening at the location of the bit, and carries cuttings through the annular passage to the surface. A vacuum is drawn in a dust diverter immediately above the bit to insure



that the cuttings enter the annular passage. Air descending through the drill stem under pressure operates a piston which imparts a hammering action to the bit. Drill stem sections and outer pipe sections may be added as required.

3,655,002

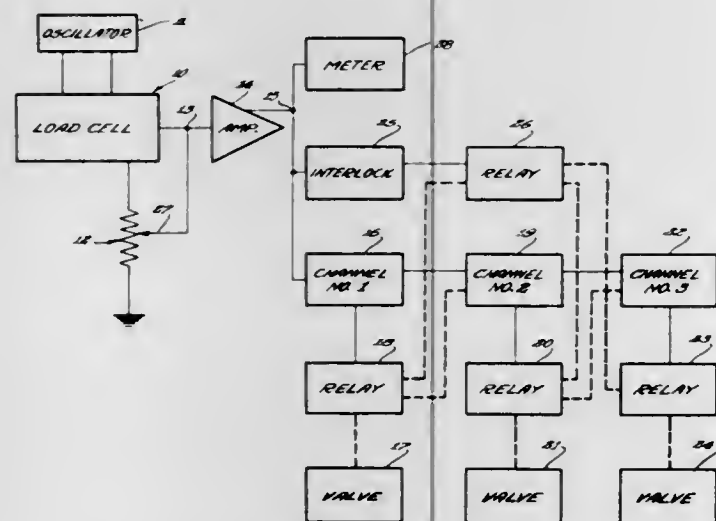
ELECTRONIC WEIGHING SYSTEM FOR BATCHING OPERATIONS

William H. Jones, Villar Park, and Martin W. Hamilton, Arlington Heights, both of Ill., assignors to The Dole Valve Company, Morton Grove, Ill.

Filed Sept. 20, 1968, Ser. No. 761,087
Int. Cl. G01g 19/22

U.S. Cl. 177-70

12 Claims



An electronic weighing system for batching operations which includes a load cell for weighing a principal container which receives a number of ingredients from individual ingredient sources. The load cell generates an output signal in proportion to the instantaneous weight received in the container, and this signal is utilized to turn "off" one ingredient channel and to actuate a second channel. The output from the load cell is compared with an input signal associated with each channel which determines the loading which is to be added to the container from each ingredient channel. The input load signal for each channel is derived respectively from a number of potentiometers which are coupled in series in such a way as to provide the correct input comparison signal to produce the proper load output for each ingredient

channel. This is accomplished by successively switching into series arrangement each new channel after the loading requirements of the previous channel have been satisfied. In this way, the input signal established at each channel in combination with the input signals of previously operated channels always exceeds the load cell output signal by a magnitude just sufficient to be satisfied by the predetermined ingredient loading demands of the channel in operation.

3,655,003

WEIGHING MACHINE

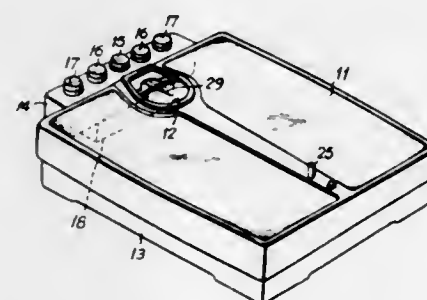
Kaneo Yamajima, Tokyo, Japan, assignor to Kabushiki Kaisha Tanita Seisakusho, Tokyo-to, Japan

Filed Sept. 23, 1970, Ser. No. 74,684

Int. Cl. G01g 23/30, 19/413

U.S. Cl. 177-173

9 Claims



A weighing machine comprising a platform on which an individual stands, and a base for supporting the platform through a weighing mechanism. A movable contact is adapted to be rotated in unison with a weight scale disc which is, in turn, rotatable by an amount in proportion to the load placed on the platform, a plurality of slidable contact plates being opposed to the movable contact, and a plurality of lamps being adapted to be separately lit as the contact is rotated through engagement with the slidable contact plates. And an adjustable height scale ring is arranged in concentric relation with the weight scale disc peripherally bearing a height scale and carrying the slidable contact plates, with which a weighted person may recognize at a glance the interrelation between an actual weight of the weighed person and the optimum weight relative to a particular height of the weighed person according to a lit lamp and the lamp corresponding to the optimum weight through operation of manually coordinating the height scale ring to the weight of the weighed person.

3,655,004

HYDRAULICALLY DRIVEN VEHICLE

Kenzo Hoashi, Tokyo, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho (Komatsu, Ltd.), Tokyo, Japan

Filed Feb. 16, 1970, Ser. No. 11,404

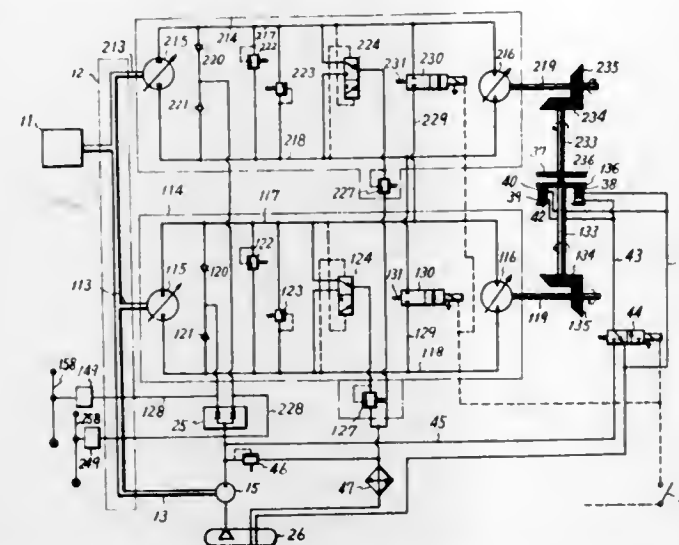
Claims priority, application Japan, Mar. 27, 1969, 44/22717
Int. Cl. B62d 11/04

U.S. Cl. 180-6.48

3 Claims

The hydraulically driven vehicle of the wheeled vehicle type or the crawler vehicle type, provided with a short-circuit line between a pair of main passages for the liquid medium for communicating them with each other only during the operating lever is in neutral position, a braking system operable for the same period with the above, a tracting starting system which generates a difference in pressure between the pair of main passages when the hydraulic motor is reversely driven, and, in case of the crawler vehicle type, a pair of short lines connecting the higher pressured sides of said pair

of main passages with each other and the lower pressured sides thereof with each other, respectively, and a friction



clutch associating the two output shafts with each other, only during the two operating levers are in parallel.

3,655,005

SPHERICAL DRIVE VEHICLE

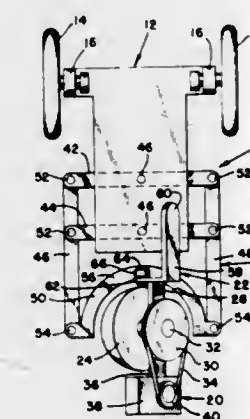
Enrique J. Chicurel, Av. Mexico 27-4, Col. Hipodromo, Mexico City 11, Mexico

Filed Sept. 26, 1969, Ser. No. 861,427

Int. Cl. B62d 57/00, 61/06

U.S. Cl. 180-7 R

10 Claims



A multi-wheel vehicle is provided with a single control lever for changing the speed and direction and movement of the vehicle. The lever controls the angular relationship of a hemispherical drive wheel with respect to the vehicle support surface for steering and providing an infinite number of stepless forward and reverse speeds.

3,655,006

REMOTE CONTROL APPARATUS FOR MOTORIZED VEHICLES

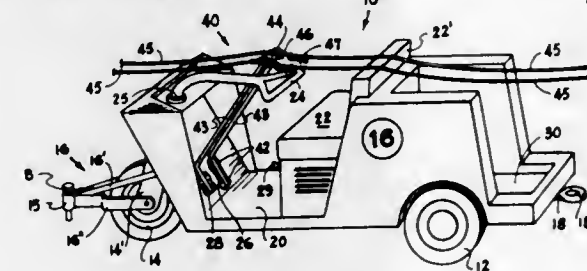
Wilbur P. Cooke, 218 Sunset Street, Spartanburg, S.C.

Filed Aug. 8, 1969, Ser. No. 848,452

Int. Cl. B60k 33/00

U.S. Cl. 180-77 R

4 Claims



Apparatus and method for remotely controlling the accelerator and/or the brakes of motorized vehicles that are

connected in tandem with one or more additional motorized vehicles. A pedal engaging member having holding brackets incorporated thereon telescopes over the accelerator or brake pedal and extends upwardly and rearwardly from the pedal terminating at an eyelet. A connector is affixed to the eyelet and extends forwardly to the next vehicle in tandem where it may be adjustably and removably affixed to the eyelet of another control member. A forward pulling motion on the connector will thus accelerate or brake all the vehicles in tandem to which the pedal engaging members are attached.

3,655,007

SOUND SUPPRESSION SYSTEM FOR JET ENGINE

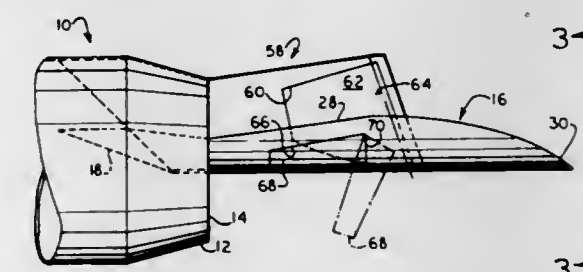
Jack H. Hilbig, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Sept. 11, 1970, Ser. No. 71,446

Int. Cl. B64d 33/06; F01n 1/14, 1/16

U.S. Cl. 181-33 E

17 Claims



System is intended for use with a jet engine and comprises an elongate suppressor panel which is connected to the aft end of the nozzle and extends rearward. The panel is generally rectilinear in longitudinal section and concavo-convex in transverse cross section with its concave face directed upward. The panel is generally centered in the jet stream to divide it into upper and lower portions of generally equal volume. The panel serves as a shield against downward radiation of sound waves from the upper portion of the stream and reflects them upward in a converging pattern. The convex lower face of the panel reflects the sound waves from the lower portion of the stream downward but at the same time disperses them laterally so that the unit sound intensity at the ground is substantially reduced. The noise level at the suppressor is initially substantially reduced by making the panel of a very efficient sound absorbing material such as a honeycomb core with a porous skin. The system also includes a thrust reverser. A support panel extends upward from the suppressor panel and carries a pair of blocker doors which swing laterally to block aft flow of the upper portion of the jet stream, and a single blocker door is mounted in the suppressor panel and swings downward to block aft flow of the lower portion of the jet stream. The reversing forces above and below the nozzle axis balance out the directional moments and avoid instability.

3,655,008

SOUND SUPPRESSING APPARATUS

Victor Millman, San Diego, Calif., assignor to Rohr Corporation, Chula Vista, Calif.

Filed Jan. 28, 1971, Ser. No. 110,460

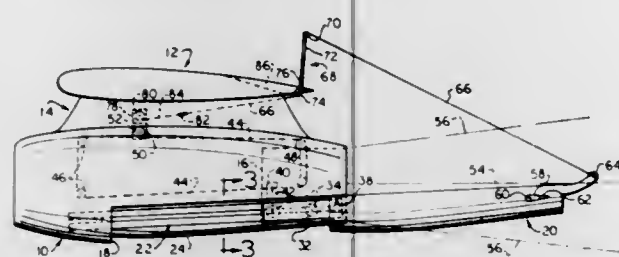
Int. Cl. B64c 9/38; F01n 1/14; B64d 33/06

U.S. Cl. 181-33 E

12 Claims

Elongate noise reflecting and suppressing shield of upwardly concave cross section is carried by engine housing in generally horizontal attitude. Forward end of shield has pivotal mounting means on transverse axis which move fore and aft on tracks carried by housing. Aft end of shield is maintained against downward swinging by cables attached to its aft end and trained over pulleys on free end of mast pivotally mounted on wing over nozzle exit. Forward ends of cables are connected to servo motor. Mast is swingable down

flush with wing for cruise flight and deployed to upright position for takeoff and low level flight. When drive means moves pivotal mounting means aft to deploy shield to position beneath and intercepting jet stream, the servo motor



pays out cables at proper rate to maintain attitude of shield substantially constant. When shield is fully deployed, aerodynamic reaction means on aft end of shield raise it in response to relative wind to the proper interception angle to produce maximum noise reduction.

3,655,009

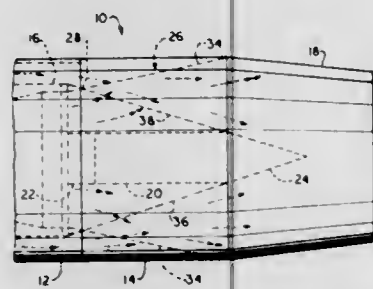
METHOD AND APPARATUS FOR SUPPRESSING THE NOISE OF A FAN-JET ENGINE

Jack H. Hilbig, Chula Vista, Calif., assignor to Rohr Corporation, Chula Vista, San Diego, Calif.

Filed Sept. 18, 1969, Ser. No. 859,070
Int. Cl. B64d 33/06; F01n 1/14

U.S. Cl. 181-33 HC

2 Claims



A tubular housing is disposed in spaced relation around the casing of a fan-jet engine and extends rearwardly therefrom. A convoluted ring is joined at its circular forward edge to the aft edge of the engine casing and is formed with lobes which extend axially thereof and increase in radial dimension in the downstream direction, so that the aft ends of the lobes project both radially inwardly from said engine casing and radially outwardly to the wall of said housing at the aft end of the latter. The forward edge of a nozzle is joined to the aft edge of the housing, and fan air of the engine flows through the space between the engine casing and the housing, through the spaces between the lobes, and into the nozzle. Exhaust gas of the engine flows from the engine into the passages bounded by the inner surfaces of the lobes and thence into the nozzle.

3,655,010

ACOUSTIC CONDUIT WITH WRINKLE SECTION

Bert DuBois, Lake Columbia, Brooklyn, Mich., assignor to Tenneco Inc., Racine, Wis.

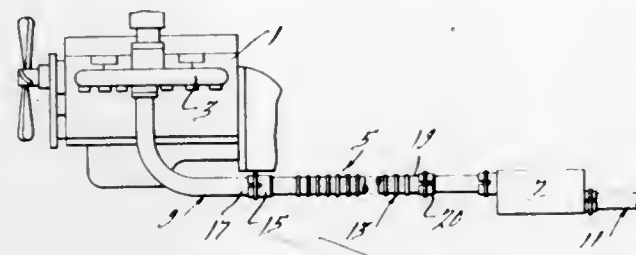
Filed July 17, 1970, Ser. No. 55,689
Int. Cl. F01n 1/02, 1/08

U.S. Cl. 181-36 B

3 Claims

A conduit having an outwardly extending wrinkled wall of approximately a 4 foot length is used in a motor vehicle ex-

haust system to provide acoustic control and attenuation, the pipe section preferably being located to include an anti-node



point of an objectionable frequency and ahead of the muffler.

3,655,011

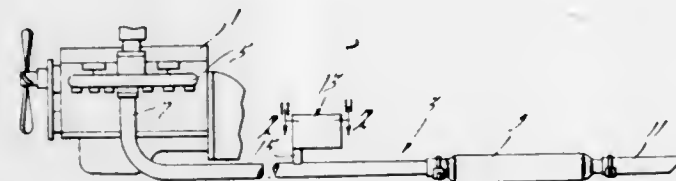
SOUND ATTENUATING CHAMBER

Earl G. Willett, Racine, Wis., assignor to Tenneco Inc., Racine, Wis.

Filed June 10, 1970, Ser. No. 45,041
Int. Cl. F01n 1/02

U.S. Cl. 181-48

2 Claims



A short overall length quarter wave or Quincke tuner for use in automotive exhaust systems to attenuate predetermined sound frequencies is provided by a folded or box structure or a helical structure providing a zig-zag sound path with an effective acoustical length that is materially greater than the physical length of the tuner.

3,655,012

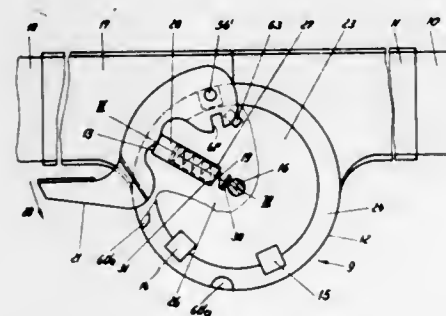
UNIVERSAL FOLDING LADDER

Helmut Hoffman, and Walter Hoffman, both of Talstrasse 11, Burgstall (Murr), Germany

Filed July 30, 1970, Ser. No. 59,505
Claims priority, application Germany, July 30, 1969, P 19 38 696.0; Feb. 14, 1970, P 20 06 846.6
Int. Cl. E06c 1/383

U.S. Cl. 182-163

10 Claims



A folding ladder is formed of several pairs of ladder sections connected by a joint. The joint includes on one section a circular locking disc concentric with the joint axis and with recesses about its periphery corresponding to the different positions of the ladder sections, and a stop member on the other section engageable in the recesses. A releasing lever is provided which lift the locking member out of the recesses. An arresting device associated with the releasing lever locks

the releasing lever in its releasing position during movement of the ladder sections with respect to each other in one direction and disengages the releasing lever at the end of such movement.

3,655,013

CONVEYOR FOR SHOPPING CARTS

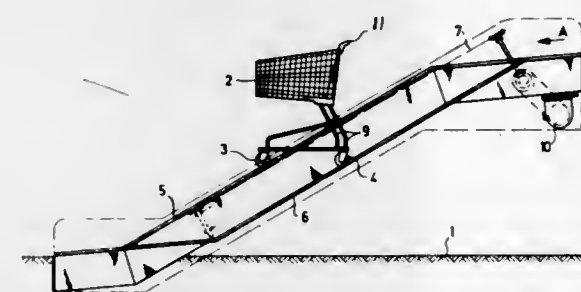
Wilhelm Weller, Linderhausen, Germany, assignor to Messrs. Transporttechnik GmbH, Gevelsberg, Germany

Filed Apr. 3, 1970, Ser. No. 25,508
Claims priority, application Germany, Apr. 18, 1969, P 19 740.1

Int. Cl. B65g 17/22

U.S. Cl. 186-1 AC

8 Claims



In a multifloor department store, floor-to-floor conveying means for customer carts comprising a pair of moving belts disposed laterally of the cart conveying path, grippers being carried by the belts to automatically engage the carts.

3,655,014

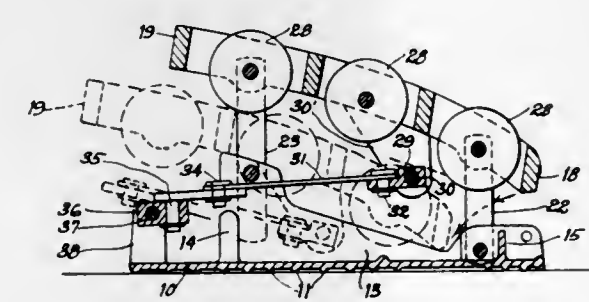
AIRCRAFT WHEEL CHOCKS

Ralph Andrew Nyborg, 641 North Main Street, Naperville, Ill.

Filed Mar. 16, 1970, Ser. No. 19,721
Int. Cl. B60t 3/00

U.S. Cl. 188-32

6 Claims



The wheel chock of this invention provides a shoe movably supported on a base from which it may be elevated for chocking contact with an aircraft wheel, and when it is retracted the entire body of the shoe moves away from the periphery of the wheel and simultaneously away from the area of tire contact with the ground, and meanwhile the base remains stationary.

3,655,015

DISC BRAKES CONTROLLED BY BOWDEN CABLES

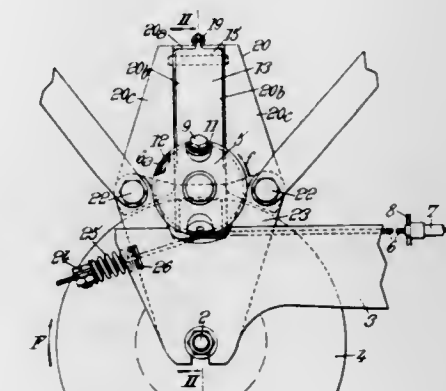
Bernard Rene Mennesson, Neuilly sur Seine, France, assignor to Societe D'Appareils De Controle Et D'Equipement Des Moteurs S.A.C.E.M.

Filed Sept. 25, 1969, Ser. No. 861,060

Claims priority, application France, Sept. 30, 1968, 168137
Int. Cl. F16d 65/38

U.S. Cl. 188-71.7

10 Claims



A disc brake for a cycle is actuated by a drum around which a control cable is wrapped. The cable is anchored to the drum by releasable clamping means.

3,655,016

ANTI-SKID BRAKE APPARATUS

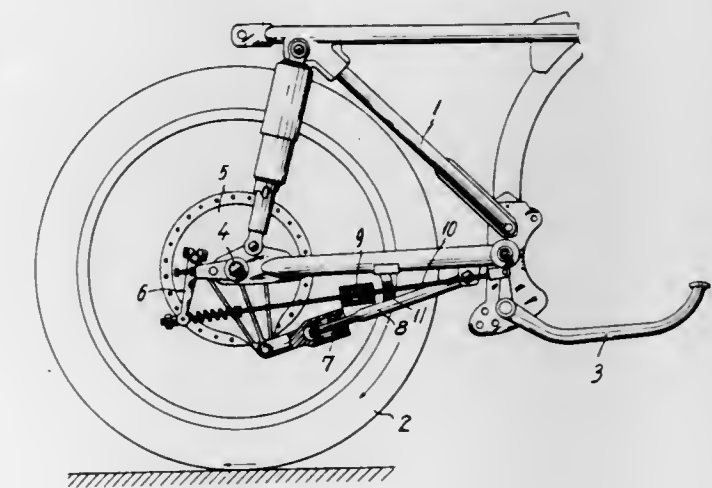
Yoshinori Watanabe, Saitama-ken, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Chuo-ku, Tokyo, Japan

Filed June 5, 1970, Ser. No. 43,808

Claims priority, application Japan, June 5, 1969, 44/43556
Int. Cl. B60t 8/00

U.S. Cl. 188-181 T

10 Claims



An anti-skid brake apparatus comprises a brake plate rotatably attached to a vehicle frame with a first spring interposed between the plate and the vehicle body. A brake actuator member on the brake plate is connected via a second spring to a brake pedal, and the two springs are so arranged that they resist the rotation of the brake plate imposed thereon by the wheel at the time of brake operation.

3,655,017

SHOCK ABSORBER ASSEMBLY AND METHOD OF MAKING THE SAME

Harry Lorcher, Dittelbrunn, and Franz Spreitzer, Schweinfurt am Main, both of Germany, assignors to Fichtel & Sachs AG, Schweinfurt am Main, Germany

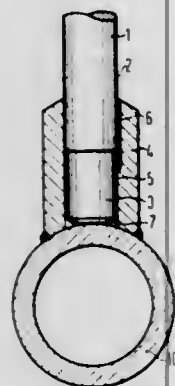
Filed May 11, 1970, Ser. No. 35,949

Claims priority, application Germany, May 14, 1969, P 19 24 540.0

Int. Cl. F16f 9/54

U.S. Cl. 188—321

6 Claims



A partly chromium plated piston rod of a telescopic shock absorber is assembled with a mounting ring by insertion of the unplated axially terminal rod portion and of an adjacent plated portion into a bore of a sleeve on the mounting ring, the chromium plate conformingly engaging the sleeve face in the bore with a press fit, and the unplated rod portion and the sleeve face bounding an annular gap filled with hard solder. When the plated rod portion in the bore has a length at least equal to the rod diameter, and the unplated portion a length of at least 1.25 times the diameter, transverse bending stresses on the assembly are not significantly concentrated in vulnerable portions of the rod, and the rod is held in the sleeve with great strength.

3,655,018

CLUTCH CONTROL SYSTEM FOR MOTOR VEHICLES

Shunichiro Higuchi, and Kazunobu Katayose, both of Yokohama, Japan, assignors to Okamura Manufacturing Company, Limited, Yokohama, Japan

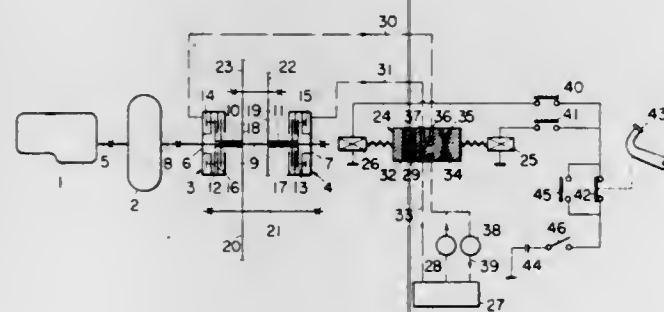
Filed July 20, 1970, Ser. No. 56,464

Claims priority, application Japan, Mar. 25, 1970, 45/24429

Int. Cl. F16d 67/02

U.S. Cl. 192—4 A

7 Claims



A clutch control system for motor vehicles which enables the driver to switch the operation of a clutch for forward drive over to a clutch for reverse drive and vice versa in a simple manner, and which permits automatic disengagement of either clutch when the brakes are applied with the particular clutch engaged.

ELECTROSTATIC DEVICE WITH CONTROLLABLE ACCELERATION

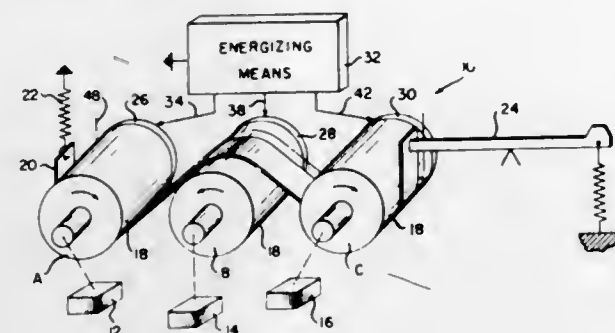
Theodore T. Trzaska, Dayton, Ohio, assignor to The National Cash Register Company

Filed Nov. 23, 1970, Ser. No. 91,956

Int. Cl. F16d 13/10, 27/12

U.S. Cl. 192—48.9

5 Claims



An electrostatic device utilizing the "Johnson-Rahbek" effect. At least first and second drums are rotated at constant but substantially different speeds. An electrically conductive band contacts a portion of the peripheries of the drums; the peripheries of the drums are coated with semi-conductor material. One end of the band is connected to a tensioning device, and the other end is connected to a utilization device (like a print hammer). By energizing the first drum and then energizing the second drum while simultaneously deenergizing the first drum, a controlled acceleration of the band is obtained. Several drums and several bands (to operate several utilization devices) may be used. Selective energization of the bands to be driven is obtainable.

3,655,020

MECHANICAL POSITIONING DEVICE FOR PRECISELY DETERMINING A SERIES OF MECHANICAL LOCATIONS

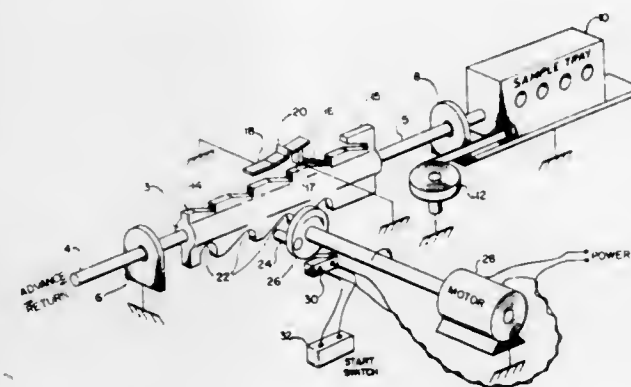
Nico J. Van Slooten, Chino, Calif., assignor to Beckman Instruments, Inc.

Filed Dec. 10, 1970, Ser. No. 96,830

Int. Cl. F16d 71/00; F16h 27/04

U.S. Cl. 192—142 R

9 Claims



A movable body member having a series of ratchet teeth is intermittently coupled to a driving force which moves the body member. A ratchet arm is precisely mounted adjacent the series of ratchet teeth to engage the series of teeth when the body member is decoupled from the driving force. A restoring force is applied to the body member to press the ratchet arm firmly against each ratchet tooth with which it comes in contact, thereby precisely locating the body member in a series of mechanical positions. A ratchet spring forces the ratchet arm to engage each tooth of the series of ratchet teeth as each tooth moves adjacent to the arm. A device is provided for restraining the ratchet arm from en-

gaging the ratchet teeth after the last tooth in the series of ratchet teeth is passed. The ratchet arm is restrained until the body member is returned by the restoring force to an initial position where the ratchet arm is released from the restraint and engaged with the ratchet teeth whereby the series of mechanical movements may be repeated.

3,655,021

IMBALANCED BRAKING DEVICE

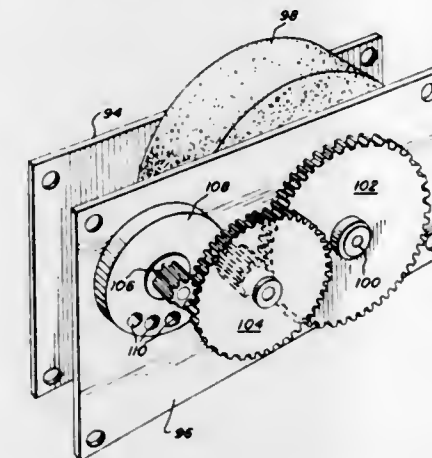
Nicholas J. Froio, Harvey, Ill., assignor to Froio Corporation, Harvey, Ill.

Filed Nov. 23, 1970, Ser. No. 91,934

Int. Cl. B60t 8/04; B65g 13/00, 13/075

U.S. Cl. 193—35 A

15 Claims



This braking device for retarding moving objects such as a pallet on a gravitationally-actuated conveyor system comprises a housing and a gear train or equivalent supported by the housing, including at least a first gear and a terminal gear and preferably an intermediate gear intermeshed so as to progressively increase angular velocity as the first gear is rotated. At least the terminal gear in the gear train is substantially imbalanced about the rotational axis thereof whereby rotational resistance increases as angular velocity increases. Means are also provided for translating the movement of the moving objects into rotational movement of the first gear so that the forces to rotate the gear train, including the imbalanced last gear, act to retard the moving object. In specific embodiments, the imbalance of the last gear is obtained by selectively removing material from a portion thereof, by selectively adding weight thereto or a combination of both.

3,655,022

STAMP VENDING MACHINE HAVING KNIFE TO SEPARATE STAMPS

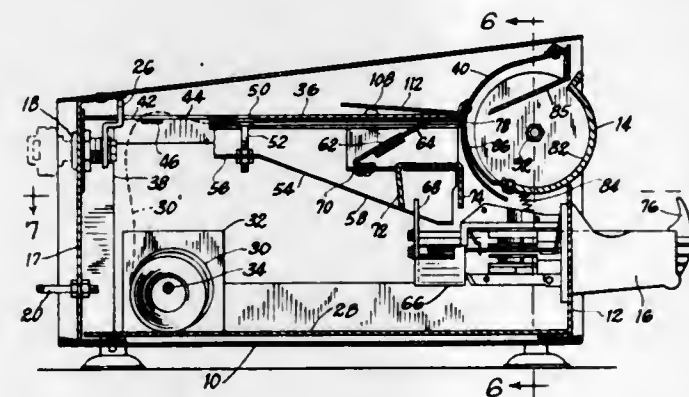
Hubert M. Giepen, 6939 South Benneth Avenue, Chicago, Ill.

Filed May 18, 1970, Ser. No. 38,140

Int. Cl. G07f 11/68

U.S. Cl. 194—2

13 Claims



A stamp dispensing device including a stamp guide member, means to supply a continuous roll of stamps to said

3,655,023

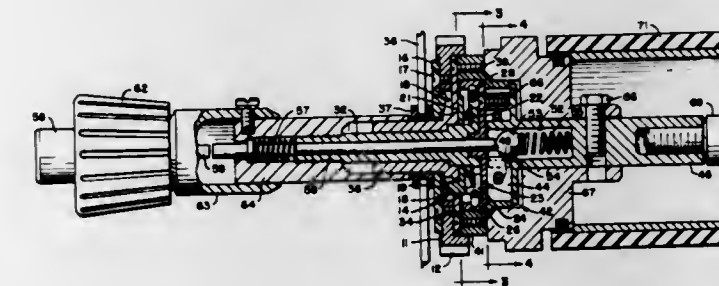
SELECTIVE POSITIONING MECHANISMS FOR PLATENS OR THE LIKE

Anthony Stanevich, Streamwood, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed July 11, 1969, Ser. No. 840,949

Int. Cl. B41j 19/76

16 Claims



A platen rotating assembly for a teletypewriter having positive line-feed permits the platen to be manually rotated either incrementally or freely. A line-feed spur gear is connected to the platen through first and second normally engaged clutches to rotate the platen whenever the spur gear is rotated. When the spur gear is not rotated (1) the platen may be indexed in predetermined increments by manual rotation of a knob operatively connected to the platen and a first clutch controller which selectively permits incremental disengagement of the first clutch through the second clutch while the second clutch remains engaged, or (2) the platen may be freely rotated by (a) manual actuation of a second clutch controller which selectively disengages the second clutch to bypass the first clutch and (b) simultaneous manual rotation of the knob directly to rotate the platen.

3,655,024

METHOD OF AND APPARATUS FOR FEEDING WORKPIECES TO TWO MACHINE UNITS

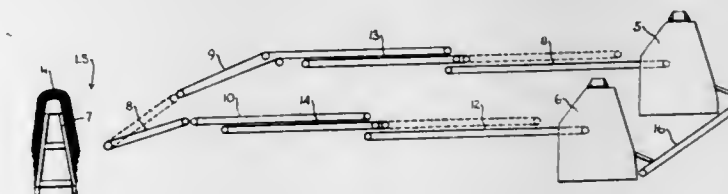
Arthur H. Horn, Waukesha, Wis., assignor to Chas. H. Stehling Company, Milwaukee, Wis.

Filed May 22, 1970, Ser. No. 39,810

Int. Cl. B65g 37/00, 47/26

U.S. Cl. 198—20 T

9 Claims



A belt-type conveyor apparatus for feeding workpieces to two separate machine units arranged in tandem and operating at the same speed, by which workpieces loaded onto the receiving end of the conveyor apparatus at a rate twice the operating speed of the machine units, are fed to the machine units at a rate that matches the speed of the machine units.

3,655,025

SIDE EJECTOR FOR BAND SAW CONVEYOR OR THE LIKE

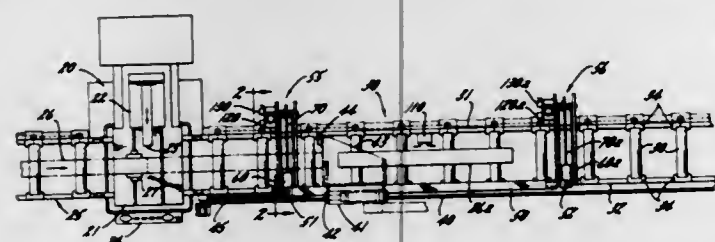
John P. Wilkin, Schaumburg, Ill., assignor to Armstrong-Blum Manufacturing Company, Chicago, Ill.

Filed June 29, 1970, Ser. No. 50,706

Int. Cl. F01k 23/00; B65g 47/00

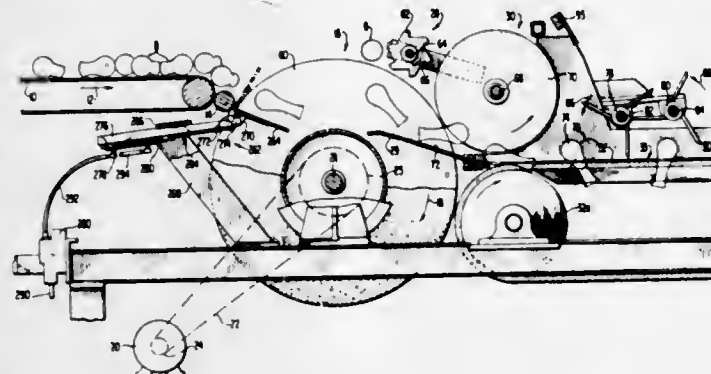
U.S. Cl. 198-24

3 Claims



A side ejector for a conveyor which includes an ejector bar normally extending in storage position along one side of the conveyor and which is connected at its ends to drive chains, the chains extending transversely and driven by individual reversible actuators for sweeping the bar laterally across the conveyor. To achieve substantially the same amount of stroke at each end of the bar, the actuators are supplied through a flow divider. Each actuator has a diverter valve for diverting pressure fluid into the sump upon completion of its stroke thereby to insure that the actuators remain precisely in step with one another free of any cumulative error.

between adjacent conveyor belts and carrying light bulbs which are to be loaded into apertures in a tray. There must be a light bulb in each channel at the loading end so that each aperture in the tray is filled. The photoelectric bridge detects the speed of the light bulbs in each channel and produces an electric signal whenever the light bulbs are mov-



ing at less than a predetermined speed, thereby indicating that that channel is relatively full of bulbs. Upstream of the conveyor, the signal operates a diverter or blocking means to temporarily block bulbs from being fed to that channel, thereby diverting incoming lamp bulbs to the other relatively empty channels in which the bulbs are moving relatively quickly. Improved means are also provided for properly orienting the bulbs in the channels and for removing broken bulbs.

3,655,026

POSITIVE FEED TRANSFER FOR PIN CONVEYOR

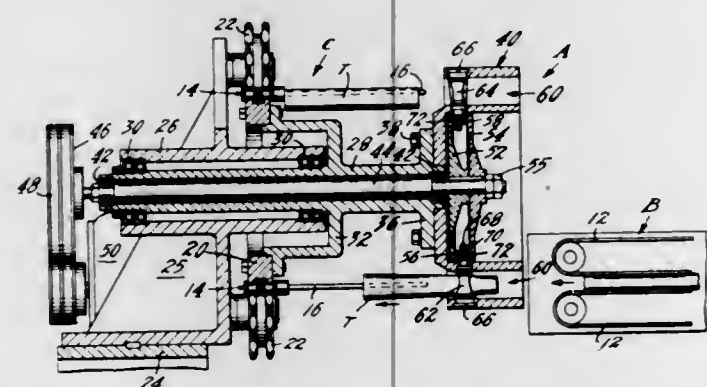
Hans Hirn, Iselin, N.J., assignor to American Can Company, Greenwich, Conn.

Filed Aug. 17, 1970, Ser. No. 64,180

Int. Cl. B65g 47/00

U.S. Cl. 198-25

16 Claims



A method of and apparatus for transferring flexible tubular articles, such as elongated collapsible tube bodies, from a longitudinal feeding means onto an endless pin conveyor disposed at right angles thereto wherein the articles are positively gripped and transferred from the longitudinal feeding means to the pin conveyor while the latter remains in continuous motion.

3,655,027

UNSCRAMBLER FOR LIGHT BULB TRAYING MACHINE

George Albert Douglas, and James C. Prokopec, both of Danville, Ky., assignors to Corning Glass Works, Corning, N.Y.

Filed Apr. 15, 1970, Ser. No. 28,831

Int. Cl. B65g 29/00

U.S. Cl. 198-33 AA

9 Claims

A photoelectric bridge containing a plurality of photoelectric elements is placed across a plurality of channels formed

VIBRATORY BOWL FOR FEEDING BUTTONS

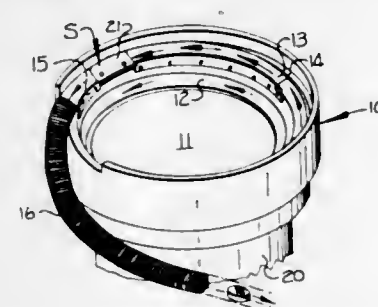
Howard A. Hodgins, Newark, Del., assignor to Enterprise Machine and Development Corp., New Castle County, Del.

Filed Sept. 17, 1970, Ser. No. 73,147

Int. Cl. B65g 47/24; B65d 83/00

U.S. Cl. 198-33 AA

4 Claims



A button selecting section is provided in the discharge end portion of the upwardly spiraled conveyor track of the bowl for returning improperly orientated buttons back into the bowl and for permitting continued movement of properly orientated buttons to the discharge end of the feeder. The selector section is easily replaceable so that buttons of various sizes may be selected and the selector section is adapted for operation with buttons having a beveled peripheral edge on one side, buttons having a rounded, convex or oval shape on one side, or with buttons having a concave central portion on one side.

3,655,029

CONVEYOR APPARATUS

Joseph H. Webb, 26957 Russell Road, and Donald G. Stiles, 29682 West Oakland Road, both of Bay Village, Ohio

Filed May 5, 1969, Ser. No. 821,884

Int. Cl. B65g 13/02

U.S. Cl. 198-127 R

13 Claims

A conveyor apparatus including a frame and a row of spaced, rotatable members mounted on the frame. A drive

mechanism including a flexible, endless drive element mounted on the frame for driving the rotatable members. The drive element includes a plurality of alternately spaced protuberance-like actuating portions disposed for coaxing driving engagement with selective of the rotatable members,



and at least one abutment mechanism including a lengthwise extending abutment member mounted on the frame for urging the actuating portions of the drive element into pressure driving engagement with selective of the rotatable members upon actuation of the drive mechanism.

3,655,030

SYSTEM FOR SORTING MAIL BAGS

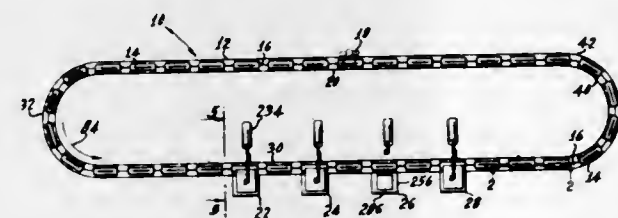
Ernest B. Hardwig, P.O. Box 2685, Jacksonville, Fla.

Filed June 19, 1970, Ser. No. 47,812

Int. Cl. B65g 15/00

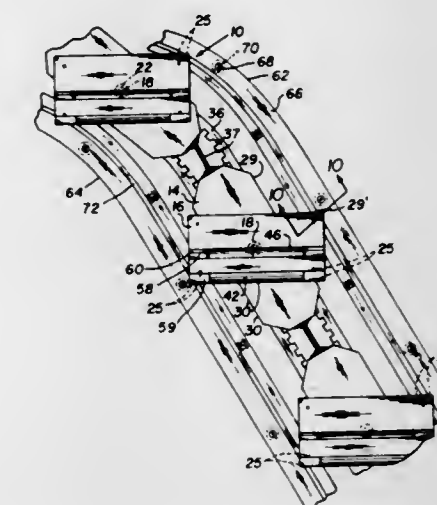
U.S. Cl. 198-135

7 Claims



A sorting apparatus comprising a train of carriers each having a tiltable support provided with a gripper device for releasably retaining an empty mail sack on the carrier. The carriers follow a loop track and are advanced therealong to and past a loading station and a plurality of unloading stations. Each carrier includes a coding device which may be set by an operator at the loading station at the time an empty sack is positioned in the gripper device. A cyclic drive is provided which includes an endless chain carrying a pawl in a path which approaches the track to engage the pawl with a carrier and move the train a predetermined distance, which is an even multiple or submultiple of the distances between loading and unloading stations, and then departs therefrom to disengage the pawl. As a carrier reaches the loading station, it trips an indexing device which stops that carrier and, accordingly, the train, in proper position. The pawl in departing from the carrier contacts the indexing device and returns it to retracted cocked condition removing the stop element from the path of the carrier, whereby the train may again be moved upon engagement of the pawl with the next carrier. Code sensing arrangements are located at the unloading stations operative to actuate mechanism to tilt the support of a correspondingly coded carrier. In tilting, the support moves the gripped sack laterally, and releases the gripper device. Mechanism at the station is also actuated to restrain the lower portion of the sack against lateral movement whereby the sacks are deposited in horizontal position on a table at the station one on top of the other to form a stack.

holders are moved in horizontal paths in upper and lower levels and in inclined paths between levels while the trays are maintained in horizontal positions at all points. Each holder is comprised of two pivotally engaged plates. One plate is connected to a conveyor track while the other plate holds the



tray. Inclined tracks engage pins on the tray holding plate to keep the tray horizontal while the conveyor track plate turns angularly with respect to the tray holding plate. The tray holding plate has spring biased bars arranged to engage trays as they are automatically fed on to the tray holders one at a time.

3,655,032

VIBRATORY FEEDER

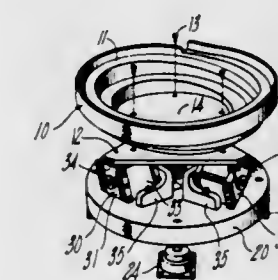
Grant N. Willis, Bristol, Conn., assignor to The Arthur G. Russell Company, Incorporated, Bristol, Conn.

Filed May 26, 1970, Ser. No. 40,678

Int. Cl. B65g 27/32

U.S. Cl. 198-220 BC

20 Claims



A vibratory feeder of the bowl type in which the support system for the bowl includes a torsion bar extending vertically upwardly from a base and attached to the underside of the bowl at its axis. The torsion bar may be formed with two integral arms extending parallel to the main bar and provided with a vertically adjustable clamp for varying the stiffness of the torsion bar for tuning purposes.

3,655,033

VIBRATORY BOWL-TONER DISPENSER

Thomas Lynch, Penfield, and Dineshchandra S. Shah, Syracuse, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed May 27, 1970, Ser. No. 40,839

Int. Cl. B65g 27/02

U.S. Cl. 198-220 BC

6 Claims

Toner feed mechanism for use in xerographic reproduction apparatus. The mechanism is characterized by the provision of a container and a structure for vibrating the container so that the toner is moved up an internally disposed, spiral ramp, toward an outlet where the toner phases from the con-

3,655,031

CONVEYOR APPARATUS FOR INDIVIDUAL SUPPORTS

Robert L. Cahn, 257 Grand Central Avenue, Amityville, N.Y.

Filed July 16, 1970, Ser. No. 55,525

Int. Cl. B65g 17/16

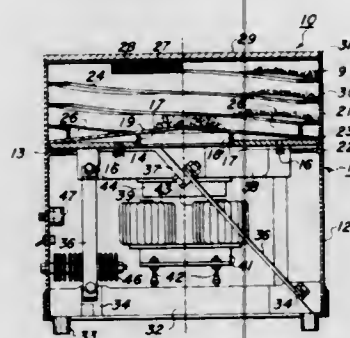
U.S. Cl. 198-138

7 Claims

Conveying apparatus includes a plurality of holders arranged to carry supports or trays in a horizontal position. The

tainer to a vertically disposed conduit communicating therewith. A screen is provided at the transition between the container and the conduit to prevent passage of irregularly

having a container body closed by a threaded cap-like telescoped capsule closure member which forms a separate chamber with a perforated wall of the container body for receiving a frangible foil bag having a second liquid com-



shaped chips which serve to optimize the movement of toner to the outlet, and to effect return of the chips to a sump area in the container.

3,655,034 SHIPPING CONTAINER

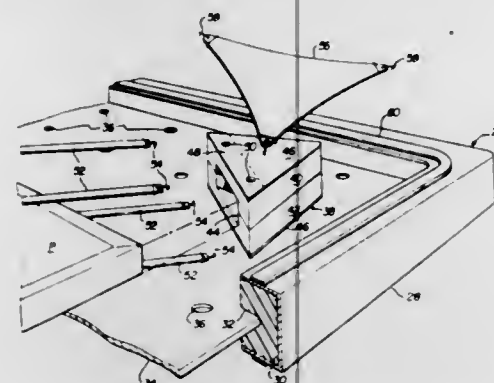
Irving Stollman, Oak Park, and Raymond Banaitis, Detroit, both of Mich., assignors to Polycon Industries, Inc., River Rouge, Mich.

Filed Feb. 24, 1970, Ser. No. 13,435

Int. Cl. B43k 31/00

U.S. Cl. 206-1 R

2 Claims



A protective shipping container having a substantially rigid energy absorbing top cover, at least one intermediate section which includes a rigid frame containing a shock absorbing body member, and having means for receiving the edges of a perforated mounting plate, a perforated mounting plate having its edges confined within the body member, a plurality of corner suspension and shock mounts situated on at least one of the surfaces of the plate and fixed in place, each mount having a recess therein adapted for receiving a corner of a picture frame or other art object, and a substantially rigid energy absorbing bottom cover. Means are provided for preventing moisture from entering the container when the top cover, intermediate section and bottom cover are fastened together, and means are also provided for fastening the top cover, intermediate section, and bottom cover together.

3,655,035 MULTIPLEX CAPSULE FOR DENTAL FILLING MATERIALS

Ernst A. Muhlbaue, Hamburg, Germany, assignor to Zahn-Porzellan KG E. Muhlbaue & Co., Hamburg, Germany

Filed Oct. 29, 1969, Ser. No. 872,152

Claims priority, application Germany, Mar. 13, 1969, P 15 66 294.9

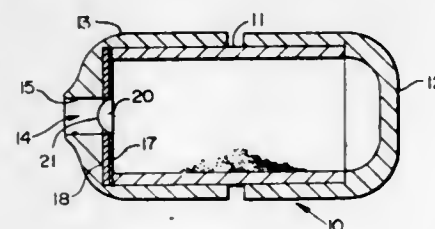
Int. Cl. B65d 25/08, 81/32

U.S. Cl. 206-47 A

1 Claim

A capsular container for storing separate components which are mixed together prior to use in the field of dentistry

A double-chambered cylindrical vial for separately containing co-reactive materials is composed of a closed capsule



3,655,037 DOUBLE CHAMBERED CONTAINER

Maurice G. Lussier, 222 Maple Street, Lynn, Mass.

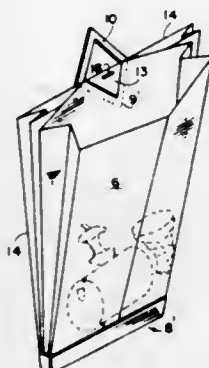
Filed Sept. 30, 1968, Ser. No. 763,773

Int. Cl. A61b 19/02

U.S. Cl. 206-635

5 Claims

A litter bag and dispenser combination. A holder for bags is provided with a self-adhesive coated hanging tab for securing to a supporting surface. A plurality of litter bags folded in accordion-like fashion are secured to the holder. Perforations provided in the top portions of the bags make it possible to tear off successive bags after each one has been filled with litter.



3,655,036 LITTER BAGS AND DISPENSER COMBINATION

Robert Corelli, and Olga V. Corelli, both of 35 West 74th Street, New York, N.Y.

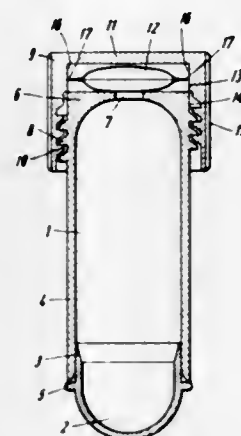
Filed Mar. 2, 1970, Ser. No. 15,720

Int. Cl. B65h 55/00

U.S. Cl. 206-57 A

3 Claims

ponent adapted to be broken by pressing the closure member against the container body so as to cause the liquid component to flow through the perforated wall and mix with the first component in the container body.



having a first storage chamber for one of the co-reactants and a rupturable chamber located adjacent one of the ends of said capsule. The capsule end is characterized by a corridor therein closed to the first chamber by a rupturable wall or membrane. The capsule is activated by inserting into said corridor a pin or piston of sufficient diameter to close the corridor and which ruptures the second chamber thereby expelling all of the contents of said second chamber into the first chamber thus permitting the co-reaction of the materials.

3,655,038 METHOD FOR IMPROVING THE BRIGHTNESS OF GRAY SEDIMENTARY KAOLIN CLAY

Venancio V. Mercade, Metuchen, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Woodbridge, N.J.

Filed Feb. 12, 1970, Ser. No. 11,008

Int. Cl. B03b 1/04, 1/02

U.S. Cl. 209-5

10 Claims

An improvement in a process for brightening gray sedimentary kaolin clay by oxidizing an aqueous pulp of the clay with ozone and subsequently removing Titania from a deflocculated pulp of the clay by flotation. A basic reagent capable of reducing the calcium ion concentration of the pulp is added after the ozone treatment and before the flotation treatment.

3,655,039 SEPARATING DEVICE FOR SEPARATING METALLIC MATTER FROM NON-METALLIC MATTER

Guntram Kind; Karl-Heinz Schroder, both of Windhagen, and Rido Busse, Obereichingen, all of Germany, assignors to Pulsotronic Merten KG, Gummersbach (Rhld.), Germany

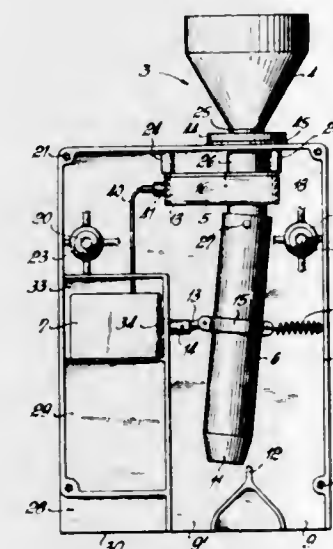
Filed Nov. 19, 1969, Ser. No. 878,113

Claims priority, application Germany, Nov. 20, 1968, P 18 09 982.6

Int. Cl. B07c 5/344, 3/02

U.S. Cl. 209-74

27 Claims



A funnel-shaped admitting hopper for material to be separated communicates with a tubular conduit which is swingably mounted so that its outlet, remote from the admitting hopper, can be placed into registry with one of two openings for discharging into them metallic and non-metallic matter, respectively. A metal detector is located proximal to the conduit for detecting metallic matter as the same passes through the conduit. Biasing means normally urges the conduit to a position where its outlet communicates with the opening into which non-metallic matter is to be discharged. An actuating device is associated with the conduit and is responsive to detection of the metal by the metal detector, whereupon it deflects the conduit so that the outlet thereof

registers with the opening into which metallic matter is to be discharged. On deactivation of the actuating means the biasing means returns the conduit to its normal position.

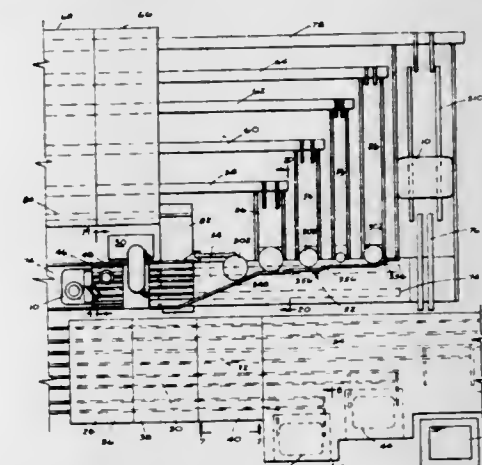
3,655,040 TABLEWARE SORTING SYSTEM

William E. Gay, 269 Pleasant Drive, Warren, Pa.
Original application Oct. 27, 1967, Ser. No. 678,592, now Patent No. 3,520,576. Divided and this application Apr. 24, 1970, Ser. No. 43,295

Int. Cl. B07c 1/10, 5/342

U.S. Cl. 209-75

14 Claims



Several embodiments of automatically operated dish, holloware and silverware sanitizing apparatus, and methods performed thereby for successively cleansing, sterilizing and drying dish items, silverware, and holloware items such as cups and glassware after the same have been classified and segregated for movement through separate paths in appropriate baths and atmospheres to accomplish the sanitizing steps, followed by assembly of such items respectively into vertical stacks of dish items, containers of silverware, and trays containing closely assembly rows of inverted holloware items for storage and reuse, one of the embodiments of apparatus including automatically operable means to classify and separate a heterogeneous mixture of such items into individual rows of similar dish items classified according to type, similar holloware items classified according to size, and silverware classified according to item.

3,655,041 ELECTRONIC COMPONENT HANDLER AND TESTER

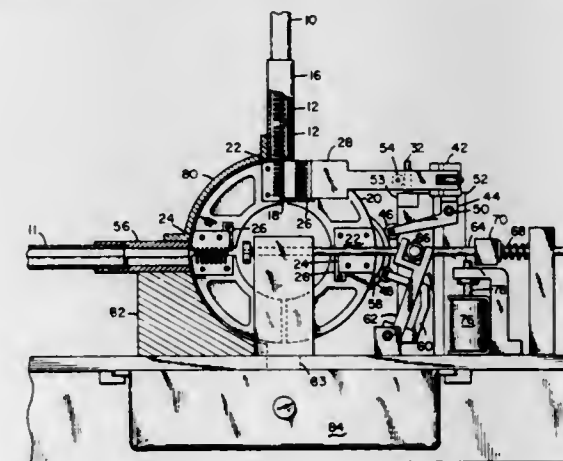
Alexander Baker, Delran, N.J., and Eugene A. Vosika, New Brighton, Minn., assignors to Integrated Mechanical Systems, Inc., Minneapolis, Minn.

Filed Apr. 23, 1970, Ser. No. 31,264

Int. Cl. B07c 5/344

U.S. Cl. 209-81

11 Claims



A machine to handle integrated circuits is disclosed wherein the circuits slide into slots in a wheel with the leads

along side the wheel. Kelvin type contacts engage these leads and connect the integrated circuit to suitable testing circuits. The wheel then rotates a quarter turn to where the circuit is ejected into a storage tube if the testing circuits so indicate. If not the circuit falls out of the wheel during the next quarter turn into a reject bin.

3,655,042

PARTS GAGER

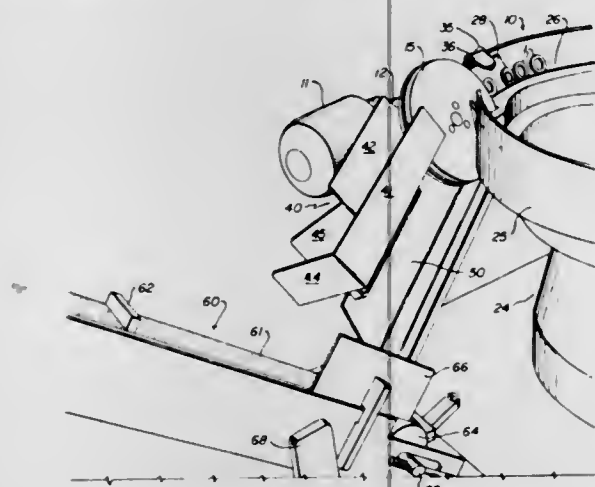
Gerald R. Grafius, Erie, Pa., assignor to Automatic Devices, Inc., Fairview, Pa.

Filed Dec. 1, 1970, Ser. No. 94,121

Int. Cl. B07b 13/04

U.S. Cl. 209—91

8 Claims



Disclosed is a parts gager which is made up of a vibratory bowl feeder which delivers parts to a rotating gage wheel having a wedge face and a slotted interior portion. The gage wheel receives those parts which are oversized, bent, doubled, or otherwise unacceptable and carries the same to a reject chute; failing to accept those parts which are considered usable and drop into a discharge chute. The accepted parts are fed on to a conveyor belt with cleated members for delivery for further assembly. The rejected parts are dropped into a reject receptacle for further processing or scrapping.

3,655,043

PNEUMATIC TOBACCO CLASSIFYING APPARATUS

Waldemar Wochowski, and Heinz Friebe, both of Hamburg, Germany, assignors to Hauni-Werke Korber & Co. K.G., Hamburg, Germany

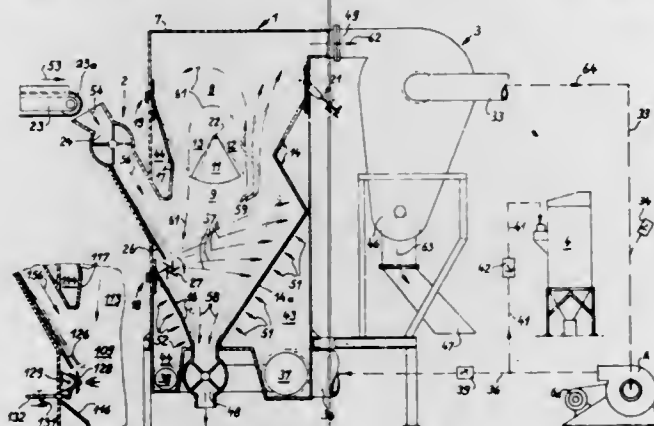
Filed June 5, 1970, Ser. No. 43,734

Claims priority, application Germany, June 26, 1969, P 19 32 312.7

Int. Cl. B07b 7/01

U.S. Cl. 209—138

18 Claims



A pneumatic tobacco classifying apparatus wherein a tower contains adjustable walls and a partition defining upper and lower classifying chambers connected by two discrete channels. An adjustable chute admits a mixture of tobacco ribs and tobacco leaf laminae into the range of an accelerat-

ing device, such as a driven winnow roller or an air-discharging nozzle, which is mounted in the lower chamber and serves to propel the particles of the mixture across the lower chamber against one of the adjustable walls to thus break up agglomerations of ribs and laminae. An ascending air current entrains the laminae and some ribs into the upper chamber, mainly by way of the channels, whereby the entrained ribs descend mainly by way of the other channel and are again propelled by the accelerating device. The heavier ribs descend immediately into and are evacuated from the bottom zone of the lower chamber. The laminae are separated from the air current after leaving the upper chamber.

3,655,044

SEPARATION OF MOLYBDENUM SULFIDE FROM COPPER SULFIDE WITH DEPRESSANTS

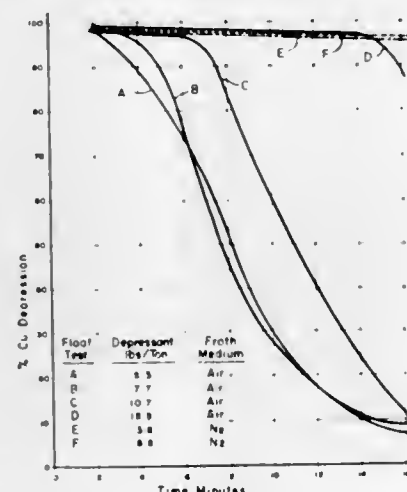
John F. Delaney, Tucson, Ariz., assignor to The Anaconda Company, New York, N.Y.

Filed Jan. 20, 1970, Ser. No. 4,356

Int. Cl. B03d 1/06

U.S. Cl. 209—167

6 Claims



Molybdenum sulfide is separated from a molybdenite-containing copper ore concentrate by subjecting an aqueous pulp of the concentrate to froth flotation in the presence of a collector for molybdenum sulfide and a Nokes-type (e.g., arsenic trioxide/sodium sulfide) depressant for copper sulfide, the aqueous pulp being aerated with an inert gas to effect flotation of the molybdenum sulfide constituent of the pulp while maintaining the emf of the pulp above about minus 200 millivolts.

3,655,045

METHOD AND APPARATUS FOR CONVEYING AND SEPARATING MATERIALS

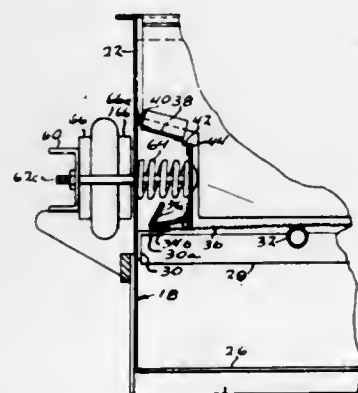
George F. McAllister, Jr., Westfield, N.Y., assignor to Ajax Flexible Coupling Co. Inc., Westfield, N.Y.

Filed Oct. 30, 1969, Ser. No. 872,619

Int. Cl. B07b 1/50

U.S. Cl. 209—379

17 Claims



A screen is removably supported above the bottom of a reciprocable conveyor on longitudinally extending supports.

Means for stretching the screen includes a plurality of air bags connected to the longitudinal edges of the screen. When the air bags are inflated the screen is stretched transversely and also held against portions of the support means. The air bags may be periodically deflated and again inflated while the conveyor is operated to allow the screen to loosen and impact against the support dislodging material lodged in the interstices of the screen to eliminate blinding.

3,655,046

MUNICIPAL WASTE DISPOSAL

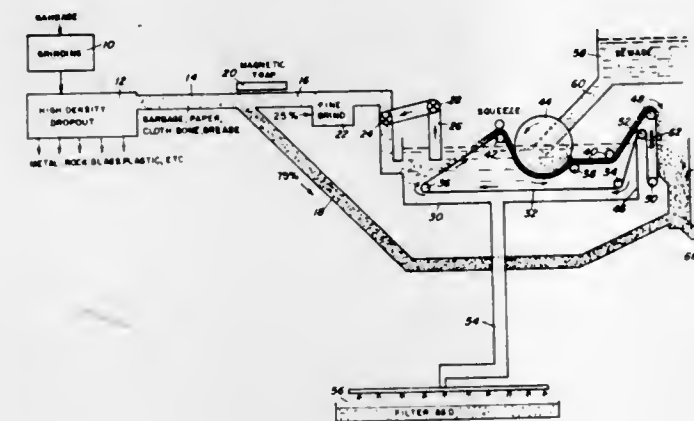
Harry B. Trussell, Carthage, Mo., assignor to Fermbionics, Inc., Joplin, Mo.

Filed Mar. 11, 1970, Ser. No. 18,505

Int. Cl. C02c 1/02

U.S. Cl. 210—11

10 Claims



A system for disposing of municipal waste including garbage and sewage which converts the garbage portion into a matrix filter which is used to separate the liquids and solids in the sewage. The liquids are purified in a normal manner, for example by aeration, and the solids are converted into a food material suitable for livestock consumption.

3,655,047

PROCESS FOR THE PURIFICATION OF WASTE WATER

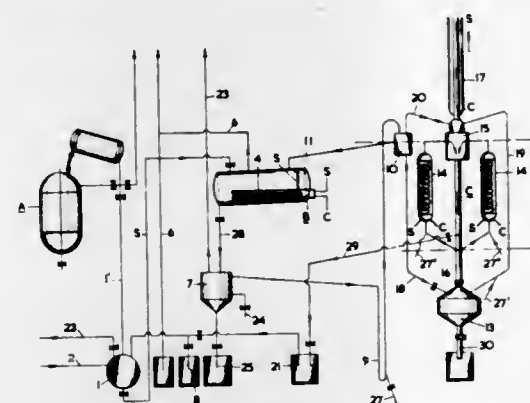
Marco Adegeest, Zandvoort, Netherlands, assignor to Corodex, N.V., Zandvoort, Netherlands

Filed Nov. 6, 1970, Ser. No. 87,557

Int. Cl. C02c 5/02

U.S. Cl. 210—59

7 Claims



Removal of impurities from waste waters resulting from the manufacture of phenol/formaldehyde resins. Add at least one phenol to waste water, in quantity sufficient to bring phenol:formaldehyde molar ratio to from 1:1.02 to 1:1.12; adjust normality to from 0.015 to 0.10 N; heat for prolonged time at 80°-85° C., thus evaporating lower-boiling solvents; evaporate water at temperatures between 5° below boiling point of solution and 116° C.; recover liquid resin substantially free of resite, using finely divided air to aid evaporation of remaining solvents, if desired. Suitable apparatus includes

a mixing tank with lines to feed it with contaminated water, acid, and phenol. The tank discharges to a heatable reservoir which has a gravity drain to a settling tank as well as an off-take for gaseous products and a bleed-off line from an intermediate zone for conveying fluids to an overflow tank. That tank has a return line to the reservoir and a gravity drain for liquid resin. It is connected also to an expansion boiler which is heated by fluid from heat exchange units. A stack removes vapor upwardly and a gravity drain conducts liquid resin downwardly to a storage vessel. A bleed-off line from an intermediate zone in the last mentioned drain to an acid recovery vessel may be added, if desired. Air injectors are installed as needed to maintain circulation.

3,655,048

METHOD AND APPARATUS FOR TREATING AND DISPOSING OF SEWAGE

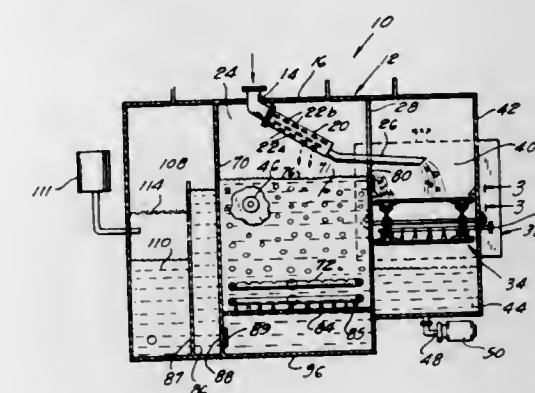
Nicola F. Pergola, 87 89th Street, Brooklyn, N.Y.

Filed Jan. 8, 1971, Ser. No. 104,995

Int. Cl. C02c 1/12

U.S. Cl. 210—67

11 Claims



A method and apparatus for treating and disposing of sewage which includes introducing raw sewage into a liquid separator. Separating liquid sewage from the solid sewage and collecting the separated liquid in a collection reservoir. The solid sewage is passed onto a filtration conveyor where the carry over liquid is filtered by the conveyor into a filtration reservoir and the solid sewage is transported to an incinerator. The liquid in the filtration reservoir is recirculated to the collection reservoir. Air supply and diffusion device introduces diffused air into the liquid in the collection reservoir to carry suspended solid sewage therein to the surface of the liquid in the collection reservoir. The liquid and solid sewage on the surface of the collection reservoir is passed over a weir onto the filtration conveyor where the filtration, transportation, recirculation and incineration steps are repeated. The diffusion of air into the liquid, the passing of the liquid and the solid sewage onto the filtration conveyor and the recirculation of the liquid is continued for a set period of time after the raw sewage has stopped flowing into the separator. At the termination of the recirculation cycle, the liquid is passed from the collection chamber through baffles into an effluent reservoir where the liquid is treated to reduce the bacteria count.

3,655,049

METHOD AND APPARATUS FOR RETAINING AND DISLODGING FILTER CAKE

Aloysius C. Kracklauer, Conroe, Tex., assignor to Sparkler Manufacturing Company, Conroe, Tex.

Filed Nov. 19, 1970, Ser. No. 91,097

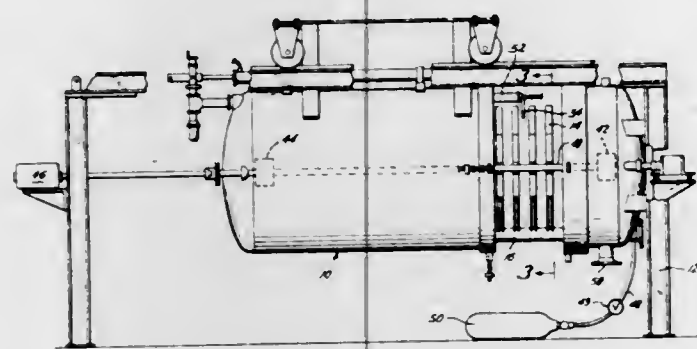
Int. Cl. B01d 25/34

U.S. Cl. 210—81

8 Claims

A porous screen fitted adjacent a vertical plate filter, in close proximity therewith, and means for oscillating or agitating the screen are provided, so that the screen acts to

dislodge the filter cake which builds up on the filter plate. A method of dislodging a filter cake is provided which includes oscillation of a screen located adjacent a vertical plate filter



having filtering media thereon for filtering fluids, and then continued oscillation of the screen while at the same time expanding the filtering media toward the screen and washing the filtering media with water.

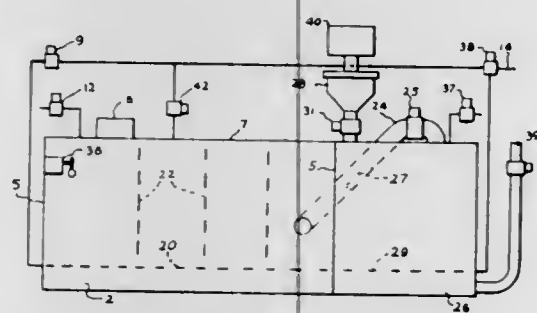
3,655,050

MEANS FOR AUTOMATICALLY OPERATING SEWAGE TREATMENT UNITS

Rolland L. Fifer, 6211 Glen Hill Road, Louisville, Ky.
Filed Oct. 1, 1970, Ser. No. 77,203
Int. Cl. C02c 1/06

U.S. Cl. 210-86

8 Claims



Means are provided for operating the sewage treatment units described in U.S. Pat. Nos. 3,476,250 and 3,460,677 completely automatically. Two timed operating cycles are employed. A purifying chemical is injected to the purified effluent from a chemical dispenser. The dispenser is filled from a hopper. It is necessary only to add purifying chemical to the hopper when a signal is activated indicating that the hopper is empty.

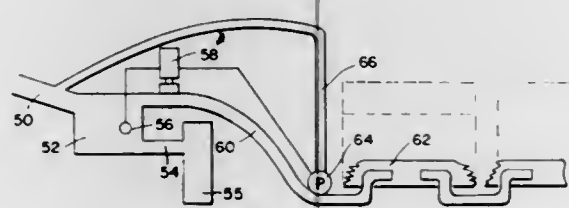
3,655,051

UNDERWATER STORAGE SYSTEM

Harold Gerson Quase, Kensington, Md., assignor to Underwater Storage, Inc., Washington, D.C.
Filed June 23, 1969, Ser. No. 835,655
Int. Cl. B01d 21/24

U.S. Cl. 210-88

5 Claims



An underwater storage system collects waste, measures the collection and stores the waste in underwater storage tanks from whence the material is pumped when inlet measure-

ment indicates the necessity. Automatic systems are provided for the storage of sewage waste during peak periods and in large flexible walled tanks having flat rectangular bottoms with horizontal oriented inlet and outlet means. When the peak systems are passed, the present invention provides automatic means to reintroduce the stored sewage into the sewage treatment system. The automatic waste, collection, storage and emptying systems and the flexible containers used in those systems have particularly useful application to sewage systems.

3,655,052

FLUID CONTAMINATION MEASURING SYSTEM

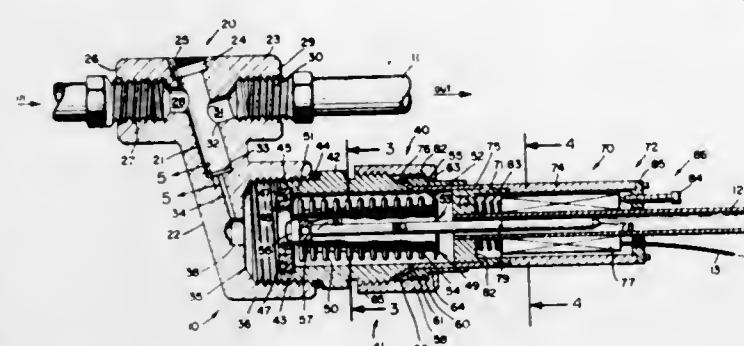
Josef E. Friederichs; Edgar E. Friederichs, both of Pacific Palisades, and Leo Weg, Los Angeles, all of Calif., assignors to Alpha Advanced Systems, Inc., Inglewood, Calif.

Filed Feb. 6, 1970, Ser. No. 9,262

Int. Cl. B01d 33/06

U.S. Cl. 210-90

6 Claims



A fluid contamination measuring system having a sampling valve to continuously withdraw a representative portion of a fluid stream, a moveable filter for filtering at least some of such stream portion and moving proportionally to the cumulative amount of particles retained and a sensor for detecting such movement remotely.

3,655,053

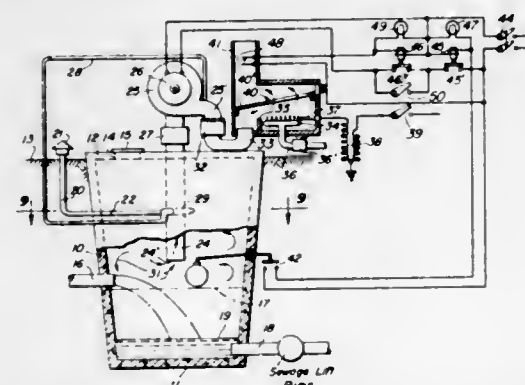
SEWAGE LIFT STATION

Adolph C. Hugin, 7602 Boulder Street, North Springfield, Va.
Filed Feb. 16, 1971, Ser. No. 115,380

Int. Cl. B01d 57/00

U.S. Cl. 210-152

20 Claims



Sewage lift stations comprising a tank or well into which sewage flows through an inlet a suitable height above the bottom of the tank to provide for collection of a desired quantity of sewage after which it is automatically pumped out of the tank to a higher level from which it flows by gravity to the next lift station or to a treatment plant or other disposal system. A sewer gas deactivation and deodorizing unit comprising a suitable heating and burning unit utilizing, as the primary source of heat, a gas burner which may either simply heat the sewer gas as it is drawn from the tank by a blower and blown through the heating unit or which may premix the

sewer gas and the air and gas supplied to the burner so that the mixed gas burns directly. Air is supplied to the tank from the atmosphere through a relatively small inlet pipe at a point adjacent to the inner wall of the tank through an inlet opening or nozzle extending substantially peripherally horizontally preferably about one-fourth to one-third of the depth of the tank down from the top so as to direct air peripherally over the inner wall surface of the tank in order to produce a circulatory scavenging flow of mixed air and gas in the tank over the exposed part of this surface. The mixed air and gas is withdrawn from the tank through an exhaust pipe which is relatively much larger than the air inlet and which has intake preferably at about one half the depth of the tank and centrally thereof a predetermined distance above the maximum height of sewage in the tank. This assures a good mixture of the air and sewer gas before it is withdrawn and places the gas exhaust intake at or near the center of a vortex circulation of the mixed gas. Provision is made for stopping the exhaust blower under abnormal operating conditions, such as an excessive rise in the level of the collected sewage or non-function of the gas deactivator.

3,655,054

AUTOMATIC CHLORINATOR FOR SWIMMING POOLS

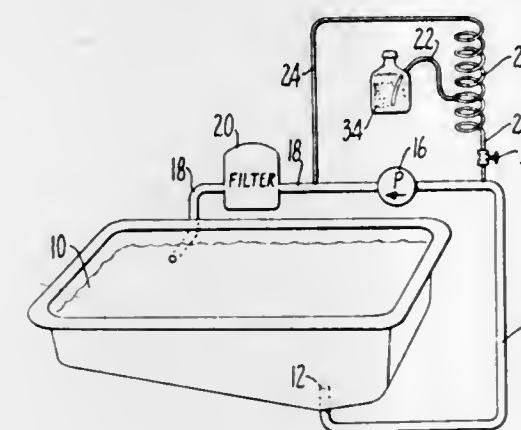
Andrew L. Pansini, 27 Larkspur Street, San Rafael, Calif.

Filed May 25, 1970, Ser. No. 40,100

Int. Cl. E04h 3/16

U.S. Cl. 210-169

6 Claims



An automatic non-electric which employs powdered or granular chlorine in a submerged condition and which is operable in response to deactivation followed by activation of the pump of a swimming pool recirculating and water treatment system to automatically inject a given amount of chlorine into the pool return line. This is accomplished by a by pass system which comprises an air tight reservoir for containing treatment solution, a loop of pipe for storage which bypasses a suction line from a swimming pool.

3,655,055

BAND FILTER PRESS

Richard Van Egdom, Bahnhofstrasse 45, 5164 Noervenich, and Alfons Schotten, Rurstrasse 13, 516 Dueren, both of Germany

Filed July 2, 1970, Ser. No. 52,045

Claims priority, application Germany, Dec. 9, 1969, P 19 61

608.1

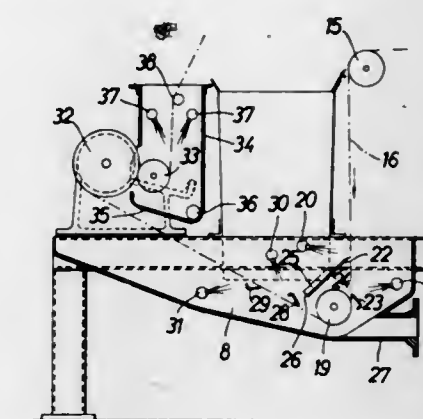
Int. Cl. B01d 33/00

U.S. Cl. 210-225

11 Claims

A cleaning arrangement comprising several fan spray nozzles and scrapers for cleaning both surfaces, and the entire

width, of the filter band, in a vertical filter press, between the



outlet end of the band from the filter plates and the drive roller for the band.

3,655,056

FILTER ELEMENT FOR UPRIGHT FILTER PRESS

Alfons Schotten, and Franz Heimbach, both of Dueren, Germany, assignors to Eberhard Hoesch & Sohne, Duren, Germany

Filed Apr. 23, 1970, Ser. No. 31,288

Claims priority, application Germany, Dec. 8, 1969, G 69 47 461.9

Int. Cl. B01d 25/00

U.S. Cl. 210-227

9 Claims

In an upright filter press filter elements are arranged in stacked superimposed relationship. Each filter element has a frame having an upper side and a lower side and carrying filter means. A liquid-conveying channel is provided in each frame and terminates at a lateral side thereof for conveying expressed liquid. A lateral tubular extension is provided on each frame having a lower portion protruding downwardly beyond the lower side and a passage oriented in upright direction and communicating with the channel. The passage has at the upper side of the frame an inlet whose inner diameter is larger than the outer diameter of the lower portion so that the lower portion of the extension on the respectively upper filter element is telescopically receivable in the inlet of the passage of the extension of the respectively lower filter element.

3,655,057

TANK STRUCTURE

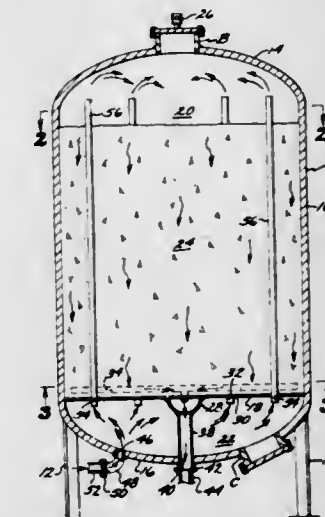
George Dennis Hume, 6741 Loyola Drive, Huntington Beach, Calif.

Filed Feb. 20, 1970, Ser. No. 13,082

Int. Cl. B01d 23/10

U.S. Cl. 210-288

5 Claims



A vertically disposed high pressure tank having upper and lower convex ends, and a flat horizontal partition within the tank adjacent the lower end thereof that cooperates with the

tank to define an upper and a lower compartment. The partition serves as a base to support a bed of media such as zeolite, sand, filtering material or the like within the confines of the first compartment.

First means are provided to discharge a liquid at a first desired pressure into the upper portion of the upper compartment and to remove the liquid from the confines of the tank after it has been treated by percolating downwardly through the bed to a position adjacent said partition. Second means are also provided for concurrently discharging said liquid into the lower compartment at said first pressure.

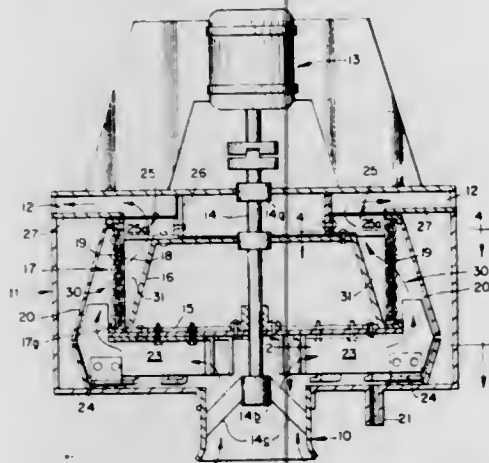
Said lower compartment is maintained in a flooded condition during the discharge of liquid into the upper compartment, with the result that liquid pressure both above and below the partition is substantially equal, and the partition may be of relatively light structure. Due to this equalization of pressures, above and below the partition, no heavy reinforcing means for the partition are required in the lower compartment.

3,655,058 FILTRATION APPARATUS

Richard A. Novak, 20 Chestnut Street, Boston, Mass.
Filed July 13, 1970, Ser. No. 54,507
Int. Cl. B04b 5/12

U.S. Cl. 210-360

10 Claims



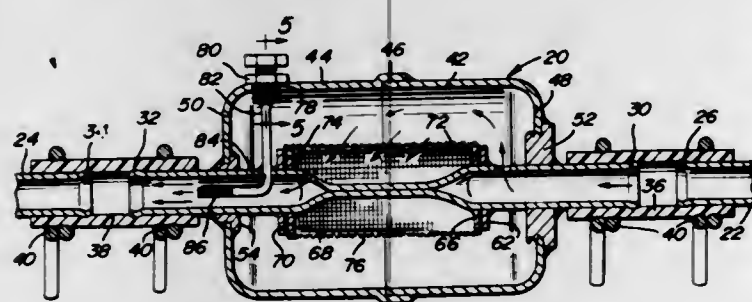
A filtration apparatus which includes a rotating filter, a compressor or blower for providing a positive fluid flow to the rotating filter, and an expander or turbine for extracting energy from the fluid after it has been filtered.

3,655,059 IN-LINE FUEL FLOW RESTRICTING AND FILTER ASSEMBLY

Arthur O. Johnson, 212 N.E. 26th Street, Miami, Fla.
Filed May 14, 1970, Ser. No. 37,147
Int. Cl. B01d 35/00

U.S. Cl. 210-446

13 Claims



A tubular body adapted to be interposed in a fuel flow line and having a passage formed longitudinally therethrough. A mid-portion of the passage within the body has a flow restrictive zone for reducing fluid pressure pulses and the tubular body includes a zone of increased cross-sectional area intermediate the inlet end of the passage and the flow restrictive zone of the passage for further reducing fluid pressure pulses. Also, one form of the invention provides a pair of spaced

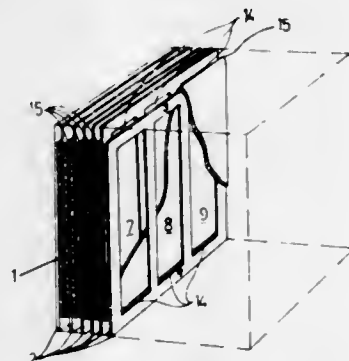
flow restrictive zones intermediate the inlet and outlet ends of the passage with the zone of increased cross-sectional area disposed between the pair of flow restrictive zones. Finally, each of the tubular bodies has a filter body through which fuel flowing through the tubular body must pass and a check valved air inlet for ambient air is provided and has its outlet end disposed in position subject to reduced fluid pressures in response to fuel flow through the tubular body.

3,655,060 GAS OR LIQUID FILTER

Erik Lennart Hagdahl, Bergsatra, Sweden, assignor to Stora Kopparbergs Bergslags Aktiebolag, Falun, Sweden
Filed Mar. 3, 1970, Ser. No. 16,126
Claims priority, application Sweden, Mar. 5, 1969, 3050/69
Int. Cl. B01d 29/06

U.S. Cl. 210-493

7 Claims

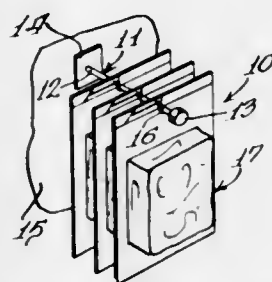


A gas or liquid filter structure comprising a fibrous filter web arranged in alternating folds and in which there is positioned between adjacent folds a grid-like distance member which presents a portion adapted to conform to the contours of each fold edge and support it from within.

3,655,061
MERCHANDISING STRUCTURE
Andreas D. Peschke-Koedt, P.O. Box 134, Moose, Wyo.
Filed June 25, 1970, Ser. No. 49,605
Int. Cl. A47I 7/00

U.S. Cl. 211-57

12 Claims



A merchandising structure having a plurality of packages carried on a spindle for selective removal by a customer. The spindle includes means at the distal end preventing withdrawal of the packages over the distal end. The packages include means preventing simple lateral withdrawal of the package from the spindle so as to avoid pilfering. Means are provided for manually rearranging the package for subsequent lateral withdrawal so that operation of the last named means inhibits pilfering by necessitating an additional readily observable operation.

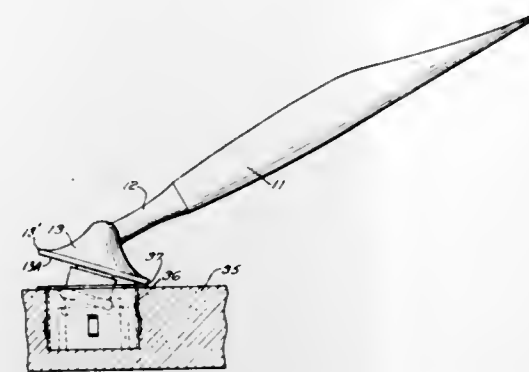
3,655,062
PENHOLDER ASSEMBLY
James E. Curry, Pawtucket, R.I., assignor to A. T. Cross Company
Filed July 10, 1970, Ser. No. 53,783
Int. Cl. A47I 7/00

U.S. Cl. 211-69.6

3 Claims

A penholder assembly having a funnel adaptor pivotally

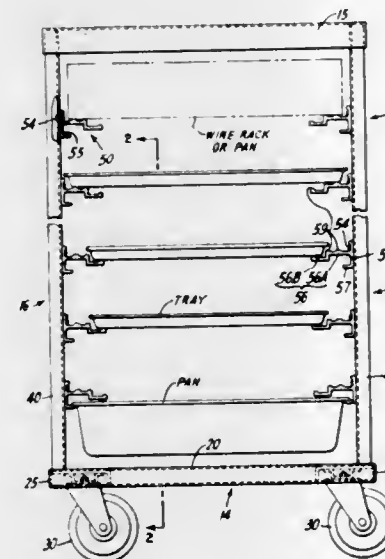
mounted in the top of a bonnet and a stem attached to the bottom of the bonnet having either an annular boss or annu-



lar groove which is gripped by resilient coupling means that are mounted in a bushing which releasably receives the stem.

3,655,063
TRAY AND PAN SUPPORTING RACK
Thomas J. Landry, Old Lyme, Conn., assignor to AMP Incorporated
Filed Aug. 27, 1970, Ser. No. 67,509
Int. Cl. A47I 3/14, 47/00

U.S. Cl. 211-71



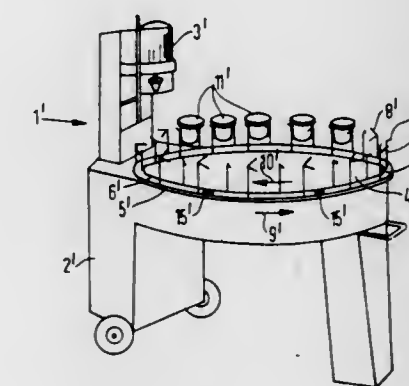
A rack including a frame and tray supporting members. The frame includes a top member spaced above and in registry with a base member, and four vertical posts respectively connected to the opposed corners of the base and top members; and wherein two of the posts have vertically oriented keyhole-shaped slots, and the other two have horizontally oriented keyhole-shaped slots. Each of the tray supporting members is an extrusion having a base provided with two rivets with enlarged free ends or heads. The rivets are spaced apart a lesser distance than the enlarged parts of the keyhole-shaped slots into which the rivet heads must be inserted to connect the member to two of the posts. As a result, to mount a member on the posts, the rivet which is to be inserted in a horizontally oriented slot must first be so inserted, then the member must be moved horizontally toward the post with vertically oriented slots before the other rivet can be inserted in the appropriate vertically oriented slot and moved downwardly. When mounted, the members cannot be sidewise or endwise moved without first upwardly lifting their ends which are associated with vertically oriented slots.

3,655,064
ADJUSTABLE POT HOLDING MEANS FOR POTTING AND REPOTTING MACHINES
Georg Mayer, Heidenheim-Mergelstetten, Germany, assignor to Firma Mayer KG, Maschinenbau, Heidenheim-Mergelstetten, Germany
Filed July 25, 1969, Ser. No. 844,868
Claims priority, application Germany, Sept. 12, 1968, P 17 82 516.0

Int. Cl. A47g 29/00

U.S. Cl. 211-78

22 Claims

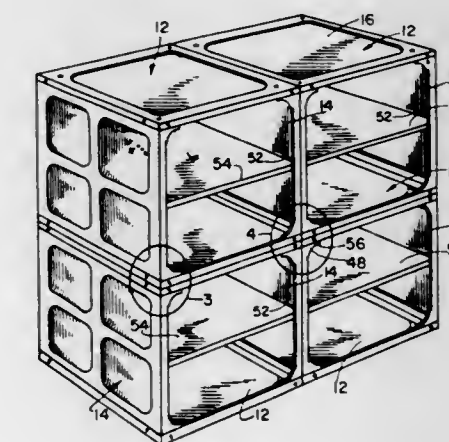


1 Claim
Pot holding means for filling pots or other containers such as with plant receiving material for the subsequent placement of plants therein. The pot holding means comprises two concentric rings, each having a set of brackets thereon which are spaced for appropriate engagement of pots by relative rotational movement of the rings with respect to each other. The rings may then be locked in position with the pots suitably insertable and removable from the brackets and the whole assembly rotated or otherwise moved for introducing the pots to a filling station.

3,655,065
KNOCKDOWN CUBE STRUCTURE
Bernard Yellin, 5252 S. Kolman Avenue, Wilmette, Ill.
Filed Dec. 9, 1970, Ser. No. 96,315
Int. Cl. A47I 5/10

U.S. Cl. 211-177

10 Claims



A knockdown cube member formed of a plastic material and comprising a top member and a bottom member, each integrally formed and being of identical construction, and a pair of side members being of identical construction, so that said top, bottom and side member may be readily assembled to form a cube and wherein said cube may be used either individually or to form a module which is readily connected to other similar cubes.

3,655,066

RAILWAY CAR COUPLER

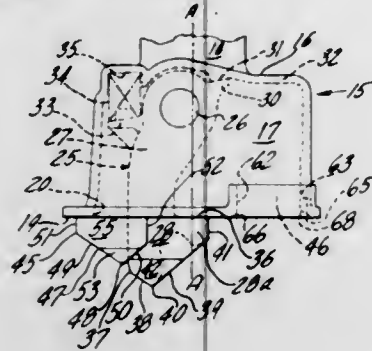
William J. Metzger, East Cleveland, Ohio, assignor to Midland-Ross Corporation, Cleveland, Ohio

Filed Oct. 30, 1970, Ser. No. 85,382

Int. Cl. B61g 3/02, 3/10

U.S. Cl. 213-100 W

15 Claims



An automatic hook type railway car coupler having a spring biased coupling hook mounted in its head for horizontal pivotal movement and adapted for interlocking engagement with the hook of an opposed similar coupler when the couplers are in a coupled position, and inboard projections and pocket portions disposed on opposite sides of the longitudinal central axis of the coupler adapted to mate with complementary means on the opposed similar coupler for interlocking the couplers both vertically and horizontally when they are in a coupled position. More particularly, the coupling hook and inboard projections each have a forwardly extending tapered portion defining first and second lateral alignment means, respectively, adapted to provide a more compact arrangement of guiding surfaces for improving the lateral gathering characteristics of two opposed misaligned couplers approaching each other during a coupling operation.

3,655,067

BAR FEEDER AND ESCAPEMENT DEVICE

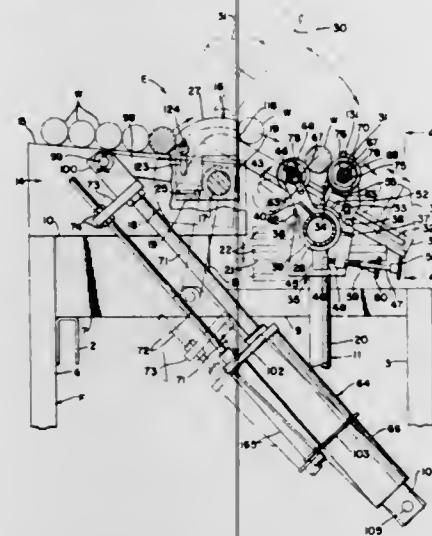
Frank F. White, Shaker Heights, Ohio, assignor to Automation Development Corporation, Lake County, Ohio

Filed Apr. 20, 1970, Ser. No. 29,863

Int. Cl. B65h 51/26

U.S. Cl. 214-1 PB

18 Claims



An automatic bar feeder for a centerless grinder having conventional adjustable bar-supporting rollers (68) carried by a long vertically adjustable horizontal guide tube (28), a feed ramp (14), an escapement shaft (17), a plurality of long narrow load arms (30) on said shaft having long adjusting slots (32) for mounting adjustable bar-engaging stops (31), adjustable escapement plates (18) on said shaft to lift one bar only from the ramp to the load arms, a high-speed pneumatic cylinder (69) for turning the escapement shaft rapidly to cause the escapement plates to throw the lowermost bar

(W) on the ramp outwardly at a high speed such that it clears the nearest roller (68) and engages the stops (31) before the arms are lowered below said rollers (68), hydraulic cylinder means (165) for retarding and controlling the speed of lowering of the arms near the end of the stroke of said cylinder, a skewed motor-driven drive wheel (92) for engaging the bar to feed it into the grinder (B), and means (94) for swinging the drive wheel vertically.

3,655,068

COIL PICKUP DEVICE

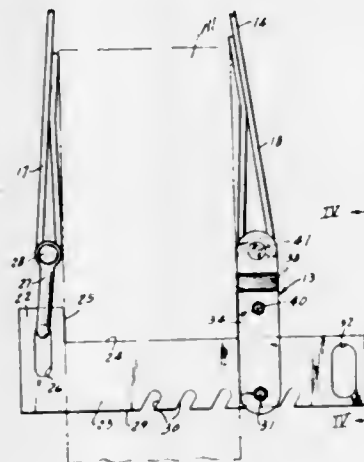
William D. Ervin, Aurora, Ill., assignor to Aurora Equipment Company, Aurora, Ill.

Filed Nov. 23, 1970, Ser. No. 91,879

Int. Cl. B65g 7/00

U.S. Cl. 214-1 QD

11 Claims



A device for picking up an annular object or article such as a coil or wire or sheet metal and enabling the tipping of the annular article from its side to an upstanding orientation with the axis of the annular article being substantially horizontal. The device includes an L-shaped member having a support surface for engaging an inner circumference of the annular article with one end of the member being connected to a flexible belt or chain which extends over a pulley and is attached to a yoke which is detachably secured to the other end of the member.

3,655,069

POSITIONER

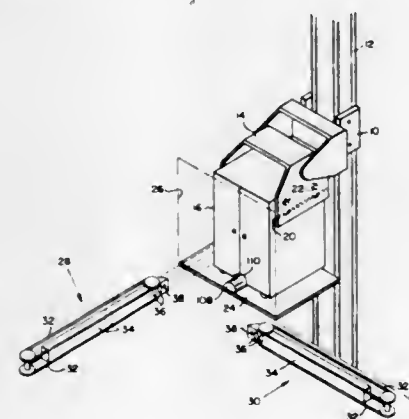
Kai Gertsen, Rochester, N.Y., assignor to Sybron Corporation, Rochester, N.Y.

Filed Dec. 22, 1969, Ser. No. 886,844

Int. Cl. B66c 1/04

U.S. Cl. 214-1 BT

10 Claims



The invention is a positioner for use with a material handling system wherein wheeled containers are transported

through vertical or horizontal shaftways. The positioner includes a conveyor driven boom which can be moved into the shaftway. The boom has magnets nested in one end, which can be cammed outwardly for attachment to the container after the boom has been driven into the shaftway. Reversing the conveyor withdraws the boom and, therefore, the container from the shaft. The positioner is also used to insert containers into the shaft.

3,655,070

TRANSFER AND LIFT MECHANISM

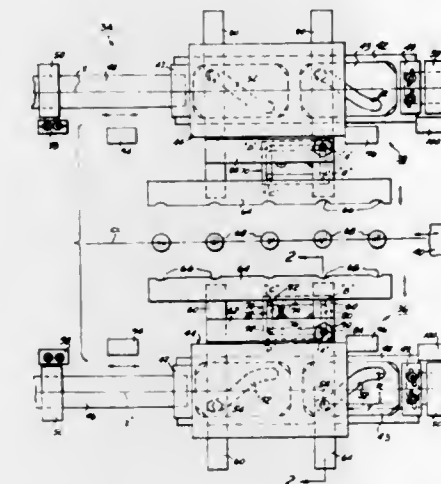
Bartley A. Haydu, 22111 Marlow Street, Oak Park, Mich.

Filed Apr. 7, 1969, Ser. No. 813,999

Int. Cl. B65g 25/04

U.S. Cl. 214-1 BB

36 Claims



A transfer and lift mechanism for a press or similar machine which is wholly automatic and operates on a multiple cam principle comprising, primarily, a machine base on which is mounted a slide assembly provided with one or more cams or tracers mounted for movement along a predetermined path to move a work gripping and holding assembly in traverse, vertical and longitudinal direction. The cam or tracer unit is designed such as to enable it to move the work gripping and holding assembly within the above directions of movement either consecutively or simultaneously. By a proper design and combination of various cam tracer and lifting units, the work gripping and holding assembly advances in a traverse direction to grip the workpiece, then moves vertically after which it moves the workpiece along in a longitudinal direction, then lowers the workpiece into the next station to release the workpiece and then traverses out of the work area. The last move is in a direction to return the assembly to its initial position to complete one cycle.

3,655,071

HORIZONTAL PIPE RACKING AND HANDLING APPARATUS

Faustyn C. Langowski, and John W. Turner, Jr., both of Houston, Tex., assignors to Byron Jackson, Inc., Long Beach, Calif.

Filed May 27, 1970, Ser. No. 40,986

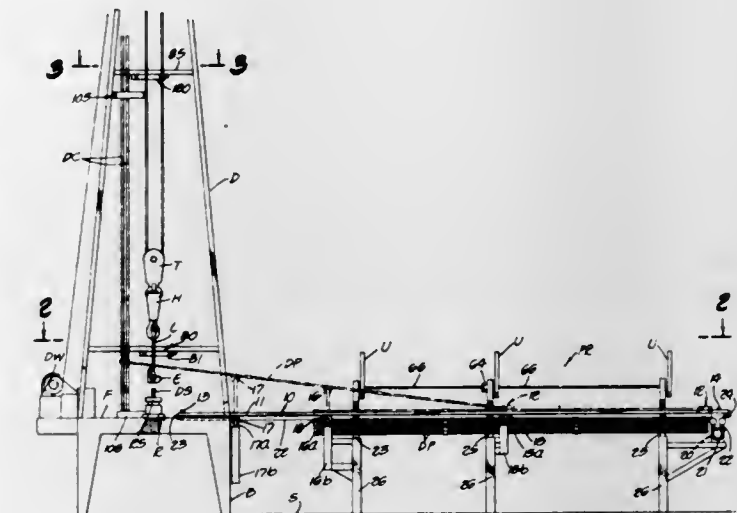
Int. Cl. E21b 19/14

U.S. Cl. 214-2.5

3 Claims

Horizontal pipe racking and handling apparatus in which stands of drill pipe are moved between horizontal racked positions and a position suspended at the center of a well drilling derrick, the horizontal rack supporting the pipe in vertical rows at opposite sides of line leading to the center of the derrick, and in which pipe stand racking and unracking apparatus includes a plurality of relatively shiftable pipe gripping and hoisting devices spaced longitudinally of the racked pipe so as to be operative to transfer pipe stands consisting of two joints or three joints of pipe. Each of the pipe transfer devices consists of a frame structure including a

horizontally extended arm on which a carriage is shiftable, the carriage carrying vertically shiftable pipe stand engaging heads, and the carriages of all of the pipe transfer devices being driven by a common drive. In addition, the pipe handling apparatus includes a combined catcher and positioner for the lower end of the pipe stand as it approaches a vertical position in the derrick whereby to confine the lower end of the stand against undesired movement and to position the



stand above the drill string supported in the rotary table; the catcher and positioning device also being operable to engage and move the lower end of the drill collar between a position above the rotary table and a vertically racked position. The apparatus also includes an upper racker device for engaging and moving the upper end of the drill collars between a position above the rotary table and an offset vertically racked position.

3,655,072

CARTON HANDLING APPARATUS

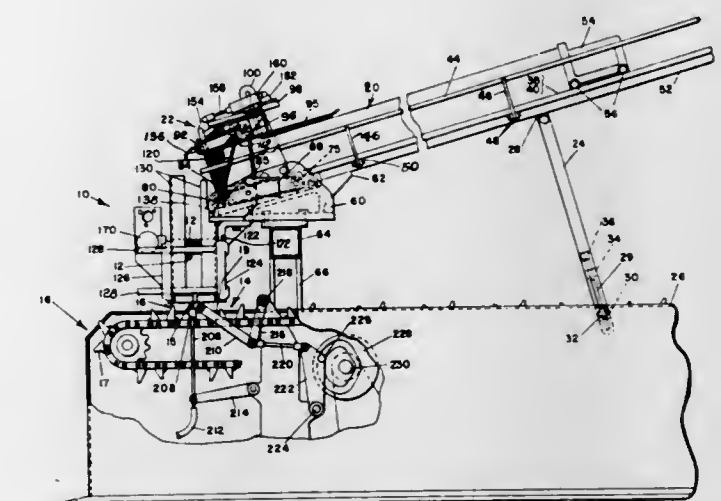
Lawrence Giles Bateman, Toronto, Ontario, Canada, assignor to Delamere & Williams Company Limited, Toronto, Ontario, Canada

Filed Sept. 18, 1969, Ser. No. 859,135

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 A

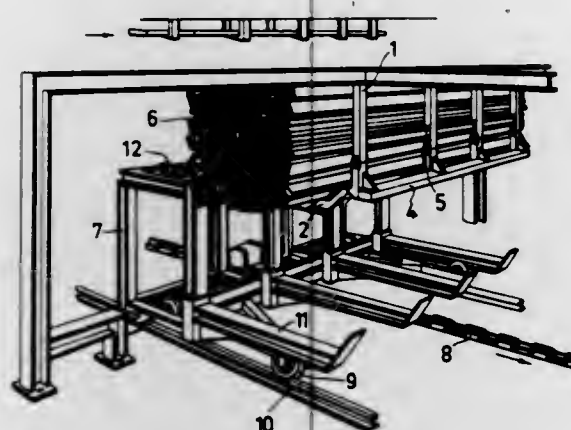
19 Claims



The apparatus includes a short upright magazine having a vertical stack of cartons from which successive lowermost cartons are withdrawn, and an elongated inclined supply magazine in response to a reduction in height of the stack whereby to maintain a substantially uniform supply therein to facilitate withdrawal of successive cartons and to require less frequent manual replenishment of the supply.

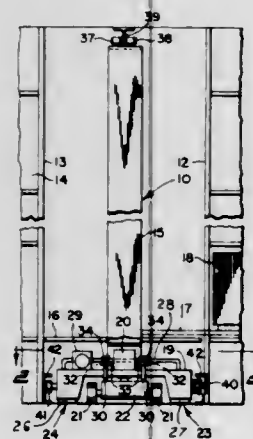
3,655,073
ARRANGEMENT FOR COLLECTING MATERIAL AND REMOVING IT PERPENDICULARLY TO ITS LONGITUDINAL DIRECTION

Curt Erik Ingvar Andersson, Stora Tuna, Sweden, assignor to Kockum Soderhamn AB, Soderhamn, Sweden
 Filed Mar. 24, 1970, Ser. No. 22,168
 Int. Cl. B65g 65/02
 U.S. Cl. 214-16 B 5 Claims



Apparatus for collecting and transporting articles which includes article receiving means that has bottom support arms which are movable between an article supporting position and an article discharging position. A releasable locking means permits the selective locking of the support arms in their article supporting position. A transport carriage is provided which is movable in a generally horizontal direction from a position directly below the article receiving means to an article unloading position. The carriage has a vertically adjustable platform with a means which is effective when the platform is raised to a predetermined height relative to the article receiving means to release the locking means and thereby permit movement of the support arms to their article discharging position. In addition, a means on the carriage restores the support arms to their article supporting position upon movement of the carriage from its position directly below the article receiving means to its unloading position.

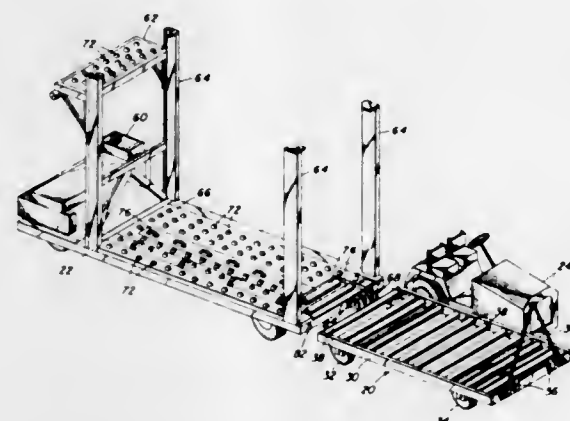
3,655,074
WAREHOUSE APPARATUS WITH AN AIRBEARING SUPPORTED STACKER
 George R. Pipes, South Euclid, Ohio, assignor to Eaton Corporation, Cleveland, Ohio
 Filed Dec. 8, 1969, Ser. No. 882,917
 Int. Cl. B65g 1/06
 U.S. Cl. 214-16.4 A 4 Claims



Relates to a storage and retriever stacker movable between a pair of storage racks for projecting or retracting a load into

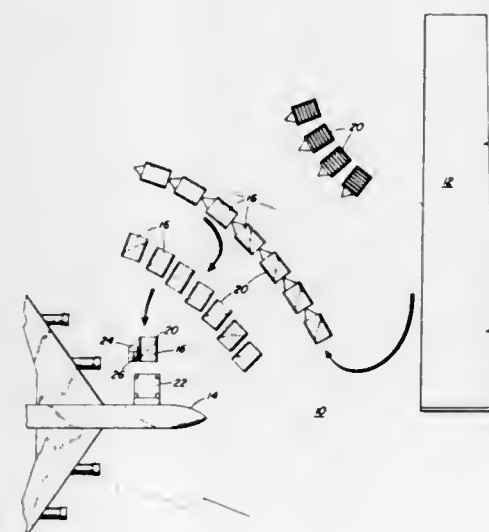
or off of the racks. The stacker is supported on air bearing means and is provided with means for horizontal guidance during movement between the racks.

3,655,075
CARGO HANDLING
 Frank B. Carder, Darien; Warren R. Stumpe, Stamford; Bruno S. Frassetto, Westport, and Charles H. Bell, New Canaan, all of Conn., assignors to Dorr-Oliver Incorporated, Stamford, Conn.
 Original application July 21, 1967, Ser. No. 655,227, now Patent No. 3,506,144, dated Apr. 14, 1970. Divided and this application Apr. 13, 1970, Ser. No. 32,479
 Int. Cl. B65g 67/10
 U.S. Cl. 214-38 D 2 Claims



An air cargo pallet handling technique utilizing a mobile aircraft loader, pallet dollies having unpowered pallet transfer surfaces, and a dolly-manuevering tractor having a hitch for side coupling with the dollies, the loader having a powered extractor to operate the transfer surface of a dolly positioned at the loader.

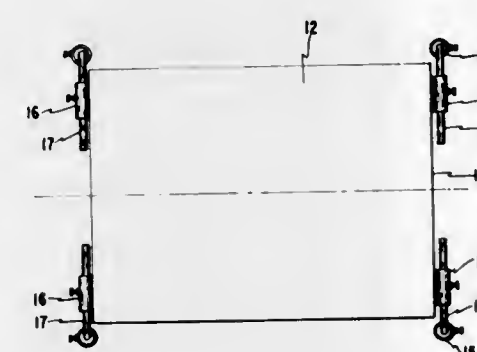
3,655,076
CARGO HANDLING
 Frank B. Carder, Darien; Warren R. Stumpe, Stamford; Bruno S. Frassetto, Westport, and Charles H. Bell, New Canaan, all of Conn., assignors to Dorr-Oliver Incorporated, Stamford, Conn.
 Original application July 21, 1967, Ser. No. 655,227, now Patent No. 3,506,144, dated Apr. 14, 1970. Divided and this application Apr. 13, 1970, Ser. No. 32,478
 Int. Cl. B65g 67/10
 U.S. Cl. 214-38 BA 3 Claims



An air cargo pallet handling technique utilizing a mobile aircraft loader, pallet dollies having unpowered pallet

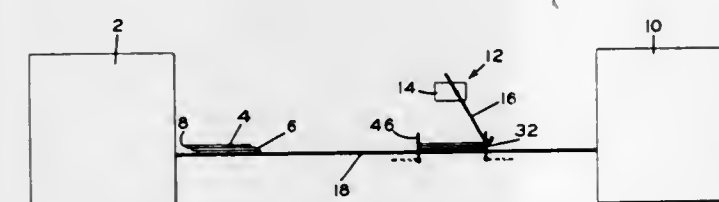
transfer surfaces, and a dolly-manuevering tractor having a hitch for side coupling with the dollies, the loader having a powered extractor to operate the transfer surface of a dolly positioned at the loader.

3,655,077
CAR TOP CAMPING SHELTER
 Lyall Lowe, 517 Dakota Avenue, South Sioux City, Nebr.
 Filed June 8, 1970, Ser. No. 44,088
 Int. Cl. B60r 9/04
 U.S. Cl. 224-42.1 E 5 Claims



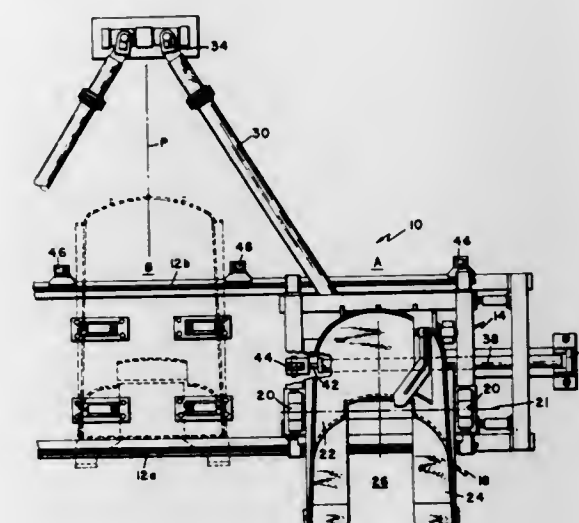
Improvement in a car top carrier permitting its use as a camping shelter supported on the automobile and permitting removal of the car and support of the shelter on the ground.

3,655,078
ARTICLE ALIGNMENT DEVICE ON A PACKAGING MACHINE
 John L. Androkitis, Orwigsburg, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.
 Filed June 12, 1970, Ser. No. 45,816
 Int. Cl. B65g 57/00
 U.S. Cl. 214-6 S 1 Claim



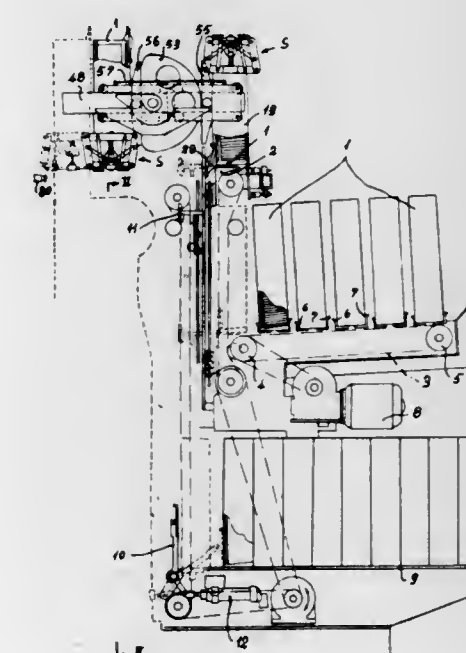
A stack of tile moving between the bagging machine and bag heat shrinking machine needs to be neatly stacked so that the end packaged product is neatly stacked. An automatic tile stacker is used to form a package of tiles into a uniformly appearing stack. A sensor on the conveying line between the bagging machine and heat shrinking machine detects the presence of the stack of tile. This then operates a mechanical stop structure which aligns the forward and rearward surfaces of the stack of tile. The uniformly stacked tiles then proceed to the heat shrinking machine.

3,655,079
COIL TRANSFER AND TIPPING APPARATUS
 Roger Kinnicutt, Jr., Worcester, and William J. Hill, Holden, both of Mass., assignors to Morgan Construction Company, Worcester, Mass.
 Filed July 9, 1970, Ser. No. 53,469
 Int. Cl. B65g 7/00
 U.S. Cl. 214-146.5 4 Claims



An apparatus for receiving an inclined coil at a first station and for laterally shifting the coil to a second station while simultaneously tilting the coil to increase its angle of inclination.

3,655,080
CIGARETTE PACKER HOPPER AUTOMATIC FEEDING DEVICE
 Goffredo Gianese, Bologna, Italy, assignor to AMF Incorporated
 Filed Mar. 11, 1970, Ser. No. 18,598
 Claims priority, application Italy, June 17, 1969, 7107 A/69
 Int. Cl. B65b 19/04
 U.S. Cl. 214-302 14 Claims



An automatic cigarette packer hopper tray feeding device which comprises a tray for cigarettes, a feed conveyor and a container to receive the cigarettes from the tray, elevator

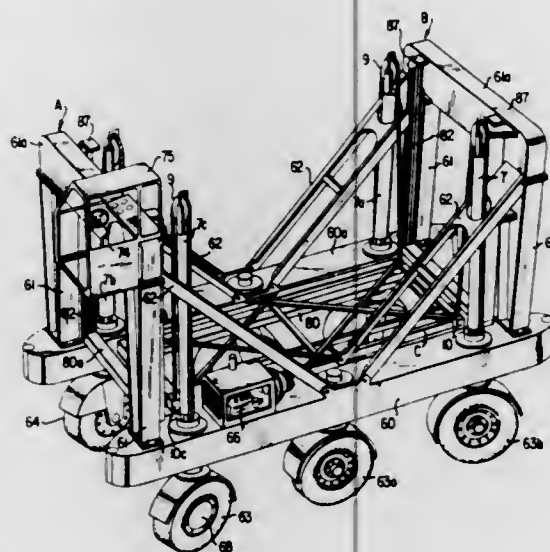
means to transfer a tray of cigarettes from the conveyor to a means to overturn the tray of cigarettes and position the cigarettes in an orderly manner in the container and to return the empty tray to the elevator.

3,655,081 STRADDLE CARRIERS

John Thomas Monk, 405 Meadon Moss Drive, Jackson, Miss.
Filed Feb. 6, 1970, Ser. No. 9,317
Int. Cl. B60p 1/64

U.S. Cl. 214—394

20 Claims



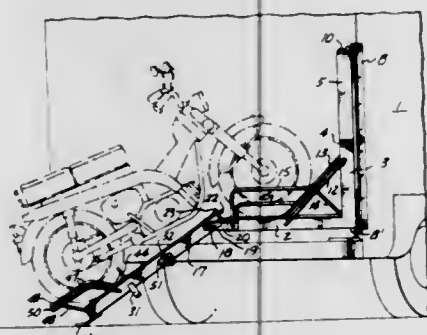
The straddle carrier has two spaced parallel elongated frame members adapted to straddle a load. A pair of vertically disposed arch member connects the frame members together adjacent the ends thereof and diagonally disposed brace members connect the tops of the arches to substantially the mid-points of the frame members. Ground wheels are flexibly mounted on the undersides of the frame members, and means for steering the wheels are provided. A rectangular load lifting beam is disposed between the frame members and arches. Means are provided engaging the four corners of the lifting beam for raising and lowering the lifting beam, means being provided at the four corners of the lifting beam for securing same to a load. Means are also provided for guiding the lifting beam during its ascent and descent. And means are provided for controlling the lifting beam raising and lowering means whereby the four corners of the beam will be simultaneously raised or lowered equal amounts notwithstanding the relative weights on the respective corners, in order to maintain the beam always parallel with the frame members.

3,655,082 CAMPER CYCLE CARRIER

Dennis J. Garrett, 9417 Linden Avenue North, Seattle, Wash.
Filed Nov. 10, 1969, Ser. No. 875,392
Int. Cl. B60n 9/00

U.S. Cl. 214—450

9 Claims



A cycle-supporting base beam projects horizontally from the lower end of a dogleg supporting post pivoted on a mount

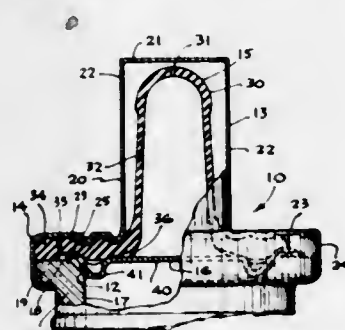
attached to an automotive vehicle. The base beam is tilted sidewise away from the vehicle and wheel guards carried by the base beam and its supporting post are offset from the vehicle farther than the base beam to hold the wheels of a cycle so that the cycle leans away from the vehicle. The portion of the base beam remote from the supporting post is mounted to tilt downward from the post-attached portion of the base beam to provide a ramp for loading a cycle onto the carrier. The carrier can be swung away from the vehicle to facilitate loading and the base beam can be latched in position close alongside the rear of the vehicle during travel.

3,655,083 INFANT FEEDING UNIT ASSEMBLY

Thomas Eberhardt, and William H. Welch, both of Columbus, Ohio, assignors to Abbott Laboratories, North Chicago, Ill.
Filed Jan. 8, 1970, Ser. No. 1,505
Int. Cl. A61j 9/00; B65d 51/16

U.S. Cl. 215—11 B

2 Claims



An infant feeding assembly including a nipple and a protective cap or shroud and retaining ring structure which clamps the assembly together onto the open end neck portion of a container. The protective shroud encloses the nipple during storage as well as compressing the nipple and closing the air vent holes. The assembly includes a disk for separating the product from the nipple and closure, the disk having biasing means on the periphery thereof capable of being resiliently flexed when the closure is attached to seal the container. Upon release of the pressure, the biasing means returns to its original configuration thereby releasing the vacuum within the bottle and facilitating the formation of an effective fluid flow path for the product in the container.

3,655,084 CONTAINER WITH PRESSURE RETAINING SEALING ELEMENTS

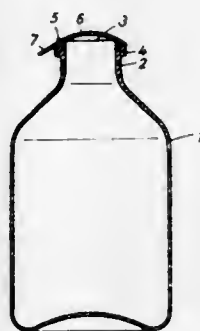
Werner Willhaus, Stuttgart-Kaltental, and Friedrich Scharf, Stuttgart-Stammheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 15, 1970, Ser. No. 98,350
Claims priority, application Germany, Jan. 30, 1970, P 20 04 190.1

U.S. Cl. 215—37 R

Int. Cl. B65d 51/00

13 Claims



A container with a material-dispensing portion is disclosed where the material-dispensing portion has an opening

disposed in a predetermined plane and has an endless surface, said surface being inclined to said plane. The container is in combination with a sheet-like sealing element having a marginal portion bonded to the surface of the container around the opening and having a median portion overlying the opening, the median portion being inclined with reference to the plane of the opening and making therewith an angle which, at most, slightly exceeds the angle between the plane of the opening and the endless surface of the material dispensing portion.

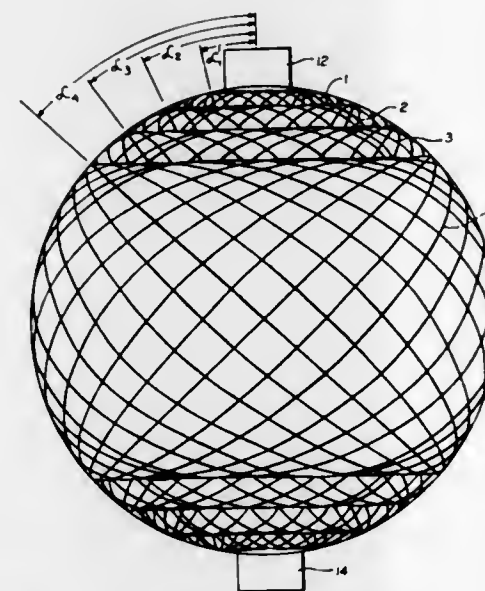
3,655,085 FILAMENT WOUND SPHERICAL PRESSURE VESSEL

Benjamin J. Aleck, Jackson Heights, N.Y., assignor to Arde, Inc., Paramus, N.J.

Filed Apr. 12, 1968, Ser. No. 721,019
Int. Cl. B65d 7/42

U.S. Cl. 220—3

17 Claims



A spherical, multi-layer, fibre reinforced plastic pressure vessel, each layer being a helix inclined at a different angle to the polar axis with each convolution in each layer following substantially a great circle, constructed so that the layer which extends closest to the poles of the sphere resists meridional force of a given amount at a preselected horizontal plane, the layer most remote from the poles of said sphere resists, together with all other windings cooperating therewith, hoop force of said given amount along the equator, and the intermediate layers resist, together with the layers cooperating therewith, at selected horizontal planes only, either a meridional force or a hoop force of said given amount.

3,655,086 RECEPTACLES FOR THE STORAGE OF LIQUEFIED GASES AT CRYOGENIC TEMPERATURES

Lew Trenner, Englewood, Colo., assignor to Cryotan, Inc., Canyon, Tex.

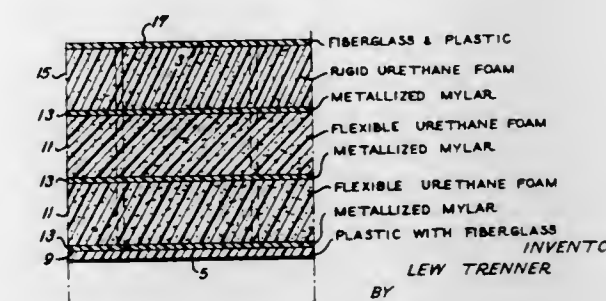
Filed Oct. 9, 1970, Ser. No. 79,441
Int. Cl. B65d 25/18

U.S. Cl. 220—9 LG

9 Claims

Tanks for the storage of liquefied gases at cryogenic temperatures are disclosed. The disclosed tanks comprise two concentric shells with dished ends. The internal shell is fabricated from layers of glass fabric with organosiloxane treatment. A layer of high tensile wire fabric is incorporated as one of the integral laminae of the internal and external

shells. The internal shell is covered with an insulating layer of flexible and rigid urethane foam. This foam is fabricated in contoured or flat blocks of suitable size and shape to con-



form to the inner shell. The blocks may be separated from the inner shell by multiple layers of metallized polyethylene terephthalate (Mylar), or other material which will reflect radiant heat.

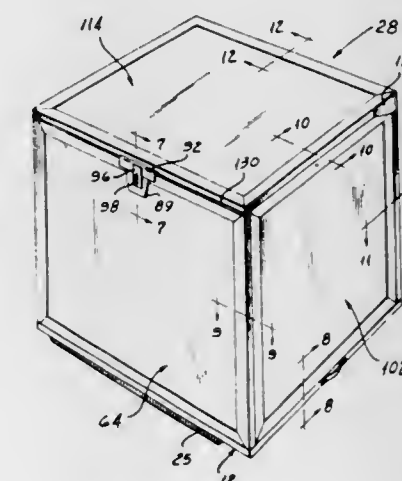
3,655,087 LIGHTWEIGHT KNOCKDOWN CONTAINER

August G. Luisada, Waymart, Pa., assignor to Gentex Corporation, New York, N.Y.

Filed Jan. 29, 1970, Ser. No. 6,855
Int. Cl. B65d 7/24, 53/00; B65j 1/02

U.S. Cl. 220—1.5

20 Claims



A durable lightweight knockdown container in which abutting panels of the container are releasably held in assembled position on a base partially to complete the container for loading. The remaining panel or panels are then simply and expeditiously secured in place to complete the container for shipment. Continuous interengageable connectors along abutting edges of the container panels inhibit bowing or separation of the panel edges under load without external straps while at the same time permitting easy disassembly of the container without the use of tools.

3,655,088 HIGH-IMPACT PLASTIC CARRYING AND STACKING CASE WITH HINGED COVER

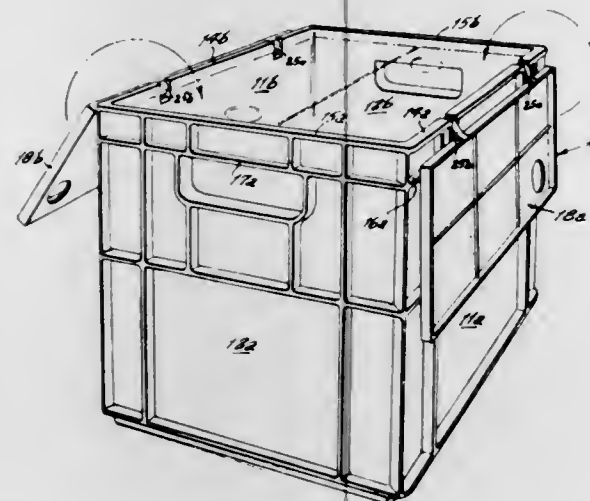
Theodor Box, 1108 Ailene Road, Brielle, N.J.
Filed June 1, 1970, Ser. No. 41,882

U.S. Cl. 220—29

8 Claims

An integrally molded high-impact plastic carrying and stacking case, having first and second pairs of opposed verti-

cal walls and a bottom wall, is fitted with a hinged cover comprised of two equal-sized rectangular molded panels spaced from the inner top edges of the vertical walls and occupying the inner space enclosed by said walls in the horizontal and closed position. The panels are provided at their



edges adjoining the vertical walls of one of said pairs and parallel to the inner meeting edges of the panels with pairs of spaced upwardly and angularly outwardly extending lugs projecting into corresponding vertical slots in the top edges of the adjacent vertical walls and connected thereto by hinge joints integrally molded with the respective slots and lugs.

3,655,089 UNIVERSAL CLOSURE

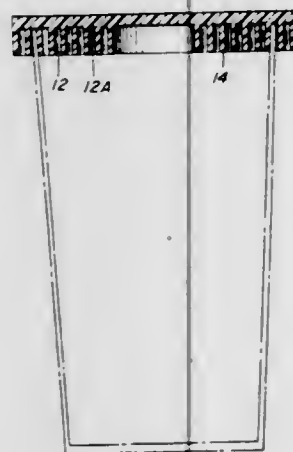
Horace L. Tower, Darien, Conn., assignor to General Foods Corporation, White Plains, N.Y.

Filed June 8, 1970, Ser. No. 44,506

Int. Cl. B65d 41/16

U.S. Cl. 220-42 A

2 Claims



A universal closure panel adaptable for use with a variety of different sized drinking glasses, jars, and other small household receptacles to form a liquid-tight seal, particularly when employing the receptacle as a utensil for mixing beverage ingredients by hand-shaking.

3,655,090 VESSEL AND CLOSURE WITH INTERLOCKING SHEAR RING JOINT

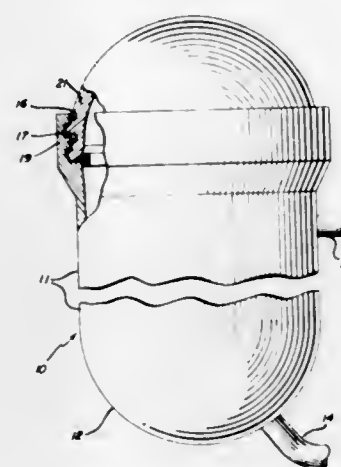
Elmer Weyman Rothrock, Hinsdale, Ill., and Silvio D. Niku, Memphis, Tenn., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed June 25, 1970, Ser. No. 49,837

Int. Cl. B65d 41/06

U.S. Cl. 220-42 A

3 Claims



A vessel with an opening walled thereabout and having a rim projecting forward from a shelf portion on the inside of, and substantially lateral to, the wall, a groove in the shelf portion between the inner surface of the wall and the rim defining a shear ring between the groove and the inner surface wall, and a closure having a peripheral edge which fits inside the vessel rim and a projecting tongue on the inner side of the closure which mates with and fits in the groove in the vessel shelf.

3,655,091 FULL-OPEN END CLOSURE PROVIDED WITH DISTORTION RESISTANT SHOULDER IN COUNTERSINK WALL

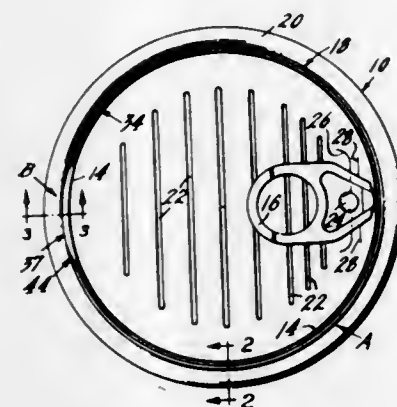
Leonard Thomas La Croce, Paramus, N.J., assignor to American Can Company, Greenwich, Conn.

Filed Sept. 21, 1970, Ser. No. 73,930

Int. Cl. B65d 17/20, 51/20

U.S. Cl. 220-54

5 Claims



An end closure with a large, removable central panel, an opening tab, a score line about the periphery of the panel and a countersink wall about the periphery of the panel. The

countersink wall is provided with an inwardly stepped shoulder along the major portion of its circumferential distance about the panel, but along the minor portion of the countersink wall, diametrically remote from the tab, no inwardly stepped shoulder is provided, resulting in a construction in the end closure which resists upward distortion, during opening of the closure, of the lower portions of the countersink wall along the minor portion thereof.

3,655,092 APPARATUS FOR VENDING PERIODICALS HAVING SELF-COMPENSATING DISPENSER FOR DECREASING SUPPLY

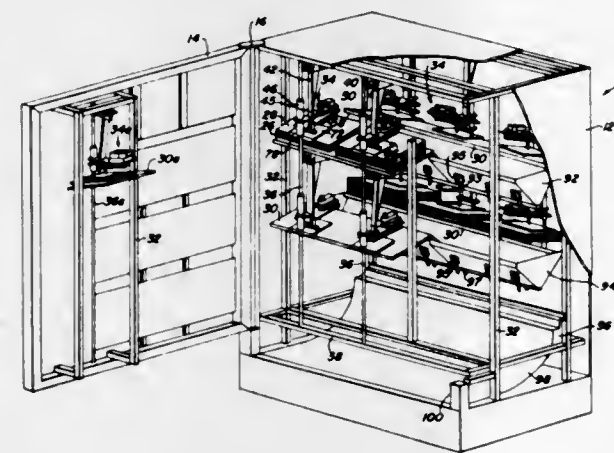
Harold G. Hall, and Rufus N. Palmer, both of Mount Lebanon Township, Allegheny County, Pa., assignors to Daniel N. Steiner

Filed Apr. 20, 1970, Ser. No. 29,840

Int. Cl. B65h 1/04

U.S. Cl. 221-133

21 Claims



A periodical-vending apparatus for vending periodicals successively from the top of a stock of periodicals. It has a housing, a support within said housing upon which a stack of periodicals rests, dispensing means for successively removing individual periodicals from the top of the stack and receiving means opening to the housing exterior for receiving each periodical upon removal from the stack and making it available to the purchaser. The dispensing means or means for removing the periodical from the stack includes a substantially flat plate which rests on top of the stack and has along an edge thereof a flange that extends along and over a side surface of the top periodical. The plate is maintained at a constant, selected pressure against the periodical. A motor is provided for moving the plate in a direction toward the side of said article along which said flange extends to correspondingly move the periodical a distance sufficient to remove it from the stack. A series of vertical troughs are provided for guiding the periodical so removed to the receiving means. To permit vending of a variety of periodicals, the apparatus may comprise a plurality of like vending units disposed vertically and/or in side-by-side relation within the housing.

3,655,093 METHOD AND APPARATUS FOR SANDING ROADWAYS

Howard M. Sadwith, 16 Fairway East, Colts Neck, N.J.

Filed Apr. 13, 1970, Ser. No. 27,774

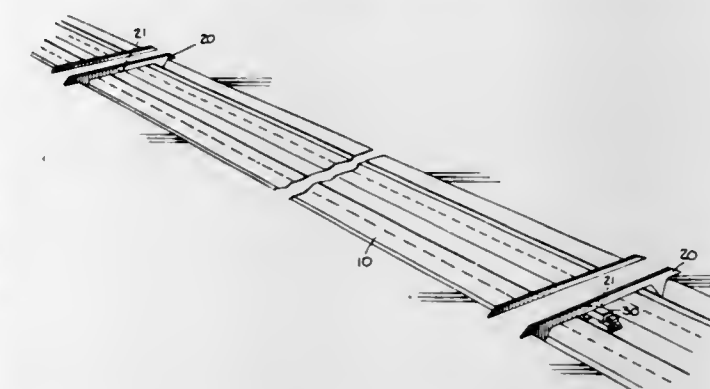
Int. Cl. B67d 3/00

U.S. Cl. 222-1

3 Claims

This disclosure relates to a method for treating roadways with sand, salt, or other like material generally applied during

snow or icing conditions. Preselected overpasses, which extend across the roadway, are provided with storage means for containing predetermined quantities of sand or the like. A truck is driven along the roadway and stopped beneath one of the preselected overpasses. The driver then activates a



dispensing means to cause a quantity of sand to be transferred to the truck. The truck then applies the sand to the roadway until it arrives at another overpass similar to the one described, whereupon it again stops and repeats the process. During intervals between storms, the storage means may be replenished at any time with a new supply of sand or the like.

3,655,094 METHOD AND APPARATUS FOR MEASURING AND PROPORTIONING FLUIDS

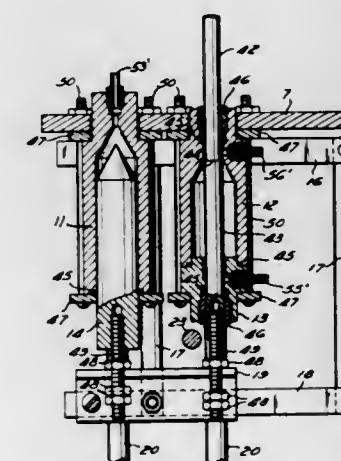
James C. Hobbs, II, 4384 Ingraham Highway, Miami, Fla.

Filed Dec. 29, 1969, Ser. No. 888,389

Int. Cl. B67d 5/52; G01f 11/02

U.S. Cl. 222-1

8 Claims



A semi-automatic, motor operated apparatus for measuring and proportioning liquids including a dual diameter shaft acting as a displacement piston to measure precise amounts of a liquid to be diluted and a diluent.

A method of accurately measuring a liquid sample and a diluent in which a fluid system is vented to the atmosphere after measured amounts of the sample and diluent have been brought into the system and before they are discharged therefrom.

3,655,095 APPARATUS FOR MONITORING THE DISPENSING OF LIQUID

Martin E. Kienitz, Palo Alto, Calif., assignor to Smith Kline Instruments, Inc., Palo Alto, Calif.

Filed Jan. 17, 1969, Ser. No. 792,030

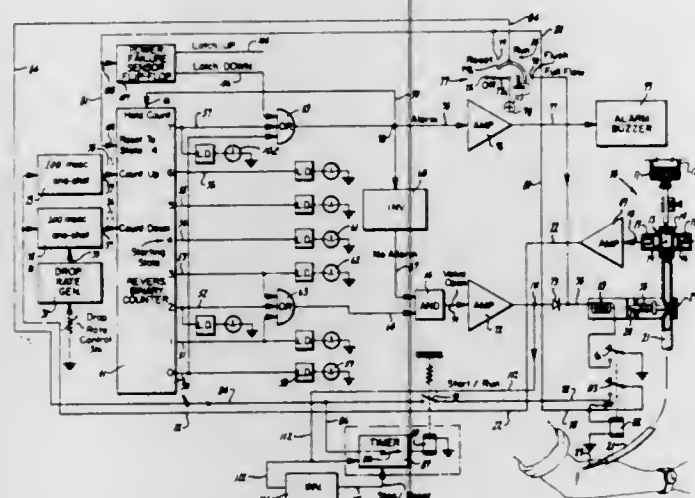
Int. Cl. A61m 5/16

U.S. Cl. 222-39

6 Claims

The system delivers a series of drops of liquid and is controlled to release each drop in response to a drop rate

generator set at a selected drop rate desired to be delivered. Each drop actually delivered is detected. By comparing pulses derived respectively from the drop rate generator and from the actual drops delivered, any disparity between the rates will be detected. The disparity detecting means includes means which measures and is tolerant to a limited degree of measured disparity between the two rates. When the disparity



ty between the two rates exceeds a predetermined degree, an alarm condition is established which can include conditioning the delivery means to positively arrest further delivery of drops. The delivery means operates in a manner to automatically compensate for excess drops or reduced drops fed during transient variations in the actual feeding or delivery of drops.

3,655,096

CONTAINER FOR DILUTING AND DISPENSING MATERIAL

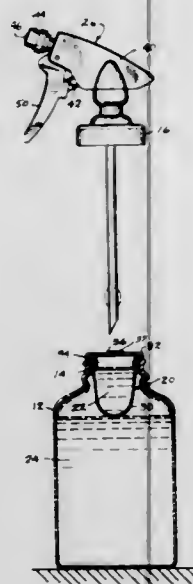
Ross A. Easter, Minneapolis, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Filed Oct. 22, 1969, Ser. No. 868,443

Int. Cl. B67b 7/24

U.S. Cl. 222-82

3 Claims



A container for diluting and dispensing materials in liquid form that consists of a primary vessel, e.g., a bottle, adapted to contain a diluent such as water and a replaceable cartridge mounted removably in the mouth of the bottle. The cartridge is provided with a laterally projecting circular flange which

lies in contact with the edge of the bottle mouth. The cartridge contains a relatively small amount of a chemical concentrate that is to be diluted. A dispensing mechanism composed of a pump with a bottle cap at its lower end is used to withdraw the contents of the container. A dip tube that extends downwards from the cap is introduced into the bottle by thrusting its free end through the cartridge thereby perforating the same and in this way allowing the chemical material in the cartridge to drain into the primary container. The cap is then screwed onto the neck of the bottle. When empty, the cartridges are thrown away and replaced.

3,655,097

MIXING DISPENSER

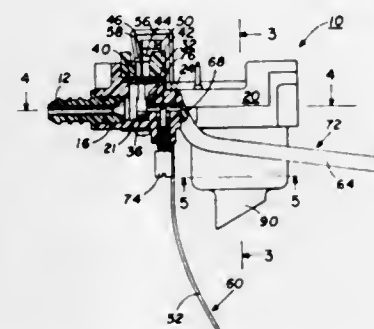
Jack J. Booth, 5006 Tanbark, Dallas, Tex., and William C. Branch, 6730 Greenwich Lane, Dallas, Tex.

Continuation of application Ser. No. 742,585, July 5, 1968, now abandoned. This application Sept. 21, 1970, Ser. No. 74,220

Int. Cl. F16k 19/00

U.S. Cl. 222-129.4

1 Claim



A mixing dispenser for a beverage system includes a pair of inlet chambers connectable to sources of two fluids. Selectively operable valves are disposed in each of the inlet chambers to control the flow of the fluids through bores extending from the inlet chambers to a mixing and dispensing chamber. Levers are provided to either simultaneously open the valves in both bores to allow the mixing of the two fluids, or to selectively open either valve to allow the selective dispensing of either of the two fluids.

3,655,098

METHOD OF AND AN APPARATUS FOR THE FORMATION OF LAYERS OF COMMUNUTED MATERIALS

Ulrich Schnitzler, Reichenbach, Germany, assignor to Dr. Erwin Schnitzler, Karlsruhe, Bannwaldallee, Germany

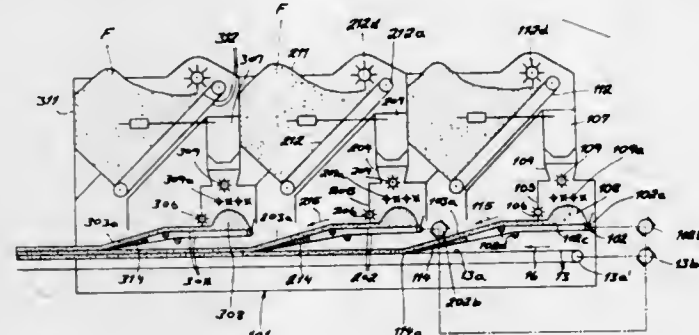
Filed Oct. 6, 1969, Ser. No. 864,147

Claims priority, application Germany, Oct. 5, 1968, P 18 01 533.3

Int. Cl. B67d 5/52

U.S. Cl. 222-135

5 Claims



A method of and an apparatus for the formation of layers of comminuted materials, e.g. sawdust, wood and other cellu-

losic fibers and like materials adapted to be compacted into pressed board, wherein a stationary pile of the loosely comminuted material in a substantially steady state is formed on a movable conveyor surface and/or transferred to such a surface without substantial free fall. The pile may be formed by drawing the comminuted material from a dispenser by an upwardly moving conveyor and passing through a homogenization stage before it is accumulated upon the surface.

3,655,099

ROTATABLE SPOUT CLOSURES WITH LATCH STRUCTURES

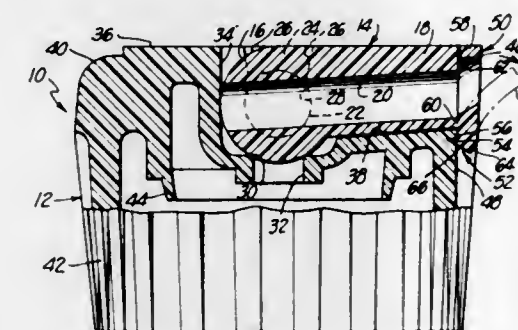
Robert E. Hazard, North Kingston, R.I., assignor to Polytop Corporation, Slatersville, R.I.

Filed July 27, 1970, Ser. No. 58,263

Int. Cl. B67d 5/32

U.S. Cl. 222-153

12 Claims



Dispensing closures each having a closure body and a spout rotatably mounted on the closure body so as to be capable of being rotated between open and closed positions can be constructed so as to be incapable of accidental or unintentional opening under normal circumstances by the use of the latch means and a catch means. Either of these means can be located on the body and the other on the spout. These means are constructed so that they will engage one another, preventing undesired spout rotation, upon the spout being assembled in a closed position. By manipulation of the latch means the spout in a closure as described can be rotated from a closed position to an open position once the closure has been assembled with the spout in a closed position.

3,655,100

SAFETY COVER CAP FOR AN AEROSOL CONTAINER

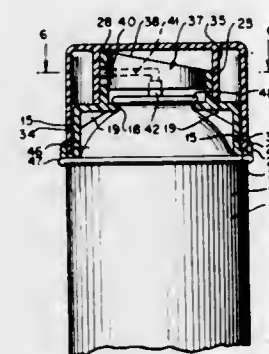
Isral J. Markowitz, 59 East 42nd Street, Brooklyn, N.Y.

Continuation-in-part of application Ser. No. 850,897, Aug. 18, 1969. This application Mar. 13, 1970, Ser. No. 19,228

Int. Cl. B65d 85/14

U.S. Cl. 222-182

4 Claims



A two-piece cover cap for an aerosol container, wherein the pieces present a unitary appearance, but permit of and

897 O.G.—20

require deliberate relative rotation to open and thereby prevent accidental opening by children, and wherein proper directional discharge of the container is effectively assured.

3,655,101

PLUNGER ASSEMBLY FOR HAND GREASE GUNS

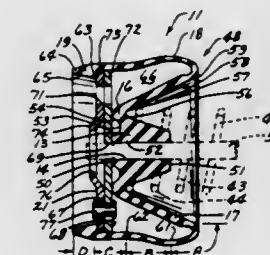
Chester Dorn, Spencer, Iowa, assignor to Superior Manufacturing Company, Spencer, Iowa

Continuation-in-part of application Ser. No. 860,698, Sept. 24, 1969, now abandoned. This application May 15, 1970, Ser. No. 37,831

Int. Cl. G01f 11/00

U.S. Cl. 222-326

11 Claims



A plunger assembly is provided for slidable engagement with the plunger rod in hand grease guns, which grease guns are adapted to use both cartridge-packed grease and bulk-loaded grease. The plunger, in cross section, is of essentially W-shaped configuration and comprises a sleeve having a bore formed therethrough for slidably receiving the rod. A transverse web is carried by the forward portion of the sleeve and extends radially outwardly and, at its periphery, is attached to an interior support section which extends outwardly and rearwardly of the web to approximate the inside diameter of the grease barrel. An annular flexing and sealing wall is carried by the periphery of the support section and extends outwardly to beyond the inner diameter of the grease barrel and then forwardly and inwardly to a position forward of the sleeve and inward of the inner diameter of a grease cartridge. An annular lip is formed on the inner side of the wall and engages washer means between the lip and the forward portions of the transverse web.

3,655,102

BOTTLE CAP AND COVER

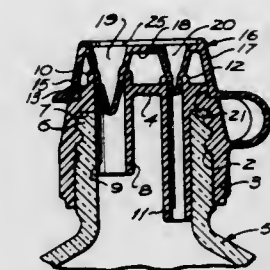
James G. Moran, 122 North Rose Street, Burbank, Calif.

Filed Dec. 15, 1969, Ser. No. 884,993

Int. Cl. B67d 3/00

U.S. Cl. 222-484

4 Claims



A bottle cap and cover for bottles, the cap being internally formed for attachment to a bottle and having a pouring tube and an air inlet tube, both protruding slightly above the end of the cap; the end of the cap having an interrupted rim; the

cover being attached to the cap by a flexible web to permit the cover to be folded over the cap to occupy a predetermined position thereof; the cover having an interrupted internal flange for engaging the interrupted rim of the cap and portions manually engageable to aid in separating the cap from the bottle; the cap also having a pair of stopper cones adapted to be received in the pouring tube and air inlet tube.

3,655,103

SAFETY DISPENSING CLOSURES

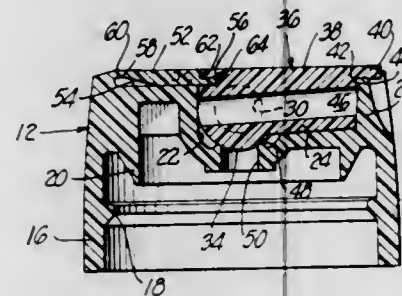
Robert E. Hazard, North Kingstown, R.I., assignor to Polytop Corporation, Slatersville, R.I.

Filed Apr. 10, 1970, Ser. No. 27,328

Int. Cl. B67d 3/00

U.S. Cl. 222—530

8 Claims



The invention disclosed pertains to what may be termed "safety dispensing closures," these closures are more difficult to open than known dispensing closures. Such dispensing closures have a closure body and a spout rotatably mounted on the body so as to be capable of being rotated between open and closed positions. In accordance with the invention disclosed a moveable latch means is used with such a known closure so as to extend between the body and the spout when the spout is in a closed position so as to lock or hold the spout in this position. The latch means employed is capable of being moved so as to permit the spout to be rotated to an open position.

3,655,104

CONSTANT VOLUME DISCHARGE GATE

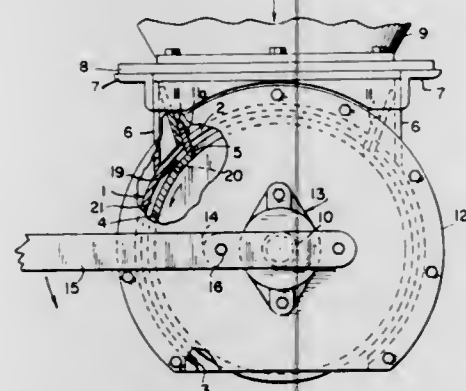
Clarence E. Larson, and Richard H. Dawley, both of Columbus, Ohio, assignors to Martin Masiotta Corporation, New York, N.Y.

Filed May 6, 1970, Ser. No. 35,219

Int. Cl. G01f 11/24

U.S. Cl. 222—317

6 Claims



A gate assembly for the measurement and discharge of a fixed volume of flowable material has a rotatable inner drum with an opening therein to receive and discharge material as the drum is rotated between a receiving position and a

discharge position. This drum is rotatable mounted within an outer drum attached to the bottom portion of a storage container for the flowable material. The outer drum has an inlet opening on its upper surface and a discharge port on its bottom surface. Sealing means prevent the flow of material down the annulus between the inner and outer drums. A wiper bar is positioned within the annulus to prevent the accumulation of material therein as the inner drum moves between its material-receiving and material-discharge position. Means are provided to prevent the flow of material from the storage container so as to permit the gate assembly to be removed while material is stored in the container.

3,655,105

DISPENSING CLOSURE

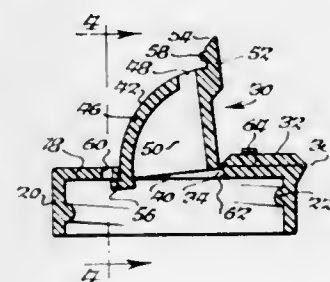
Stanley K. Johns, 588 Linwood Avenue, Buffalo, N.Y.

Filed July 14, 1969, Ser. No. 841,492

Int. Cl. B67c 3/00

U.S. Cl. 222—484

8 Claims



A dispensing closure comprising a closure member, a pouring spout and a strip of material connecting the member and pouring spout and formed integral therewith in a one-piece construction of yieldable resilient plastic material. The strip is provided with hinge portions about which the spout is swung into assembled relation with the closure member, and about which the spout pivots in use. Locking means secure the spout in closed position, and sealing means prevent leakage between the spout and the member.

3,655,106

GUNBELT

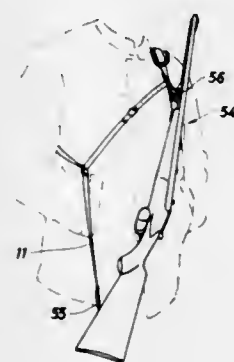
Allan Wojcinski, Tunnländsgatan, Vasträ Frolunda, Sweden

Filed Dec. 2, 1969, Ser. No. 870,523

Int. Cl. F41c 33/00

U.S. Cl. 224—1 A

4 Claims



Rapidly detachable holding device for an implement, particularly a weapon, to be carried, in diagonal position, by means of a sling arrangement, on the upper body, with at least one strap shackle, or the like, to which the holding device is attached, characterized by a preferably plate-shaped part, onto which a locking member made, preferably,

of flexible material, may be slid on, which serves to maintain the part in the inserted position on the strap shackle, and provided with a flange which does not pass through the strap shackle, to which is connected a suspending member which, with the suspending of the implement, serves to engage into a fastening device provided on the sling arrangement.

3,655,107

MOTORCYCLE MOUNTED FACE SHIELD HOLDER

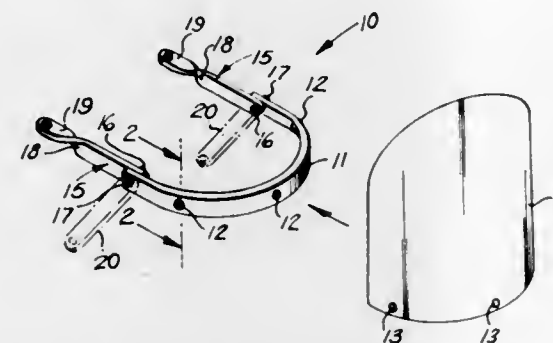
Bobby L. Russ, Route #1, Kelly, N.C., and Morris M. Schmidt, Route #1, Delco, N.C.

Filed Dec. 15, 1969, Ser. No. 884,798

Int. Cl. B62j 11/00

U.S. Cl. 224—30 A

1 Claim



A device enabling a motorcycle rider to carry his face shield with him at all times when he is riding his motorcycle. The device enables the user to snappably engage the face shield to the motorcycle mounting member and includes a U-shaped bar portion to which are attached mounting lugs for attachment to the handlebar mounting portion of the motorcycle.

ERRATUM

For Class 224—42 see:
Patent No. 3,655,077

3,655,108

STRAND UNREELING DEVICE WITH AUTOMATIC TENSION CONTROL

Joannes Francis Marcel Bonnabaud, 23, Rue Noelas 42, Roanne, and Claude Brat, 119 Rue du Marechal Foch 42, Riorges, both of France

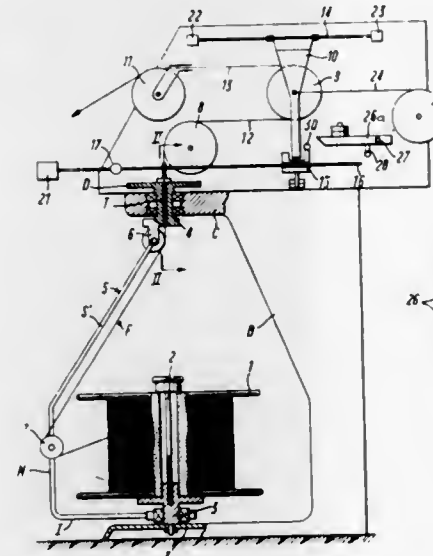
Filed Nov. 14, 1969, Ser. No. 876,912

Claims priority, application France, Nov. 14, 1968, 173652

Int. Cl. B65h 49/00

U.S. Cl. 242—128

7 Claims



In a device for unreeling a uniformly and automatically tensioned strand from a non-rotatably held bobbin, there are

provided an unreeling arm caused to orbit about said bobbin by the force exerted by a strand pulling apparatus, a braking mechanism to dampen the rotation of said unreeling arm and a brake control or balancing mechanism to which there are applied a predetermined braking force and the force exerted by said strand pulling apparatus. The result of these two counteracting forces controls the braking effect on said unreeling arm.

3,655,109

STAMP DISPENSING MACHINE

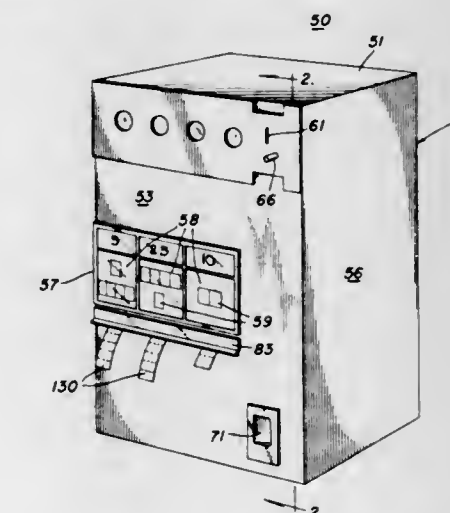
Bernard Stevens, Skokie, Ill., assignor to General American Transportation Corporation, Chicago, Ill.

Filed July 28, 1969, Ser. No. 845,258

Int. Cl. B65h 25/00

U.S. Cl. 226—46

18 Claims



A coin-actuated machine including a plurality of dispensing modules dispenses one or more perforated strips of stamps from rolls, each module comprising a feed wheel having rows of evenly spaced projections for engaging the associated strip at the interstamp perforations and moving it past a solenoid-operated cutter, a shaded-pole electric motor for driving the feed wheel in a stepwise fashion through a Geneva cam mechanism and for intermittently operating a stepping switch and counter, a control circuit cooperating with the stepping switch for stopping the machine when a predetermined number of stamps has been dispensed, and a lock engaging the feed wheel either after each intermittent operation thereof or after each dispensing cycle.

3,655,110

CLOSURE FASTENER FOR HINGED PACKAGES MADE OF DEEP DRAWN PLASTIC FOIL

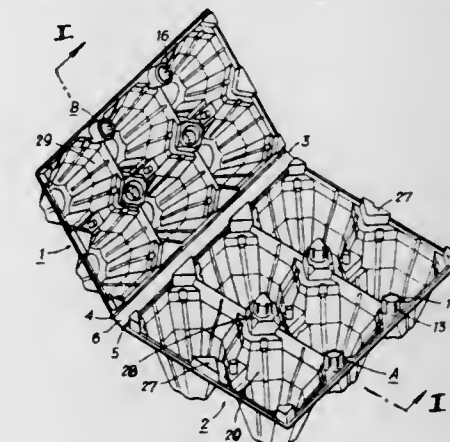
Joachim Eisenbach, deceased, late of Klosterneuburg, Austria (by Beatrice Eisenbach, administratrix), assignor to Firma Peter Hinteregger KG, Wiener Neudorf (NO), Austria

Filed Mar. 11, 1970, Ser. No. 18,659

Int. Cl. B65d 1/26

U.S. Cl. 229—2.5

3 Claims



A deep drawn plastic foil package having two mating halves hinged together for closing and provided with in-

tegrally formed closure fasteners is improved by the provision of additional male and female closure fasteners to guide the halves into alignment for engagement of the first-mentioned fasteners.

3,655,111

THERMOFORMED PLASTIC CONTAINER

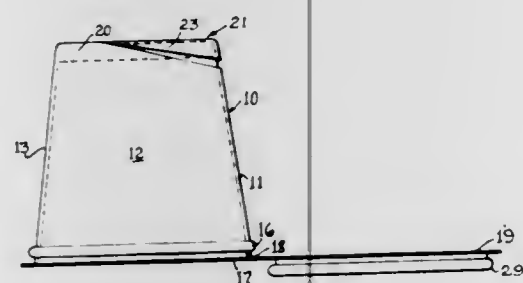
Robert A. Surerus, 410 Parkview Drive, Roselle, Ill.

Filed Oct. 23, 1970, Ser. No. 83,332

Int. Cl. B65d 1/26, 17/24

U.S. Cl. 229-7

6 Claims



A bottom-filled, top-dispensing container formed from a single sheet of plastic, such as styrene or the like. The container is so formed that, prior to being filled, it provides an open bottom so that like containers may be vertically stacked one upon the other. The container comprises a hollow substantially square body having an integral top wall, a corner of which provides a pouring spout and a removable cover heat-sealed thereon. The container closure or bottom wall is initially formed as an integral part of the body extending laterally therefrom and being adapted to be folded back upon the container when the latter is filled so as to seal the same.

3,655,112

PROTECTIVE CORNER PAD

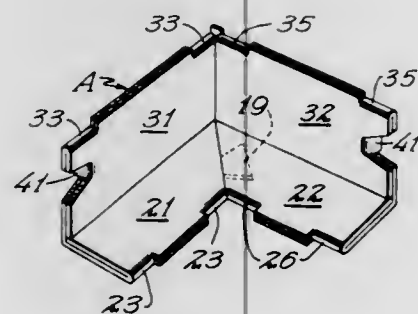
James E. Jeffers, Little Rock, Ark., assignor to Hoerner-Waldorf Corporation, Ramsey County, Minn.

Filed Oct. 20, 1970, Ser. No. 82,402

Int. Cl. B65d 5/60

U.S. Cl. 229-14 C

11 Claims



A protective corner pad includes a sheet of corrugated paperboard or the like in which two peripheral wall panels are foldably connected to fold into right angular relation, and

are hingedly connected to face panels which may fold into coplanar relation and which are provided with mitered edges which may abut. A locking tongue and notch hold the mitered edges abutting. Reinforcing panels are usually hinged to the edges of said wall panels and folded inwardly into face contact with the wall panels to which they are hinged. Cushioning panels generally coextensive with said face panels are hinged to said face panels to lie in face contact therewith.

3,655,113

CORNER PROTECTOR

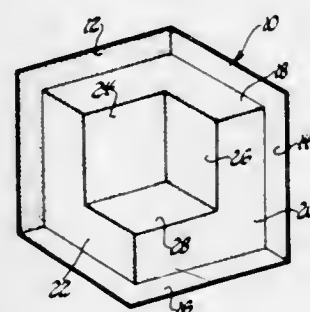
Hazen J. Carroll, Farmington, Mich., assignor to Carroll Packaging, Incorporated, Detroit, Mich.

Filed June 18, 1970, Ser. No. 47,241

Int. Cl. B65d 5/56

U.S. Cl. 229-14 C

6 Claims



A corner protector for packing assemblies comprising an injection molded, monolithic plastic sheet formed into an article receiving pocket, three spaced walls and three carton-engaging border walls. The protector is a shell of single sheet thickness but is rigidified when loaded.

3,655,114

PRODUCE CRATE WITH VENTILATING APERTURED SECTIONS

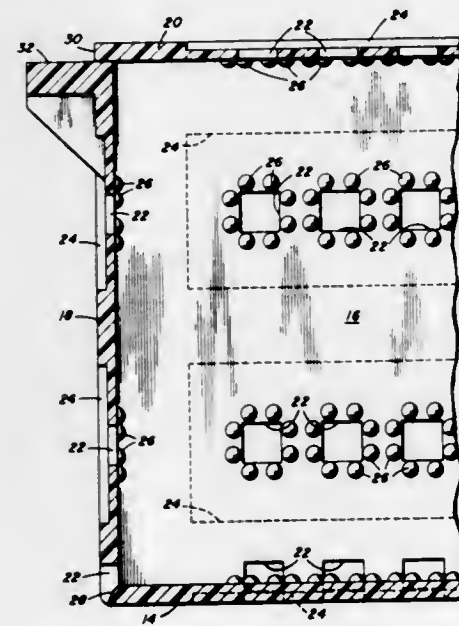
David Turner, Fort Lauderdale, Fla., assignor to Dorothy R. Turner and Cecil G. Brewer, Fort Lauderdale, Fla.

Filed Nov. 14, 1969, Ser. No. 876,775

Int. Cl. B65d 5/20, 85/34

U.S. Cl. 229-30

2 Claims



A crate for fresh produce composed of hinged apertured sections adapted to be folded to form a substantially rectangular

gular receptacle, the inner walls of the sections having arcuate projections for engagement with the produce contents.

3,655,115

CARTON WITH WEB LOCK

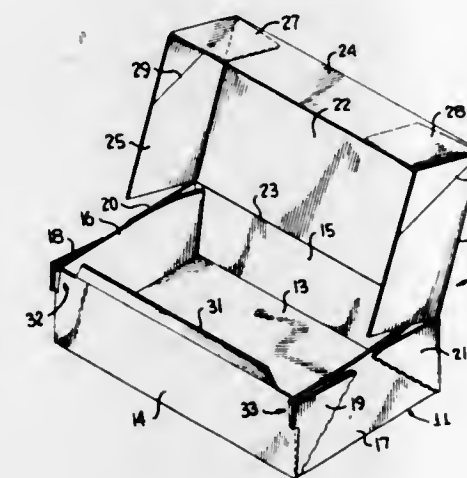
Guelfo A. Manizza, Blauvelt, N.Y., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 17, 1969, Ser. No. 833,979

Int. Cl. B65d 5/24

U.S. Cl. 229-31 R

13 Claims



This disclosure relates to foldable cartons wherein adjacent walls thereof are joined together by a folded web. In order that the carton may be retained in an erected condition, there has been provided a web lock which will lock the adjacent corners together in a rigid corner forming relation. The web lock includes a notch or opening in one of the walls adjacent the corner and a projection on the other of the walls extending into the notch and locking the walls against folding relative to one another.

3,655,116

FLAP LOCK CONTAINER

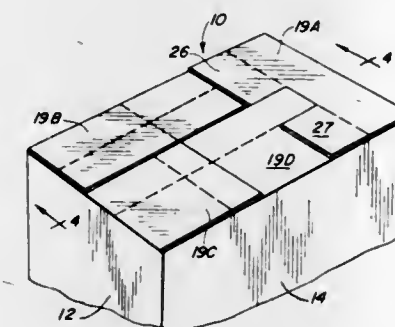
Donald M. Tanner, Bellflower, Calif., assignor to Container Corporation of America, Chicago, Ill.

Filed Feb. 3, 1970, Ser. No. 8,195

Int. Cl. B65d 5/10

U.S. Cl. 229-39

1 Claim



A conventional paperboard container has the closure flaps therefore constructed in such a fashion that "pinwheel" closing may readily be achieved. A contiguous pair of the end closure panels extending from the sleeve forming blank are scored parallel to the edges thereof, and have slots extending from the edges of the flaps to the score lines, the two slots and the score lines cooperating upon "pinwheel" closing to facilitate movement of the last to close flaps to closing position.

3,655,117

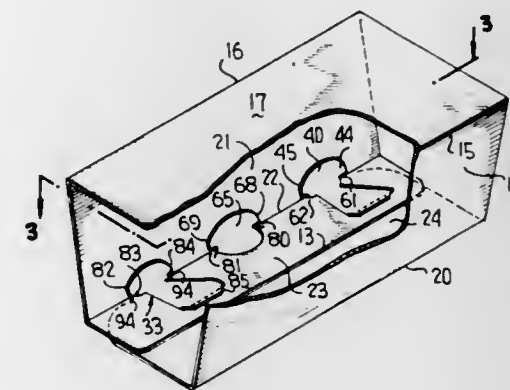
LATCHING MEANS FOR CARTONS

Arthur J. Weiss, Boca Raton, Fla., assignor to Continental Can Company, Inc., New York, N.Y.

Filed June 12, 1970, Ser. No. 45,831

Int. Cl. B65d 5/04

27 Claims



This disclosure relates to a novel carton which includes cooperative latching means, each of which consists of primary and secondary latching tabs and associated aperture means. The aperture means include an edge having opposite ends between which is a shoulder in alignment with a nose of a secondary latching tab such that the nose is in overlying relationship to the shoulder and prevents inadvertent or accidental unlatching thereof. A primary latching tab is also longitudinally offset from the secondary latching tab and the associated aperture means to effect reinforcement of the carton.

3,655,118

FLEXIBLE MOUTH CONTAINER

Franz G. Rinecker, Wayne, N.J., assignor to American Velcro, Inc.

Filed June 15, 1970, Ser. No. 46,440

Int. Cl. B65d 33/16

U.S. Cl. 229-62

3 Claims



A container of the type having a mouth defined by superposed portions of a flexible sheet which can be opened wide and closed by flattening together and convoluting marginal ends of the superposed sheet portions includes a first fastening strip secured to an outside surface of one sheet portion and spaced from the endmost edge of the flexible sheet a length sufficient to define therebetween a marginal portion which may be folded into a plurality of convolutions and the outwardly facing surface of the first fastening strip defines a plurality of upstanding hooking elements of flexible resilient material; a second fastening strip secured to an outside surface of the other sheet portion includes two longitudinal por-

tions the first of which is secured to the flexible sheet and the second of which has an inwardly facing surface defining a plurality of complementary hooking elements of flexible resilient material, the second fastening strip being spaced from the first fastening strip in a direction away from the endmost edge of the flexible sheet.

3,655,119

TICKET ENVELOPE

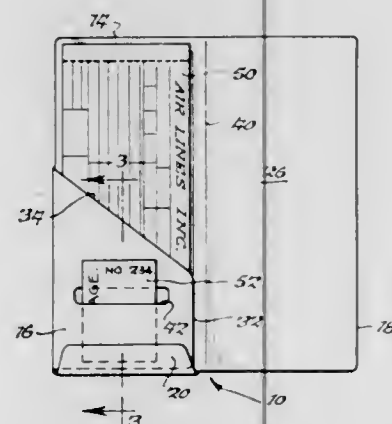
Roy G. Thompson, East Amherst, N.Y., assignor to Sale-Niagara, Inc., Buffalo, N.Y.

Filed Mar. 4, 1970, Ser. No. 16,284

Int. Cl. B65d 27/08; A45c 11/18

U.S. Cl. 229-72

5 Claims



A multiple pocket envelope having a front panel, a rear panel folded over the front panel and a bottom flap secured to the front panel to form a first pocket between the panels. Sheet material bonded to the inner face of the rear panel in overlying relation to a slot in the rear panel forms a second pocket within the first pocket.

3,655,120

SELF-OPENING ENVELOPE

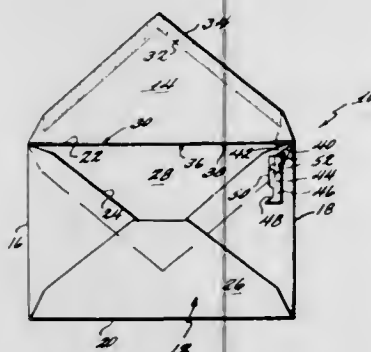
Jason L. Stern, B706 103 G Street, S.W., Washington, D.C.

Filed Mar. 20, 1970, Ser. No. 21,456

Int. Cl. B65d 27/38

U.S. Cl. 229-86

12 Claims



A self-opening envelope including a string means secured to the interior surface of the envelope at the fold of the flap and having a tab secured to its free end and positioned under the flap of the envelope. By removing the tab from under the envelope flap, the string can be pulled along the fold of the flap to tear the same and open the envelope.

3,655,121 COMBINATION RETURN ADDRESS AND RECEIPT INDICATING ANSWER CARD DEVICE

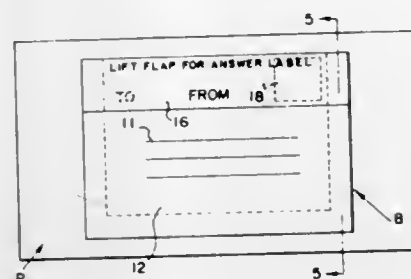
Alice E. M. Ward, 15 S. Elm Street, Mt. Prospect, Ill.

Filed Oct. 14, 1970, Ser. No. 80,650

Int. Cl. B65d 27/00

U.S. Cl. 229-92.8

10 Claims



A blank adapted to be adhesively secured to an envelope or package and having a removable card section with address receiving indicia on one side and receipt indicating indicia on the other. A removable flap portion is provided which may be folded down to cover the upper stamp receiving portion of the return address receiving side of the removable card section. Adhesive is provided on portions of the blank which bound the removable card section to permit the device to be attached return address side up.

3,655,122

PIPE LINE CLEANER AND SEALER

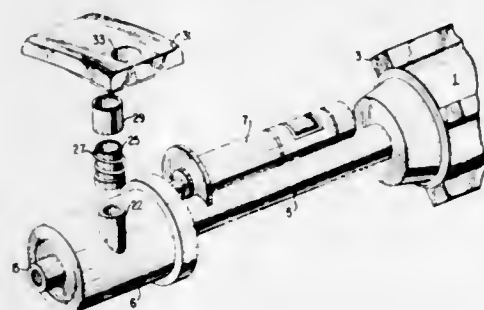
George A. Brown, P.O. Box 777, Casselberry, Fla., and Francis Michael Hinds, 2411 Murphree Road, S.E., Decatur, Ala.

Filed Oct. 20, 1970, Ser. No. 82,453

Int. Cl. B05b 3/00

U.S. Cl. 239-226

10 Claims



A device that can be moved through a pipe to treat its interior surfaces with a washing or sealing fluid composition including a container with fluid under pressure and a conduit leading from the container to a rotary nozzle. The conduit terminates in a head that is fixed to the conduit and housed within the nozzle. The nozzle and head are spaced from one another and have one or more passages and ducts respectively, each of which extends laterally relative to the conduit. The passage in the head can be curved so that a turbine structure is formed and exiting fluid creates a force to assist in rotating the nozzle. The nozzle can also be rotated by a motor that is mounted on the conduit and in direct drive with the nozzle. Various rotatable nozzles can be interchanged with one another so that the interior of a pipe can be air cleaned, coated and/or wiped with a wiper blade or otherwise treated with a fluid material. Also, a probe attachment can be placed in communication with a duct of the nozzle to extend a feeler element under pressure and thus assist in detecting plugs and holes in the pipe. A TV camera is normally

attached at the front end of the nozzle for viewing the action of the nozzle and/or probe.

tering ring is disposed coaxially rigidly secured to the drum shaft on the centrifuge housing within the range of the upper

3,655,123

CONTINUOUS FLOW BLOOD SEPARATOR

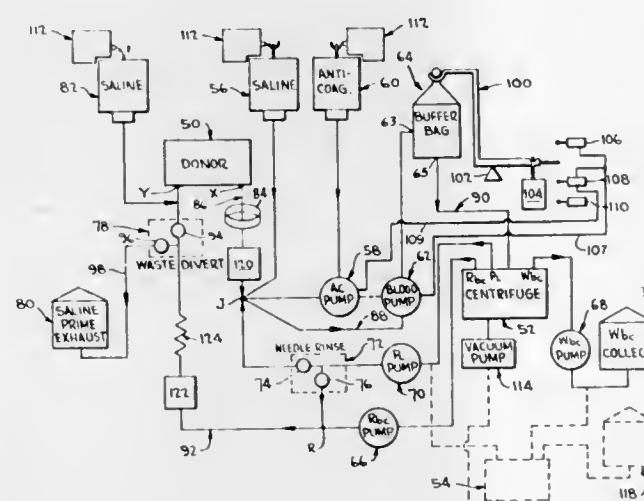
George T. Judson, Whitney Point, N.Y., and Emil J. Freireich, Houston, Tex., assignors to The United States of America as represented by the Secretary, Dept. of Health, Education & Welfare

Original application Aug. 8, 1966, Ser. No. 570,792, now Patent No. 3,489,145, dated Jan. 13, 1970. Divided and this application July 30, 1969, Ser. No. 869,418

Int. Cl. B04b 11/00

U.S. Cl. 233-21

9 Claims



Apparatus for separating whole blood into at least two fractional components and continuously returning at least one component thereof to the source of the blood. The apparatus includes supply means establishing continuous communication between the source and the separating means, the separating means including a high speed centrifuge with a rotating seal means permitting entry of the whole blood through a stationary portion and separation of the blood in the centrifuge with the various components of the blood being returned to the stationary portion of the seal means.

3,655,124

AUXILIARY DEVICE FOR CENTERING OF THE CENTRIFUGAL DRUM OF PENDULUM TYPE HYDRO EXTRACTORS DURING CLEARING WITH A HIGH NUMBER OF REVOLUTIONS

Harald Sommer, Braunschweig, Germany, assignor to Braunschweigische Maschinenbauanstalt, Braunschweig, Germany

Filed Apr. 15, 1970, Ser. No. 28,871

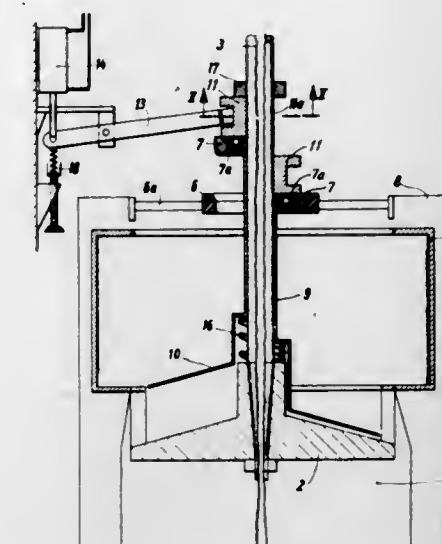
Claims priority, application Germany, Apr. 16, 1969, P 19 19 223.5

Int. Cl. B01d 21/26

U.S. Cl. 233-46

3 Claims

An auxiliary device for centering of the centrifuge drum of pendulum centrifuges during clearing at a high number of revolutions which comprises a bearing guiding a centrifuge drum during clearing and rigidly supported at least timely temporary against radial deviation. The drum shaft has an axially displaceable sleeve within the range of the upper edge of the drum. The bearing comprises a friction-free designed rotary bearing carried by the sleeve. A protecting jacket surrounding the rotary bearing. A centrifuge housing, and a cen-



edge of the drum shaft, and the sleeve is rollable-in and -out with the bearing and the protecting jacket.

3,655,125

VOTING MACHINE

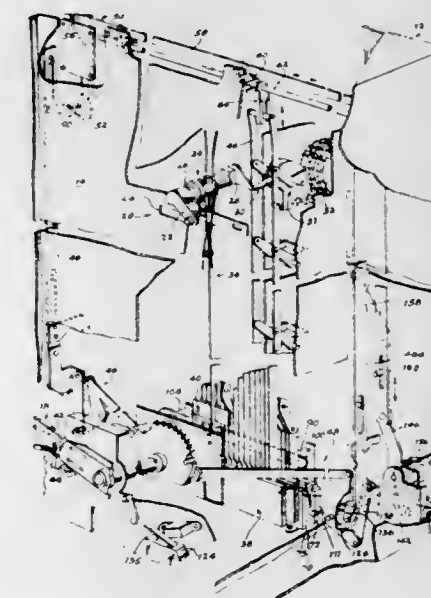
Alexander N. Ditonto, Jamestown, and Charles J. Lindros, Lakewood, both of N.Y., assignors to AVM Corporation, Jamestown, N.Y.

Filed Aug. 3, 1970, Ser. No. 60,304

Int. Cl. G07c 13/00

U.S. Cl. 235-54 R

11 Claims



A voting machine having an arrangement for preventing the so-called "Single Shot" ballot, which includes an auxiliary interlock and an electrical control circuit responsive to the condition of the auxiliary interlock for locking the machine operating lever against vote registering movement until a "Single Shot" voting error is corrected by the voter.

3,655,126

MOTION TRANSFER MECHANISM

Frank Anthony Digilio, Medfield, Mass., assignor to RCA Corporation

Filed Dec. 30, 1969, Ser. No. 889,239

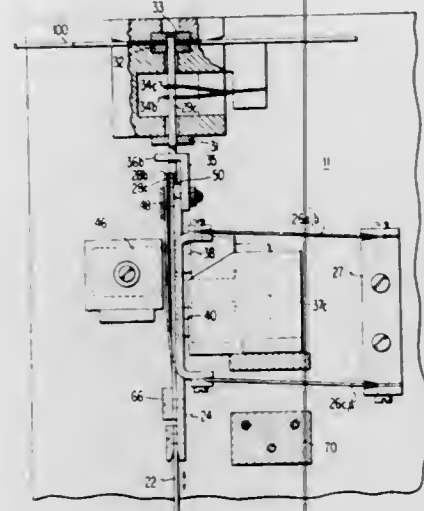
Int. Cl. G06k 1/05

U.S. Cl. 234-115

7 Claims

A motion transfer mechanism suitable for use in a data card punch. A flexible interposer has a free end, which may

naturally occupy one of two positions, one in line with a punch die and the other out of line with the punch or die. A selectively operable electromagnet causes the flexible interposer to become rigid against a bail to permit punching. A



second magnet attracts the interposer away from the bail when punching is not desired. To reduce friction between the interposer and the elements associated therewith, all are coupled to and move with the bail.

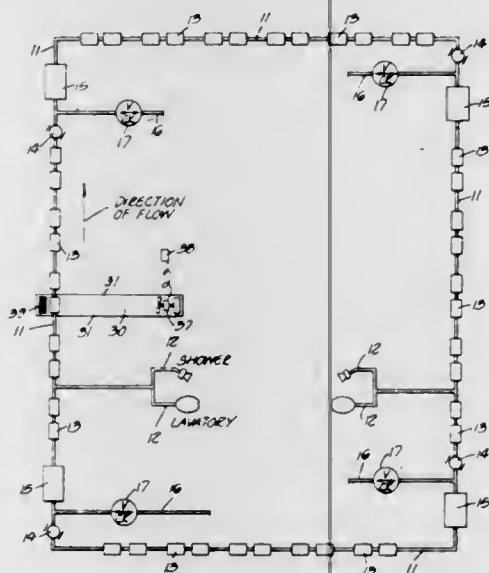
3,655,127 HEATING SYSTEM

James R. Piper, 6405 West Chartres Drive, Palos Verdes, Calif.

Filed Feb. 11, 1970, Ser. No. 10,456
Int. Cl. F24d 3/08

U.S. Cl. 237—8

14 Claims



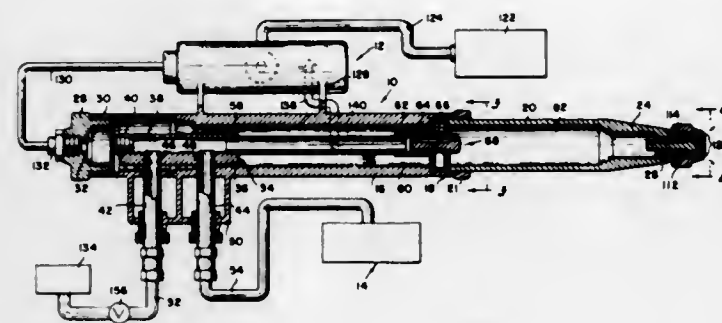
A series-loop heating system provides heat for a plurality of controlled temperature zones within a large building or several buildings and utilizes and incorporates within the system both the domestic hot water system and the standard structural members normally associated with such a building or buildings. The heating system includes a normally closed circuit with a plurality of heat exchange coils connected to the circuit in series through which the domestic hot water is continually circulated. Each controlled temperature zone includes at least one heat exchange unit and each heat exchange unit includes one of the heat exchange coils over which air is passed when heating the zone.

3,655,128 PROCESS AND APPARATUS FOR THE COMBUSTION FIRING OF ASPHALT, PETROLEUM AND PULVERIZED COAL

Albert W. De Voe, R. F. D. 4, Portland, Maine
Original application July 25, 1968, Ser. No. 747,698, now
Patent No. 3,556,408. Divided and this application June 8,
1970, Ser. No. 44,076
Int. Cl. F23c 11/00

U.S. Cl. 239—8

8 Claims



A process and apparatus for the combustion firing of asphalt, petroleum and pulverized coal including a fuel gun having a tubular body, a fuel source and an emulsifying agent source in communication with the fuel gun, a fuel tube assembly passing longitudinally through a substantial portion of the fuel gun tubular body, the fuel tube assembly terminating in a fuel spinner, a gate at the locus of the spinner between the outer periphery of the latter and the inner periphery of the tubular body for admitting the emulsifying agent for mixing with the fuel in an emulsifying chamber after it passes through the fuel spinner, thereby forming an emulsion slurry, the slurry then being fed through a second spinner to a spin chamber prior to discharge from the gun for firing.

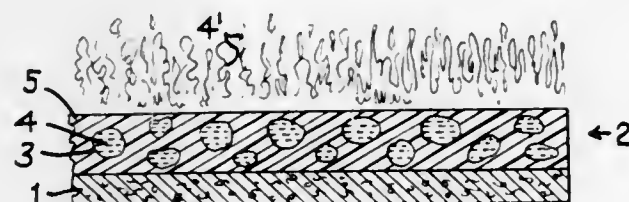
3,655,129 SLOW RELEASE FILMS AND METHODS OF MAKING SAME

Jerome A. Seiner, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed July 17, 1968, Ser. No. 745,433
Int. Cl. A24f 25/00; A611 9/64

U.S. Cl. 239—60

11 Claims



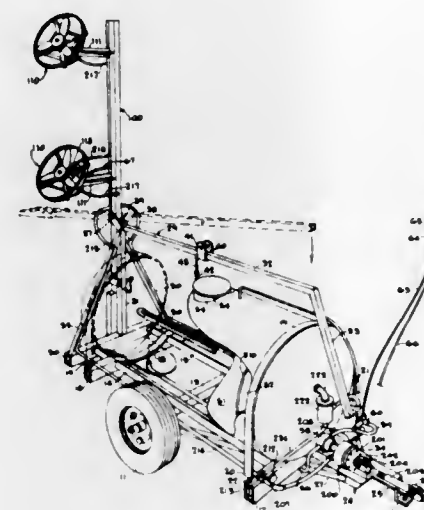
Disclosed herein are various coatable films which have entrapped within their polymeric matrix minute droplets of a liquid non-solvent. The polymeric matrix and non-solvent are chosen such that there is effected about the film a controlled release of the non-solvent from the film. Utility lies in choosing the non-solvent so that it comprises substances such as perfumes, deodorants, air fresheners, medicines, pesticides, corrosion inhibitors, fungicides, etc. The atmospheres generated are thus used to supply the various substances to a needy environment.

3,655,130 SPRAYING SYSTEM

Keith H. Patrick, Montgomery, Ala., assignor to Ring Around Products, Inc.
Continuation-in-part of application Ser. No. 686,425, Nov. 28, 1967, now Patent No. 3,552,650. This application June 4, 1970, Ser. No. 43,352
Int. Cl. B05b 3/12

U.S. Cl. 239—77

23 Claims

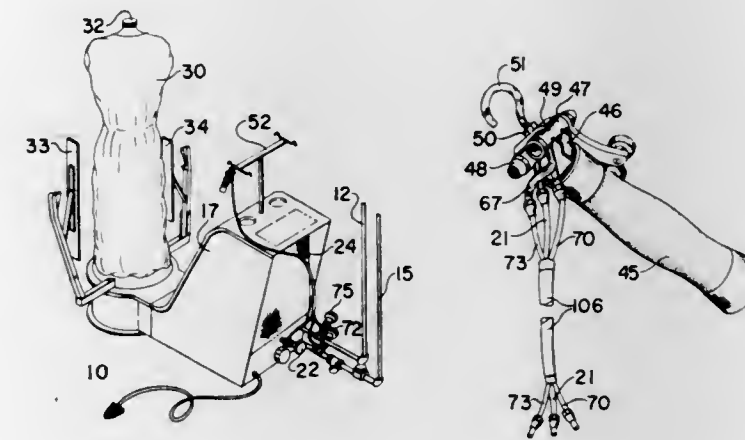


This invention relates to an improved spraying system for spraying fluid chemicals. The improved spraying system includes a supply means for containing a supply of fluid chemicals and a series of spraying heads for spraying chemicals on foliage or a crop to be sprayed. Each of the spraying heads includes an annular diffusion member and a rotatable impeller means for developing a uniform blast of directed air pressure over the outer surface of the diffusion member. A dispensing nozzle is operatively associated with each of the spraying heads for dispensing a quantity of fluid chemicals into the diffusion member to be directed by centrifugal force out through the diffusion member into the blast of air. The dispensing nozzles are coaxially mounted and extend through the rotatably driven impeller means. A supply pump is operatively associated with each of the spraying heads and the dispensing nozzles for delivering a supply of fluid chemicals under pressure to the dispensing nozzles. A hydraulically driven motor means is operatively associated with each of the spraying heads and includes a driving gear coaxially mounted relative to the dispensing nozzle, the diffusion member and the rotatable impeller means. A hydraulic pump means is operatively associated with the motor means for delivering hydraulic fluid under pressure for operation of the motor means. The improved spraying system is designed for being utilized on a plurality of supporting vehicle frameworks. One of the supporting vehicles includes a trailer having a movably mounted boom for supporting a series of the spraying heads for movement in a vertical plane between operative and inoperative positions. A second supporting means includes a framework having connectable members which will permit the framework to be connected to conventional three point hitch provided on a supporting vehicle. A third type of supporting framework includes a transverse mast having a pair of laterally extending booms which are adapted to be swung about vertical axis from laterally extending positions to fore and aft positions. Each of the laterally extending booms is detailed for supporting at least one spraying head.

3,655,131
ASSEMBLY OF FLUID SPRAYING GUNS
Frank H. Richter, Louisville, Ky., assignor to The Cissell W. M. Manufacturing Company, Louisville, Ky.
Filed Feb. 24, 1970, Ser. No. 13,455
Int. Cl. B05b 9/00

U.S. Cl. 239—124

3 Claims

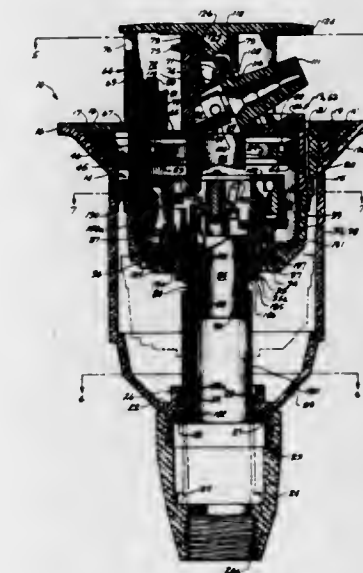


A garment finisher having steam supply and steam return conduits serving the same includes an assembly of fluid spraying guns communicating with the steam conduits. An improved steam gun fed by a circulating dry steam source is disclosed.

3,655,132
ROTARY SPRINKLER
Richard F. Rosic, Dana Point, Calif., assignor to The Leisure Group, Inc., Los Angeles, Calif.
Filed Dec. 17, 1969, Ser. No. 885,756
Int. Cl. B05b 3/04

U.S. Cl. 239—206

19 Claims



A rotary sprinkler having a low-impedance conduit for conveying water to one or more nozzles with minimum loss

of energy. A water-motor impeller is positioned outside the conduit and is driven by water bled from the main conduit stream and directed through a reversing jet assembly. One nozzle of the sprinkler has a venturi portion connected through a suction tube to a chamber downstream of the impeller. Water from the downstream side of the motor is aspirated through the suction tube and ejected through the nozzle. The sprinkler is adjustable to rotate continuously, or to cover a selected sector. Nozzles are mounted on interchangeable blocks to permit simple adjustment of the sprinkling pattern. In one form, the sprinkler is a pop-up type arranged to flush dirt and sand from the sprinkler interior each time it is activated.

ERRATUM

For Class 239—226 see:
Patent No. 3,655,122

3,655,133

THRUST CONTROLLING APPARATUS

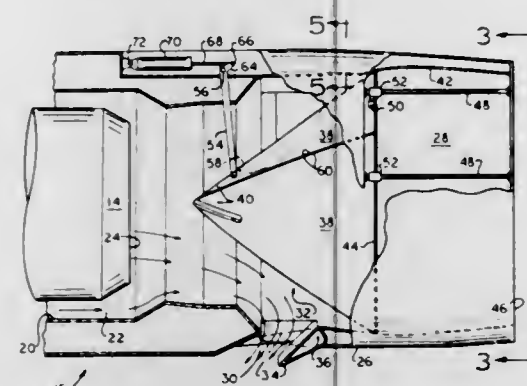
George E. Medawar, San Diego; Duane L. Linderman, Chula Vista, and Ralph O. Brannon, La Mesa, all of Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed June 5, 1970, Ser. No. 43,861

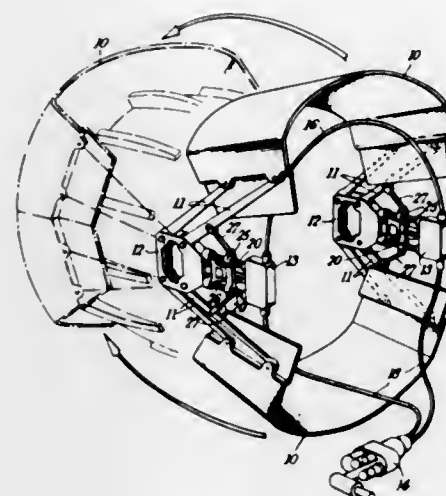
Int. Cl. B64c 15/06

U.S. Cl. 239—265.31

8 Claims



Apparatus comprises elongate shroud surrounding jet engine. Aft portion of shroud extends rearward beyond exit end of jet nozzle to surround and control exhaust gas stream. Passages through shroud wall aft of nozzle exit provide flow paths for entry of ambient air to constitute a thrust reverser or thrust modulation system. Blocker doors, generally triangular in planform, are stowed against inner wall of aft portion and deploy to converge forward and form cone shaped body blocking rearward flow of the exhaust gas stream. Apex of the blocker doors is well ahead of passages to divert gas outwardly and rearwardly to passages and through them to produce reverse or modulated thrust. External deflector doors produce a forward component in exiting stream, or scoop in air for ejector action when blocker doors are stowed. Blocker doors translate and rotate forward to deployed position and rearward to stowed position out of registry with deflector doors. Latter are movable differentially independently of blocker doors to modify pitching moment contribution. Apparatus may be used with conventional jet or fan jet engines.



3,655,134

JET ENGINES FOR AIRCRAFT

Leonard Sidney Greenland; Charles Phillip Smith, and David Marshall, all of Wolverhampton, England, assignors to H. M. Hobson Limited, London, England

Filed Nov. 23, 1970, Ser. No. 91,859

Int. Cl. B64c 15/06

U.S. Cl. 239—265.37

12 Claims

A thrust reversal system for an aircraft jet engine comprising a pair of thrust reverser buckets movable between a stowed and a deployed position, an air motor operable under pilot's control for imparting movement to the buckets and mechanism for automatically decelerating the air motor as the buckets approach both the stowed and the deployed positions.

3,655,135

STEAM OUTLET HEAD WITH A DISPENSER FOR A FRAGRANCE OR MEDICANT

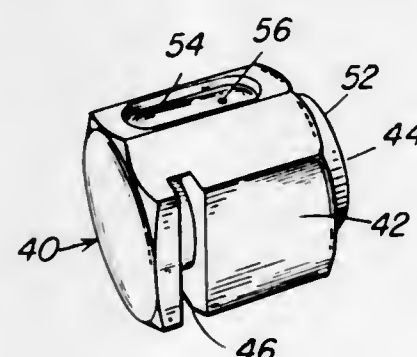
Murray Altman, Scarsdale; David Altman, Bronx, and Seymour E. Altman, Queen's Village, all of N.Y., assignors to Thermasol, Ltd.

Filed June 29, 1970, Ser. No. 50,511

Int. Cl. A62c 5/02; B05b 7/26

U.S. Cl. 239—310

8 Claims



A steam outlet head is disclosed having inlet and outlet ports and a connecting interior channel for passage of steam through the head. A reservoir for a fragrance or medicant is positioned on top of the head and an orifice connects the reservoir with the channel to mix the fragrance or medicant with the steam passing through the head. The orifice is sized and positioned such that the flow of fragrance or medicant is effected substantially by the flow of steam through the head.

3,655,136

PRESSURE RESPONSIVE FLUID NOZZLE

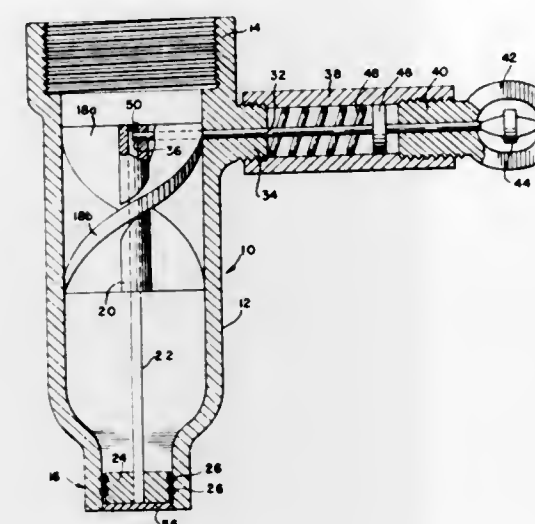
William L. Livingston, Sharon, Mass., assignor to Factory Mutual Research Corporation, Norwood, Mass.

Filed Dec. 30, 1970, Ser. No. 102,652

Int. Cl. B05b 1/32

U.S. Cl. 239—452

10 Claims



A pressure responsive fluid nozzle wherein an expellable plug is disposed in the outlet of a body member having an inlet adapted for connection to a source of fluid under pressure. The plug is connected relative to the body member by means of a connector which is placed under tension in response to the fluid pressure in the body member. Upon the fluid pressure attaining a predetermined magnitude, the connector is adapted to break to release the plug from the outlet and permit the fluid to be discharged from the nozzle.

3,655,137

MOBILE, CONTAINERIZED DISPENSER FOR FLOWABLE MATERIALS

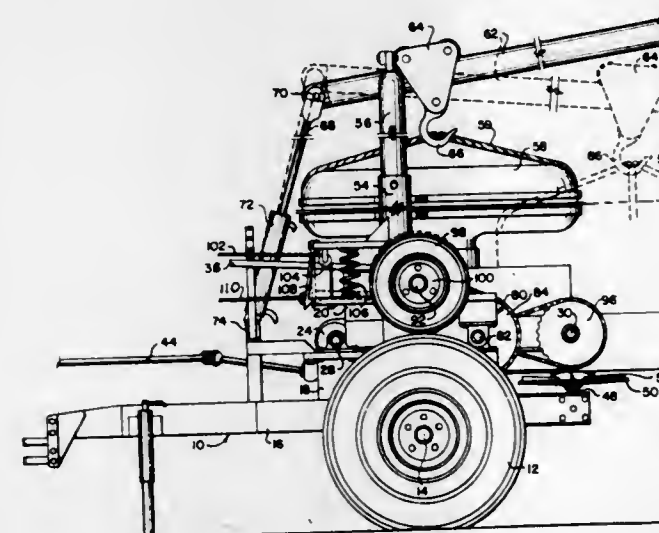
James W. Lang, 4523 Jennings, Wichita Falls, Tex.

Filed Feb. 2, 1970, Ser. No. 7,953

Int. Cl. A01c 19/00

U.S. Cl. 239—670

13 Claims



A mobile dispensing mechanism which utilizes a detachable container, which container is moved into place and attached to the dispensing mechanism, thereby avoiding the necessity of unloading the material into a bin or hopper. The flowable material is directed therefrom onto a conveyor and onto a spreader disc for discharge of the flowable material

over a wide area, as the mobile unit is moved over the terrain. Provision is made for controlling the rate of flow of the material being dispensed onto the rotating disc. Further provision is made to move the filled container onto the mobile unit and for directing the container from the mobile unit when the material has been depleted.

3,655,138

MACHINE FOR COMMUNUTING GLASSWARE AND THE LIKE

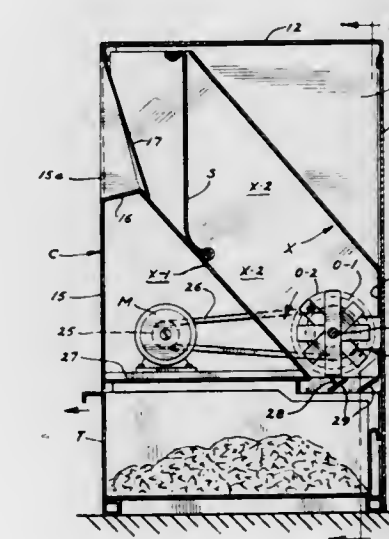
Gene A. Luscombe, Route #1, Dolliver, Iowa

Filed Aug. 8, 1969, Ser. No. 848,617

Int. Cl. B02c 19/12, 13/02

U.S. Cl. 241—99

3 Claims



A machine for comminuting glassware or the like into small, rather uniform particles, which employs an upstanding disintegration chamber having an entrance in the upper portion for receiving the material to be comminuted. Within the lower portion of the chamber and extending transversely thereof is mounted a high speed rotary comminutor mechanism which comprises a plurality of sets of rigid comminuting elements or bars disposed radially and sequentially on a common axis of revolution. The elements of each set extend in axially spaced relation and are successively angled differentially. Adjacent elements of each set preferably are of somewhat different lengths so that their disintegrating tips or extremities lie in different orbits of revolution. The said rotary comminuting mechanism per se disintegrates the bottles, containers, glassware or stiff plastic without the use of stationary grate bars or other shearing elements, and the disintegrated particles with preferably the assistance of a deflection medium are dropped by gravity and collected in a drawer or other collection medium which is readily removable from the machine for periodic dumping of the collected particles. With my improved structure, material such as frangible bottles and other containers may be comminuted into particles of average size of less than one half inch in longest dimensions.

3,655,139

PORTABLE APPLIANCES

Fritz Otto, Hameln, Germany, assignor to Belder Trust, Reg., Vaduz, Liechtenstein

Continuation-in-part of application Ser. No. 292,334, July 2, 1963, now Patent No. 3,240,435. This application Nov. 24, 1965, Ser. No. 509,579. The portion of the term of this patent subsequent to July 2, 1980, has been disclaimed.

Claims priority, application Germany, July 2, 1962, St 14,859

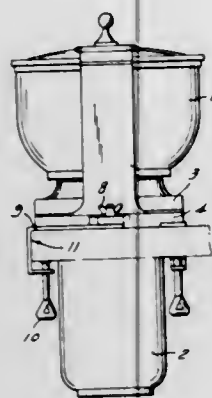
Int. Cl. B24b 41/00

U.S. Cl. 241—101

11 Claims

A mounting assembly for mounting a portable machine on a support member having a top face and two spaced edge

portions in such a way that the machine is positioned laterally of the support member, comprises an elongated supporting arm which is adapted to be placed on the top face of the support member. One end portion of the supporting arm can be fixed to the machine and an opposite end portion is located remote from the machine with an intermediate por-



tion between the end portions. A first fastening means is connected to the intermediate portion and can be releasably fastened to one edge portion of the support member, and an elongated second fastening means is connected at one end to the opposite end portion of the supporting arm and can be fastened with its other end to the other of the edge portions of the support member.

3,655,140

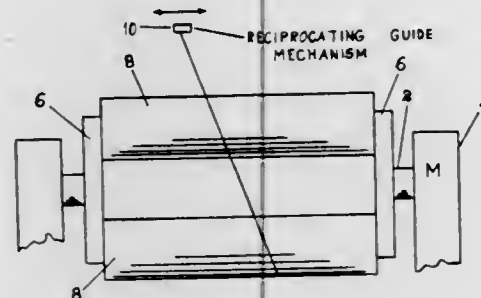
MACHINE FOR WINDING FLEXIBLE MATERIAL

William F. Gordon, Yonkers, and James W. Newman, Scarsdale, both of N.Y., assignors to Windings, Inc.
Original application Feb. 29, 1968, Ser. No. 709,305, now abandoned. Divided and this application Mar. 2, 1970, Ser. No. 18,780

Int. Cl. B65h 54/00, 75/02

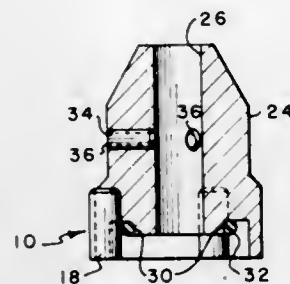
U.S. Cl. 242-18 R

2 Claims



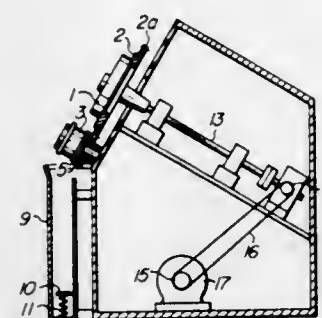
A package of flexible, particularly springy material, is produced by a winding in the nature of a universal wind on a spindle having spaced curved ends and a cross section of oblong shape, a radial hole being built into the package substantially at the center of one of the sides of the oblong, and the flexible material being fed out from the interior of the package through this hole by means of a payout tube inserted in the hole and extending into the open central interior of the package where it flares outwardly. The completed package is thicker in the elongated sides than in the substantially semi-cylindrical end portions because the crossovers in the end portions are spaced further apart than in the side portions. Thus when one or both of the side walls are flattened, as by insertion in a package, the flattened side wall portions bulge inwardly so that the interior axial space within the package is substantially in the space of a dumb-bell or kidney with the interior walls closer together at the center than at the sides. A removable part inserted and held in the payout tube has a member engaging the opposite interior wall to stabilize the package during shipment and handling.

3,655,141
BOBBIN ADAPTOR
William P. Warthen, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Sept. 21, 1970, Ser. No. 73,753
Int. Cl. B65h 54/54
U.S. Cl. 242-46.4 1 Claim



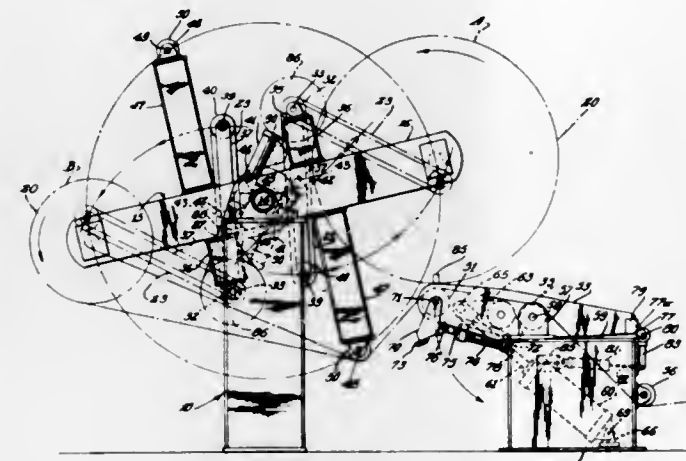
An adaptor for a bobbin or the like which is used on apparatus for twisting strands of textile or other fibers and will fit over a standard size spindle to provide a support for a bobbin having a diameter larger than the standard size spindle. The adaptor employs a resilient member which exerts a force on a plurality of dowels to press them against the inside walls of a bobbin or spool placed thereover.

3,655,142
SPIRALLY WOUND WEB PAY-OUT APPARATUS
Takehisa Mase; Hiroshi Kawaura, both of Kariya; Terumoto Yamaguchi, and Yosinao Amano, both of Anjo, all of Japan, assignors to Nippondense Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan
Filed Apr. 8, 1970, Ser. No. 26,667
Int. Cl. B65h 75/30
U.S. Cl. 242-55 2 Claims



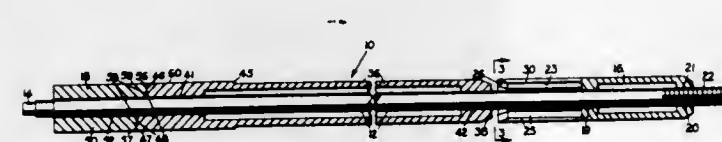
A spirally wound web pay-out apparatus for paying out a web of thin gauge wound in convolutions comprising a reel for mounting the web in coil form, reel drive means and a pair of rotatable feed rollers, one of the pair of feed rollers being a fixed roller having a fixed axial position and the other feed roller being a movable roller adapted to be urged by a spring to bear against the fixed feed roller. Gear teeth are formed on the outer circumferential surface of one coaxial side plate of the reel and a gear is attached to each of the pair of feed rollers coaxially with the respective rollers with the gear of the fixed feed roller being maintained in meshing engagement with the gear teeth of the reel and the gear of the movable feed roller.

3,655,143
TURRET MOUNTED FLYING SPLICE UNWIND
Robert L. Wallis, West Chester, Pa., assignor to Dowington Division Beloit Corporation, Downingtown, Pa.
Filed Mar. 2, 1970, Ser. No. 15,336
Int. Cl. B65h 19/16
U.S. Cl. 242-58.3 5 Claims



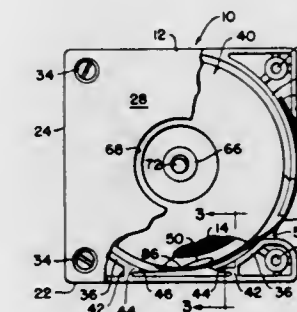
Unwinder for rolls of paper having individual tape drives engaging the peripheries of the rolls for unwinding the rolls at a uniform linear velocity. The rolls are carried at opposite ends of a turret mounted for adjustable movement about a horizontal axis and moved into its selected position of adjustment by power. The turret support sets of diametrically opposed core shaft chucks for core shafts carrying the rolls of paper. As one roll of paper is being unwound the turret is moved into position to pick up a new roll. The new roll is then positioned in the position formerly occupied by the expiring roll. As the expiring roll is unwound to within a few inches, a knife on a splice arm is activated to shear the end of the expiring roll. A roll on the splice arm is then moved to engage the end of the expiring roll with the new roll and splice the end of the expiring roll to the new roll and carry the new roll to the sheet run.

3,655,144
PAPER ROLL SHAFT WITH EXPANDABLE COLLAR
Frank A. Turner, Lake Oswego, Oreg., assignor to Publishers Paper Co., Oregon City, Oreg.
Filed May 18, 1970, Ser. No. 33,154
Int. Cl. B65h 17/02, 75/02
U.S. Cl. 242-68 5 Claims



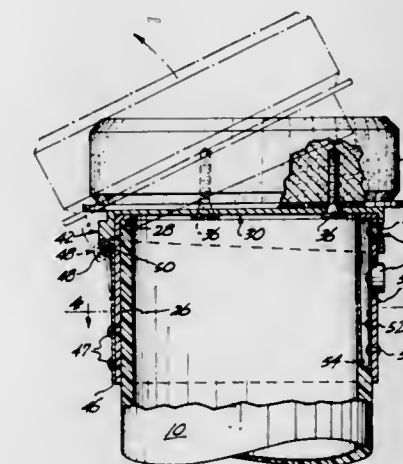
A material winding shaft having a split sleeve at one end adapted to form, when expanded, a collar for retaining material roll cores on the shaft. A shell is slidably retained on the shaft with a beveled shoulder formed thereon for engaging and expanding the split sleeve. Axial displacement between the sleeve and the shell is produced by rotation of a control handle, secured at the other end of the shaft, effecting movement of interengaging cam surfaces on the inner end of the handle and the end of the shell adjacent thereto.

3,655,145
CARTRIDGE, CASE AND WEB
Alf J. Olsen, Elk Grove Village, Ill., assignor to Teletype Corporation, Skokie, Ill.
Filed Dec. 2, 1969, Ser. No. 881,344
Int. Cl. G03b 1/04; G11b 15/32, 23/04
U.S. Cl. 242-197 14 Claims



A leader on a web coacts with a hook which projects into a reel chamber in a case to limit web recoil into, and interfere with initiation of web removal from, the case. The leader also coacts with a reel on which the web is wound to prevent web ravel. The leader has an aperture and is fashioned with a pair of sloping shoulders which are wider than the spacing of the reel flanges such that upon web recoil the shoulders engage the flanges causing the leader to bend and displace the aperture toward engagement with the hook and to tension the reel to cause its frictional retention.

3,655,146
PNEUMATIC DISPATCH SYSTEMS
Toni Woll, 12912 N.E. 30th Street, Bellevue, Wash.
Filed Apr. 13, 1970, Ser. No. 27,617
Int. Cl. B65g 51/06
U.S. Cl. 243-35 1 Claim



The forward of leading end of a sliding carrier has an open-mouth for the insertion and removal of articles carried. A closure for said mouth mounts the riding head.

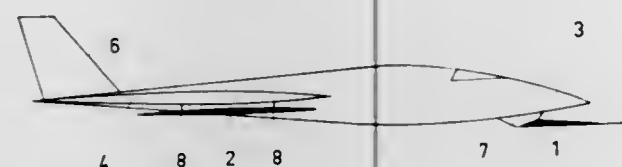
ERRATUM

For Class 243—35 see:
Patent No. 3,655,153

3,655,147

DEVICE FOR REDUCING THE SUPERSONIC BOOM CAUSED BY AIRCRAFT

Heinz Preuss, Gothaer Strasse 54, 3 Hannover, Germany
Filed Apr. 25, 1968, Ser. No. 724,059
Claims priority, application Germany, Apr. 26, 1967, P 42 011
Int. Cl. B64c 23/04
U.S. Cl. 244—1 N 3 Claims

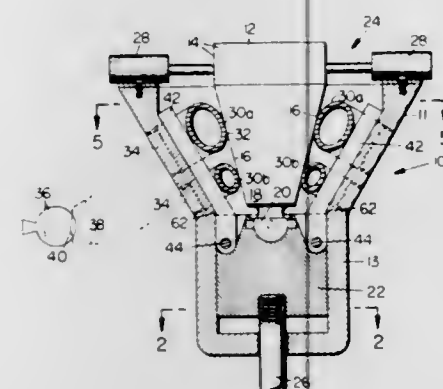


The invention describes means for reducing the supersonic boom caused by aircraft. Underneath the aircraft reflecting surfaces are provided in the area of the maximum pressure difference of the Mach cone created by the aircraft.

3,655,148

CONTROL MECHANISM

Edward E. McCullough, Brigham City, Utah, assignor to Thiokol Chemical Corporation, Bristol, Pa.
Filed June 20, 1969, Ser. No. 839,780
Int. Cl. F41g 7/00
U.S. Cl. 244—3.22 7 Claims



A cam body, movable both axially and laterally, is so shaped and positioned relative to cam followers that the total possible response thereof to movements of the cam body may be at any instant, (1) regulated from a maximum to zero, (2) proportioned as desired to secondary devices operated by the followers, and (3) subdivided into constant-proportion components of response metered to each of such devices.

3,655,149

FLAP ACTUATING MECHANISM

William W. Williams, Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Sept. 25, 1970, Ser. No. 75,609
Int. Cl. B64c 9/18 6 Claims

An extensible and retractable wing flap actuating mechanism particularly designed and adapted for modern

heavy cargo aircraft employs gear-driven sliding rails to support and extend the flap and separate gearbox and linkage arrangements buried inside the flap to control the angle thereof. Thus, conventional tracks, rollers, screwjacks and similar relatively complex, heavy and unreliable mechanisms

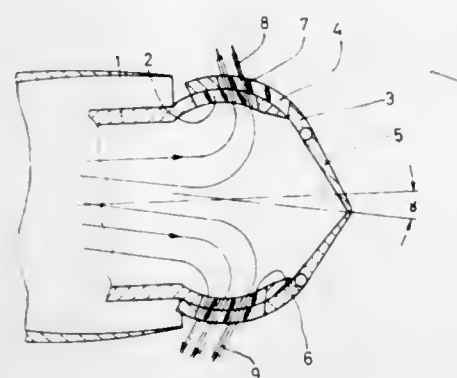


are avoided. Spherical, self-aligning bearings are employed as attachments between the flap and rail/wing structures which allow the conjugate motions of the flap and the structural deflections to occur without binding or jamming the mechanism.

3,655,150

AIRCRAFT JET ENGINE WITH VECTORING NOZZLE FOR CONTROL PURPOSES

Erich J. Haberkorn, Riemerling, and Klaus Englaender, Munich, both of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Germany
Filed June 17, 1970, Ser. No. 47,008
Claims priority, application Germany, June 23, 1969, P 19 31 747.6
Int. Cl. B64d 33/04 6 Claims



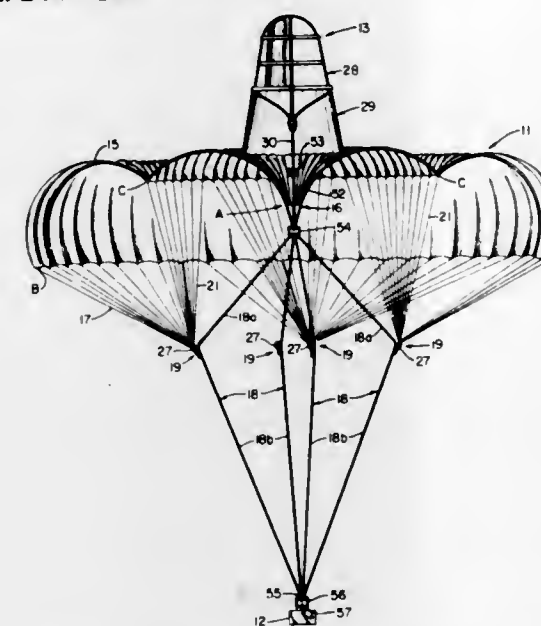
Aircraft jet engine having a vectoring discharge for pitch and yaw control purposes including means for maintaining such control during low thrust or reversing jet operation. A vectoring nozzle is arranged on the exit of the jet tube in the manner of a ball joint for universal swiveling and the lateral and vertical control obtained thereby. Openings are provided for both the inner and outer portion of the cooperating spherical members such that when the vectoring nozzle swivels on the jet pipe more or less of the openings on the respective sides thereof come into register with each other. By directing the discharge from said openings in a reversing direction, same will function as reversing jets when the nozzle is closed and by swiveling thereof such discharge can be directed to one side or the other of the aircraft to obtain the desired directional control.

3,655,151

REREFFING PARACHUTE AND AERIAL RECOVERY SYSTEM

Otis B. Ferguson, Alamogordo, N. Mex., assignor to Recovery Systems Research, Inc., Alamogordo, N. Mex.
Filed Dec. 29, 1969, Ser. No. 888,453
Int. Cl. B64d 17/02 13 Claims

U.S. Cl. 244—142



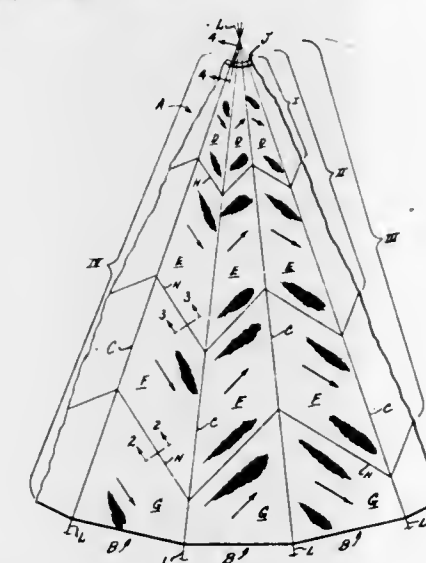
A parachute for use as the main load-bearing device in a mid-air recovery system is provided with canopy rigging including intermediate load-bearing suspension lines connected at spaced points of attachment between an intermediate portion of the canopy and an attaching juncture of one of several groups of skirt suspension lines and an intermediate portion of one of several control lines disposed between a central portion of the canopy and the payload to provide a flattened canopy profile. An inflatable extension mounts on top of the parachute and together with a canopy-like cap portion which covers the top of the extension forms a lightweight balloon-like body or skin which confines a volume of air above the main parachute to support an engagement harness thereon. The inflatable body may be illuminated for night or inclement weather pick-ups and is capable of sustaining a target package such as a radio transmitter or the like.

3,655,152

STRETCH FABRIC PARACHUTE CANOPY

Clifford Bonn, Buffalo, N.Y., and Kenneth R. A. Wilson, Redondo Beach, Calif., assignors to Irvin Air Chute, Limited, Fort Erie, Ontario, Canada
Filed Mar. 17, 1970, Ser. No. 20,254
Int. Cl. B64d 17/12 8 Claims

U.S. Cl. 244—145



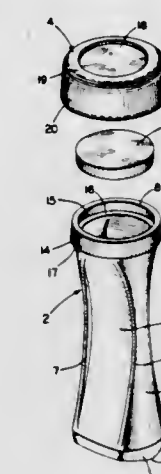
A stretch fabric parachute canopy having relatively low air permeability in low speed escape and a relatively high air permeability in high speed escape.

3,655,153

PNEUMATIC SYSTEM CARRIER CONSTRUCTION

William H. Terrell, Akron, Ohio, assignor to Diebold, Incorporated, Canton, Ohio
Filed July 10, 1970, Ser. No. 53,786
Int. Cl. B65g 51/06 5 Claims

U.S. Cl. 243—35



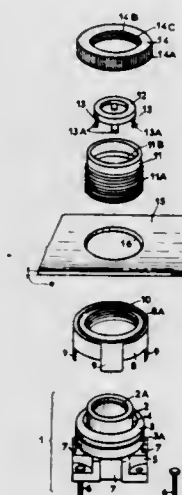
An open end carrier construction for conveying folded paper or paper-like slips between terminal stations in pneumatic tube systems. A hollow carrier body is formed with open ends, one end of which is closed by a disc and cap. The carrier body is double-concave and forms a narrow inner passage or slot intermediate the carrier ends through which folded slips extend and in which the slips are securely gripped when inserted in the carrier body through the uncapped end.

3,655,154

DEVICE FOR FIXING EQUIPMENT, SUCH AS ELECTRICAL APPARATUS, ON A SUPPORT

Joseph Orts, Stains, France, assignor to La Telemecanique Electrique, Nanterre, Hauts-de-Seine, France
Filed Mar. 3, 1970, Ser. No. 16,041
Claims priority, application France, Mar. 4, 1969, 69/05928
Int. Cl. G12b 9/08 4 Claims

U.S. Cl. 248—27



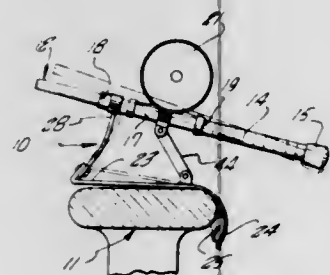
Improved device for fixing equipment, in particular electrical apparatus, on supports such as switchboards of the kind

in which the apparatus comprises a threaded socket passing through an orifice formed in the switchboard and held by means of a knurled knob supported against the front face of said switchboard with no need to take into consideration the thickness of the switchboard because the screwing down of the knurled knob causes the rotation of the socket and the upward movement of a clamping ring against the internal face of the switchboard until the final fixing is obtained.

**3,655,155
FISHING ROD MOUNT**

John R. Taylor, 9503 Rivera Road, Pico-Rivera, Calif.
Filed May 18, 1970, Ser. No. 38,377
Int. Cl. A01r 97/10
U.S. Cl. 248-38

8 Claims

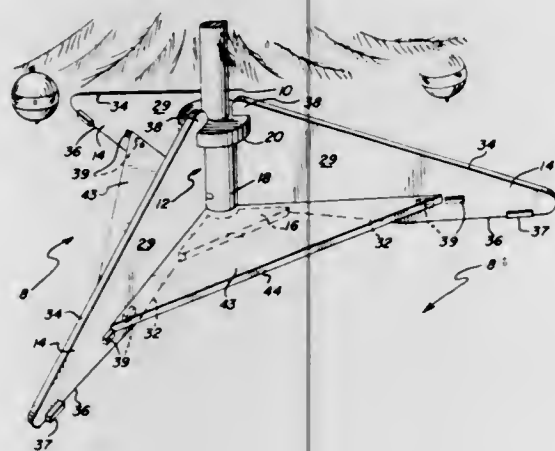


A fishing rod holder has a rocket base with a planar bottom and a curving depending lip adapted to rock on the ship or pier rail or other static rest. Adjustable support arms at the front and rear of the base have free ends whose longitudinal spacing is adjustable. Each support has a rod gripping clamp to grip the rod in the region of the line reel, the rear clamp preferably being a saddle adapted to receive screws from the reel base mount. The span from saddle to saddle is preferably less than the length of the reel mount section of the rod.

**3,655,156
TREE STAND**

William E. Petrie, 18711 South Cicero Avenue, Tinley Park, Ill.
Filed July 10, 1970, Ser. No. 53,935
Int. Cl. A47g 33/12
U.S. Cl. 248-48

17 Claims



A stand for supporting a pole or the like vertically off the ground, including a hollow cylindrical member in which the

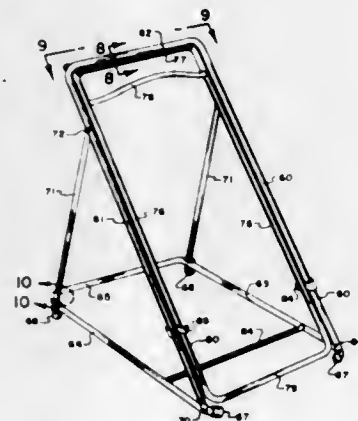
pole is received and a plurality of legs removably attached to the pole receiving member and extending radially outwardly therefrom and spaced circumferentially thereabout. The bottom of a pole received in the pole receiving member rests by gravity on portions of the legs extending into the pole receiving member. In the preferred embodiment, the pole receiving member is comprised of two parts for ease of manufacture.

**3,655,157
GARBAGE BAG HOLDER**

Gerald J. Dalton, 459 North 250 East, Kaysville, Utah
Filed June 15, 1970, Ser. No. 46,267
Int. Cl. B65b 67/12

U.S. Cl. 248-97

13 Claims



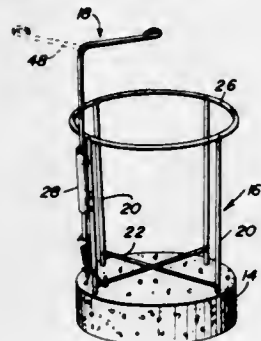
A holder, for bags made of plastic films and other suitable sheet materials, that will normally maintain the bag closed under its own weight, but that can be easily operated to open when items are to be placed therein.

**3,655,158
GARBAGE CAN HOLDER**

Clarence D. Smith, Jr., 187 N. Hidden Beach Road, Marblehead, Ohio
Filed Oct. 15, 1969, Ser. No. 866,518
Int. Cl. A47g 29/00

U.S. Cl. 248-154

1 Claim



A cylindrical concrete base is used to anchor a cylindrical open frame into which a garbage can is placed. A right angle arm is slidably journaled to the frame and is normally biased to urge the can cover in closing relation to the can. Detent means are provided between the frame and the arm to allow temporary positioning of the arm in a fixed position displaced from the can cover thereby permitting the removal of the cover or the entire can from the frame. The frame is constructed to support the bottom of the can in spaced relation to the concrete base thereby preventing the accumulation of

material therebetween. The diameters of the base and the frame are equal to allow rolling of the can holder.

**3,655,159
FREESTANDING SHELVING APPARATUS WITH
IMPROVED BASE MEMBER AND COLUMN LOCKING
MEANS**

Charles J. Held, Jr., San Jose, Calif., assignor to W. R. Ames Company, Milpitas, Calif.
Filed Mar. 19, 1970, Ser. No. 21,128
Int. Cl. F16m 11/20
U.S. Cl. 248-188.1

17 Claims

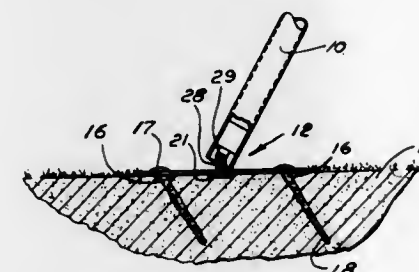


An improved base member for a freestanding shelving system comprised of two or more upright columns interconnected by lateral reinforcing members and supporting shelves at various heights. Each base member is formed with a pocket for receiving the lower end of an upright column and a locking means comprised of a pair of wedge members interconnected by a central wedge member that are manipulated to lock the column within the pocket. The base members are constructed to be utilized separately with decorative side panel attachments or to be connected by surrounding kickplate members.

**3,655,160
SUPPORT**

Robert E. Grillot, 9170 West U.S. Route 36, Covington, Ohio
Filed Feb. 4, 1970, Ser. No. 8,457
Int. Cl. F16m 11/20
U.S. Cl. 248-188.8

3 Claims



A support for children's swings and the like includes a ground support plate pivotally and swivally connected to a cylindrical member which is insertable into a hollow tubular support leg of the swing framework.

**3,655,161
POST SHORE**

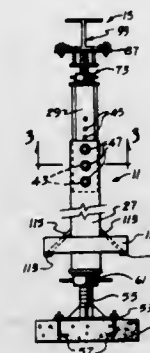
John A. Schueler, 20451 Mooncrest Circle, Huntington Beach, Calif.
Filed May 5, 1970, Ser. No. 34,758
Int. Cl. E21d 15/20

U.S. Cl. 248-354 P

4 Claims

A post shore comprising first and second structural members telescopically interrelated to permit roughly adjusting

the overall length of the post shore and variable length means for providing relatively fine adjustment of the overall length of the post shore. The lower end of the post shore is con-

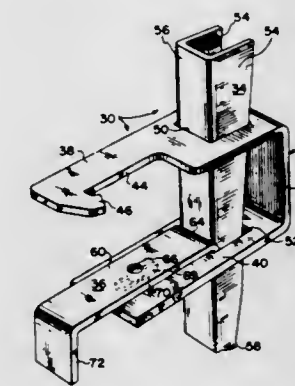


nected to an anchor and the upper end of the post shore is releasably connected to overhead structure to thereby permit the post shore to support the overhead structure.

**3,655,162
SELF-CONTAINED WALER CLAMP ASSEMBLY FOR
CONCRETE WALL FORM**

James C. Shoemaker, Hampshire, Ill., assignor to Symons Corporation, Des Plaines, Ill.
Original application Mar. 19, 1969, Ser. No. 808,503.
Divided and this application Oct. 8, 1970, Ser. No. 79,235
Int. Cl. E04g 17/00
U.S. Cl. 249-219 W

2 Claims



An inseparable waler clamp assembly for convenient manual application to the protruding end of a tie rod for securely clamping either a single or a dual waler hard against the outer side of a series of upstanding and edge-to-edge wall form panels. In one form of the waler clamp assembly, the design is such as to accommodate attachment to a cylindrical tie rod or tie wire having a button-like enlargement on one end thereof.

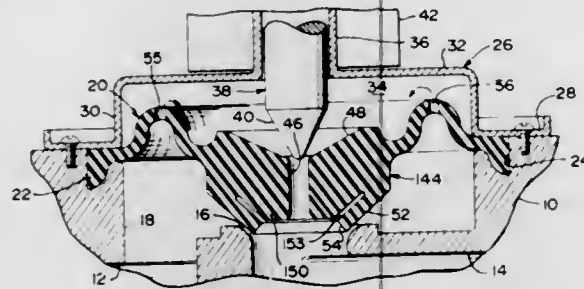
**3,655,163
ANTI-HUNTING DIAPHRAGM VALVE**
William D. Rattan, Paramount, and Harold A. McIntosh, South Pasadena, both of Calif., assignors to Robertshaw Controls Company, Richmond, Va.
Filed May 12, 1970, Ser. No. 36,656
Int. Cl. F16k 25/00

U.S. Cl. 251-45

11 Claims

An anti-hunting, pilot controlled, diaphragm valve including a diaphragm disposed in a casing to define a chamber

therewith, a valve face carried by the diaphragm and disposed adjacent a valve seat in the casing to control flow between an inlet and an outlet in the casing, bleed holes in the diaphragm to provide communication between the inlet and the chamber, a central passageway through the valve face to provide communication between the outlet and the



chamber, a pilot valve member cooperating with the passageway to control flow therethrough, and a flexible skirt on the valve face defining a space therein subjected to outlet pressure and having an outer surface subjected to outlet pressure such that the skirt flexes inward with increased inlet to outlet pressure differentials.

3,655,164

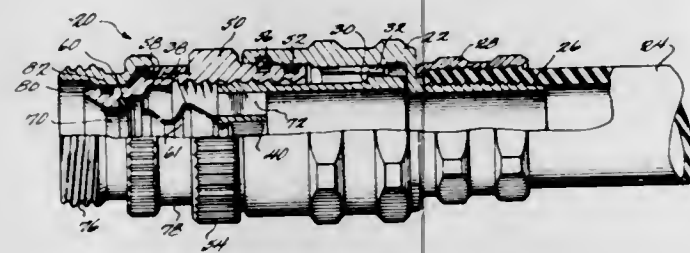
NOZZLE COUPLING

Jerry R. Hayes, Peoria, Ill., assignor to L. R. Nelson Mfg. Co., Inc., Peoria, Ill.

Filed Feb. 3, 1970, Ser. No. 8,385
Int. Cl. F16k 31/44

U.S. Cl. 251-347

7 Claims



A nozzle coupling adapted for connection to a hose and provided with a rigid, tubular housing and a spray diffuser and valve element adapted to be longitudinally moved within the housing by the rotation of a tube member also mounted within the tubular housing and engaging the spray and diffuser element. The spray and diffuser element moves from a substantially open position providing minimum flow restriction for fluid passing through the coupling to a closed position sealing the coupling. A spray of varying character results between the two positions. A swivel-mounted, tubular, male coupling member is provided adjacent the coupling exit for connection to another sprinkler or other device.

3,655,165

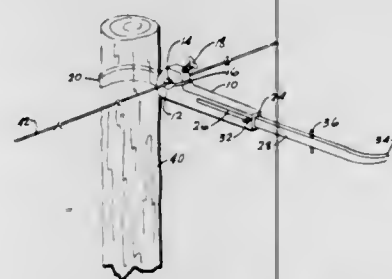
COMBINED STAPLE PULLER AND WIRE STRETCHER

Homer W. Wright, P.O. Box 261, Hollandale, Miss.

Filed July 1, 1969, Ser. No. 838,194
Int. Cl. B66f 3/00

U.S. Cl. 254-77

8 Claims



A tool for use in repairing barbed wire or other type of wire fence which is provided with means for removing staples

from fence posts to free lengths of wire and additional means to lighten or stretch wire around a post for installing or tightening wire about a post.

3,655,166

PROCESS AND DEVICE FOR CONTINUOUS PREPARATION OF EMULSIONS

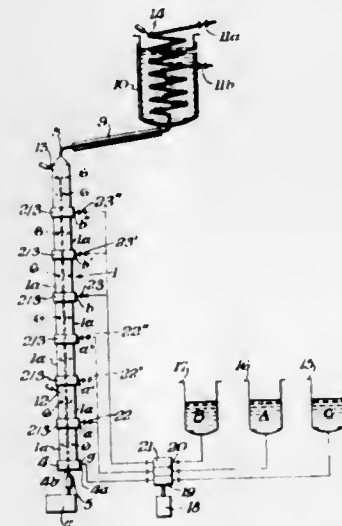
Theo Sauer, and Gunter Schulz, both of Perutz Photowerke ZN der Agfa-Gevaert AG, Kistlerhofstr. 75, D-8000, Munich 25, Germany

Filed Dec. 21, 1970, Ser. No. 100,029
Claims priority, application Germany, Dec. 24, 1969, P 19 64 923.1

Int. Cl. B01f 5/18

U.S. Cl. 259-27

15 Claims



An emulsion such as suspensions containing silver halide is continuously prepared by conducting the basic component upwards in a closed tubular member and sequentially delivering the further components rotationally in a cross-current direction to the rising basic component and resultant mixture at inlet points arranged one after another with respect to the flow direction.

3,655,167

FENCE CORNER

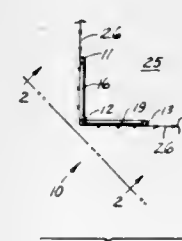
Peter W. Skille, Route 1, Gilman, Wis.

Filed Aug. 18, 1970, Ser. No. 64,679

Int. Cl. E04h 17/02

U.S. Cl. 256-35

1 Claim



A corner structure of fencing. This structure consists of a multiple number of posts and cross bars that are held rigidly with cables and turn-buckles so as to remain in proper alignment under all stresses normally encountered.

3,655,168

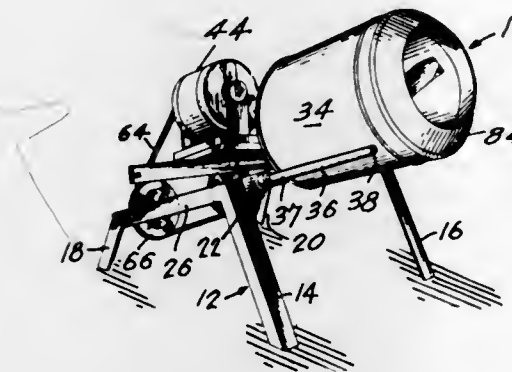
PORTABLE CEMENT MIXER

Ralph Frank Lord, 1451 rue St. Benoit, Ancienne Lorette, Quebec, Canada

Filed Aug. 20, 1970, Ser. No. 65,395
Int. Cl. B28c 5/18

U.S. Cl. 259-177

10 Claims U.S. Cl. 261-36 A



A cement mixer having a frame with a pair of spaced rotating supporting rods projecting upward therefrom and adapted to support a container in which cement is to be mixed and a bearing wheel positioned between the two supporting rods and adapted to engage the bottom of a container to support same from sliding down the rods into contact with the frame.

3,655,169

WATER VAPOR INJECTION SYSTEM AND METHOD FOR AN INTERNAL COMBUSTION ENGINE

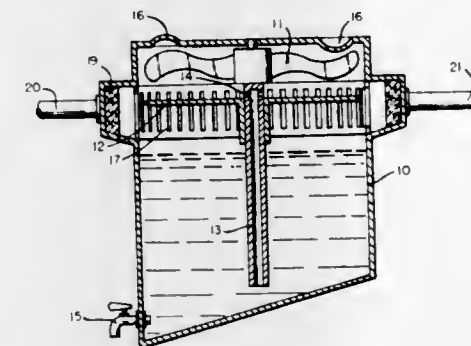
Fred A. Goldfarb, 143 Jewett Avenue, Jersey City, N.J.

Filed June 15, 1970, Ser. No. 46,388

Int. Cl. F02d 19/00; B01f 5/22

U.S. Cl. 261-35

7 Claims



A water vapor injection system for an internal combustion engine comprising an air washer and moisturizer for supplying clean moisturized air to a carburetor and method therefore. The device and method comprises a container for containing water or other suitable solution and, having directional scoops on the top for directing the flow of air onto the blades of a fan which is mounted on a hollow shaft immersed in the water with a spinner mounted on the same shaft and ports in the shaft arranged just above the spinner. A slotted impinger ring and a filter are arranged in a circumferential groove around the container and a tube is connected between the groove and a carburetor to supply the clean moisturized air to the carburetor to thereby permit the gas air mixture to burn more efficiently and to reduce exhaust pollution.

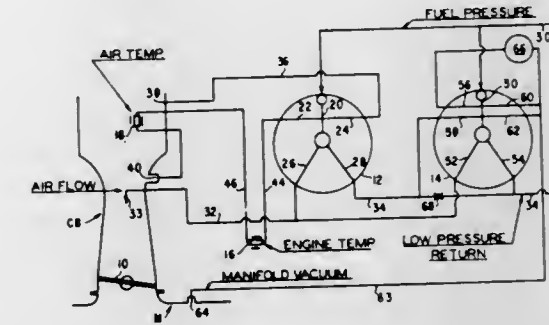
3,655,170

FLUIDIC CARBURETOR

Jeffrey Michael Lazar, Warminster, Pa., assignor to ACF Industries Inc., New York, N.Y.

Filed Mar. 6, 1970, Ser. No. 17,227
Int. Cl. F02m 69/04

6 Claims



A fluidic carburetor having two fluid pure fluid amplifiers for controlling the rate of fuel flow to the carburetor bore. One fluid amplifier controls fuel flow during cranking and normal running conditions by sensing the vacuum at one point in a Venturi throat and at a second point upstream therefrom, the rate of fuel flow being dependent upon the difference in pressure at the two points. The rate of fuel flow is further controlled by an air temperature sensor and an engine temperature sensor. A second fluid amplifier is provided for feeding additional fuel to the bore during periods of acceleration.

3,655,171

BOILER SOOT EXTRACTOR

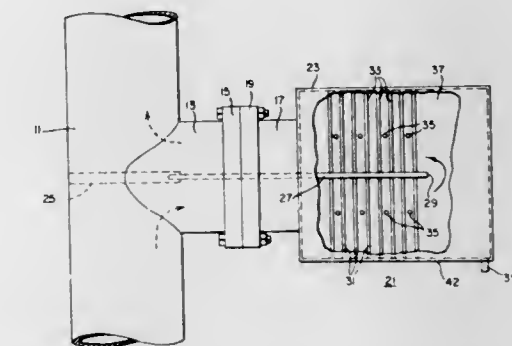
Harry Francis Miller, Jr., 409 W. Lincoln Avenue, Magnolia, N.J.

Filed Apr. 23, 1969, Ser. No. 818,597

Int. Cl. B01d 47/00

U.S. Cl. 261-64 R

4 Claims



Apparatus for filtering particles from exhaust gas which by-passes the gas around its normal path and through a plurality of filter screens and utilizes a plurality of water jets for cleaning the filter screens during the filter's operation.

3,655,172

SATURATED FLUID MIXTURES GENERATOR

Glenn R. Ingels, 11607 Windy Lane, Houston, Tex.

Continuation of application Ser. No. 719,613, Apr. 8, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 604,515, Nov. 28, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 292,280, July 2, 1963, now abandoned. This application Apr. 14, 1970, Ser. No. 28,192

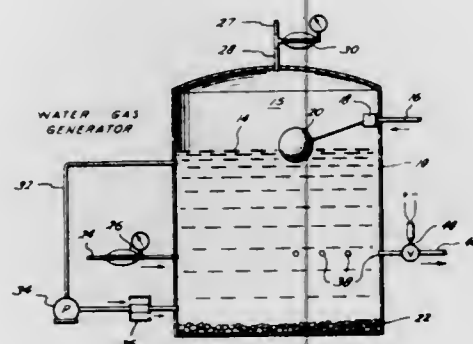
Int. Cl. C02d 1/00, 1/04

U.S. Cl. 261-130

7 Claims

A generator for generating a saturated fluid mixture under close temperature and pressure control including a chamber,

means for introducing liquid water into the chamber and means for introducing into the chamber and into intimate contact with the water, gases from a source means selected from the group consisting of oxidizing and reducing gases for providing in the liquid water a mixture of carbon dioxide, hydrogen and carbon monoxide, and oxidizing and carburizing gases for providing in the liquid water a mixture of carbon dioxide, methane, hydrogen and carbon monoxide. Temperature control means are provided for maintaining the temperature of the water at each control point temperature from



about 32° F. to about 160° F., and pressure regulator means are provided for maintaining the pressure on any given gas mixture pressures from atmospheric up to 218.5 atmospheres so that the saturated fluid mixture is generated.

The chamber includes outlet means for discharge of the generated saturated fluid mixture which is arranged so that the generated saturated liquid mixture retains its properties upon discharge from the chamber so that it can be used to treat metallic and nonmetallic materials to alter their properties. Several embodiments of the generator are shown and described and a number of examples are set forth.

3,655,173

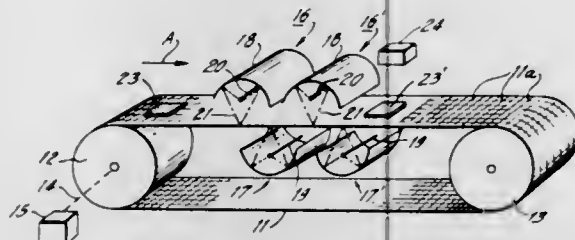
CONVEYOR FOR FUSING AND HEATING SYSTEMS
Bernard J. Costello, Ringoes, N.J., assignor to Argus Engineering Company, Inc., Hopewell, N.J.

Filed July 13, 1970, Ser. No. 54,446

Int. Cl. F27b 9/24

U.S. Cl. 263—8

4 Claims



Apparatus for heating and fusing platings provided upon printed circuit boards and the like. The boards are moved by conveyor means through one or more infrared energy sources arranged at spaced intervals on one or both sides of the boards and adapted to focus radiant energy on the board surfaces, preferably in the form of elongated line images. The conveyor system moves the boards through the plurality of radiant energy sources which heat and fuse the particles of

the plating. The conveyor system is comprised of an open-weave mesh belt wherein the "strands" of the belt are provided with bent portions or projections which support the boards being heated a spaced distance above the plane of the belt to substantially eliminate the "shadow effect" caused by the belt which is interposed between the infrared energy sources and the surface of the boards being heated.

3,655,174

AIR SEALING DEVICE FOR THE TRAVELING GRATES OF SINTERING MACHINES

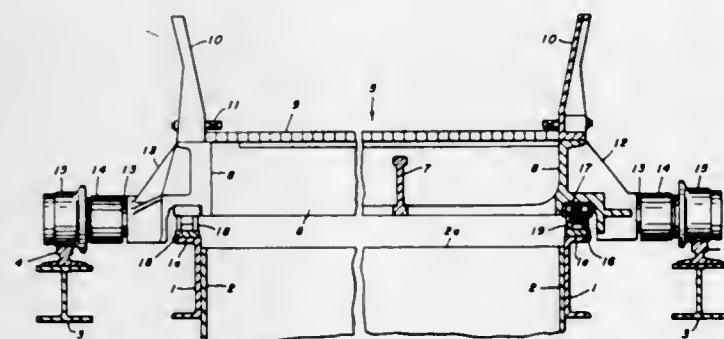
Werner Veith, Frankfurt am Main, Germany, assignor to Dravo Corporation, Pittsburgh, Pa.

Filed Oct. 14, 1969, Ser. No. 866,318

Int. Cl. F27b 21/02

U.S. Cl. 266—21

1 Claim



This invention relates to sintering apparatus of the type in which a series of pallets or traveling grates carrying the sintering mix passes over a succession of wind boxes with in which a sub-atmospheric pressure is maintained whereby hot gases or air is drawn down through the charge moving thereover and is for an improved seal between the pallets and wind boxes for apparatus of this kind. The improvement in said seal resides in the use of a replaceable, non-lubricated, sliding seal between opposite sides of the grate and the slide bars mounted upon the upper face of the wind boxes or the supports therefor with contact maintained by spring pressure. Thus the mounting of the sealing bars upon the grate is accessible when the sealing device is not seated upon the slide bars of the wind boxes. The grates are supported, upon opposite sides, by a wheel and axle mounted upon guide rails at opposite sides of the wind box openings.

3,655,175

PACKAGE UNIT FOR REMOVING METAL FROM A SOLUTION OF THE METAL

Victor Vaclav Zeleny, and Peter Charles Zeleny, both of Salisbury, Australia, assignors to Silver Recovery Equipment Pty. Limited, Salisbury, Australia

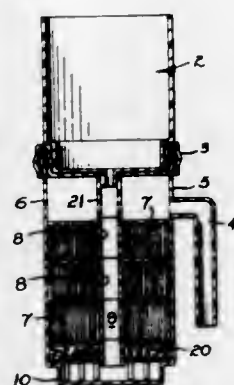
Filed July 28, 1969, Ser. No. 845,205

Claims priority, application Australia, July 29, 1968, 41317/68

Int. Cl. C22b 11/12

U.S. Cl. 266—22

7 Claims



A package unit for recovering precious metals from their aqueous solutions. The package unit is constructed of plastics

such that when the precious metal precipitating agent therein is spent, the unit is disposed in a precious metal recovery process.

3,655,176

CLOSURE DEVICES FOR METALLURGICAL AND LIKE VESSELS

Hans-Joachim Winkler, Krenfeld-Uerdingen, Germany, and Hans Richard Fehling, Zug, Switzerland, assignors to Stoecker & Kunz GmbH, Krenfeld-Linn, Germany

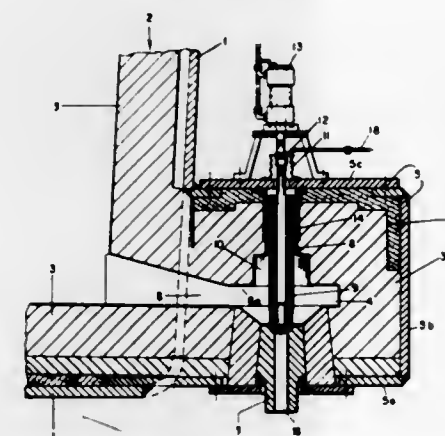
Filed Feb. 20, 1970, Ser. No. 12,943

Claims priority, application Great Britain, Feb. 27, 1969, 10,571/69

Int. Cl. C21b 7/14

U.S. Cl. 266—38

8 Claims



A vessel for containing and discharging molten material is provided with a gas-tight annex chamber offset from but communicating with the interior of the vessel, the bottom of which chamber is not substantially above the bottom of the vessel interior and is provided with a discharge orifice for the downward discharge of the molten material, said orifice being opened and closed by a vertically-movable stopper rod which extends down through the roof of the chamber. The roof of the chamber is formed with a pocket through which the rod extends and in which gas is trapped and pressurized as the level of the molten material in the chamber rises as the latter fills from the vessel. The gas pressure in the pocket may be transmitted to a gauge or may be used for automatic adjustment of the height of the rod to obtain a constant discharge rate through the discharge orifice.

3,655,177

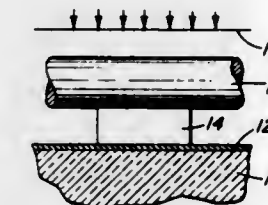
ASSEMBLY INCLUDING CARRIER FOR DEVICES
Alexander Coucoulas, Bridgewater Township, Somerset County, N.J., assignor to Western Electric Company Incorporated, New York, N.Y.

Original application July 6, 1967, Ser. No. 651,411, now Patent No. 3,533,155. Divided and this application Oct. 20, 1969, Ser. No. 870,754

Int. Cl. B25b 11/00

U.S. Cl. 269—1

12 Claims



U.S. Pat. No. 3,533,155, whereof this is a division, concerns a method of bonding which employs a compliant or deformable medium to hold workpiece devices during bonding, the medium transmitting bonding energy to the work-

pieces and deforming about the workpieces. The invention of this division relates to the compliant medium and to an assembly, useful in compliant bonding of the type described in U.S. Pat. No. 3,533,155. The assembly is provided by the compliant medium plus the devices for which the medium acts as a temporary retainer or carrier. The compliant medium takes the form of a flat sheet of a readily deformable material, such as an elongated tape or ribbon of a metal or an alloy with an oxide surface film. The medium has a thickness substantially greater than workpieces to be bonded. Upper surfaces of the workpieces are secured to the under surface of the medium, for example, by an adhesive. The workpieces are positioned in fixed relationship to one another, preferably in spaced apertures in the medium. Indexing means may also be present in the tape or ribbon of the compliant medium.

3,655,178

PEDIATRIC DEVICE FOR IMMOBILIZING A PATIENT-CHILD

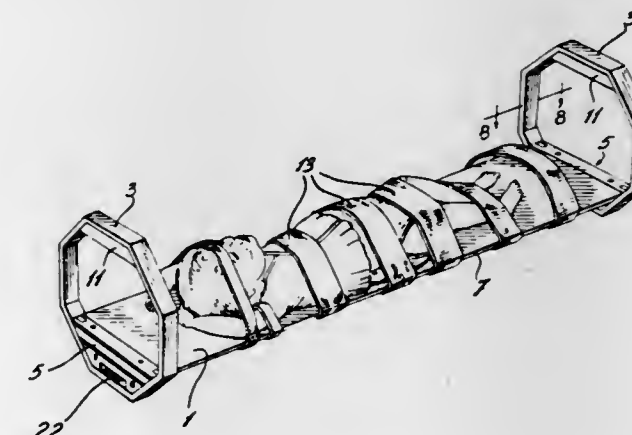
Jean A. Vezina, Cartierville, Montreal, Quebec, Canada, assignor to Les Entreprises Jean A. Vezina LTEE, Montreal, Quebec, Canada

Filed Apr. 12, 1968, Ser. No. 720,917

Int. Cl. A61g 13/00

U.S. Cl. 269—323

8 Claims



A pediatric device for immobilizing a child for a period of time, the device formed of a resting board fixed at the ends thereof to a pair of spaced upright equal regular octagonal hoops, similarly oriented. The resting board is fixed eccentrically in relation to the hoops and the plane thereof is parallel to one side of each hoop.

3,655,179

PHYSICIAN'S EXAMINING TABLE UPHOLSTERED TOP CONSTRUCTION

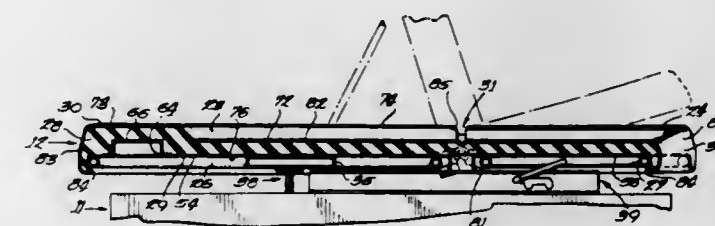
Joseph J. Lelugas, Two Rivers, Wis., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Aug. 29, 1969, Ser. No. 854,178

Int. Cl. A61g 13/00

U.S. Cl. 269—324

2 Claims



An upholstered top for a physician's examining table, having a head and a foot section of which at least one section is

pivotable. The top comprises a pair of frames adapted to be pivotally secured to the table, two pan-like liners which are secured to the frame, a one-piece foam cushion which is supported by the liners, and a formed one-piece vinyl cover. The cover is secured to the upper surface of the cushion, and it is also secured to the liners by a lip formed at the lower edge of the cover. Both the cushion and cover have an easily cleaned broad crease at the pivot axis to facilitate bending of the cushion and cover on pivoting of the head and foot sections. The foot section of the top has a shallow V-shaped cutaway at the end of the foot section to facilitate using a treatment pan while adequately supporting the patient.

3,655,180

PACKING OF RELATIVELY FLAT ARTICLES

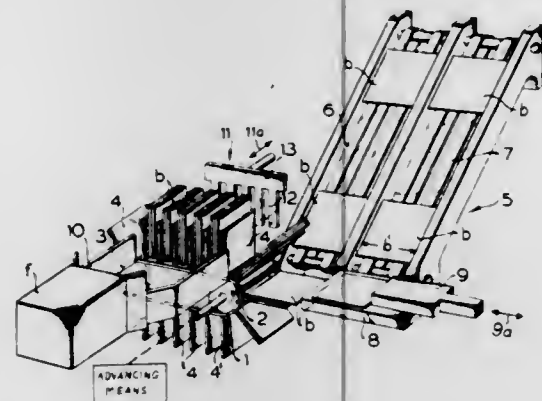
Hans Holler, Bergisch Gladbach, Germany, assignor to Gebrüder Holler GmbH, Bergisch Gladbach, Germany
Filed Aug. 5, 1969, Ser. No. 847,553

Claims priority, application Germany, Aug. 24, 1968, P 17 86 161.9

Int. Cl. B65h 39/02

U.S. Cl. 270—58

8 Claims



An apparatus for stacking and packing relatively flat articles. The articles are advanced to an operating station where they are gathered into stacks in superposed relationship. Thereupon each stack is turned so as to stand on edge and is, while being guided at its opposite major surfaces, inserted edgewise into a receptacle.

3,655,181

PRINTING PRESS FEEDER

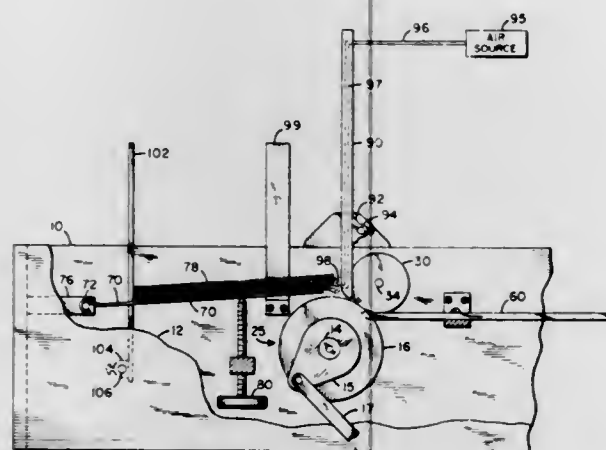
Harold E. Paulson, 32 Island Road, St. Paul, Minn.

Filed Dec. 23, 1970, Ser. No. 100,851

Int. Cl. B65h 3/10

U.S. Cl. 271—29

7 Claims



A mechanism for feeding lightweight sheets of paper, one at a time, to a printing press in which a rotationally oscillated

vacuum drum with suction holes therein grasps pieces of paper off the bottom of a stack with each oscillation. The stack is adjustably supported at a predetermined height just above the oscillating feed drum to insure that only one piece of paper at a time is selected. An air jet is used to separate the edges of the paper sheets in the stack while a separating plate next to the drum operates to block off the suction holes at the end of each oscillation and separate each piece of paper from the oscillating drum.

3,655,182

SHEET-SEPARATION DEVICE FOR SHEET WORKING MACHINES

Alfons Rilinger, Königslutter, Germany, assignor to Roto-Werke GmbH, Königslutter, Germany

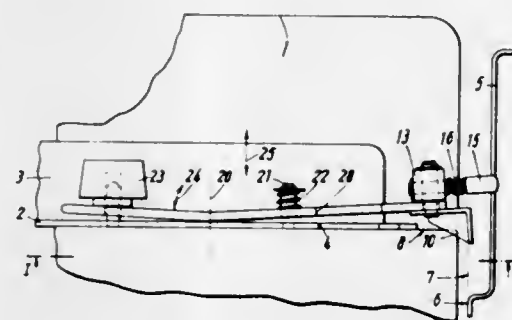
Filed Mar. 30, 1970, Ser. No. 23,747

Claims priority, application Germany, Apr. 1, 1969, P 19 16 623.5

Int. Cl. B65h 3/46

U.S. Cl. 276—61

5 Claims



A sheet separation device for sheet working machines, which comprises a pile table having side rails and a sheet feeder movable in the direction of height relative to the pile table. Separating elements overlap the forward edges of the uppermost sheet freely movably guided in vertical direction and laterally adjustable. A setting lever is adapted for adjustment of the separating elements and mounted swingably only about a substantially vertical axis on a complementary of the side rails. An adjustment- and securing-device is disposed likewise swingably on the side rails and operates without steps, and a guide permits movements of the separating elements in vertical direction and is disposed on the forward end of the setting lever.

3,655,183

SHEET FEED APPARATUS

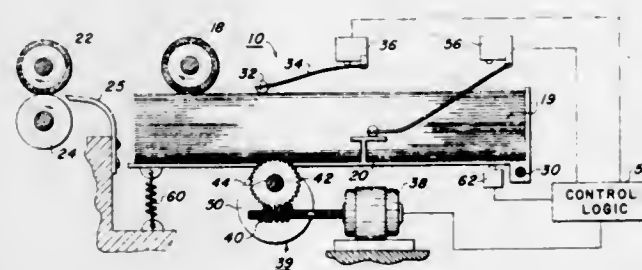
John W. Wagner, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed July 13, 1970, Ser. No. 54,140

Int. Cl. B65h 1/18, 3/06

U.S. Cl. 271—62

1 Claim



Sheet feed apparatus comprising a frame, a tray for supporting a stack of sheets adapted to be fed along a predeter-

mined path, the tray mounted for pivotable movement on an axis a direction away from the direction in which feed is to be affected, a cam member operatively engageable with the lower portion of the tray to continually pivot the tray in an upward direction on the high rise portion of the cam and then return the tray to its original position upon a rotation of the cam to the low rise portion, drive means for operatively rotating the cam member in intermittent fashion upon receipt of discrete electrical signals, and control means associated with the stack for actuating the drive means when the top of the stack falls below a predetermined plane until the sheets have been fed.

3,655,184

AUTOMATIC SHEET SEPARATING APPARATUS

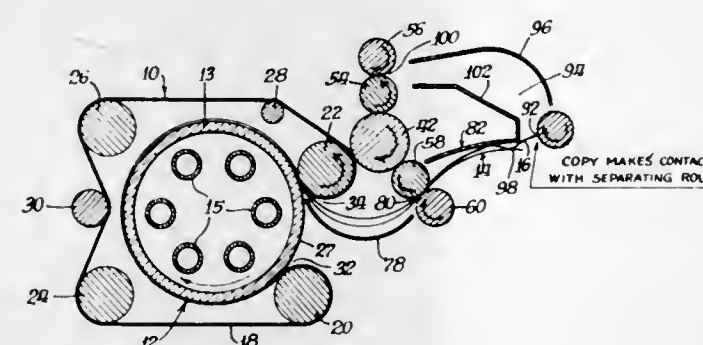
Terrence G. Seelenbinder, Rolling Meadows, Ill., assignor to Addressograph-Multigraph Corporation, Mt. Prospect, Ill.

Filed Nov. 13, 1969, Ser. No. 876,264

Int. Cl. B65h 3/46

U.S. Cl. 271—64

2 Claims



An automatic sheet separating device is disclosed including a pair of feed rollers rotatably mounted in driving relation with respect to each other. One of the feed rollers is rotated at a speed greater than the other to advance a first sheet of a pair passing between said rollers more rapidly than the other sheet of the pair. A roughened roller mounted for rotation in the path of the moving pair of sheets is provided to intercept the lead sheet and to deflect it in another direction, and at the same time, separate it from the more slowly advancing sheet.

3,655,185

ELASTIC TYPE EXERCISER WITH ELASTICALLY HELD HAND GRIP ASSEMBLY

Gerald E. Kane, 1107 West Park Front, Joliet, Ill.

Filed Apr. 23, 1970, Ser. No. 31,196

Int. Cl. A63b 21/00, 21/02

U.S. Cl. 272—82

6 Claims



An exercising device having a pair of resiliently connected handles. Each handle has a gripping portion which extends through the user's hand to provide a hand-grasp during exer-

cise, and connecting portions which are integral with and extend longitudinally from respective ends of the first portion. A pair of elastic tubes of equal lengths connect the handles and have an internal diameter less than the diameter of the connecting portions of the handles. One connecting portion of each handle is resiliently received in the end of a tube to interconnect the handles and allow flexation of the device by the user.

3,655,186

STACKER FOR PAPER CURRENCY

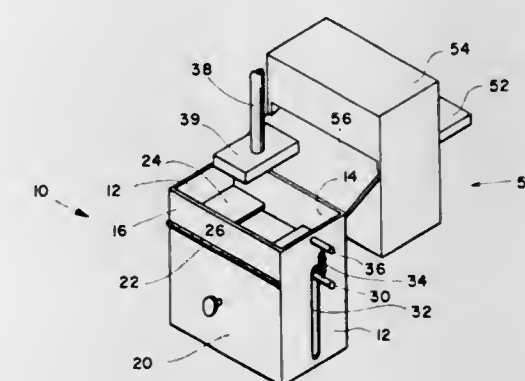
Jack E. Bayha, Chesterland, Ohio, assignor to ARDAC/USA Incorporated, Geauga County, Ohio

Continuation-in-part of application Ser. No. 64,947, Aug. 19, 1970, now abandoned. This application Dec. 14, 1970, Ser. No. 97,739

Int. Cl. B65g 57/03

U.S. Cl. 271—88

14 Claims



Disclosed is a device for receiving individual pieces of paper currency and for stacking successively received pieces of currency in a compact and uniform stack. The device consists essentially of a pair of support plates which receive and support opposite edges of a piece of currency, a plunger which is adapted to move downwardly to force the piece of currency below the support plates, and a spring-loaded bottom plate which moves downwardly with the plunger. Upon upward movement of the plunger, the piece of currency is retained below the lower surfaces of the support plates and the bottom plate.

3,655,187

GAME TABLE WITH CENTRALLY DISPOSED APERTURED BARRIER

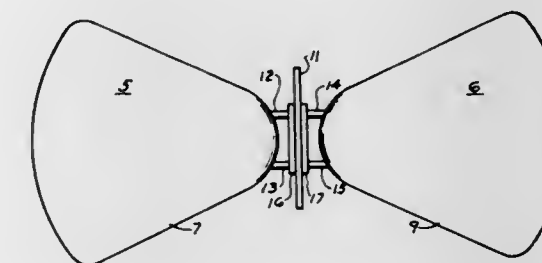
Jack H. Pugsley, 1610 S.W. 23 Avenue, Fort Lauderdale, Fla.

Continuation-in-part of application Ser. No. 827,418, May 23, 1969. This application Feb. 11, 1970, Ser. No. 10,538

Int. Cl. A63b 39/00

U.S. Cl. 273—30

3 Claims



A game table for games in which a ball is bounced on a table surface, wherein the table is formed of two surfaces separated from each other to provide a surface level open space therebetween, with a barrier having an opening therein between said separate surfaces.

3,655,188

CORRELATED GOLF CLUB SET

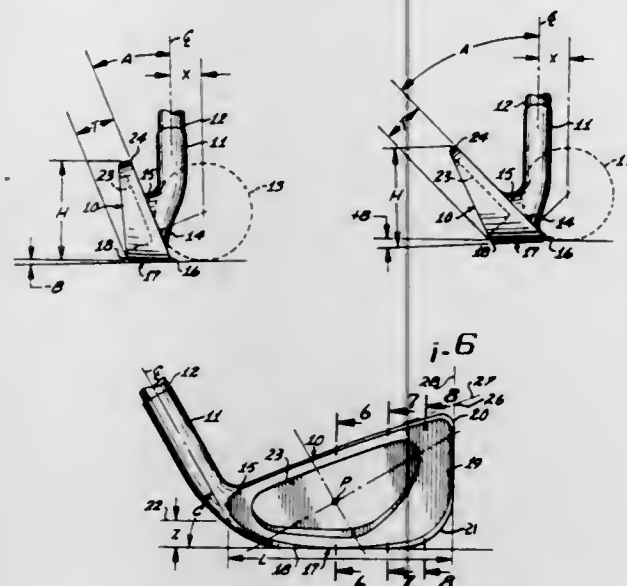
Karsten Solheim, 10834 North 21st Avenue, Phoenix, Ariz.

Filed July 9, 1969, Ser. No. 840,321

Int. Cl. A63b 53/00

U.S. Cl. 273-77 A

13 Claims



A correlated set of golf clubs of the type commonly referred to as irons is disclosed. Various dimensions are the same for all club heads of a set even though loft and lie angles A and C are different for each. Weight is controlled by the depth of a cavity in the rear of the club head. A slope angle B of the sole is increased from a small negative value to a larger positive value as loft is increased from a minimum to a maximum, with substantially zero slope for a midrange club of the usual set of clubs numbered 1 to 9.

3,655,189

AUTOMATIC ELECTRIC BASEBALL GAME

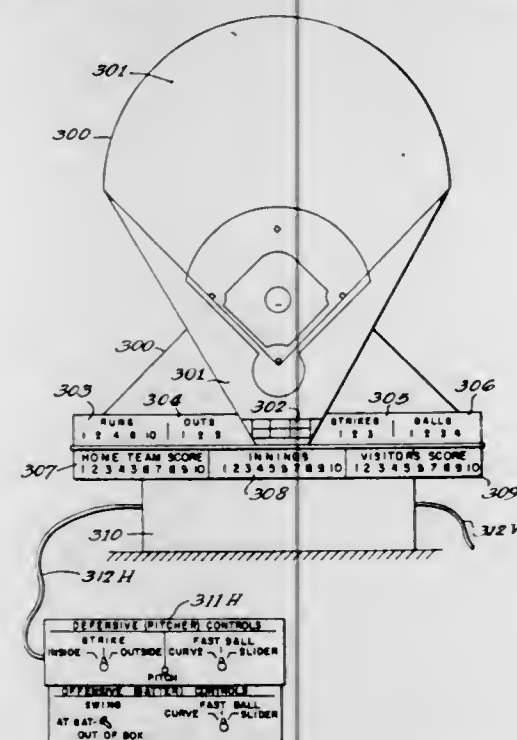
Delbert S. Alexander, Jr., Evanston, Ill., assignor to State National Bank, Evanston, Ill.

Continuation of application Ser. No. 683,885, Nov. 17, 1967, now abandoned. This application June 22, 1970, Ser. No. 48,505

Int. Cl. A63f 9/00

U.S. Cl. 273-88

15 Claims



A baseball game apparatus includes a defensive control unit with pitch selection switches manually controlled by a

player serving as pitcher, and an offensive control unit with pitch anticipation switches on which a player serving as batter selects and swings at or passes an anticipated pitch. A mixer stepping unit randomly selects the resulting play from a category of plays determined by the degree of correspondence between the defensive and offensive pitch switches. The selected play controls sequential energization of a series of lights under a translucent playing field to simulate the movement of a batted ball. A player stepping unit energizes a further series of lights to animate men which converge towards the batted ball flight path. A base running relay energizes lights arranged in a diamond-shaped pattern to animate runners advancing around a base path. Interlocking relays allow one runner to be held on a base while another runner advances. A motor driven play animation unit energizes further series of lights to simulate the ball being returned to the infield. A plurality of stepping relays records the progress of the game, and in response to predetermined positions, such as third out, control energization of the relays and lights to modify the game condition then being displayed.

3,655,190

TETHERED BALL WITH CORD LENGTHENING MEANS

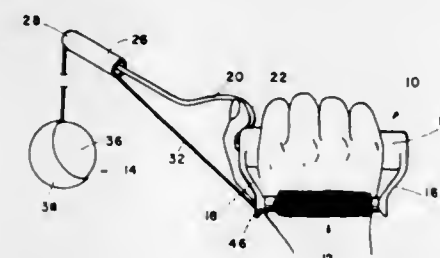
George E. Lemon, 286 Lora Avenue, Youngstown, Ohio

Filed Apr. 23, 1970, Ser. No. 31,134

Int. Cl. A63b 69/40

U.S. Cl. 273-95 A

3 Claims



An amusement device in the form of a light ball fastened to an elastic cord and a hand grip for holding the outer end of the cord and a supply of additional cord. Circular movement of the hand and wrist will cause the ball to swing in a circular or elliptical path and the user attempts to keep the ball moving by hitting it, either with his hand or with a paddle, every time the ball swings toward him.

3,655,191

GAME WITH FREE FALL PLAYING PIECES AND SELECTIVELY PLACED SUPPORT PEGS

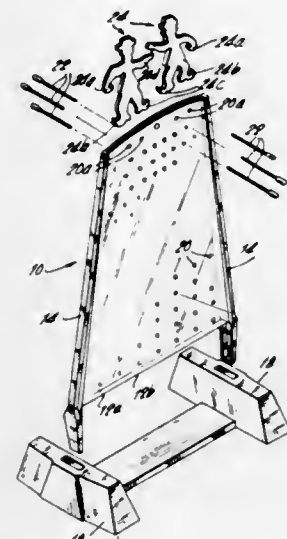
Perry J. Grant, Pacific Palisades, Calif., assignor to Reuben Klammer, d/b/a Reuben Klammer & Associates, Beverly Hills, Calif.

Filed June 1, 1970, Ser. No. 41,790

Int. Cl. A63f 9/00

U.S. Cl. 273-95 R

3 Claims



A child's game includes an upright playing board comprising two sheets of transparent plastic having peg holes therein

and a pair of playing pieces adapted to be supported between said sheets by pegs removably inserted in said peg holes. The object of the game is to advance a playing piece from an initial support position at the upper edge of the playing board to a winning support position at the lower edge of the board by alternately inserting and removing support pegs, permitting the playing piece to fall from one support position to another down the board. The game is preferably played by two players or two teams of players each having a playing piece and three support pegs, with the players alternating turns until one reaches a winning position.

3,655,192

LIGHT RAY PROJECTOR AND TARGET

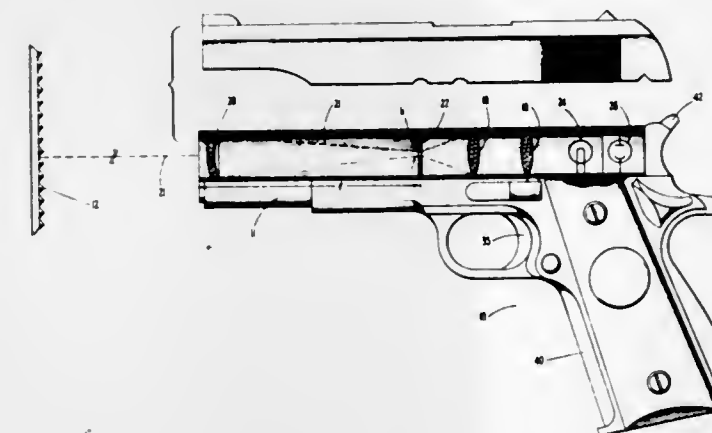
Roger L. Hall; Gordon M. McKenney, Jr., and Alfred J. Wall, all of P.O. Box 375, Londonderry, N.H.

Filed Nov. 4, 1969, Ser. No. 873,844

Int. Cl. A63f 9/02

U.S. Cl. 273-101.1

15 Claims



pand after engagement of the device with the surface to permit ready release thereof.

3,655,194

BOARD GAME APPARATUS

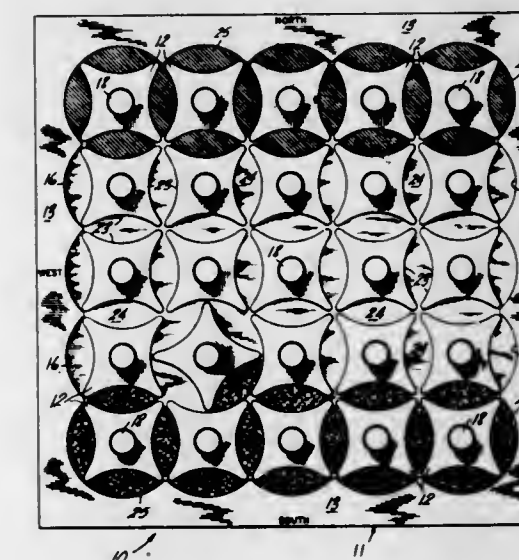
Daniel H. Pierson, P.O. Box 5, Sloatsburg, N.Y.

Filed Apr. 27, 1970, Ser. No. 32,149

Int. Cl. A63f 3/02

U.S. Cl. 273-131 B

2 Claims



A light-emitting target gun and a cooperative target corner reflector. The gun and target accurately simulates target practice with live ammunition and is adaptable for amusement use. The target gun has a light projector housed in the gun barrel which can be momentarily activated by pulling the trigger of the gun. The light source is illuminated at a first light level and thereafter at a second level lower than the first level. The diameter of the light beam projected from the gun can be adjusted by moving a selected size hole of a multi-hole plate into a lens system within the barrel. The target reflector is located at a fixed distance from the operator of the weapon and is adapted to reflect the impinging light pulse. An improved circuit and light projector are also provided to cause, respectively, activation of the light source and provide an efficient, accurately defined light beam.

3,655,193

VACUUM CUP-HELD GAME DEVICE

Darrell R. Jones, 821 Vine Street, Hamilton, Ohio

Filed July 9, 1970, Ser. No. 53,558

Int. Cl. A63h 33/18

U.S. Cl. 273-106 R

5 Claims

A game device having a hollow elongated body and resilient vacuum cups mounted at ends of the body. A partition in the body spaced from the vacuum cups forms air columns inside the body in communication with the interiors of the vacuum cups. Each of the vacuum cups can hold the

A game apparatus formed by a base, an array of rotators formed to provide elongated spaces and playing pieces in the spaces, enables one or more players to engage in a wide variety of games. The rotators, when positioned in alignment at one of a plurality of angular positions, provide such elongated spaces common to two adjacent rotators to enable

movement and transfer of the playing pieces. The basic playing move is accomplished by grasping and turning one of the rotators from one to another of its aligned positions which shifts at least one playing piece out of juxtaposition with one rotator and into juxtaposition with another rotator. Each rotator is provided with means for selectively releasably locking it in any one of four positions. The playing pieces are of tapered form to facilitate tilting thereof for removal from the rotators.

3,655,195

WORD FORMING GAME APPARATUS

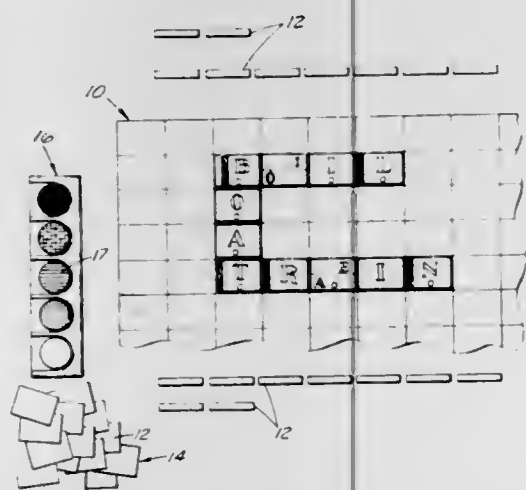
Frank R. Bean, and Dorothy Aday Bean, both of P.O. Box 6232, Anaheim, Calif.

Filed Mar. 4, 1971, Ser. No. 120,824

Int. Cl. A63f 3/00

U.S. Cl. 273-135 D

3 Claims



A word-forming game apparatus comprising lettered playing pieces, each having thereon one or more color bars representative of the value of the letter, such value being inversely proportional to the frequency of occurrence of the letter. The players arrange the pieces to form words, with the pieces used being selected so as to score the highest possible number of points, and are awarded chips corresponding in number and color to the color bars on the pieces played. The winner is the player having the highest count in color chips.

3,655,196

GAME BOARDS

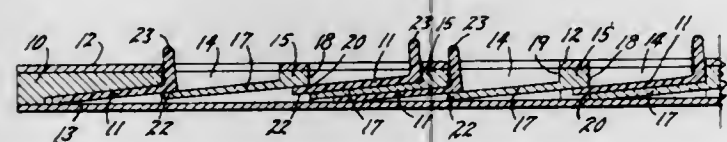
James F. Moore, Jr., and Leigh H. Norgren, both of Englewood, Colo., assignors to Norbro Corp. ("Norbro"), Englewood, Colo.

Filed Nov. 13, 1969, Ser. No. 876,448

Int. Cl. A63f 3/00

U.S. Cl. 273-136 F

2 Claims



A bingo board having a number board having vertical, spaced-apart columns of rectangular depressions in the upper and lower faces thereof, each upper face depression having a fixed inclined bottom plate carrying a game number and a slide member resting on the inclined bottom plate of each depression, the slide members being slidable down the inclined bottom plates to a position below the bottom plate

of a next adjacent upper face depression and within the corresponding lower face depression. Each upper face depression communicates with an adjacent lower face depression through an opening which receives the slide member.

3,655,197

RANDOM SELECTION BALL FORMED OF CONCENTRIC SPHERES

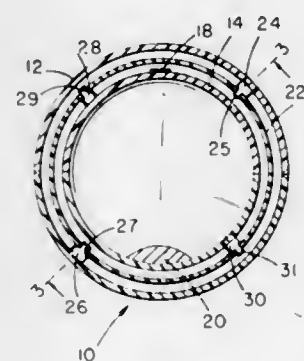
Michael Milbaum, 1581 Utica Avenue, Brooklyn, N.Y.

Filed Aug. 21, 1970, Ser. No. 65,896

Int. Cl. A63f 5/04

U.S. Cl. 273-138 R

6 Claims



An amusement ball having a hollow outer shell totally or partially formed of transparent material. The shell is provided with a plurality of indicia which may be randomly disposed. The ball also includes an inner sphere substantially concentrically disposed, being rotatably maintainable within the outer shell. The inner sphere is provided with a marker index at one point and a diametrically opposed counterweight, so that the inner sphere when disturbed will come to rest with its index mark uppermost, being disposed adjacent to one of the indicia of the outer shell.

3,655,198

PACK OF GAME PLAYING TICKETS

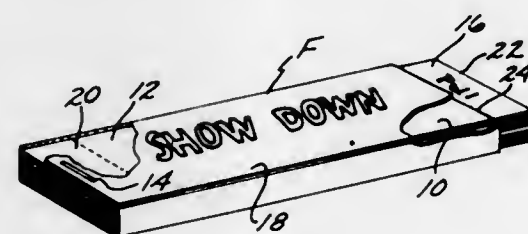
Eugene F. Broughton, 2204 Conquista Avenue, Long Beach, Calif.

Filed Nov. 23, 1970, Ser. No. 91,917

Int. Cl. A63f 1/00

U.S. Cl. 273-139

5 Claims



An amusement device which includes a number of elongate rectangular playing sheets separated by opaque spacer sheets of lesser length arranged in a pack with the tearable sheets and spacer sheets being removably secured to one another. Each of the playing sheets has a number of randomly selected insignia of different appearance imprinted thereon. The insignia when arranged in predetermined sequences or groups have a certain game value that is agreed upon by the players. Due to the differential in length of the playing sheets and the spacer sheets, each playing sheet has a second end portion that provides a tab that may be gripped by the fingers. The tabs are employed by the players to separate the playing sheets from the pack to determine which player has a winning score.

3,655,199

MOTOR DRIVEN ROTATABLE DRUM CHANCE DEVICE

Haruo Ohki, 2-10, 2 chome, Shiratari, Katsushika-ku, Tokyo, Japan

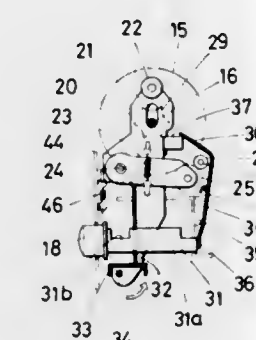
Filed July 8, 1970, Ser. No. 53,244

Claims priority, application Japan, Nov. 20, 1969, 44/109729

Int. Cl. A63f 5/04

U.S. Cl. 273-143 R

7 Claims



An amusement device is disclosed which essentially comprises a plurality of display drums each provided on its peripheral surface at circumferentially spaced positions with combinations of symbols, a drum actuating means connected with an electric motor for driving said drums and a drum braking means associated with a push-button arrangement for stopping rotation of the drums successively so as to pair or match the symbols on one drum with those on another, and a handle lever for releasing the depressed push-buttons and resuming rotation of the drums.

3,655,200

GAME BOARD

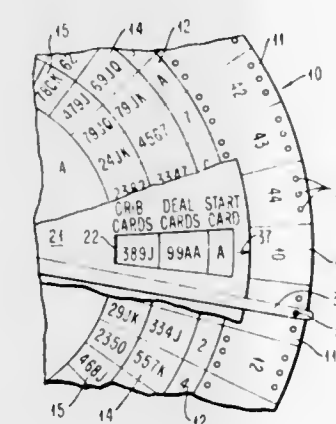
James Edward McManus, 2 Flower Hill Road, Poughkeepsie, N.Y.

Filed Apr. 8, 1970, Ser. No. 26,661

Int. Cl. A63f 1/06

U.S. Cl. 273-148 R

4 Claims



A game board for playing cribbage comprising three discs mounted on a spindle for rotation with respect to each other. One is a card disc having printed on both sides thereof indices, representing card values, said indices being arranged in groups comprising hands, cribs and start cards. The other two discs, a dealers disc and a non-dealers disc are mounted on each side of said card disc and are each provided with a window disclosing the indices of the cards for one hand. Also mounted on said spindle are two arms, one for each player, said arms each having a pin in the free end thereof adapted to engage perforations, comprising a peg board, in said card disc.

3,655,201

PATTERN FORMING PUZZLE AND METHOD WITH PIECES ROTATABLE IN GROUPS

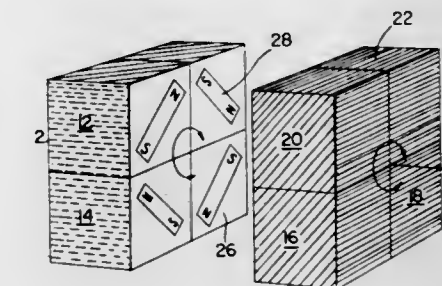
Larry D. Nichols, Arlington, Mass., assignor to Moleculon Research Corporation, Cambridge, Mass.

Filed Mar. 4, 1970, Ser. No. 16,473

Int. Cl. A63f 9/08

U.S. Cl. 273-153 R

10 Claims



Eight cube-type pieces are magnetically engaged to form a cube-type assembly with educational and entertaining features. The cubes are adapted to rotate in complementary sets of four about one of three mutually perpendicular axes. Each cube has colored surfaces and when properly arranged one distinct color on each of the six faces is presented. Each set which shares one face of the assembly may be rotated in multiples of 90° with respect to the other set. If the assembly is initially arranged properly and then disarranged by a random sequence of rotations, it then serves as a device whose object is the restoration of the original arrangement.

3,655,202

GOLF GAME

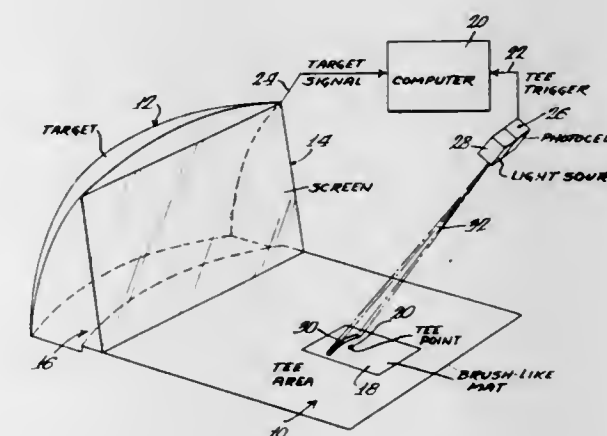
Michael G. Gautraud, Muskegon, and James W. Sanders, Grand Haven, both of Mich., assignors to Brunswick Corporation

Filed Oct. 20, 1969, Ser. No. 867,448

Int. Cl. A63b 67/02, 69/36

U.S. Cl. 273-176 FA

6 Claims



A tee trigger for use in computerized golf games. There is provided an overhead light source which generates a line of light crossing a tee area in such a way that a ball hit from a line simulating means will break the line of light and reflect light to an overhead photocell to generate a first signal. A second signalling device is spaced from the projected line of light and provides a second signal when the ball reaches that point and the time between the two signals is indicative of the ball's velocity. Through the use of the line of light, the life of the lie simulating means may be increased inasmuch as the ball need not be placed at but a single point thereon for each shot.

3,655,203

PENETRABLE TARGET SCREEN

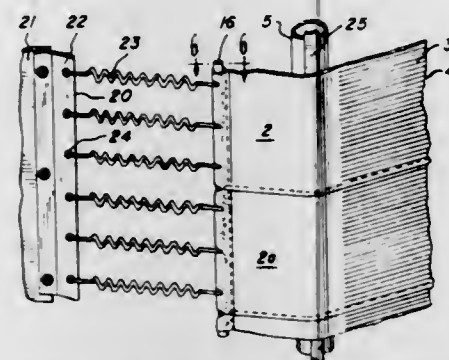
Anthony J. Gretzky, Muskegon, Mich., assignor to The Brunswick Corporation

Filed Oct. 30, 1970, Ser. No. 85,607

Int. Cl. A63b 69/36

U.S. Cl. 273-181 R

7 Claims



The invention is an improvement in the construction of a penetrable target screen comprised of an adjacent series of narrow parallel strips of tape so mounted as to permit target images to be projected thereon and the passage therebetween of an object propelled at the target. The improved screen is comprised of a relatively small number of individually mounted broad tape sections, which sections are slit providing a multitude of adjacent narrow parallel strips supported by common end portions between which a projectile may pass. Stiffening pins are located in cylindrical pockets at the ends of the broad tape sections. Tension springs connect the stiffening pins to a supporting frame. The broad tape sections slightly overlap each other and bear against strips of low friction material provided on two parallel spaced apart upright supporting members.

ERRATUM

For Class 274-14 see:
Patent No. 3,655,325

3,655,204

ROD WIPER

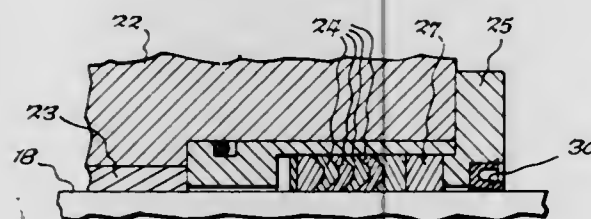
Ward Sievenpiper, Milgrove, N.Y., assignor to A-T-O Inc., Cleveland, Ohio

Filed Feb. 3, 1970, Ser. No. 8,175

Int. Cl. F16j 15/16, 9/08

U.S. Cl. 277-24

12 Claims



A wiper adapted to fit within a cavity of a first member, such as the housing of an hydraulic cylinder, and wipe against a second relatively reciprocable member, such as the rod of an hydraulic cylinder. The wiper comprises an annular body of synthetic plastic material, preferably urethane, having a generally planar axial end face and formed at the opposite axial end face into a first annular flange of generally frusto-conical outline extending generally axially therefrom and terminating in a sharp winding edge at the inner surface thereof. The body also is formed at the same end face into a second, axially extending annular flange spaced radially outwardly from the first flange to define an annular groove therebetween and having an annular shoulder on the outer

surface thereof adapted to abut an annular retaining lip formed in the cavity.

3,655,205

ROTARY SEAL, PARTICULARLY FOR OIL PUMPS

Jorgen Hartvig Petersen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

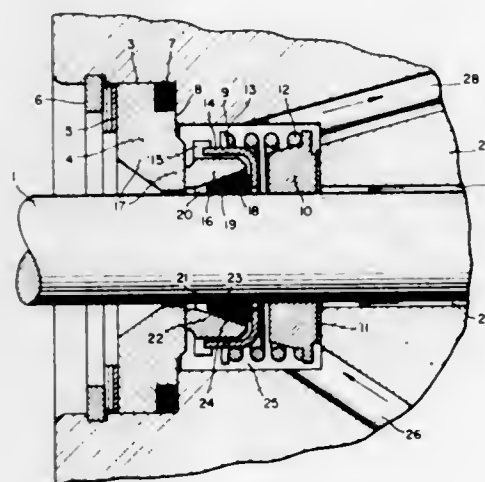
Continuation of application Ser. No. 781,109, Dec. 4, 1968, now abandoned. This application Nov. 3, 1970, Ser. No. 86,604

Claims priority, application Germany, Jan. 16, 1967, P 16 75 220.8

Int. Cl. F16j 15/34

U.S. Cl. 277-87

2 Claims



The invention relates to a rotary seal unit of the type used for oil pumps and the like. A plastic backing ring having a tapered surface is nested in a conical recess of a face ring. The taper angle of the tapered surface of the backing ring is larger than the taper angle of the conical recess. A resilient sealing ring is spring biased to force the plastic backing ring into contact with the face ring which in turn is biased into sealing engagement with a fixed sealing surface of a stationary bearing block.

3,655,206

MULTILAYER GRAPHITE SEAL RING

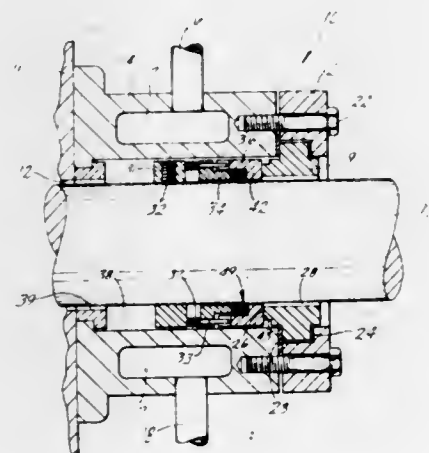
William V. Adams, Kalamazoo, Mich., assignor to Durametallic Corporation, Kalamazoo, Mich.

Filed June 27, 1969, Ser. No. 837,061

Int. Cl. F16j 15/38

U.S. Cl. 277-87

14 Claims



An improved seal ring construction for use between a pair of relatively nonrotatable elements of a shaft seal assembly.

3,655,209

METALLIC SEALING MEMBER FOR LOCKING AND SPLIT DEVICES

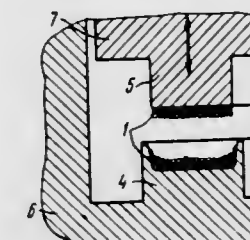
Georgy Filippovich Polyakov, ulitsa Akademicheskaya, 23, kv. 8.; Vladimir Lvovich Vanin, ulitsa Gogolya, 31, kv. 35., and Vladimir Alexandrovich Kamardin, ulitsa Dachnaya, 25, kv. 71., all of Novosibirsk, U.S.S.R.

Filed Dec. 22, 1969, Ser. No. 887,222

Claims priority, application U.S.S.R., Feb. 20, 1969, 1300958 Int. Cl. F16j 15/08

U.S. Cl. 277-235 R

5 Claims



An annular sealing ring is constructed of a multilayer graphite material and has one axial end face thereof in bearing engagement with a support surface formed on one of the elements, which support surface is substantially transverse to the axial direction of the sealing ring. The other axial end face of the sealing ring bears against an annular control member, which in turn bears against the other element. A wedge-shaped portion contacts one corner of the sealing ring to apply a radially inward and axial compressive force thereto.

3,655,207

SEALING AND LUBRICATING DEVICE FOR PISTON PUMP PLUNGER

Kurt Schettler, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

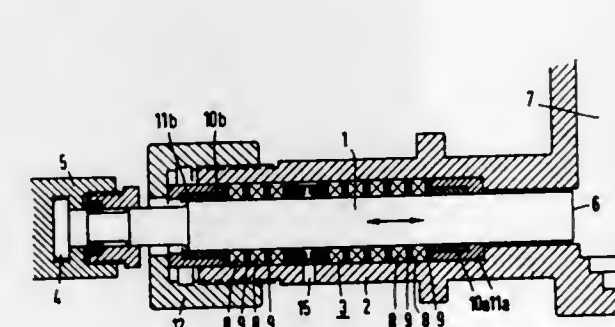
Filed Jan. 19, 1970, Ser. No. 3,793

Claims priority, application Germany, Jan. 31, 1969, P 19 04 758.6

Int. Cl. F16j 15/18

U.S. Cl. 277-125

5 Claims



Each of a plurality of intermediate rings is positioned between a pair of next-adjacent packing rings and has an inner surface bordering the plunger of a piston pump. Each of the intermediate rings has a substantially annular groove formed in the inner surface thereof.

The present invention discloses a metallic sealing members used, for instance, in valves, and having a hermetically sealing coating.

In accordance with the present invention the method of forming a hermetically sealing coating is carried out both with the aid of a metallic packing disposed between the contacting surfaces of sealing members, and directly from the materials of these members.

3,655,210

HIGH TORQUE RETENTION HEAT INSULATIVE GASKET STRUCTURE

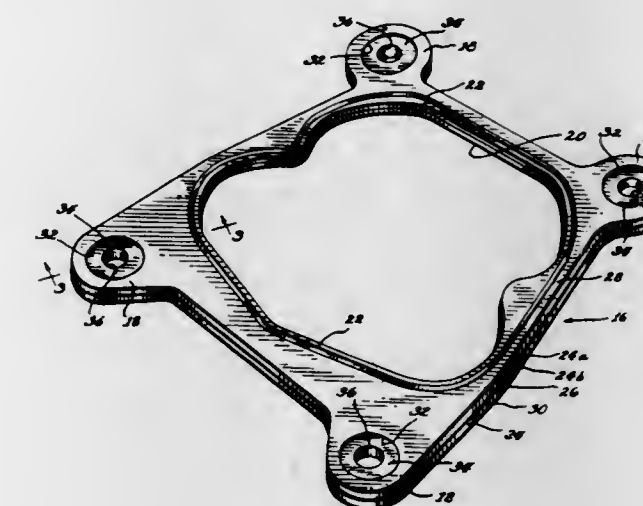
Robert G. Farnam, New Libson, and Michael T. Passarella, Wisconsin Rapids, both of Wis., assignors to F. D. Farnam Co.

Filed Sept. 29, 1970, Ser. No. 76,459

Int. Cl. F10j 15/06

U.S. Cl. 277-235 B

24 Claims



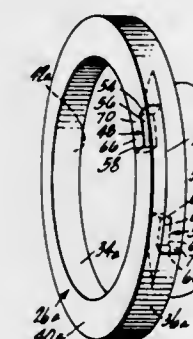
SPLIT PISTON RING AND METHOD OF MANUFACTURE
James V. Walker, Redondo Beach, Calif., assignor to McDonnell Douglas Corporation

Filed Apr. 13, 1970, Ser. No. 27,961

Int. Cl. F16j 9/06, 9/14

U.S. Cl. 277-221

4 Claims



A plastic or plastic-like piston ring of the expandable type for use in hydraulic and pneumatic actuators is constructed from a single annular member and the expansion and contraction capabilities are provided by partially radially slitting the ring and by cutting a pair of stepped joints through opposite sides of the ring.

A gasket structure permitting the selective variance of components thereof whereby high torque retention, heat insulating and fluid-tight sealing is obtained. The specific disclosure and application of use is in a gasket-heat-insulating assemblage for providing insulating and sealing functions between, for instance, the throttle body and bowl or the throttle body and the manifold of an internal combustion engine carburetor assembly. By increasing the density of the

heat insulating member at the bolt hole portions by which the member is retained in the assemblage, as by means of densification or the provision of a suitable insert member, torque retention and the spring effect of the member may be controlled. Additionally, by providing gasket layer components on one or both sides of the insulating member, especially where one is furnished with a sealing band, fluid-tight sealability in the intended field of use is maximized. Methods for forming specific constructions are also disclosed.

ERRATUM

For Class 277—237 see:
Patent No. 3,655,213

3,655,211

DOUBLE BEND STAVE

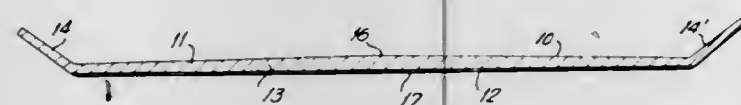
Jerome Bollettieri, 151 Southwood Circle, Syosset, N.Y., and Arne Dalen, deceased, late of 36 Boxwood Lane, Hicksville, N.Y. (by June Dalen, administratrix)

Filed Apr. 1, 1970, Ser. No. 24,515

Int. Cl. A63c 5/00

U.S. Cl. 280—11.13 S

10 Claims



Staves which are useful as skis on snow and water. The staves are characterized by their substantially equal bends at their front and rear ends, total length of about 30-98 inches and width in the area between the bends of about 4.5-5.25 inches. The ratio of total length to width in the area between the bends, when the stave is less than 36 inches, is preferably 1:0.13-1:0.15. The staves have a grooved lower surface. The staves permit a high degree of stability, while retaining good maneuverability.

3,655,212

SELF-SUPPORTING CART

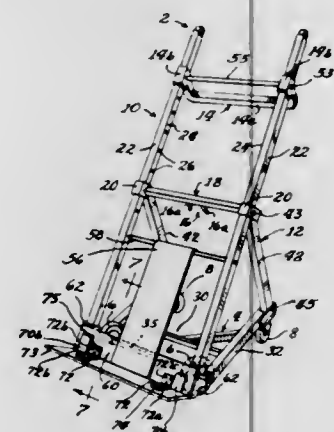
Morton Krass, 808 Fitzhenry Court, Glenwood, Ill., and Walter Nelson, 8008 South Chicago Avenue, Chicago, Ill., assignors to said Krass, by said Nelson

Filed Apr. 13, 1970, Ser. No. 27,885

Int. Cl. B62b 1/04

U.S. Cl. 280—36 R

6 Claims



A self-supporting cart includes a base frame carrying a front pair of laterally spaced roller means and a rear pair of laterally spaced roller means, and a load-receiving frame pivoted to the front end portion of the base frame. The bottom ends of a pair of elongated bracing members are pivotally connected to the rear end of the base frame and the upper ends thereof are pivotally connected to a pair of

slide members slidable along the load-receiving frame. A pair of retractable pins operated by a pair of squeeze handles selectively lock the slide members in any one of a number of different positions along the load-receiving frame. The base frame has a U-shaped configuration opening to the rear of the cart.

3,655,213

MEANS FOR SEALING A JOINT, FILLING A SPACE AND THE LIKE

Kiell Rudolf Forsgren, Orebro, Sweden, assignor to United Shoe Machinery Company AB, Aabyvagen, Orebro, Sweden

Filed May 25, 1970, Ser. No. 40,408

Int. Cl. F16j 15/00

U.S. Cl. 277—237

4 Claims

The invention concerns a means for sealing joints or the like with a heat expandable sealing compound, the necessary heat being provided by aid of a heat providing means cooperating with the sealing compound. The new and inventive feature resides in the fact that the expanding agent of the sealing compound, when actuated by the heat providing means, generates at least part of the heat necessary to maintain and propagate the expansion of said sealing compound.

3,655,214

LOAD CARRIER WITH ELEVATABLE LOAD ENGAGING SURFACE

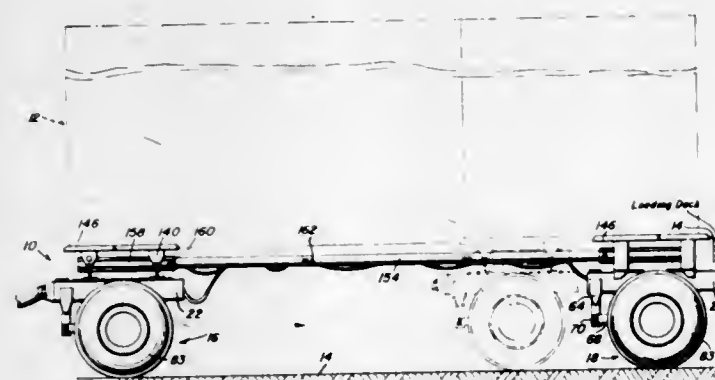
Frank B. Lane, Annapolis, and George M. Fulmer, Silver Springs, both of Md., assignors to Gichner Mobile Systems, Inc.

Filed Sept. 30, 1966, Ser. No. 583,245

Int. Cl. B62d 21/18

U.S. Cl. 280—43.23

12 Claims



A towed vehicle including two wheeled units normally spaced apart by a reach pole and capable of being moved towards and away from each other when loading a load carrying body or unloading a load carrying body. Each wheeled unit includes a frame structure and an axle and wheel assembly pivotally supported therefrom. Air bag units interconnect the axle and wheel assembly and the frame for varying the elevational position of the load supporting surface on the wheeled units. A self-contained pressure tank is provided for enabling adjustment of the load carrying surface independent of any towing vehicle.

3,655,215

PORTABLE EQUIPMENT CASE

Dennis M. Becklin, Santa Clara, Calif., assignor to Crate-Rite, Incorporated, Union City, Calif.

Filed June 5, 1970, Ser. No. 43,809

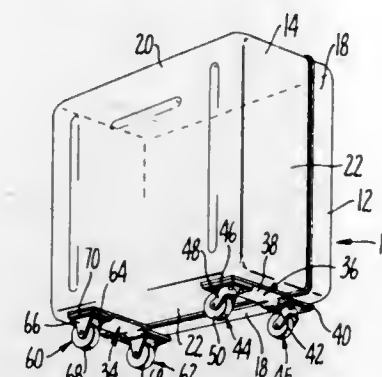
Int. Cl. B62b 5/00

U.S. Cl. 280—79.2

5 Claims

A portable equipment case including a base portion and a cover portion adapted to be secured together to confine equipment therein. At least one bracket member is attached

to one of said portions and includes an integral extension having a support wheel affixed thereto adapted to project



over the other of said portions and adjacent to a side wall of said other portion when said portions are secured together.

3,655,216

VEHICLE STABILIZER

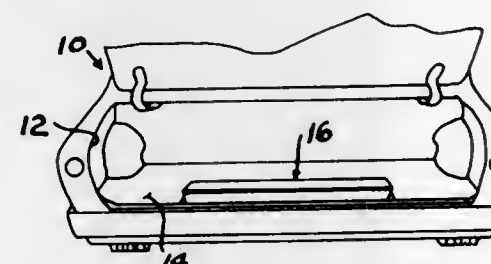
Carlos R. Watts, 1149 S.E. 20, Oklahoma City, Okla.

Filed July 31, 1970, Ser. No. 60,017

Int. Cl. B60r 27/00

U.S. Cl. 280—150 D

5 Claims



A vehicle stabilizing apparatus for connection with an automobile, or the like, for reducing the vehicle skidding and dampening vibration. An elongated casing having closed ends is transversely mounted on the automobile. The casing contains a mass of inertia of less length than the case and freely movable between its ends. Resilient means interposed between the respective ends of the case and the mass transfer a force, produced by the inertia of the mass resisting lateral movement of the case to the respective end of the case in a direction opposite the direction of lateral movement of the automobile.

3,655,217

SAFETY DEVICE FOR VEHICLES

James T. Johnson, Herrin, Ill., assignor to Olin Corporation

Filed Sept. 18, 1969, Ser. No. 858,978

Int. Cl. B60r 21/08

U.S. Cl. 280—150 AB

5 Claims



A safety device for protecting the occupant of a vehicle including an inflatable bag member and a container for storing

fluid under pressure. A propellant charge is also included for producing a hot gas upon the ignition thereof to raise the pressure in the container to rupture a rupturable disc to permit the propellant gas and fluid to escape into the bag member and cause the inflation thereof.

3,655,218

APPARATUS FOR TRANSPORTING HEAVY OBJECTS

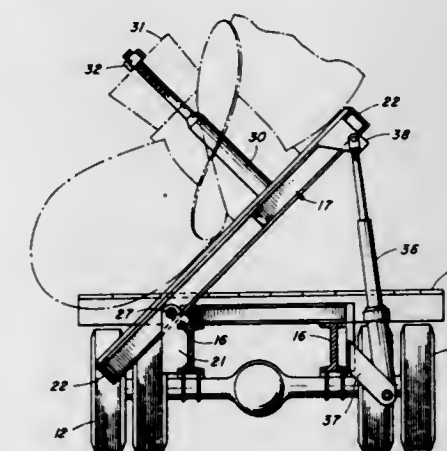
Louis Dale Taylor, 624 Park Avenue, Freehold, N.J.

Filed May 19, 1970, Ser. No. 38,665

Int. Cl. B60p 7/08

U.S. Cl. 280—179

5 Claims



An articulated flat bed trailer for transporting large, bulky objects such as ships propellers and the like. The flat bed of the trailer includes a hinged portion hydraulically rotatable from the horizontal position to an angle of approximately 55°-35° from the horizontal to minimize simultaneously horizontal and vertical overhang of the object. Means are provided to maintain the center of gravity of the rotated flat bed portion - object combination within safe limits.

3,655,219

ADJUSTABLE TWIN-STRUT HANDLEBAR CONSTRUCTION

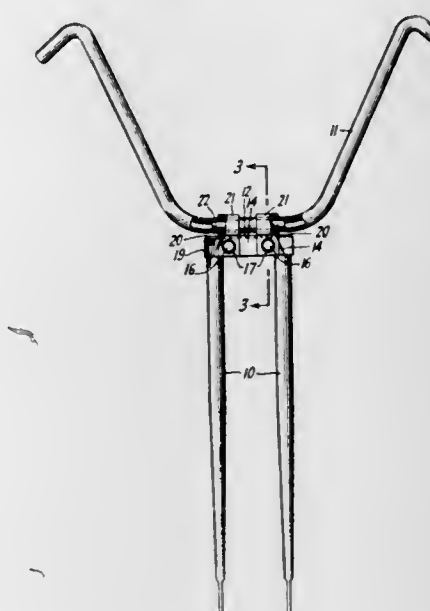
William F. Jacoby, Little Rock, Ark., assignor to AMF Incorporated

Filed Aug. 28, 1970, Ser. No. 67,777

Int. Cl. B62k 21/12

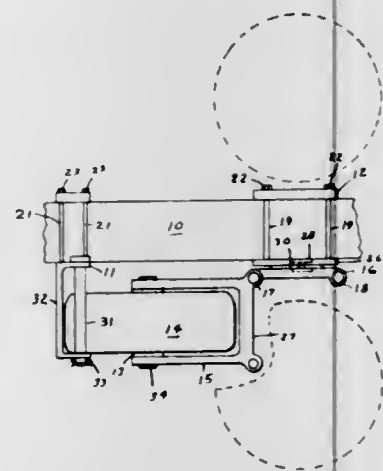
U.S. Cl. 280—279

3 Claims



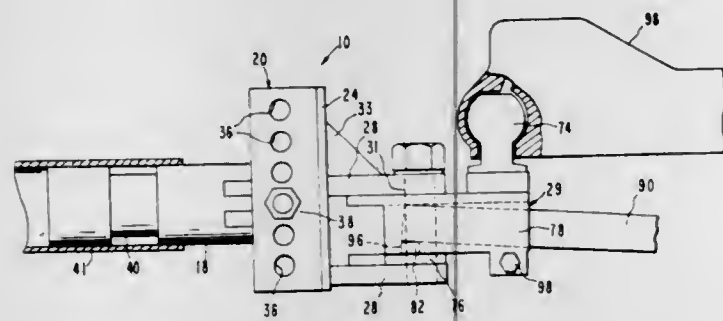
Handlebar construction in which a triangular shaped bracket and clamps are used to connect a separate handlebar to twin-struts.

3,655,220
SPARE WHEEL CARRIER FOR SUPPORTING TONGUE OF TRAILER
 Leonard R. Rodgers, P.O. Box 267, Pittsfield, Pa.
 Filed Apr. 7, 1970, Ser. No. 26,239
 Int. Cl. B60s 9/02
 U.S. Cl. 280-475 2 Claims



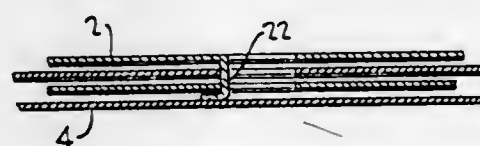
This specification discloses a spare wheel and tire carrier for a trailer. The carrier is made in such a way that the trailer wheel may be used as a tongue truck or ground engaging wheel supporting the trailer tongue for use in parking the trailer. The wheel is supported in an especially efficient manner.

3,655,221
ADJUSTABLE TRAILER HITCH
 Richard E. Warner, 1530 Edgewood Drive, Lodi, Calif.
 Filed Jan. 26, 1970, Ser. No. 5,447
 Int. Cl. B60d 1/02
 U.S. Cl. 280-490 9 Claims



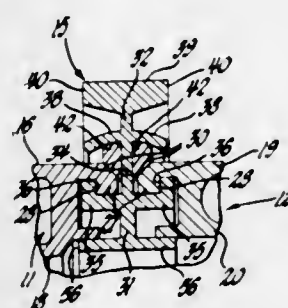
Apparatus for use in the connection between two vehicles for adjustment to different heights to attain desired levels of each vehicle without prewelding. The apparatus includes a device for selectively positioning a trailer hitch at any one of a number of different levels on a tow vehicle so that the hitch can be properly located for connection with a hitch on a trailer to be towed. The device includes a first member having a pair of spaced, grooved sides between which is removably received a second, ribbed member removably received between the grooved sides of the first member. Pin means is used to connect the first and second members together, the sides of the first member extending up and down so that the second member can be received at different heights above the ground.

3,655,222
MANIFOLD FORMS
 William R. Wakeman, Niagara Falls, N.Y., assignor to Moore Business Forms, Inc., Niagara Falls, N.Y.
 Original application May 28, 1968, Ser. No. 732,597, now Patent No. 3,558,159. Divided and this application May 1, 1970, Ser. No. 33,854
 Int. Cl. B41 1/26
 U.S. Cl. 282-11.5 A 1 Claim



This invention provides a new way of attaching carbonless copying sheets in layered assembly, each sheet except one outer sheet having a coating on one side. The attachment is by adhesive applied to an uncoated surface of one outer sheet and the joining of it with an uncoated surface of the other outer sheet by an appropriate structure to get a secure adhesive bond to hold the sheets in assembled relationship.

3,655,223
CASING JOINT
 Douglas Johnson, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.
 Filed Sept. 17, 1969, Ser. No. 858,698
 Int. Cl. F16 35/00
 U.S. Cl. 285-39 29 Claims

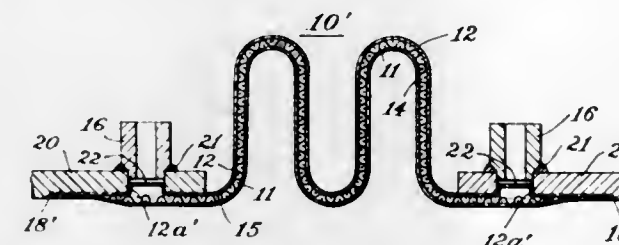


A gas turbine engine casing is joined at circumferential split lines by coupling members formed as rings having flanges which interlock with flanges on the casing sections to hold them against separation and having flanges which are deformed to bear directly or indirectly against the outer surface of the casing to hold the first flanges in engagement. The coupling ring as provided includes a third flange which provides an abutment or reaction surface for a tool which deforms the second flange. A heat shield may be provided on the coupling ring. If a gap between the ends of the ring is necessary for fitting, this is closed by a plug or key on which an internal head is formed by exertion of radial force. The flange on the ring or key against which the force reacts may be removed after the joint is completed. The same sort of joint may be provided at axial or other split lines. The deformed flanges may be pressed against teeth on the casing sections to provide a positive anti-torque connection.

3,655,224
MULTI-PLY BELLOWS STRUCTURE WITH FLUID PERVIOUS SPACER
 John L. Carberry, Memphis, Ind.; David C. Carson, Sr., and Edward F. Harrington, both of Louisville, Ky., assignors to Chemetron Corporation, Chicago, Ill.
 Filed May 6, 1969, Ser. No. 822,166
 Int. Cl. F16 35/00
 U.S. Cl. 285-93 2 Claims

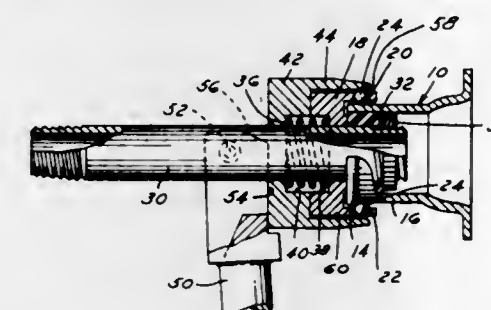
A bellows structure adapted to be connected between two parts of a fluid conduit system to serve as a flexible and ex-

pansible joint including a multi-ply bellows element having concentric inner and outer plies each of which is comprised of a flexible circumferentially corrugated thin-walled tube of fluid impervious material, the outer one of the plies having one or more ports therethrough communicating with space



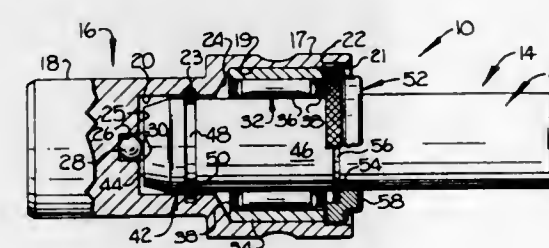
between the plies and adapted for connection therewith of means for monitoring or controlling fluid pressure or flow in the space, and spacer structure in the form of a fluid pervious screen-like meshwork positioned in the space between the plies affording passages for flow of fluid through the space to or from the port or ports.

3,655,225
HOT TEST CONNECTOR FOR INTERNAL COMBUSTION ENGINES
 Harry Major, 23135 Blackstone, Warren, Mich.
 Filed June 25, 1970, Ser. No. 49,649
 Int. Cl. F16 37/20
 U.S. Cl. 285-311 9 Claims



A Hot Test Connector for Internal Combustion Engines to prevent inadvertent blow-off and thus danger to workers in the area in the form of an external retention ring which is mechanically locked onto a connector neck of the engine against any pressure blow-off by a manual locking motion which also provides a seal internally of the connector neck for a water tube which carries water to the engine. The device includes one embodiment for a constant pressure lock which adapts to certain connector necks and a modification for a dimensionally controlled lock for other connectors.

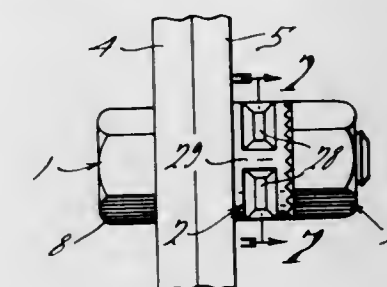
3,655,226
BEARING ASSEMBLY
 Lee R. Cowan, Gastonia, N.C., assignor to C.R.C. Industries, Gastonia, N.C.
 Filed Aug. 3, 1970, Ser. No. 60,691
 Int. Cl. F16b 7/00
 U.S. Cl. 287-119 6 Claims



A bearing assembly for axially and radially supporting a rotatable shaft, and wherein the bearing may be easily

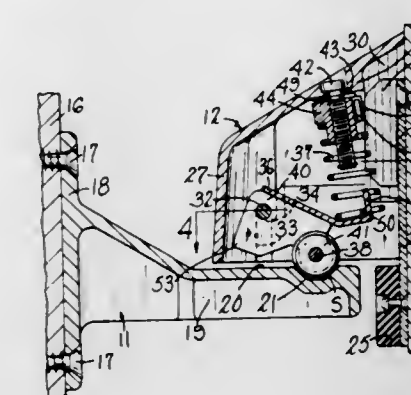
removed and replaced. The assembly includes a housing having a socket mounting an annular roller bearing, and a shaft having one end adapted to enter the socket and be radially supported by the roller bearing. The housing mounts a ball bearing at the inner end of the socket which is adapted to engage the forward end wall of the shaft to axially support the same. A resilient annular ring cooperatively engages annular grooves positioned on the shaft and in the housing wall in the socket to form a quick disconnect coupling for releasably connecting the shaft in the socket.

3,655,227
TENSION STRESSED STRUCTURE
 John F. Orloff, Mt. Clemens, Mich., assignor to Huck Manufacturing Company, Detroit, Mich.
 Filed Sept. 22, 1969, Ser. No. 859,786
 Int. Cl. F16b 39/02
 U.S. Cl. 287-189.36F 1 Claim



An improved multi-part fastener for a stressed structure comprising a bolt, a special nut, and an intermediate bushing like element assembled with the bushing between the nut and the opposite end of the bolt, which is applied by crimping the bushing to effect an elongation thereof into an interlocking relationship with the bolt and the nut and also where the bushing is of a softer material than the nut which gives longer life to the installation tool while at the same time maintaining the predictably uniform and high clamping force of the fastening.

3,655,228
DOOR STOP AND HOLDER
 Leo Coopersmith, Ivoryton, and Frank H. Woodman, Jr., Brandford, both of Conn., assignors to The H. B. Ives Company, New Haven, Conn.
 Filed July 23, 1970, Ser. No. 57,512
 Int. Cl. E05c 19/04
 U.S. Cl. 292-79 2 Claims



This disclosure relates to a door stop and holder of the type wherein a roller member carried on one of a door and stationary member is adapted to be received within a detent slot on the other of the door and stationary member. The detent slot is defined in an arcuate path and the longitudinal periphery of the roller is formed with an arcuate shape to permit relative placement of the members for varying reveals of the door.

3,655,229

SECURITY BAR LOCK ASSEMBLY

Barney Tumbiolo, 994 Little E. Neck Road, West Babylon, N.Y.

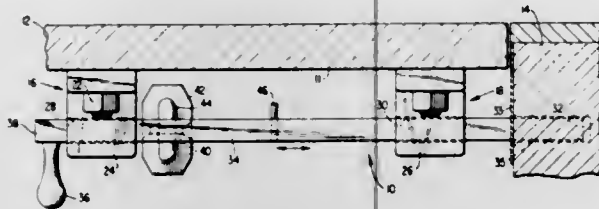
Filed May 22, 1970, Ser. No. 39,616

Int. Cl. E05c 1/04

U.S. Cl. 292-148

6 Claims

U.S. Cl. 293-86



A security lock assembly for securing relatively movable closure members comprising a pair of bar guide brackets fixed on a wall of one of the members and a reciprocable bar slidably mounted within the brackets for movement into locking engagement with a keeper on the other member. The brackets have central bar guide portions which space the bar outwardly away from the wall so that a removably padlock may be inserted through an opening in the bar for abutment with one of the brackets and thereby prevent unauthorized or inadvertent unlocking movement of the bar from the keeper. A limiting stop pin projects inwardly from the bar toward the wall to prevent complete withdrawal of the bar from the bracket as it is moved to its unlocking position.

3,655,230

DOOR LATCH

Richard James Armstrong, Toronto, Ontario, Canada, assignor to Decalock Limited

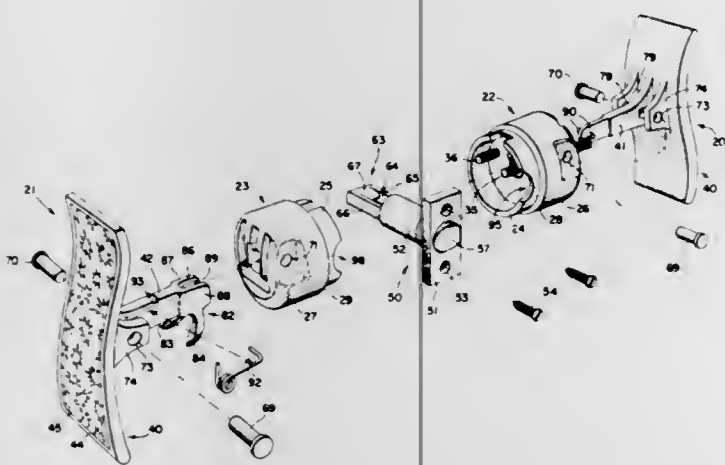
Filed Sept. 25, 1970, Ser. No. 75,353

Claims priority, application Canada, Oct. 14, 1969, 064,775

Int. Cl. E05b 7/00, 9/08; E05c 1/14

U.S. Cl. 292-169

12 Claims



A door latch which can be mounted on doors of different thicknesses and at either side edge of a door without requiring any adjustment or modification of the latch includes a pair of pivotally mounted handles, each of which has a stem which extends inwardly into an opening provided in the door. A cam member is operatively associated with a latch bolt disposed in a passage extending from a side edge of the door inwardly therefrom and such cam member is in turn operatively associated with another cam member which undergoes generally translational movement within the door when either of the handles is pivoted about its pivot axis, each such axis being disposed generally parallel to the latch bolt passage.

3,655,231

IMPACT BUMPER

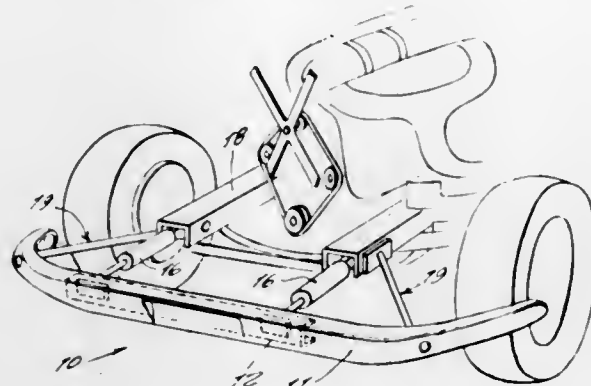
John Francis Killea, Jr., 145 Bennington Parkway, Franklin Park, N.J.

Filed Mar. 30, 1970, Ser. No. 23,874

Int. Cl. B60r 19/08

U.S. Cl. 293-86

1 Claim



A bumper for an automotive vehicle, the bumper having self contained means for absorbing an initial shock upon impact of the vehicle against another object, the impact bumper including a bumper mounted upon hydraulic cylinders or pneumatic cylinders which permit the bumper to retract without transmitting the initial shock directly to the remainder of the vehicle.

3,655,232

GRIPPER FOR HANDLING HEAVY PRODUCTS AND SPECIFICALLY HORIZONTAL-AXIS COILS

Ghislain Antoine Jean-Marie Martele, 71 Quai de Rome, Liege, Belgium

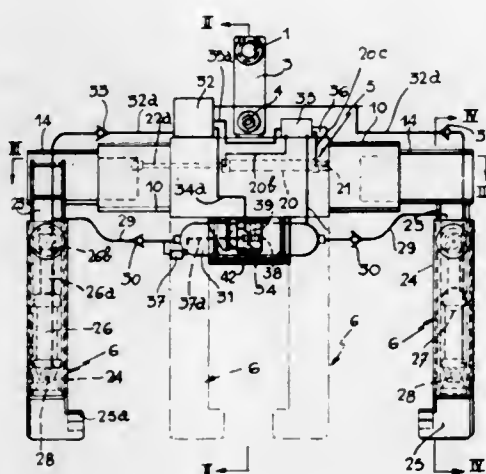
Filed June 13, 1969, Ser. No. 833,120

Claims priority, application Belgium, June 20, 1968, 14,803

Int. Cl. B66c 1/66

U.S. Cl. 294-67 R

3 Claims



In a handling gripper for rigid products and specially coils there is provided a framework in the form of a rigid casing pivotally suspended from a vertical suspension pivot attached to a lifting hook. The casing houses horizontal telescopic arms operated by a horizontal ram and from which are suspended hollow vertical telescopic grasping arms each housing a vertical hydraulic ram connected to a compressed oil accumulator which supplies oil to said horizontal ram and to a rotating ram about the vertical suspension pivot, according to the position of a remotely controlled electromagnetic valve.

3,655,233

TONGS FOR SUSPENDING GLASS SHEETS

Douglas Twist, Hollywood, near Birmingham, England, assignor to Pilkington Brothers Limited, Liverpool, England

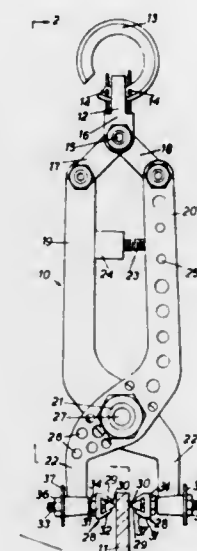
Filed Feb. 5, 1970, Ser. No. 8,958

Claims priority, application Great Britain, Feb. 14, 1969, 8,254/69

Int. Cl. B66c 1/48

U.S. Cl. 294-118

1 Claim



Tongs for supporting glass sheets vertically during thermal treatment provide a pair of jaws for gripping the opposed faces of a glass sheet adjacent its upper edge. Each jaw includes a gripping member having an elongated knife-edge, the knife-edges being directed towards each other for gripping engagement with the opposed faces of the glass sheet.

3,655,234

APPARATUS FOR MOUNTING CAMPER BODY ON A PICKUP TRUCK

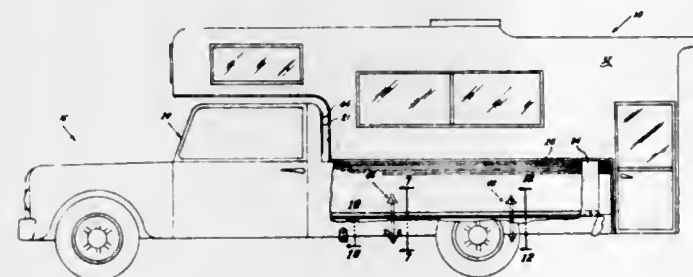
Larry E. Kirschbaum, 3200 Summit Vista, Des Moines, Iowa

Filed Oct. 28, 1970, Ser. No. 84,627

Int. Cl. B62d 21/14

U.S. Cl. 296-23 MC

12 Claims



Apparatus for mounting a camper body to the bed of a pickup truck which includes attaching one or more rigid runners or rails to the underside of the camper body and securing to the bed of the pickup truck a corresponding number of longitudinally arranged and secured tracks. By registration of the front of the runners or rails in the camper with the rear end portion of the tracks on the truck bed, the camper is guided into proper position as the truck is backed up. Suitable securing means are provided to anchor the tracks to the rails and auxiliary securing means are provided for further securing the camper body to the pickup truck frame. Registering rails and tracks may also be used relative to the top of the sideboards on the truck and the portion of the camper body that extends across such sideboards.

3,655,235

PASSENGER COACH FOR PICK-UP TRUCKS

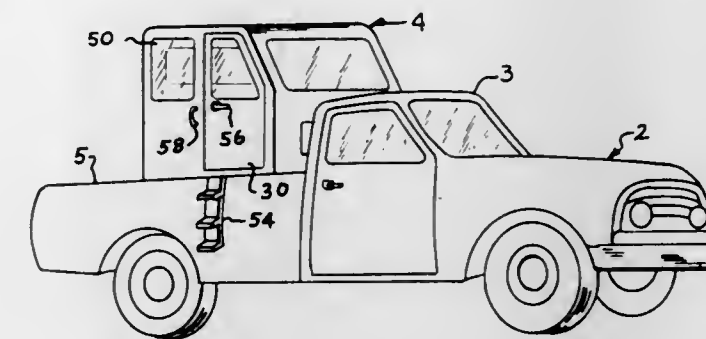
Leonard W. Gray, 3414 Bryan Way, Louisville, Ky.

Filed Apr. 30, 1970, Ser. No. 33,349

Int. Cl. B60p 3/38

U.S. Cl. 296-23 MC

7 Claims



Conventional pick-up trucks can accommodate only three passengers. The so-called crew cab pick-up trucks have two seats and four doors. These trucks have room for six passengers, but it is impossible to convert from one to the other when additional cargo space is desired. Trucks in which the cargo bed is adapted for carrying passengers are known but these have uncomfortable seating arrangements with passengers either riding sideways, or riding with inadequate leg room. A passenger coach is provided herein for pick-up trucks which enables the passengers to sit in a front facing passenger car seat with adequate leg room. The coach is supported by the truck sides and it extends above the truck cab so that the passengers can see the road ahead.

3,655,236

MOBILE HOME

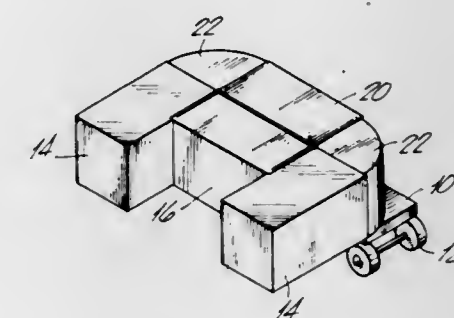
Betty J. Hair, Long Beach, Calif., assignor to The Lee Raymond Organization, Inc., New York, N.Y., a part interest

Filed Dec. 31, 1970, Ser. No. 103,121

Int. Cl. B60p 3/34

U.S. Cl. 296-23 F

4 Claims



A mobile home having a central inner section disposed in an outer central section with inner end portions disposed within outer end portions and secured to the inner central section. The inner section and outer portions can be moved with respect to the outer sections and inner portions to expand the structure.

3,655,237

REINFORCING APPARATUS

James Arnold Pitman, 1114 Indiana Hill Road, Toms River, N.J.

Filed Sept. 25, 1970, Ser. No. 75,624

Int. Cl. B62d 21/00

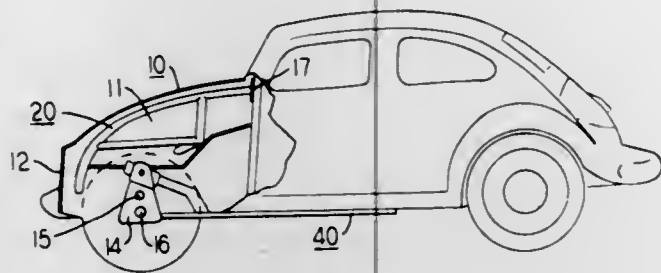
U.S. Cl. 296-28 R

7 Claims

Upper and lower reinforcing apparatus is disclosed in which the upper reinforcing apparatus includes a strut

framework adapted for installation in the forward luggage compartment of a rear engine driven automobile and the

cluding a pedestal portion and two side portions, and a backrest and a folding seat of practically identical construc-



lower reinforcing apparatus includes two pan braces, two cross braces and two arm braces for exterior installation on said automobile beneath said upper reinforcing apparatus.

3,655,238

RETRACTABLE CLOSURE

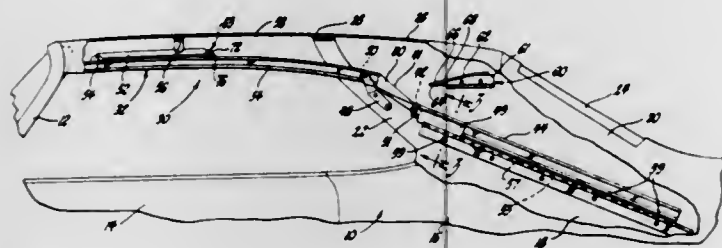
Ted Stewart, Royal Oak, Mich., assignor to General Electric Corporation, Detroit, Mich.

Filed Dec. 2, 1970, Ser. No. 94,493

Int. Cl. B60j 7/10

U.S. Cl. 296-107

3 Claims



A retractable closure for a vehicle body having a roof structure extending over only a portion of the passenger compartment, the retractable closure including a frame bodily movable between extended and retracted positions corresponding to open and closed conditions of the vehicle body, a flexible cover attached at one edge thereof to the leading edge of the roof structure, and at the other edge thereof to the header of the frame and intermediate the edges to a transverse bow supported on the frame for generally vertical movement relative to the latter, and a cam guide on the vehicle body and cooperating roller follower attached to the bow. As the frame moves from the extended to the retracted position the transverse bow causes folding of the cover generally in half below the roof structure while the cam guide and follower cooperate to lift the folded cover into juxtaposition with and under the roof structure to maximize passenger head room.

3,655,239

CHAIR HAVING IDENTICAL AND INTERCHANGEABLE SEAT AND BACKREST

Ettore Agosti, 4 Via Cappuccini, Milan, Italy

Filed Sept. 5, 1969, Ser. No. 855,485

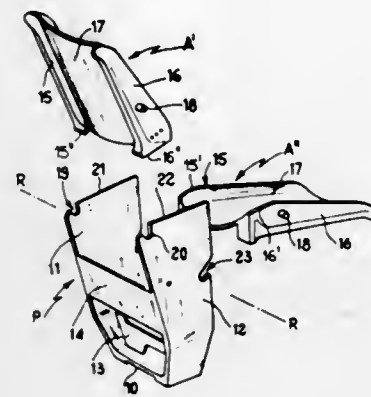
Claims priority, application Italy, Sept. 12, 1968, 21131 A/68; 9906 B/68

Int. Cl. A47c 1/02, 15/00, 1/12

U.S. Cl. 297-331

9 Claims

There is disclosed a backrest chair for use in providing seating arrangements in rooms, particularly conference rooms, cinemas, theaters, concert halls and similar rooms and which chair includes a support base adapted to be secured to the floor of such a room, such support base in-



tion so secured to said side portions of said support base as to be adjustable into different positions of use relative to said support base.

3,655,240

MOTOR ACTUATED SEAT BACK LATCH RELEASE MECHANISM

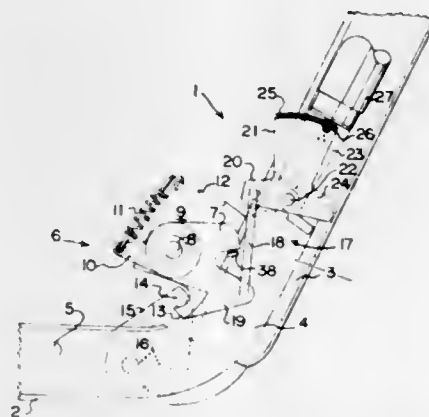
Gideon A. DuRocher, Mount Clemens, and Michael B. Kosowan, Allen Park, both of Mich., assignors to Essex International, Inc.

Filed July 20, 1970, Ser. No. 52,331

Int. Cl. B60n 1/06

U.S. Cl. 297-379

4 Claims



A motor actuated mechanism for releasing the latch by means of which a vehicle's pivoted back seat back is restrained against pivotal movement. The mechanism comprises a latch member normally urged into latching engagement with a keeper and being connected by a linkage to an electric motor which may be driven in such direction as to move the latch to its released position. A current limiting resistance is inserted in the circuit of the electric motor in response to movement of the operating linkage to its latch-releasing position so as to protect the motor circuit against electrical overload. Spring means is operable to restore the latch and linkage to their latching positions automatically in response to deenergization of the motor circuit.

3,655,241

ADJUSTABLE HEAD REST FOR VEHICLES

Kurt Herzer, Karlsruhe am Durlach, and Wolfgang Mertens, Karlsruhe, both of Germany, assignors to Kurt Herzer, Karlsruhe am Durlach, Germany

Filed Nov. 24, 1969, Ser. No. 879,398

Claims priority, application Germany, Apr. 30, 1969, P 19 22 086.1

Int. Cl. A47c 1/10

U.S. Cl. 297-408

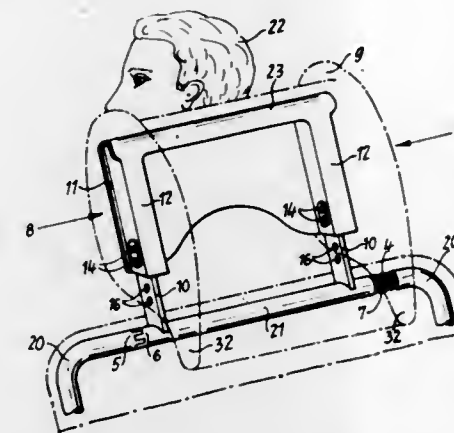
9 Claims

An angularly and vertically adjustable head rest which is secured to a back rest of a motor vehicle seat. The head rest

may be immobilized in a desired height position by locking mechanism disposed entirely within and surrounded by the foam plastic cushion of the head rest. For height adjustment a first locking mechanism may be released by lateral pressure

around a frame which revolves through an extended arc of travel. Indexing movement of the revolving frame permits any of the tools to be located so as to be advanced and retracted through the said opening of the tool-supporting structure in various positions of angularity along the extended arc of travel.

In one desirable form of tool means, multiple wedging forces are exerted to split minerals and other bodies along extended planes of splitting. Specifically the wedging forces



applied against one edge portion of the head rest and for tilting adjustment a second locking mechanism may be released by pressure applied to the opposite side edge of the head rest.

3,655,242

CHAIR

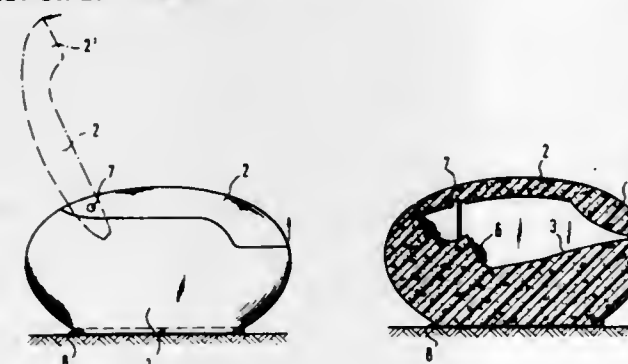
Peter Ghyczy, Stettiner Str. 6, 2844 Lemfoerde, Hannover, Germany

Filed Dec. 11, 1969, Ser. No. 884,223

Int. Cl. A47c 7/00, 7/14

U.S. Cl. 297-445

6 Claims



A chair having a back adapted to fold over the seat portion of the chair and thereby impart a generally ellipsoidal shape thereto is made from cellular plastic materials and is especially adapted for use out of doors.

3,655,243

METHOD AND APPARATUS FOR WORKING MINERAL BODIES AND OTHER MATERIALS

Ralph A. Fletcher, Bedford, and Joseph R. Oliver, Lowell, both of Mass., assignors to H. E. Fletcher Co., Westford, Middlesex County, Mass.

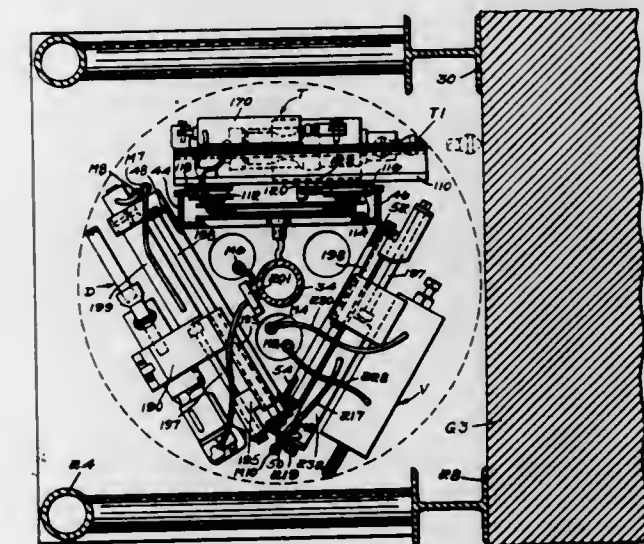
Continuation-in-part of application Ser. No. 793,348, Jan. 23, 1969, now Patent No. 3,558,191. This application Jan. 13, 1970, Ser. No. 2,489

Int. Cl. E21c 37/02

U.S. Cl. 299-15

10 Claims

Multiple tool means for working a material are mounted in a tool-supporting structure. The tool-supporting structure, at one side, is formed with an elongated tool opening to provide for movement of a gang of tools therethrough into and out of engagement with a surface and the body of the material. Each of the tools in the gang may thereafter be selectively actuated. Where desired, greater versatility is realized by mounting additional reciprocating tools in spaced relation



may be applied to a mineral body such as granite as it occurs in a natural state, and from which pieces of dimensioned stone may be produced. Controlled splitting is accomplished by a gang of spaced, reciprocating wedge devices together with fluid power-actuated driver means for transmitting driving forces to each of the wedge devices. The wedge devices may be operated simultaneously or separately of one another and the driving forces may be exerted to reach a maximum intensity instantly or applied with gradually increasing intensity.

3,655,244

IMPACT DRIVEN TOOL WITH REPLACEABLE CUTTING POINT

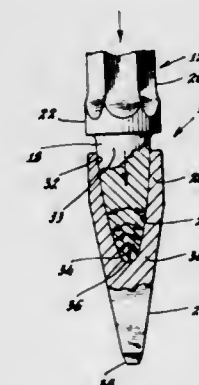
James A. Swisher, Easton, Conn., assignor to International Tool Sales, Inc., Bridgeport, Conn.

Filed July 30, 1970, Ser. No. 59,438

Int. Cl. E21c 37/26

U.S. Cl. 299-91

8 Claims



The shaft and replaceable cutting point of an impact driven tool utilize half an ellipse as the outline of both the external cross-sectional configuration of the driving end of the shaft and the internal cross-sectional configuration of the recess in the tip. The tip is frictionally retained on the shaft driving end for effecting a driving connection therewith.

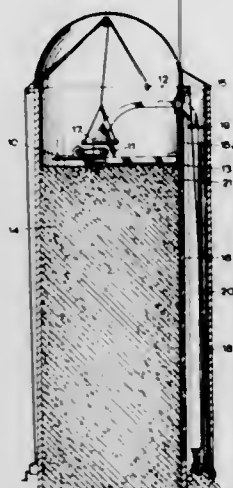
3,655,245

SILO UNLOADER DISCHARGE TUBES

Harold W. Schumacher, Route 2, De Soto, Wis.
Filed Aug. 27, 1970, Ser. No. 67,401
Int. Cl. B65g 53/40

U.S. Cl. 302-59

1 Claim



An elongate flexible plastic tube suspended from the end of the discharge chute of a silo unloader. The tube fits over the end of the discharge chute and is attached thereto by a collar or band so as to hang free in the vertical silo chute.

3,655,246

ANTI-SLIP DEVICE FOR COMPRESSED AIR BRAKES, PARTICULARLY FOR RAIL VEHICLES

Siegfried Keller, Effretikon, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland

Filed Feb. 20, 1970, Ser. No. 13,021

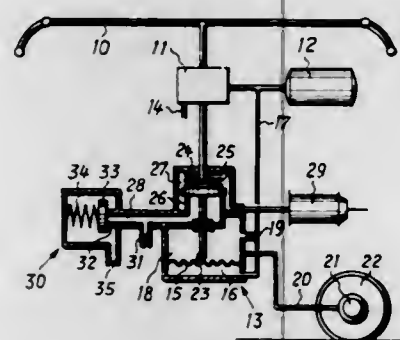
Claims priority, application Switzerland, Feb. 28, 1969,

3025/69

Int. Cl. B60t 8/12

U.S. Cl. 303-21 F

1 Claim



The invention relates to an anti-slip device for compressed air brakes, particularly for rail vehicles. An anti-slip device for compressed air brakes, particularly for rail vehicles, in which air is admitted to the brake cylinder through a pipe connected to an air reservoir and the brake cylinder is exhausted to atmosphere through an exhaust pipe incorporating a relay valve and a holding valve which closes the exhaust pipe at a prescribed minimum pressure.

3,655,247

RECIRCULATING BEARING

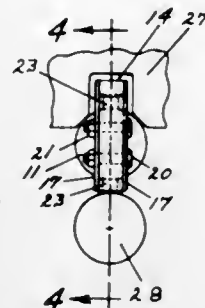
Robert Raymond Grover, R.F.D. #1, Winchester, N.H.
Filed Feb. 26, 1970, Ser. No. 14,447
Int. Cl. F16c 29/06

U.S. Cl. 308-6 C

5 Claims

A recirculating anti-friction bearing having a cylindrical race body floatingly mounted on roller members which have

an annular radial concave recess centrally thereof thereby



providing infinite adjustability of the race body about its axial center line.

3,655,248

BEARINGS AND SEALS WITH A GROOVED BEARING SURFACE

Gilles Gerardus Hirs, Pijnacker, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve Van Nijverheid, Handel En Verkeer, The Hague, Netherlands

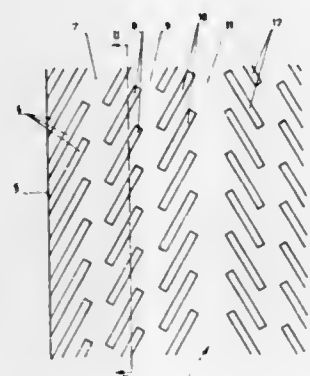
Filed July 20, 1970, Ser. No. 56,254

Claims priority, application Netherlands, July 22, 1969, 6911255

Int. Cl. F16c 35/00

U.S. Cl. 308-9

4 Claims



In bearings and seals comprising a grooved surface for the dynamical generation of back pressure in the lubricant film, the effect of the grooves is considerably less than proportional to the breadth of the bearing or seal if the breadth to diameter ratio is in the usual range of 0.5 to 2 or more. The proportional relationship is restored by composing each groove of two or more separated shorter grooves. At the same time the grooves' tendency of transporting pollutions in the lubricant into the gap and collecting them there, is suppressed.

3,655,249

PACKAGE SLEEVE BEARING

Martin L. Abel, 25235 Canterbury, Franklin, Mich.

Filed Jan. 30, 1970, Ser. No. 7,032

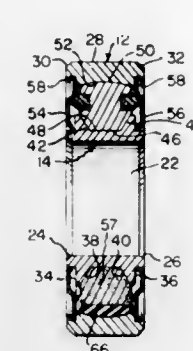
Int. Cl. F16c 9/06, 33/66

U.S. Cl. 308-72

20 Claims

A self-contained, hydrodynamically lubricated, package sleeve bearing having inner and outer races similar to the inner and outer races of ball bearings. The outer race is rotatably journaled on the inner race by a plurality of arcuate

aluminum bearing elements. A wicking material impregnated with a special oil for lubricating aluminum bearing surfaces is intermediate its ends. This latter concavity has a radius equal to the profile radius of the second roller bearing and is engaged by such convex surface. The convex or profile surface of the third roller bearing is in rolling contact with the concave surface of an outer race.



3,655,250

THRUST BEARING

Walter Sprenger, Wiesendangen, Switzerland, assignor to Brown-Boveri-Sulzer Turbomachinery, Ltd., Zurich, Switzerland

Filed July 21, 1970, Ser. No. 56,898

Claims priority, application Switzerland, July 31, 1969,

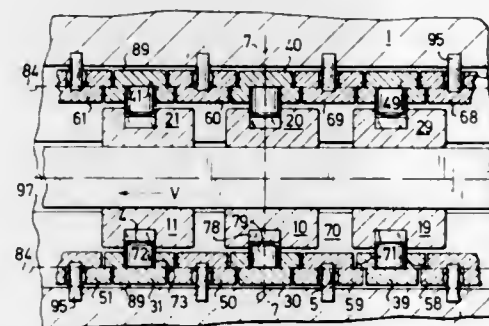
11728/69

Int. Cl. F16c 17/06

U.S. Cl. 308-160

14 Claims

U.S. Cl. 308-236



The rockers are pivotally mounted in the middle on a pair of rollers and a pin so as to move tangentially of the shaft collar within the annular groove. The supporting bars are formed with one protuberance on one side and a pair of like protuberances on the opposite side so as to have a three point bearing on the rollers. The thrust bearing is thus able to avoid self-locking when deflected during operation.

3,655,251

ELLIPTICAL ROLLER BEARING

Christopher B. Evenson, Loran Route, Box 151, Cottage Grove, Oreg.

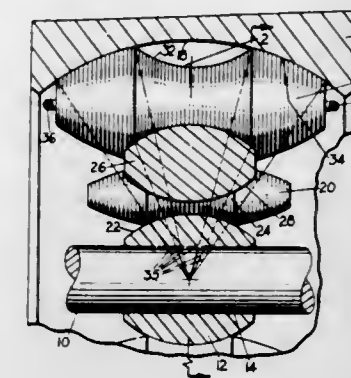
Filed July 15, 1970, Ser. No. 55,063

Int. Cl. F16c 23/08, 19/40

U.S. Cl. 308-183

3 Claims

A roller bearing assembly employing a plurality of elliptical roller bearings in surface contact and arranged to provide improved alignment in a race assembly. In an exemplary assembly, an inner race on a shaft has a convex surface and a first elliptical roller bearing has a concavity intermediate its ends having a radius equal to the radius of the curvature of the race for rolling contact therewith. The concavity of the first elliptical bearing has rolling contact with the convex or profile surface of a second elliptical roller bearing operating on an axis parallel with the axis of the first roller bearing but spaced outwardly therefrom. The assembly also includes a third elliptical roller bearing which operates on an axis parallel with the others and which has a peripheral concavity in-



3,655,252

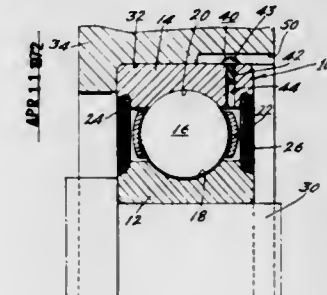
SUPPORT MEANS FOR MOUNTING A BEARING ASSEMBLY

William J. Crecelius, Springfield, Pa., assignor to SKF Industries, Inc., King of Prussia, Pa.

Filed Jan. 13, 1971, Ser. No. 106,087

Int. Cl. F16c 35/06

4 Claims



The combination comprising means for mounting a rolling bearing assembly in a housing or the like, said rolling bearing assembly comprising inner and outer ring members spaced apart to define an annular space, said rings having confronting circumferentially extending raceways for a plurality of rolling elements, means defining a pocket in the housing, means defining an opening extending through one of said rings, a locking screw member having a generally cylindrical shank and an enlarged head, said shank having at least one helical projection, said locking screw member being of a material having a hardness less than the hardness of said one ring whereby upon insertion of the shank into said opening said helical projection is deformed to seat the locking screw member in place and seal said opening, the head of said screw member projecting into the pocket in said housing to prevent relative rotation of said one ring in said housing.

3,655,253

ARTICLE OF FURNITURE

Douglas Deeds, San Diego, and Barry L. Rosengrant, Los Angeles, both of Calif., assignors to Architectural Fiberglass, Inc., Los Angeles, Calif.

Filed Feb. 3, 1970, Ser. No. 8,237

Int. Cl. A47b 17/00, 19/00, 63/00

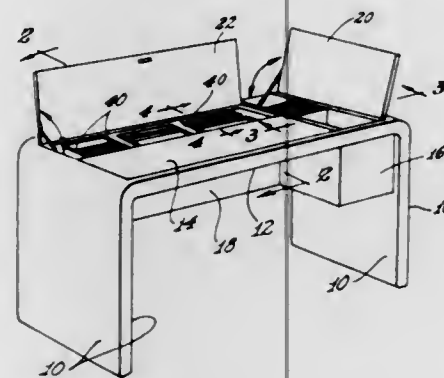
U.S. Cl. 312-194

3 Claims

An improved article of furniture is provided which has a double-wall configuration, and which is formed of a sculptured molded fiber-reinforced plastic material. The article of furniture may be in the form of a desk having an inverted U-

shape configuration to form side walls and a top. The desk top may have a depression formed therein for receiving a panel of appropriate material which constitutes the writing surface. An integral well may be formed as part of the article of furniture which has access through the top, and which serves as a convenient storage space.

The molded construction of the article of furniture of the



invention permits monolithic forms to be used in a variety of colors. The desk may be kept clean by means of a damp cloth, for example, without any tendency to metal rusting or paint peeling. The double-wall construction is advantageous in that it permits electrical and electronic equipment to be installed on or into the desk without any unsightly external power cords, leads or other electrical wiring.

3,655,254

CABINET, PARTICULARLY FOR ELECTRICAL INSTALLATIONS

Georg Mayer, and Egon Glaser, both of Aargau, Switzerland, assignors to Sprecher & Schuh, Aarau, Switzerland

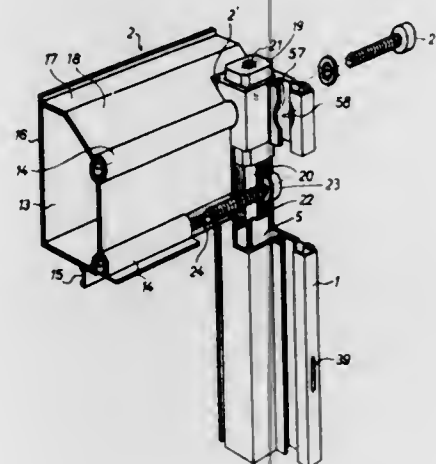
Filed Nov. 19, 1969, Ser. No. 878,171

Claims priority, application Switzerland, Nov. 20, 1968, 17384/68

Int. Cl. A47b 43/00, 47/00

U.S. Cl. 312-257

6 Claims



A cabinet, particularly for electrical switchboards and distributing plants, comprises a frame having vertical and horizontal supporting members, the vertical supporting members being formed by hollow section elements preferably consisting of lightweight metal. The transverse horizontal supporting members on the front and rear side of the frame are hollow section elements, and the longitudinal horizontal supporting members are formed by steel T-sections.

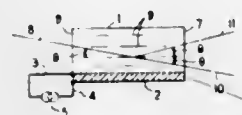
3,655,255
ACOUSTIC-OPTIC ULTRASONIC DEVICES USING GERMANIUM CONTAINING CHALCOGENIDE GLASSES
John Thorvald Krause, New Providence, and Charles Robert Kurkjian, Somerset, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 13, 1970, Ser. No. 54,189

Int. Cl. G02f 1/34

U.S. Cl. 350-1

9 Claims



Acousto-optic and ultrasonic devices are described which are dependent for their operation on certain germanium-containing compositions of the chalcogenide family of glasses. The acousto-optic devices made from these glasses exhibit high efficiencies when compared to those of devices constructed of earlier materials. The ultrasonic devices exhibit acoustic losses comparable to those of devices made from fused silica.

3,655,256

HOLOGRAPHY WITH THERMOCHROMIC RECORDING MATERIALS

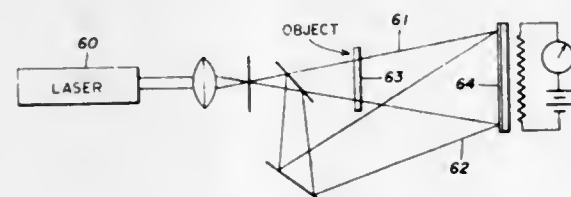
Richard N. Claytor, Arlington, and Dayton D. Eden, Dallas, both of Tex., assignors to Advanced Technology Center Inc., Grand Prairie, Tex.

Continuation-in-part of application Ser. No. 825,675, May 19, 1969, now abandoned. This application Jan. 4, 1971, Ser. No. 103,397

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

14 Claims



Disclosed are methods and apparatus for recording and reproducing optical information in thermochromic materials; exemplary materials are the ternary halides, ternary chalcogenides, and certain transition metal oxides. Methods and apparatus are also disclosed for recording holographic images with infrared radiation and reconstructing infrared holograms in the visible portion of the spectrum.

3,655,257

APPARATUS FOR FORMING A PHASE HOLOGRAM ON A DEFORMABLE THERMOPLASTIC

John C. Urbach, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Original application Jan. 20, 1966, Ser. No. 521,982, now Patent No. 3,560,205. Divided and this application Oct. 6, 1970, Ser. No. 78,536

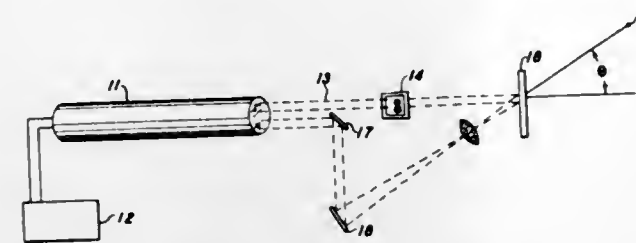
Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

1 Claim

Method and apparatus for producing holographic interference patterns wherein a modulated coherent object beam and off axis reference beam cooperate to discharge a photoconductive thermoplastic recording member which is

then recharged and allowed to deform in accordance with the residual charge pattern thereon. The off axis angle is a



function of the quasi-resonant frequency of the thermoplastic.

3,655,258

HOLOGRAPHIC IMAGING OF A MOVING OBJECT BY DETECTING RADIATION ALONG A LINE PERPENDICULAR TO THE OBJECT DIRECTION OF TRAVEL

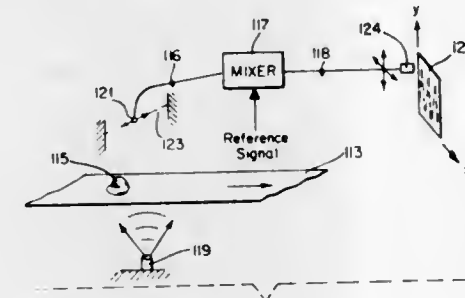
Bernard P. Hildebrand, Seattle, Wash., assignor to Holotron Corporation, Wilmington, Del.

Filed Apr. 20, 1970, Ser. No. 29,784

Int. Cl. G02b 27/00

U.S. Cl. 350-3.5

6 Claims



An object is passed through a radiation beam along a line and resulting object-modified radiation is detected along a line substantially orthogonal to the object direction of travel. In a preferred embodiment, the radiation is ultrasonic energy and at least one ultrasonic radiation transducer (receiver) is repetitively scanned back and forth along this line in the object-modified radiation as the object moves through the illuminating beam. An electrical output from the transducer is compared with a reference signal that is coherent with the object illuminating beam to generate holographic information of the object in the form of an electrical analog signal. This holographic information electrical signal is utilized to form a hologram from which an optical image of the object may be reconstructed. Any aberrations present in the optical reconstructed image are substantially reduced by illuminating the object with a collimated ultrasonic radiation beam.

3,655,259

STREOSCOPIC MICROSCOPE WITH GRADED INDEX FIBER OBJECTIVE LENSES

Tsuneshige Miyauchi, Amagasaki-shi; Jiro Hirano, Hyogo-ken; Atsufumi Ueki; Ryuji Tatsumi, both of Tokyo-to; Kunihiko Mukai, Mie-ken, and Shogo Yoshikawa, Tokyo-to, all of Japan, assignors to Nippon Selfoc Kabushiki Kaisha (also known as Nippon Selfoc Co., Ltd.), Tokyo-to, Japan

Filed Aug. 22, 1969, Ser. No. 852,196

Claims priority, application Japan, Aug. 24, 1968, 43/60587; Aug. 26, 1968, 43/73377; Sept. 5, 1968, 43/76464

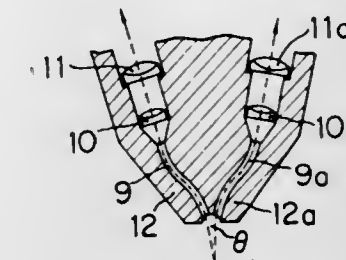
Int. Cl. G02b 21/22, 5/14

U.S. Cl. 350-36

5 Claims

The disclosure relates to an optical image transmitting apparatus adapted for a viewfinder for observation of any object, wherein two systems of transparent structures are provided whose refractive index distribution in each cross sec-

tion perpendicular to the center axis is reduced nearly in proportion to a square of a distance from the center axis, said transparent structures consisting of rod-like or fibrous substance and being disposed so as to view any article stereoscopically; a viewfinder for medical observation wherein said transparent structures cable of transmitting an optical image



therethrough and an optical fiber bundle for transmitting an illumination light to illuminate the article to be the observed are provided in a cavity portion of the inside of a hollow needle such as a hypodermic syringe; a microscope wherein said fibrous transparent structures are used as the object lens; and the like.

3,655,260

SIMULATOR HAVING AN INFINITE-DEPTH-OF-FIELD OPTICAL PICKUP

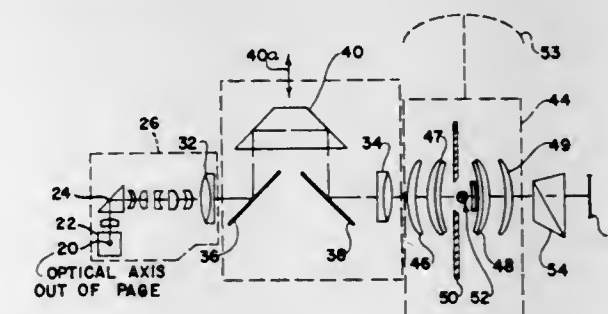
John F. Bartucci, Tallmadge, and James A. Horton, Munroe Falls, both of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Continuation-in-part of application Ser. No. 772,960, Nov. 4, 1968, now abandoned. This application July 24, 1970, Ser. No. 58,131

Int. Cl. G02b 23/02

U.S. Cl. 350-45

3 Claims



An optical pickup having a final imaging lens with means for tilting the final lens about its rear nodal point to maintain registration of the optimum image plane resulting from varying object plane orientations. This technique increases the depth of field without affecting the *f*-number of the optical pickup system or introducing distortions.

3,655,261

DEFLECTION OF ELECTROMAGNETIC BEAMS FROM GUIDES BY ACOUSTICAL SURFACE WAVES

William Shen Chie Chang, University City, Mo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Mar. 2, 1970, Ser. No. 15,575

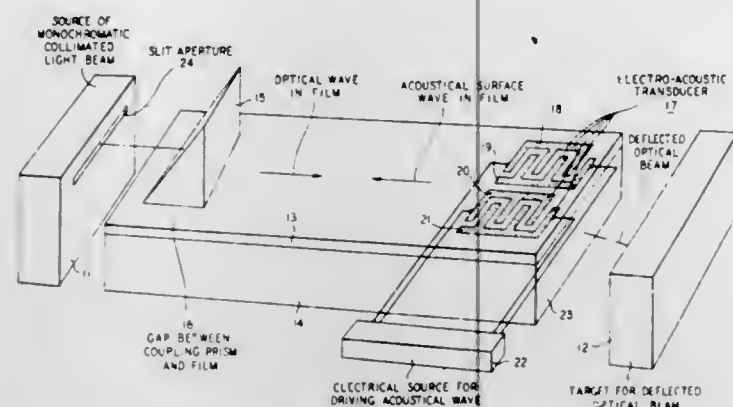
Int. Cl. G02b 5/14; G02f 1/34

U.S. Cl. 350-96 WG

1 Claim

The acousto-optical deflection apparatus disclosed employs acoustical surface waves, typically propagating anti-

parallel to a guided optical beam to deflect the beam out of the guide. In a preferred embodiment, the optical beam is



deflected into a transparent substrate from which it is extracted for utilization.

3,655,262

REAR PROJECTION SCREEN

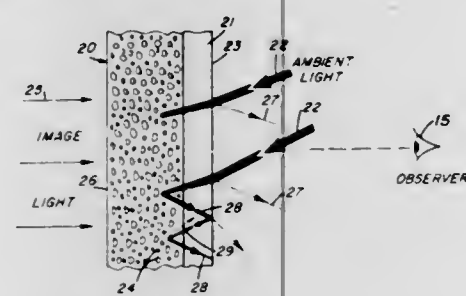
James J. DePalma, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 4, 1970, Ser. No. 69,863

Int. Cl. G03b 21/60

U.S. Cl. 350-126

12 Claims



A transmission type screen embodies a glass or plastic support having a color quality and ambient light control layer applied to the viewing side of the support. The layer comprises a dispersion of gelatin, fine particles of chlorinated diphenyl resin and a number of water-soluble dyes such as Toluidine Blue, Brilliant Acid, Cyanine Blue, Fast Light Red, Superchrome Yellow and Ethyl Orange. Such a screen structure provides an appropriate color temperature or color quality control and effectively eliminates the ambient light incident on the screen, thereby enhancing image contrast.

3,655,263

LIGHT DIFFUSION DEVICE

Mark Hoffman, and Claude Alan Lindquist, Jr., both of 253 E. 42nd Street, New York, N.Y.

Filed Apr. 20, 1970, Ser. No. 30,272

Int. Cl. G03b 21/60

U.S. Cl. 350-126

6 Claims

A light diffusion device comprising a transparent resin film having a coating adhered to one surface thereof and comprising the solid contents of a resin lacquer composition containing particulated alumina dispersed therein. A preferred embodiment comprises the use of a saturated polyester resin, both for said film and said lacquer.

3,655,264

BINOCULAR VIEWING DEVICE

Theodore C. Pickett, 1104 Stanley Way, Palo Alto, Calif.

Filed Sept. 18, 1970, Ser. No. 73,472

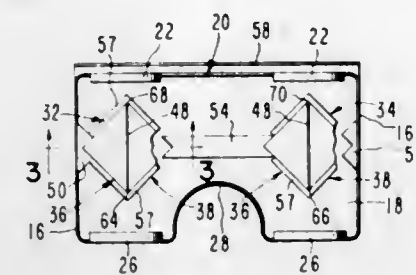
Int. Cl. G02b 27/02, 27/24, 5/04

U.S. Cl. 350-145

14 Claims

A binocular device having a housing provided with a pair of prism assemblies, there being an assembly for each eye,

respectively. Each assembly includes a pair of prisms used in the Dove mode with the prisms being disposed with their hypotenuse or long sides in proximity to each other. Spacing means separates the two prisms of each assembly slightly apart. The housing has means for mechanically holding each



3,655,265

RESONANT PIEZOELECTRIC ACOUSTO-OPTIC LIGHT FILTER AND APPARATUS USING SAME

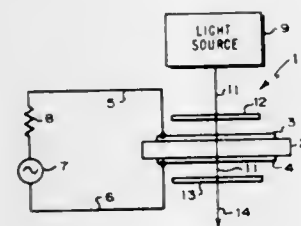
Donald L. Hammond, Los Altos Hills, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 7, 1970, Ser. No. 61,950

Int. Cl. G02f 1/24

U.S. Cl. 350-149

27 Claims



An acousto-optic light filter is disclosed wherein a radio frequency electric field is employed to excite an acoustic wave in a piezoelectric optically anisotropic medium. The light to be filtered is collinearly diffracted on the acoustic wave to shift light of a first polarization and of a frequency related to the frequency of the acoustic wave, into light of a second polarization. The diffracted light is polarization analyzed to separate light of the second polarization from light of the first polarization. Piezoelectric birefringent crystals are employed for the optically anisotropic medium. Arrays of acoustic resonators are formed by energy trapping in crystalline slabs, such resonators being selectively addressed by applying electric fields to the crystalline slab at the resonant frequency of the selected acoustic resonator. Different overtone resonances of the acoustic resonators are excited to permit the filter to pass light of different frequencies either in time displaced intervals or simultaneously.

3,655,266

VARIABLE ELECTRO-OPTIC ELEMENT

William R. Buchan, Lincoln, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Aug. 31, 1970, Ser. No. 68,265

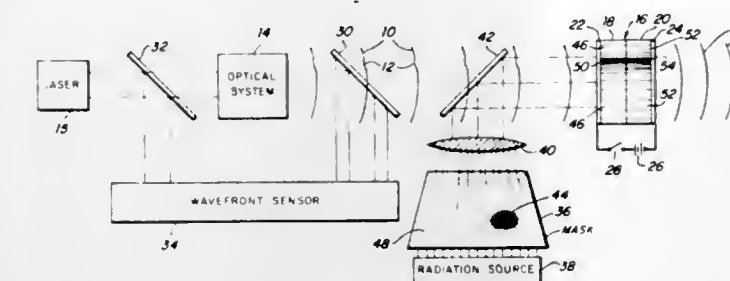
Int. Cl. G02f 1/20

U.S. Cl. 350-150

22 Claims

A variable optical device for varying the shape of a wavefront is disclosed including an electro-optic medium whose index of refraction varies as a function of the intensity of an applied electric field and means for applying to that

medium an electric field whose intensity varies in a pattern representative of the spatial variation of the index of refrac-



tion of the medium required to vary the shape of a wavefront in some predetermined manner.

3,655,267

LIGHT VALVES WITH HIGH FREQUENCY EXCITATION

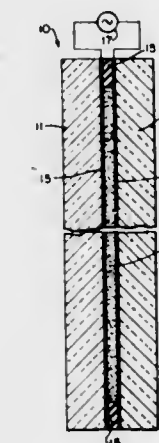
Matthew Forlini, Ozone Park, N.Y., assignor to Research Frontiers, Inc., Plainview, N.Y.

Filed Apr. 1, 1970, Ser. No. 25,542

Int. Cl. G02f 1/30

U.S. Cl. 350-150

4 Claims



A light valve having a cell containing a fluid suspension of minute particles dispersed therein capable of orientation by an electric field, has applied thereto an alternating voltage having a frequency at least as high as approximately 325 KHz, and preferably 400 KHz, or higher, to prevent agglomeration of the particles over long periods of use. Generally needle-shaped particles of herapathite may be employed.

3,655,268

LASER BEAM ATTENUATOR

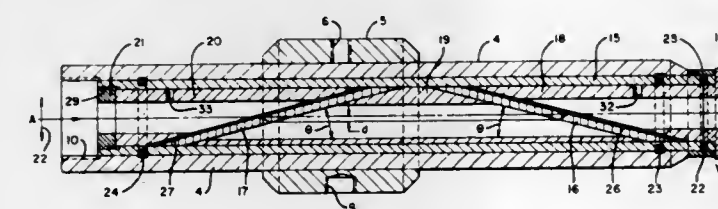
Richard S. Reynolds, Mountain View, Calif., assignor to Sylvania Electric Products Inc.

Filed June 1, 1970, Ser. No. 41,900

Int. Cl. G02b 27/28

U.S. Cl. 350-152

2 Claims



This attenuator comprises a pair of axially aligned anti-parallel Brewster angle windows that are rigidly secured in a

cylindrical adjustment tube that is rotatably secured in a mounting tube. The attenuation of a linearly polarized laser beam that is incident along the axis of the attenuator is continuously varied from a minimum to a maximum value by rotating the adjustment tube relative to the mounting tube over a 90° angle.

3,655,269

LIQUID CRYSTAL DISPLAY ASSEMBLY HAVING INDEPENDENT CONTRAST AND SPEED OF RESPONSE CONTROLS

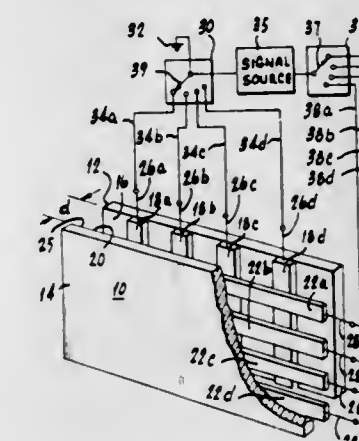
George H. Heilmeier, Philadelphia, Pa., assignor to RCA Corporation

Filed Jan. 25, 1971, Ser. No. 109,688

Int. Cl. G02f 1/28

U.S. Cl. 350-160

5 Claims



A liquid crystal display assembly offering control of the speed of response of the exhibited electro-optical effect by varying the amplitude of the applied energizing signal and further offering independent control of the contrast by varying the frequency of that signal above a predetermined value.

3,655,270

ELECTRO-OPTICAL DISPLAY DEVICES USING NEMATIC MIXTURES WITH VERY WIDE TEMPERATURE RANGES

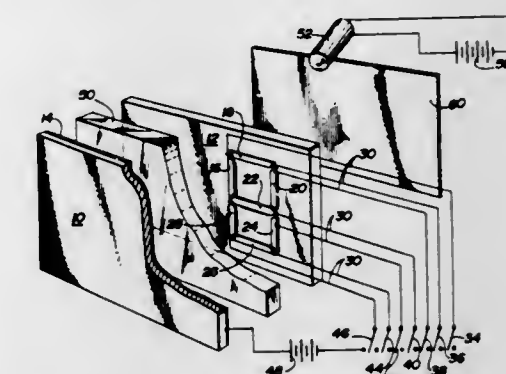
Linda Truitt Creagh, Route 1, Argyle, Tex.

Continuation-in-part of application Ser. No. 67,722, Aug. 28, 1970, now abandoned. This application June 1, 1971, Ser. No. 148,759

Int. Cl. G02f 1/28; G09k 3/00; G01m 31/00

U.S. Cl. 350-160

11 Claims



A display device wherein a layer of a novel nematic mesomorphic composition that is normally transparent to light scatters light in response to a voltage applied across the composition. The composition consists essentially of a ternary mixture of 4-ethoxybenzylidene-4'-n-butylaniline; 4-methoxybenzylidene-4'-aminophenyl butyrate, and bis-(4'-n-octyloxybenzal)-2-chloro-1,4-phenylenediamine and exhibits the nematic mesophase over a broad temperature range that includes room temperature.

3,655,271

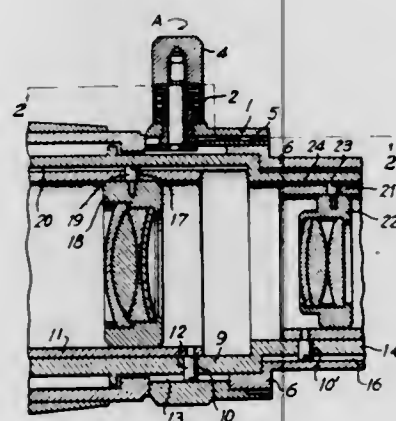
ZOOM LENS FOR NORMAL AND CLOSE-UP PHOTOGRAPHY

Yasuo Suzuki, Kashiwa, Japan, assignor to Sun Koki Kabushiki Kaisha, Ichikawa-shi, Chiba-ken, Japan
Filed May 11, 1970, Ser. No. 36,243

Claims priority, application Japan, May 19, 1969, 44/45269
Int. Cl. G02b 7/10

U.S. Cl. 350—187

15 Claims



A zoom lens which can carry out conventional zoom lens functions so as to vary the focal length of an objective in a continuous manner while maintaining the object in sharp focus at the image plane. The zoom lens has a lens assembly capable of being displaced along the optical axis by a manually operable means. A transmission transmits movement of the manually operable means to a second lens assembly which is also displaced in this way along the optical axis. However, it is possible to disconnect the transmission from the manually operable means, so that while the second lens assembly remains stationary it is possible to move only the first lens assembly by way of the manually operable means. In this way it is possible to utilize the zoom lens, not only for normal zoom lens functions, but also for the purpose of close-up photography.

3,655,272

ILLUSION DISPLAY APPARATUS

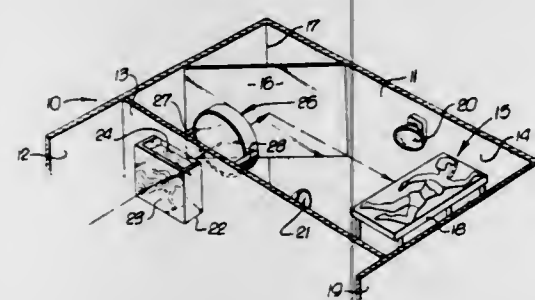
Carlos Valadez, 12800 Moor Park Street, North Hollywood, Calif.

Filed Mar. 25, 1970, Ser. No. 22,610

Int. Cl. G02b 27/02

U.S. Cl. 350—235

9 Claims



The display apparatus includes two adjacent rooms with a partition therebetween having an opening therethrough over which an aquarium is mounted in the display room. An object is located on a pedestal in the other room and is lighted to reflect the light through a lens of spherical sectors having liquid filled cavities to reduce and focus the image of the object in the water of the aquarium giving the object the illu-

sion of being smaller than it is and located in the tank when it is not. Motors are provided to selectively move the pedestal and the aquarium to give the object the appearance of moving through the water or of being in the water as the aquarium is moved.

3,655,273

REMOTELY CONTROLLED DAY-NIGHT MIRROR

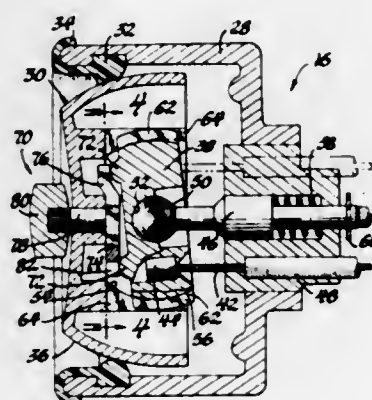
William L. Pringle, Grosse Pointe, Mich., assignor to Lee Radke Associates, Inc., Detroit, Mich.

Filed July 23, 1970, Ser. No. 57,628

Int. Cl. B60r 1/06; G02b 7/18

U.S. Cl. 350—281

15 Claims



An improved remotely controlled day-night mirror assembly including a movably supported mirror having two reflecting surfaces of different reflecting power. The actuator means includes a generally cup-shaped housing with a primary actuating member supported for universal movement within the housing and a secondary actuating member supported in a semi-spherical cavity in the primary actuating member and on the head of a shaft for movement relative to the primary actuating member between day and night positions and for movement with the primary actuating member about a common point of universal movement when either in the day or night position for selectively positioning the mirror. The secondary actuating member is connected to the mirror by three push-pull remote control elements. One improved feature resides in connection means comprising tongues and grooves interconnecting the primary and secondary actuating members for only allowing movement of the secondary actuating member relative to the primary actuating member in a plane passing through their common point of universal movement. Another improved feature resides in a control cam means operatively interconnecting the primary and secondary actuating members for moving the secondary actuating member between day and night positions relative to the primary actuating member. More specifically, the cam means includes a pair of diametrically opposed protrusions on the secondary actuating member and a cross member secured to the end of a shaft for rotation relative to the primary actuating member so that the cross member engages the protrusions to move the secondary actuating member relative to the primary actuating member.

3,655,274

GRAVITY OPERATED LIQUID PRISM

Dwin R. Craig, Galthersburg, Md., assignor to Ingenuics, Inc., Galthersburg, Md.

Filed May 7, 1970, Ser. No. 35,458

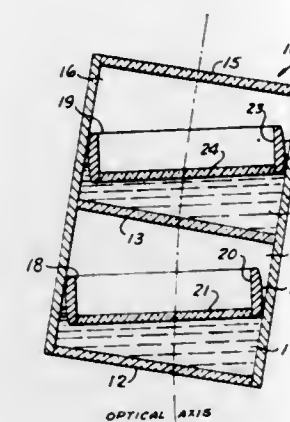
Int. Cl. G02b 5/06

U.S. Cl. 350—286

2 Claims

A gravity operated liquid prism attached to an optical system intended for vertical orientation either up or down. The liquid prism includes a floating boat which moves with

the liquid to remain horizontal when the other surface follows the mechanical motion in any direction of its support discs having removable slides. Operating controls permit



thus forming an optical wedge which deviates the optical axis of the system.

3,655,275

METHOD FOR MAKING FIBER OPTIC ASSEMBLY WITH CRIMPED END CONNECTOR

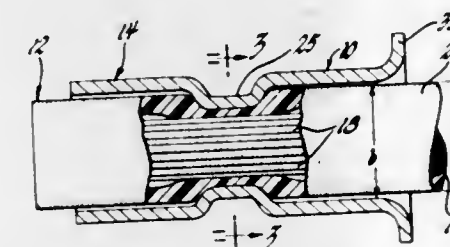
George F. Seagreaves, Warren, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 18, 1970, Ser. No. 90,722

Int. Cl. G02b 5/16

U.S. Cl. 350—320

2 Claims



In a preferred form, this disclosure relates to a fiber optic assembly comprising a fiber optic bundle having an outer flexible sheath of a given external diameter and an end connector crimped onto an end portion of the bundle. The end connector is in the form of a metal sleeve and has a section intermediate its ends which is crimped onto the fiber optic bundle. The section is substantially hexagonal in shape, as viewed in cross section, and has substantially flat sides and apices at the intersection of the sides and with the flats lying on an inscribed circle having a diameter which is less than the external diameter of the sheath whereby the sheath is deformed upon the section being crimped thereon so as to have a radial thickness adjacent the flat sides which is less than the radial thickness of the sheath fore and aft of the crimped section.

3,655,276

OPHTHALMIC REFRACTING CHART PROJECTOR

Leonard A. Wilkinson, Snyder, N.Y., assignor to American Optical Corporation, Southbridge, Mass.

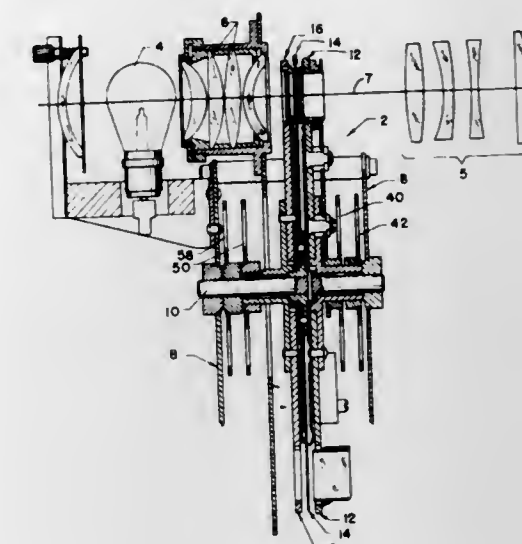
Filed Oct. 31, 1969, Ser. No. 873,022

Int. Cl. A61b 3/10; G02b 17/00

U.S. Cl. 351—30

1 Claim

An ophthalmic refracting chart projector with rotary slide



selective showing of slides in a desired sequence. Astigmatic charts may also be turned on their axes by such control.

3,655,277

MOTION-PICTURE SYSTEM

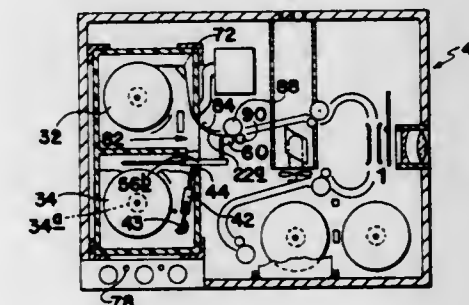
Edwin H. Land, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed June 20, 1968, Ser. No. 738,464

Int. Cl. G03b 23/02

U.S. Cl. 352—72

6 Claims



Motion-picture apparatus for exposing a motion-picture film especially adapted to a diffusion transfer method of image formation; for rapidly processing the exposed film; and for immediately thereafter projecting the film in the form of a finished motion-picture sequence. The system includes, for an improved operation, a unique multi-purpose cassette or magazine usable both in a camera component for the taking function and in a projection component for processing and projection purposes.

The camera component of the system, adapted to use the aforesaid motion-picture film and cassette, may, appropriately, be of a type also capable of accepting a standard motion-picture film such, for example, as one having the physical characteristics of a so-called "Super-8" film, sold by Eastman Kodak Co., Rochester, New York, U.S.A. The camera may, therefore, be of a substantially conventional type with the qualification that it need be adapted to mount the cassette of the invention and optically suited to utilize the film contained therein.

The projection or viewing component of the system may, suitably, be in the form of a compact cabinet-type unit incorporating a viewing screen comparable in area to that of a television receiver. Such a unit is primarily intended as a home entertainment device but, alternatively, its use may be extended to scientific or other fields where an immediate showing is of advantage following the taking of a motion-picture. The viewing component may also be used for accommodating standard motion-picture film.

3,655,278

MOTION PICTURE CAMERA

Friedrich Winkler, and Johann Zanner, both of Unterhaching, Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

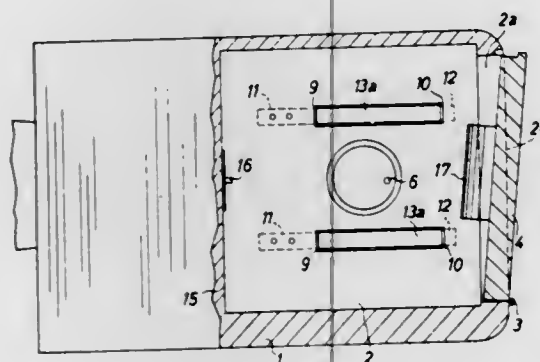
Filed Feb. 2, 1970, Ser. No. 7,566

Claims priority, application Germany, Feb. 7, 1969, G 69 04 668.0

Int. Cl. G03b 23/02

U.S. Cl. 352-74

12 Claims



A motion picture camera having a cassette-receiving chamber which extends inwardly from the rear wall of the housing and is flanked by two side walls which converge toward each other in a direction away from the open end of the chamber. One of the side walls carries a coupling which can rotate the reel or reels in an inserted cassette, and a pair of elastic U-shaped springs which flank the coupling and hold the cassette away from the coupling during insertion or withdrawal through the open end of the chamber. A freshly inserted cassette is pivoted toward the one side wall to deform the springs and to engage with the coupling in response to closing of a door for the open end of the chamber.

3,655,279

MICROFICHE SUPPORTING AND POSITIONING APPARATUS

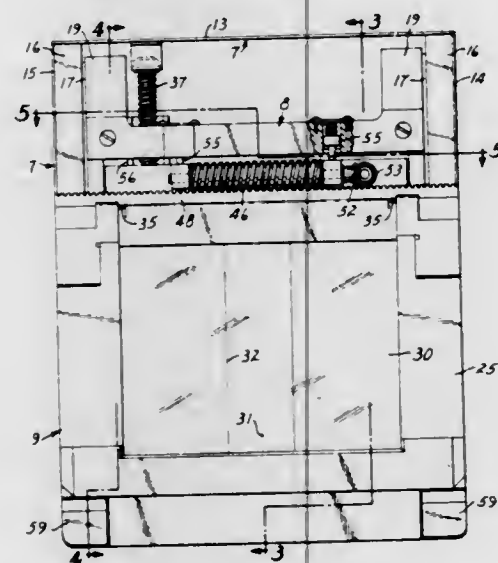
Siegfried F. Rathfelder, Brooklyn Center, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 23, 1968, Ser. No. 786,072

Int. Cl. G03b 23/08

U.S. Cl. 353-27

4 Claims



A microfiche supporting and positioning apparatus for use with a reader and/or printer and comprising a plurality of relatively movable frames, one of which supports the microfiche, to readily and precisely position the microfiche

at a predetermined position. The apparatus includes means mounting said frames for free-floating movement with respect to each other or for vernier-type movement relative to each other.

3,655,280

XEROGRAPHIC FUSING METHOD AND APPARATUS

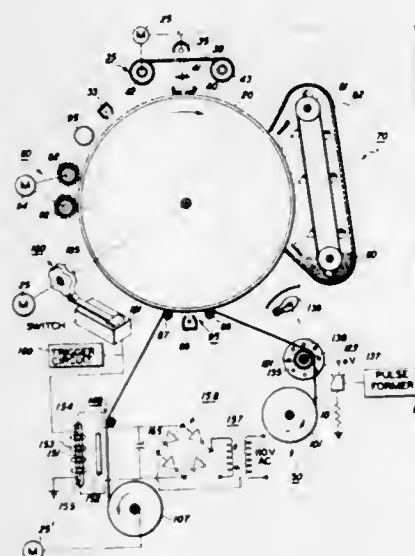
Raymond C. Zoppoth, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Nov. 17, 1966, Ser. No. 595,153

Int. Cl. G03g 15/00

U.S. Cl. 355-3

9 Claims



This invention relates generally to xerographic method and apparatus for reproducing information on materials such as photographic film or the like and more particularly to method and apparatus for fusing electroscopic powder images to materials such as processed film and the like having photographic images thereon. The invention is characterized in that electroscopic powder images are fused to film material by exposing the images film material to selected wavelengths of radiation which are transmitted by an optical filter interposed between the film material and an intermittently activated source of short duration high intensity electromagnetic radiations.

3,655,281

BILLING APPARATUS

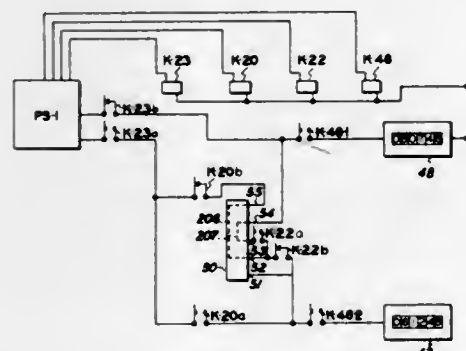
Larry H. Warren, East Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 30, 1969, Ser. No. 889,028

Int. Cl. G03g 15/00; G06n 7/06

U.S. Cl. 355-3

6 Claims



A billing system for a xerographic reproducing machine. Large copy sheets fed through the machine will register on a first billing meter. Copy sheets of a smaller size may register the copy on a second billing meter or on the first billing

meter depending on the optical reduction employed. The billing system may be modified so that various combinations of copy sheet sizes and optical reductions may be registered on one of the plurality meters.

second sensor detects the movement of the severed copy sheet, and in response thereto, operates an original illuminating source for exposing the copy sheet. Manually resettable jam check circuitry monitors the movement of copy material

3,655,282

HIGH SPEED PHOTOELECTROSTATIC COPYING MACHINE

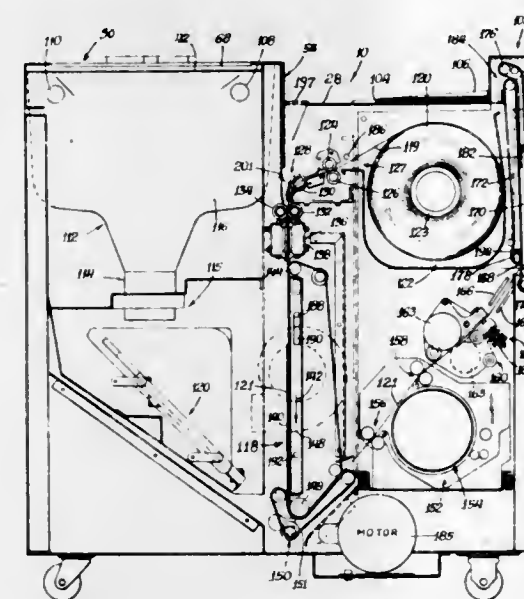
Charles L. Turner, Elgin, and Arthur S. Zeffahs, Elk Grove, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Dec. 31, 1969, Ser. No. 889,630

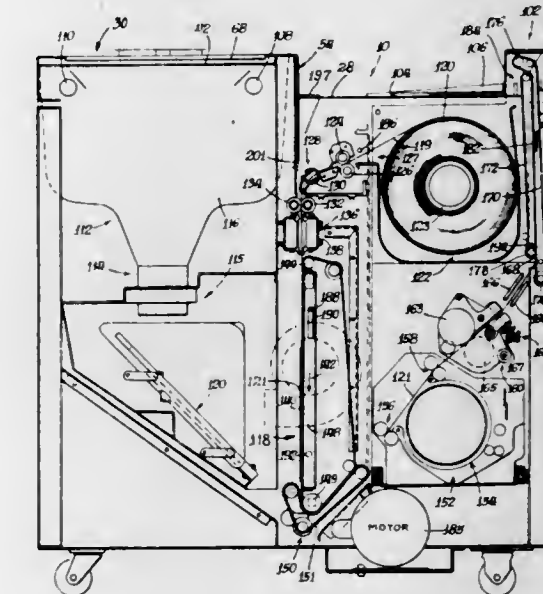
Int. Cl. G03g 15/00

U.S. Cl. 355-3

6 Claims



A high speed copying machine includes, in combination, a xenon light source for illuminating an original document and providing, via an optical assembly, a light image of the original to an exposure station for imaging copy material as it is transported through the exposure station; a high speed magnetic brush developer for applying toner particles to the imaged copy material at a high rate, and a fusing assembly for fixing the toner particles applied to the copy material thereto by the application of pressure only. Independent transport arrangements are provided to move the copy material through the various copy processing stations of the machine. One of the transport arrangements includes endless belt members each having a piled surface of a non-conductive material to prevent the dissipation of the charge applied to the copy material as the latter is carried by the belt members.



along the copy path and inhibits the operation of the machine if a jam occurs. An opening communicating with the copy path receives pre-cut copy sheets to be processed in the machine. Circuitry actuated when processing pre-cut sheets inhibits the operation of the copy roll feed and cutter.

3,655,284

LONGITUDINALLY INSENSITIVE LENS STRIP IMAGING DEVICE

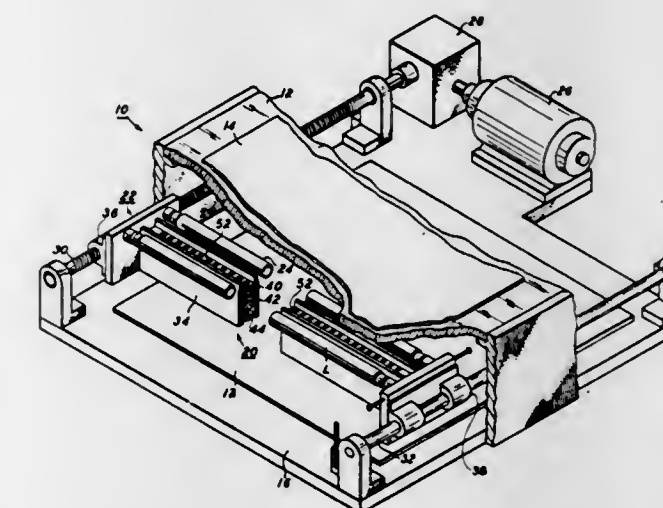
Thomas P. Agliata, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Mar. 28, 1969, Ser. No. 811,556

Int. Cl. G03b 27/50

U.S. Cl. 355-18

2 Claims



HIGH SPEED PHOTOELECTROSTATIC COPYING MACHINE

Harry Margulis, Hoffman Estates, and William B. Miles, Arlington Heights, both of Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Dec. 31, 1969, Ser. No. 889,629

Int. Cl. G03g 15/00

U.S. Cl. 355-14

20 Claims

A high speed copying machine for making copies of an original on copy material fed from a roll supply includes cutting, charging, exposing and developing stations disposed along a copy path. A print switch is actuated to operate at least a portion of the copying instrumentalities at the various stations and to initiate the feeding of copy material from the roll supply. A first sensor detects the movement of copy material thereto and in response thereto, discontinues the feeding of copy material from the roll and actuates a cutter in the cutting station to sever a length of copy material. A

Apparatus for projecting light images from an object towards an image surface. The apparatus includes a plurality of lens strips positioned to project the image at a 1:1 magnification. The first and third lens strips are of a common focal length while the lens strip therebetween is of a focal length half that of the other lens strips. This arrangement renders the apparatus insensitive to its longitudinal position along the optical path.

3,655,285

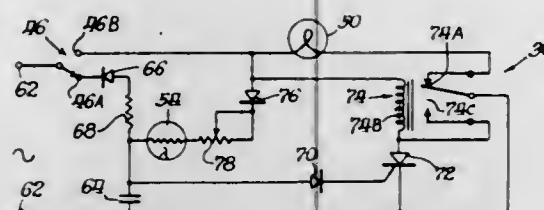
ILLUMINATION CONTROL FOR PHOTOCOPYING MACHINE

William B. Miles, Arlington Heights, Ill., assignor to Addressograph-Multigraph, Mt. Prospect, Ill.

Filed July 24, 1969, Ser. No. 844,404
Int. Cl. G03b 27/72

U.S. Cl. 355-68

6 Claims



A photocopier machine has a photosensitive surface which receives a light image of an original to be copied. To obtain consistent uniform density copies, the light source or the light imaging system is automatically controlled to provide uniform illumination by an SCR controlled relay. The gate of the SCR is coupled to a capacitor having two charging and/or discharging circuits, one of which includes a light responsive cell subjected to illumination from the light source. These circuits are sequentially rendered effective by a copy sheet actuated responsive

3,655,286

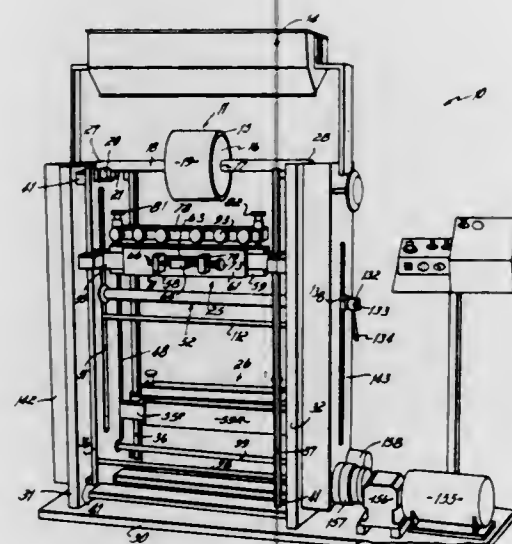
APPARATUS FOR MANUFACTURING ROTOGRAVURE PRINTING ROLL

Harold C. Thumberger, 1031 Belle Avenue, Hamilton, Ohio
Filed Dec. 15, 1969, Ser. No. 884,839

Int. Cl. G03b 27/22

U.S. Cl. 355-85

18 Claims



A method and apparatus for generating an etched printing pattern upon a copper jacketed rotogravure roll. The roll is coated with a light sensitive acid resist coating and a photographic positive film is draped over the roll. Rotation of the roll is effected during exposure of the roll to light by pulling one end of the tensioned film away from the roll while lifting the other end toward the roll. The tension of the film is adjusted so that the length of the film images exactly corresponds to the circumference of the roll. The apparatus accomplishes this tension adjustment and roll rotation by controlled movement of the film.

3,655,287

PHOTOCOPYING MACHINE

Theo Pierre Cretien Breuers, Venlo, Netherlands, assignor to Van Der Grinten N.V., Venlo, Netherlands

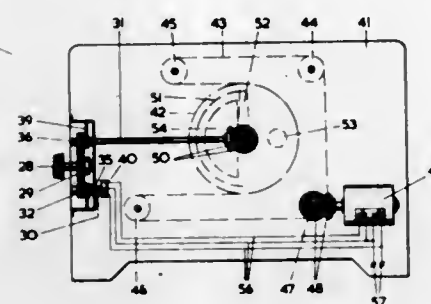
Filed June 22, 1970, Ser. No. 48,013

Claims priority, application Netherlands, June 24, 1969, 6909654

Int. Cl. G03b 27/04

U.S. Cl. 355-97

3 Claims



A photocopier machine with one adjusting member for controlling the exposure by varying the conveying speed of the copy material and by varying the luminous flux. During a part of the adjusting range the luminous flux is kept at a constant maximum value and the conveying speed is varied and in another part of the adjusting range of the same adjusting member the conveying speed is kept at a constant maximum value and the luminous flux is varied.

3,655,288

OPTICAL SYSTEM FOR USE IN AUTOMATIC, SIMULTANEOUS MULTIELEMENT ATOMIC SPECTROSCOPY SAMPLE ANALYSIS APPARATUS

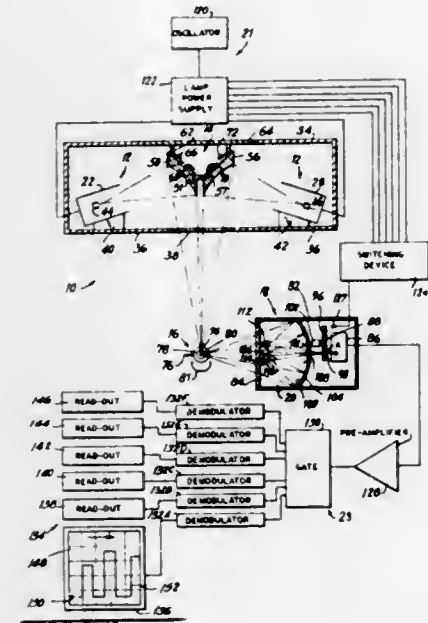
Lee M. Lieberman, Fort Lee, N.J., and Robert T. Schumann, Flushing, N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed July 30, 1970, Ser. No. 59,401

Int. Cl. G01j 3/30, 3/48; G01m 21/58

U.S. Cl. 356-87

5 Claims



New and improved optical system for use in apparatus for the automatic, simultaneous multielement analysis of samples by atomic spectroscopy which include a plurality of radiation sources effective to emit radiation of different wavelengths for the irradiation of a sample burner flame are provided, and comprise radiation source optic means including a plurality of toroidal mirrors for reflecting the radiation from said plurality of radiation sources and focusing said radiation sub-

stantially at the same volume of said sample burner flame for irradiation thereof, and detector means optics, including spaced primary and secondary mirrors for observing substantially only said irradiated sample burner flame volume and focusing substantially only the radiation therefrom at the radiation detector.

3,655,289

OPACITY METER WITH NOISE SUPPRESSION

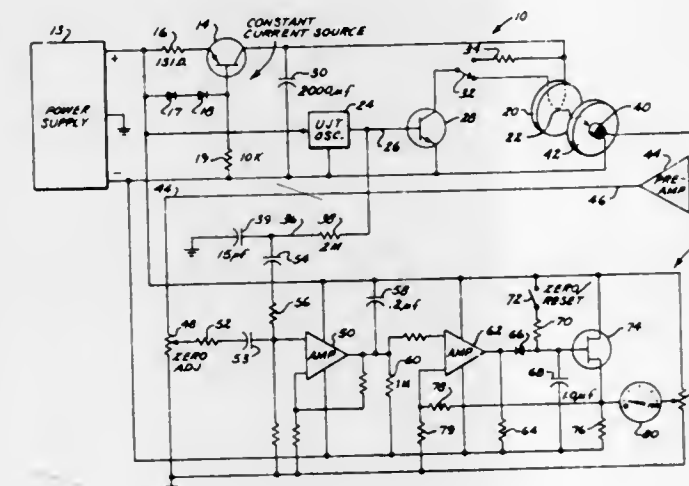
Jimmy Aubrey Walker, Fountain Valley, Calif., assignor to The Susquehanna Corporation, Fairfax, Va.

Filed Jan. 22, 1971, Ser. No. 108,821

Int. Cl. G01n 21/06, 21/22, 21/12

U.S. Cl. 356-201

9 Claims



A system and process are disclosed for measuring the transmittance or opacity of a smoke plume discharged from a smokestack or diesel engine exhaust. Measurement is accomplished by passing light pulses through the smoke plume and detecting the remaining energy with a photoelectric detector. The effect of scattered light is eliminated. An electrical signal proportional to the unabsorbed light received at the detector is displayed on a calibrated opacity meter. The accuracy of the system and process is enhanced by negating or suppressing the effect of noise.

3,655,290

APPLICATOR INSTRUMENT

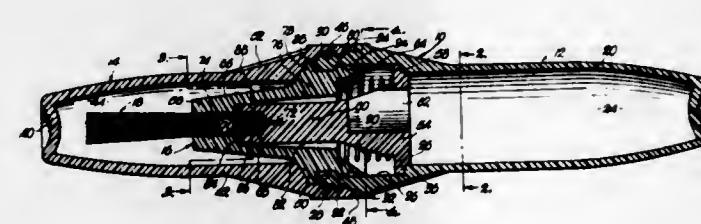
Vernon D. Griffith, Wichita, Kans., assignor to Griffith & Associates, Inc., Wichita, Kans.

Filed Oct. 2, 1970, Ser. No. 77,660

Int. Cl. B43m 11/06

U.S. Cl. 401-186

10 Claims



An instrument for applying fingernail polish or the like having shiftable and interrelated parts, which automatically open a fluid passage from a reservoir to a brush element when a cover cap is removed and the main body of the instrument is squeezed, and which automatically close said passage and seal the brush element in a closed zone when the cover cap is emplaced on the main body.

3,655,291

STYLUS FOR WAX WRITING, GOLD SCROLLING AND THE LIKE

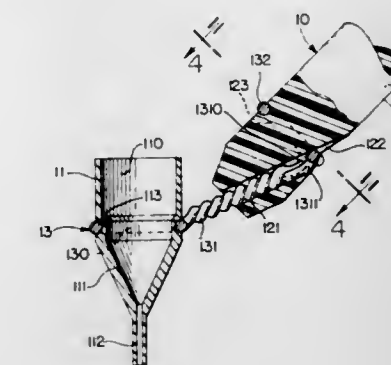
William Volker, 18977 Burt Road, Detroit, Mich.

Filed Sept. 21, 1970, Ser. No. 74,094

Int. Cl. B43k 1/06; A46b 11/08

U.S. Cl. 401-265

3 Claims



An improved stylus for wax writing on eggs, fabric and paper, for liquid gold and other color scrolling on ceramics, and for other uses in the fine arts consisting of a reservoir scribing head including a cylindrical reservoir open at its upper end and formed conical shaped at its lower end terminating in a hollow depending scribing point through which molten wax, liquid gold, india ink or the like flows during contact with the article being scribed when the stylus is in use. The scribing head is secured firmly in spaced relationship to the lower end of a preferably plastic shaft by means of a looped and partially twisted wire extending into and through a diagonal bore in the lower end of said plastic shaft which permits heating of the scribing head for melting wax and scooping it therein whereby to charge the scribing head for wax writing use.

3,655,292

GUIDE ROD LOCKING AND RELEASING MECHANISM FOR FILE DRAWERS

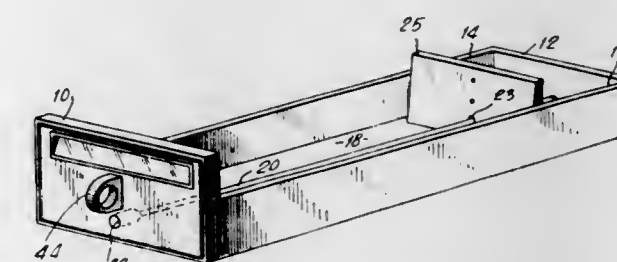
Robert H. Savage, deceased, late of Schwenksville, Pa. (by Deborah F. Savage, administratrix), assignor to Art Metal-Knoll Corporation, New York, N.Y.

Filed June 17, 1970, Ser. No. 47,028

Int. Cl. B42l 13/00, 17/16

U.S. Cl. 402-63

8 Claims



A guide rod locking and releasing mechanism for use with file drawers for apertured sheet material. A cam arrangement of simple construction moves the guide rod out smoothly.

The guide rod is locked in place by a latch plate such that the front end face of the rod is flush with the front face of the drawer front panel. When it is desired to move the rod forward, a single motion of an operating means hidden within the drawer front panel and accessible through the bottom of the front panel moves the latch plate to release the rod and then operates a cam to move the rod forwardly so that the rod protrudes from the front face of the drawer front panel. The guide rod can then be grasped and pulled out to allow removing or adding sheet material.

3,655,293

VARIABLE AND REVERSING HYDRAULIC DRIVE SYSTEM FOR TURBINES

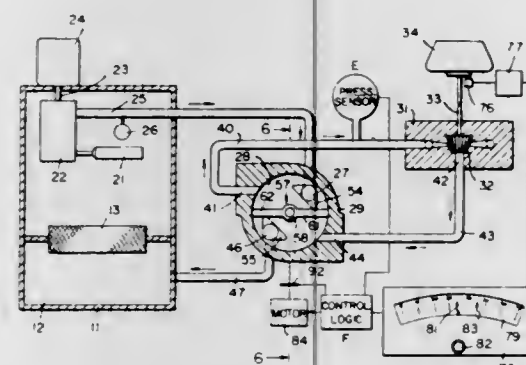
John F. Williams, New Canaan, Conn., assignor to Ivan Sorvall, Inc., Newton, Conn.

Filed Aug. 11, 1970, Ser. No. 62,846

Int. Cl. F01b 25/00

U.S. Cl. 415-17

12 Claims



Turbine drive system including a novel hydraulic valve for providing throttling and reversing flow of hydraulic fluid through a turbine drive for a centrifuge rotor or the like. The valve may be controlled automatically by a feedback system from the centrifuge drive shaft for correcting or preventing errors in rotor speed as well as by a feedback system responsive to the pressure variations in the hydraulic supply to the turbine impeller.

3,655,294

PUMP

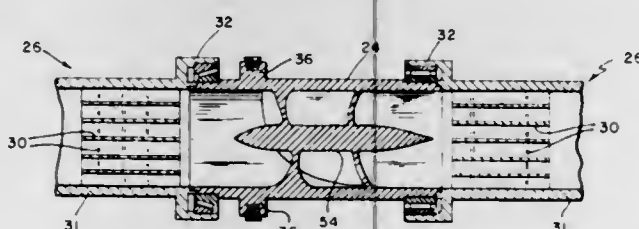
Robert H. Thatcher, Wichita, Kans., assignor to Marine Systems, Inc., Wichita, Kans.

Filed Jan. 19, 1970, Ser. No. 3,757

Int. Cl. F01d 1/24

U.S. Cl. 415-68

15 Claims



This invention is a fluid pump having an axially rotating duct which has an internal impeller blade therein disposed substantially axially. The pump has an inlet and outlet to couple the duct with a fluid medium functioning as the source and receiver of the fluid, and a powering means to axially rotate the duct to result in moving the fluid.

3,655,295

MECHANICAL SEAL FOR CENTRIFUGAL PUMPS

William Mitchell, Dover, N.J., assignor to Eco Pump Corporation, South Plainfield, N.J.

Filed Oct. 1, 1970, Ser. No. 77,239

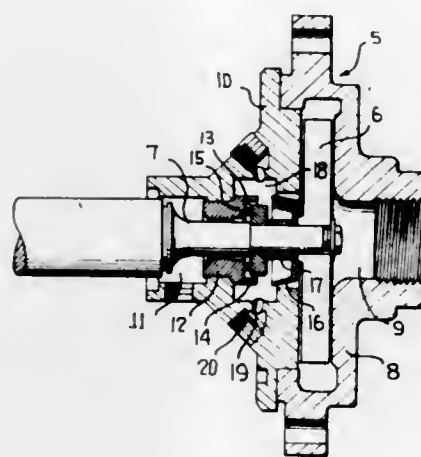
Int. Cl. F01d 11/00

U.S. Cl. 415-113

1 Claim

A mechanical seal for centrifugal pumps having a fixed bearing mounted in the housing of the pump for supporting the shaft of the pump, a rotating sealing disk mounted on the shaft in contact with the fixed bearing, the bearing and sealing disk being surrounded by a cavity formed in the housing and a cup shaped slinger mounted on the shaft between the

cavity and impeller of the pump for introducing and retaining fluid in the cavity for lubricating and cooling the bearing and



sealing disk even when the flow of fluid through the pump stops.

ERRATUM

For Class 416-72 see:
Patent No. 3,655,297

3,655,296

LIQUID PUMP

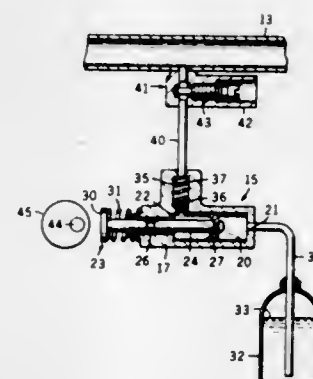
Franklin M. McDougall, St. Louis, Mo., assignor to Dema Engineering Co., St. Louis, Mo.

Filed July 18, 1969, Ser. No. 842,910

Int. Cl. F04b 49/00

U.S. Cl. 417-214

2 Claims



A liquid pump having a piston head carried by a piston rod and located in a cylinder between an inlet and outlet, the head being of a type that enables passage of fluid in the cylinder from the inlet side of the head to the outlet side upon head movement in a first direction, and delivering fluid on the outlet side of the head to the outlet and drawing fluid from the inlet into the inlet side upon head movement in the opposite second direction. A motor means includes a rotatable eccentric engageable with a follower carried by the piston rod to urge the piston means away from one limit of its movement and in the first direction, while a spring tends to return the piston means to said one limit of its movement in the second direction. A check valve communicates with the outlet and enables fluid flow only in the direction from the cylinder through the outlet, and a metering valve means communicates with the outlet and regulates liquid flow delivered by the piston means through the outlet at a predetermined rate.

3,655,297

COUPLING FOR FOLDABLE TUBULAR PARTS

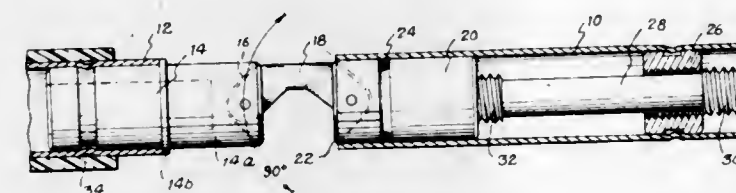
Hugh R. Bolen, Jr., and Charles S. Wiggins, both of Lexington, Va., assignors to Magnetic Forming Corporation

Filed Nov. 25, 1970, Ser. No. 92,646

Int. Cl. F16c 11/00

U.S. Cl. 416-72

2 Claims



A coupling for the elongated tubular shaft of a paddle, or the like, made of two lengths of tubing, the coupling incorporating a hinge that is retractible into the shaft when the elongated shaft is in use, the joint between the two parts of the shaft becoming then a splice between the ends of the tubing without external fastenings.

3,655,298

FLUID FLOW TRANSFER DEVICE

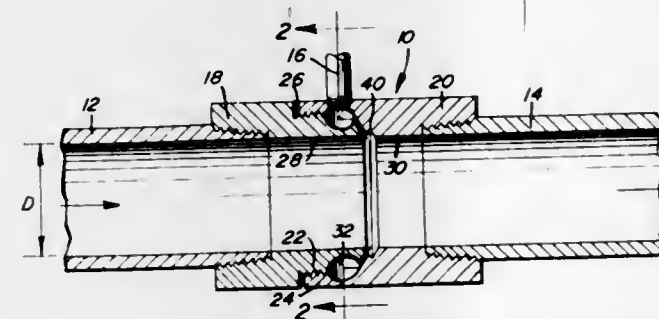
Hayward Baker, P.O. Box 887, Menlo Park, Calif.

Filed May 15, 1970, Ser. No. 37,672

Int. Cl. F04f 5/44

U.S. Cl. 417-196

7 Claims



Materials are transported through a conduit by the action of an impelling fluid introduced at a low mass flow rate and high velocity into the conduit. The impelling fluid enters the conduit along the inside wall surface with a velocity vector parallel to the flow path of the conduit for smooth transfer of energy to a compatible carrier fluid under laminar flow conditions.

3,655,299

ROTARY PUMP WITH PRESSURE RELIEF

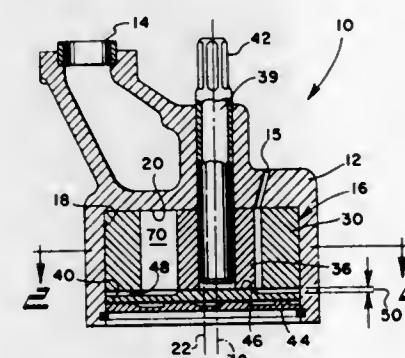
Laverne R. Connelly, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Nov. 12, 1970, Ser. No. 88,790

Int. Cl. F04b 49/02

U.S. Cl. 417-310

12 Claims



A rotary pump includes a housing, rotors, an inlet chamber, an outlet chamber and pressure relief means. The

pressure relief means includes a movable wall normally resiliently biased into engagement with one of said rotors and exposed to fluid pressure at said outlet chamber. At a predetermined maximum pressure, the fluid pressure force acting upon the wall will overcome the resilient bias and move the wall away from said rotors to a degree sufficient to interconnect said outlet and said inlet chambers in fluid communication and allow fluid to flow therebetween and thereby disrupt the pumping action of the rotors. The movable wall pressure relief contacts only one of the rotors.

3,655,300

PUMPS

Albert H. Davis, 11, Trontbeck, Close, Twyford, Berkshire, England

Filed July 7, 1970, Ser. No. 52,839

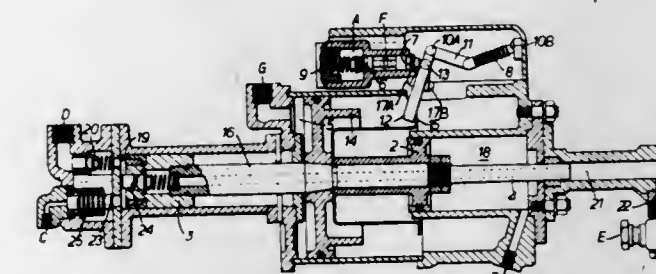
Claims priority, application Great Britain, July 8, 1969,

34,410/69

Int. Cl. F04b 17/00, 35/00, 21/04

U.S. Cl. 417-397

4 Claims



The invention is concerned with an air operated hydraulic pump by which compressed air can be used to provide on the one hand a supply of hydraulic fluid under high pressure for the operation of high pressure hydraulic devices and on the other hand a supply of hydraulic fluid under relatively low pressure at a relatively high rate for rapid action of hydraulic devices under light loads. To that end a pneumatic motor is used to drive two hydraulic pumps in common; one pump is of relatively large displacement and is connected to deliver hydraulic fluid to the inlet of the other pump and therethrough to an outlet, and the pressure in the large displacement pump, and hence the pressure of relatively high rate delivery, is limited to a value low in relation to the maximum pressure of delivery fluid by the second pump stage.

3,655,301

FLUID PUMP

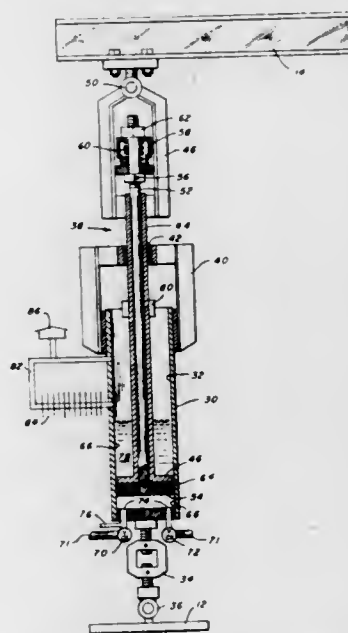
Clifford F. McClung, 2761 East 45th Place, Tulsa, Okla.

Filed May 28, 1970, Ser. No. 41,319

Int. Cl. F01b 31/04; F16j 1/06; F04b 49/00

U.S. Cl. 417-437

1 Claim



A fluid pump having a piston member reciprocally disposed within a hollow cylinder utilizes the oscillating ac-

tion of an external walking beam as a prime mover thereof. Turnbuckle means secure the cylinder of the compressor to a stationary surface and further provide a means for adjusting the compression ratio. The piston member possesses the ability to compensate for piston ring wear thereby maintaining the piston ring in sealing engagement with the inner wall of the cylinder.

3,655,302

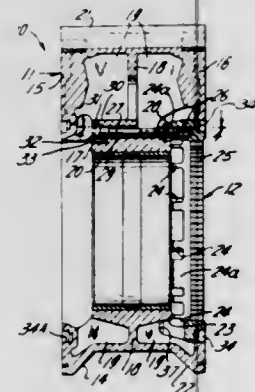
ROTOR AND GEAR ASSEMBLY FOR ROTARY MECHANISMS

Walter L. Hermes, Cedar Grove, and Charles Jones, Hillside, both of N.J., assignors to Curtiss-Wright Corporation
Filed Apr. 2, 1970, Ser. No. 25,220

Int. Cl. F01c 17/02; F16h 51/08

U.S. Cl. 418-61

2 Claims



An improved rotor and gear assembly for rotary mechanisms, such as combustion engines or the like, in which the gear is seated in one face of the rotor and secured to the rotor by a plurality of circumferentially spaced fastening means extending from the face of the rotor opposite from the gear, through the rotor, into the gear to thereby flexibly secure the gear against radial movement due to thermal distortion resulting from cyclically varying stress loads and thermal induced stresses.

3,655,303

ENERGY ABSORBING ROTARY PISTON PUMP

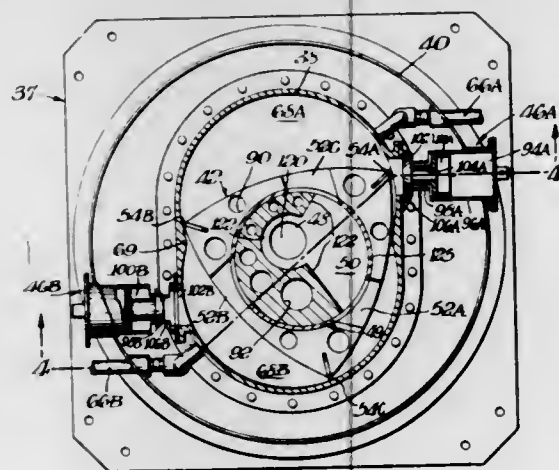
Robert B. Cotton, Media, Pa., assignor to All American Industries, Inc., Wilmington, Del.

Continuation-in-part of application Ser. No. 756,035, Aug. 28, 1968, now Patent No. 3,549,110. This application Oct. 28, 1970, Ser. No. 84,825

Int. Cl. F01c 1/02; F04c 1/02, 15/02

U.S. Cl. 418-61

5 Claims



An energy absorbing device, which is highly effective for use in an aircraft arresting gear, is provided by mounting a

rotary pump having a pressure related characteristic within a container of fluid. The pump circulates the fluid from and back into the container whereby it absorbs energy in response to a mechanical input and transmits this energy to the fluid in the container in the form of heat. A highly effective form of this device utilizes a rotary piston-type pump having an axial input channel in its shaft connected to radial passageways extending through its cam disc and rotating piston. The fluid is discharged through pressure relief valves of the compressed air cushioned type. The rotary piston-type pump is particularly advantageous for such service because its rotor rotates slower than the input shaft, thus minimizing the mass of the pump to provide a given amount of energy absorption.

3,655,304

SEALING DEVICE FOR PISTONS OF ROTARY PISTON MACHINES

Hans Sturmer, Stuttgart, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

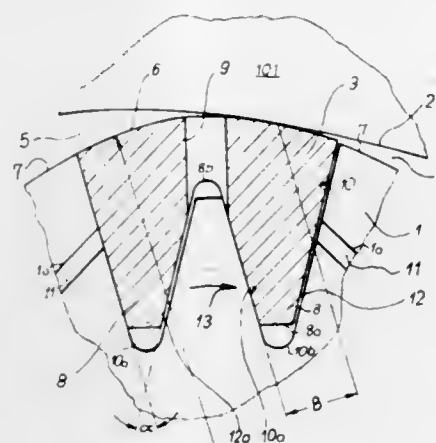
Filed Sept. 17, 1970, Ser. No. 73,039

Claims priority, application Germany, Oct. 2, 1969, P 19 49 695.8

Int. Cl. F01c 19/02; F03c 3/00

U.S. Cl. 418-124

12 Claims



A rotary piston machine wherein the piston has several lobes and orbits in the interior of a cylinder whereby its lobes sweep along the inner surface of the cylinder. The lobes are formed with axially parallel grooves bounded by internal surfaces of gear tooth shaped profile, and each groove receives a sealing element whose outer portion has a convex external surface engaging the inner surface of the cylinder and whose inner portion has several gear tooth shaped projections which are received with some clearance in complementary sections of the groove. Channels which are formed in the sealing elements establish communication between the chamber of the cylinder and certain sections of the grooves to insure that all sides the sealing elements are subjected to substantially identical pressures which are only slightly higher than necessary to maintain the sealing elements in requisite sealing engagement with the inner surface of the cylinder.

3,655,305

ELECTROSTATIC REPELLING CYLINDERS FOR FILAMENT FLYBACK CONTROL

James Fletcher Baxter, and Samir Costandi Debbas, both of Hendersonville, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 26, 1970, Ser. No. 5,731

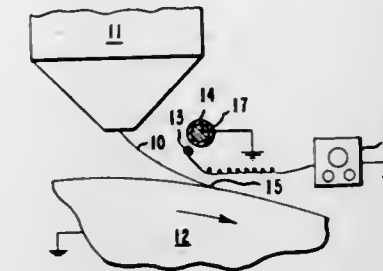
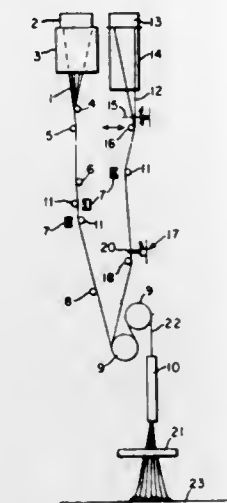
Int. Cl. D01d 7/00; B65h 53/00

U.S. Cl. 425-83

2 Claims

Electrostatically charged groups of continuous filaments entrained in a plurality of gaseous streams are forwarded by means of jet devices toward a receiving area. The tendency

of filaments at the edges of each group to escape from its web to a roll which comprises a first electrode and a second, group and to become attracted to nearby grounded surfaces



insulated electrode independent of the roll, and means for establishing a potential difference therebetween.

3,655,308

APPARATUS FOR MAKING PROGRESSIVE INJECTION MOLDED SHEET

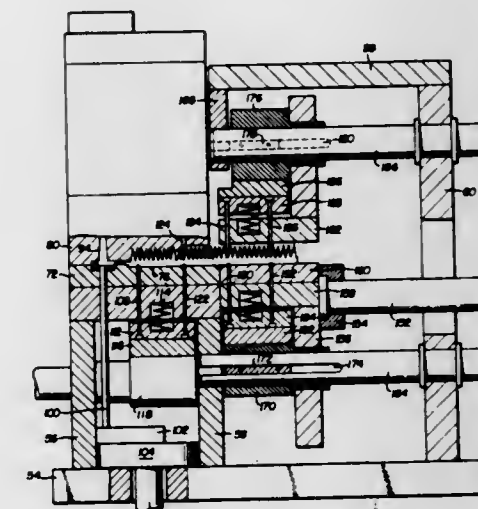
Louis F. Kutik, 8720 S.W. 23rd Place, Fort Lauderdale, Fla., and Erich W. Gronemeyer, 2100 S. Ocean Lane, Fort Lauderdale

Original application May 16, 1968, Ser. No. 729,694, now Patent No. 3,616,110. Divided and this application Apr. 30, 1971, Ser. No. 138,894

Int. Cl. B29d 7/00, 21/00; B29f 1/06, 1/14

U.S. Cl. 425-109

11 Claims



A plastic sheet is disclosed which is made up of injection molded sections molded progressively and joined together at edges thereof during the molding process. The sheet may have integral bristles on one side thereof making it useful as a rug or carpet, buy other uses of the invention are contemplated. The method includes the molding of plastic sections such that as each section after the first one is molded it welds to a previously molded section at an edge thereof, and the sections are advanced after each molding step so that a trailing edge of the last molded section seals the mold exit. The trailing edge may be provided with a thin flange which is softened by the molten material so that a weld is formed. Shrinkage of the plastic is controlled to prevent leakage of molten plastic from the mold around the last molded section and also to prevent buckling of the sheet. This is preferably done by providing keys in the mold which harness the plastic to the mold. Pins in the mold are used to form indentations in the sections to facilitate advancing the sections. Other pins slightly oversize in diameter and length serve as a lock for accurate alignment of the sections and also serve a sealing purpose.

3,655,306

APPARATUS FOR MOLDING HEART VALVES

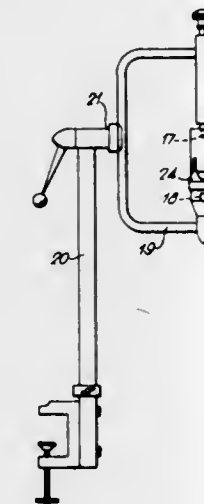
Donald Nixon Ross, and Derek Barrie Ray, both of National Heart Hospital West Moreland Street, London W.1, England

Filed Jan. 19, 1970, Ser. No. 3,749

Int. Cl. A61f 1/22; B29d 31/00

U.S. Cl. 425-109

14 Claims



The invention relates to an apparatus and method for manufacturing replacement aortic heart valves using tissue taken from a patient's own thigh. The tissue is moulded between first and second complementary surfaces of two complementary forming members, the complementary surfaces corresponding to the configuration of the heart valve. The tissue when moulded is secured to a support.

3,655,307

ELECTROSTATIC PINNING OF DIELECTRIC FILM

William E. Hawkins, Circleville, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 823,848, May 12, 1969, now abandoned. This application Mar. 23, 1970, Ser. No. 21,695

Int. Cl. B29d 7/22

U.S. Cl. 425-109

9 Claims

Apparatus for electrostatically pinning a moving dielectric

3,655,309

ROTATING FIXTURE-MOLD FOR FABRICATING PRINTING DRUMS

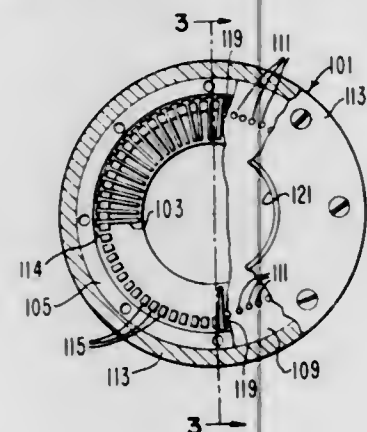
Neal Hepner, Birmingham, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Original application Nov. 15, 1967, Ser. No. 690,041, now Patent No. 3,529,054, dated Sept. 15, 1970. Divided and this application Mar. 13, 1969, Ser. No. 806,829

Int. Cl. B29d 3/00; B29c 5/04

U.S. Cl. 425-109

9 Claims



A rotating fixture-mold for locating and holding type bearing print members in a spatical relationship to each other and to the axis of rotation of the fixture mold. The type bearing print members when molded together form a drum structure which may be used as a printing drum or as an intermediate mold.

3,655,310

MANUFACTURE OF HOSE PIPES

Brian Lawrence Smith, Hornby, near Lancaster, and Rodger William Robertson, Halton-on-Lune, near Lancaster, both of England, assignors to George Angus & Company Limited, Newcastle-upon-Tyne, England

Filed June 30, 1969, Ser. No. 837,676

Claims priority, application Great Britain, Aug. 16, 1968, 39,280/68

Int. Cl. B29f 3/10

U.S. Cl. 425-109

5 Claims



The invention provides mechanism for feeding a textile jacket along a rearward extension of the mandrel of an extrusion head which applies to the jacket a cover and a lining of rubber or plastics material, said mechanism including two spaced clamps which are operable alternately to clamp the jacket to the mandrel extension and to hold the latter against forward movement, two feed mechanisms one of which operates while the front clamp is engaged to feed the portion of the jacket between the clamps forwardly along the mandrel extension, and the other of which operates while the rear clamp is engaged to feed forwardly along the mandrel extension the portion of the jacket in advance of the clamps and an automatic control circuit for effecting sequential operation of the clamps and the feed mechanisms.

3,655,311

APPARATUS FOR PRODUCING ISOTROPIC FOAMED SYNTHETIC RESIN STOCK

Lawrence Christie Porter, Palos Verdes Peninsula, Calif., assignor to The Upjohn Company, Kalamazoo, Mich.

Continuation of application Ser. No. 579,053, Sept. 13, 1966. This application May 13, 1970, Ser. No. 37,421

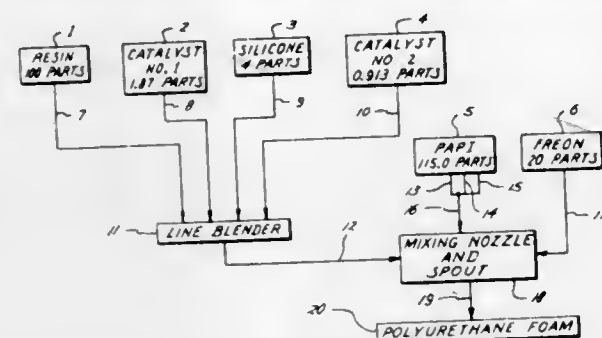
Int. Cl. B29d 27/04

U.S. Cl. 425-115

12 Claims

This invention relates to the production of cellular synthetic resin stock, and more particularly relates to

methods and apparatus for producing foamed synthetic resin stock, especially polyurethane foam, having a substantially



rectangular cross section and which is generally isotropic in character.

3,655,312

APPARATUS FOR MAKING EMBOSSED FOAMED SURFACE COVERING MATERIALS

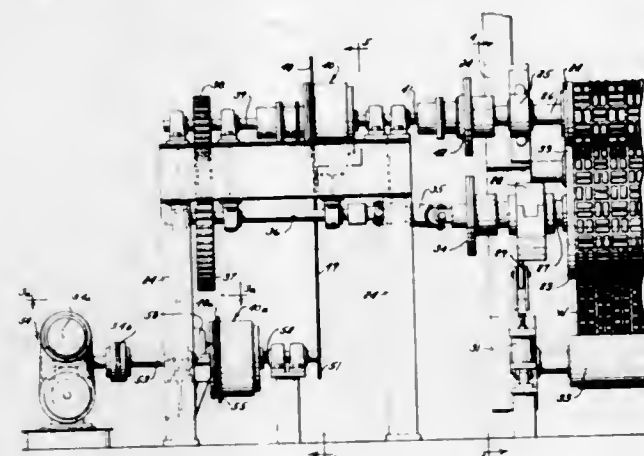
Edward R. Erb, Geryville, and Richard L. Maass, Salisbury Township, Lehigh County, both of Pa., assignors to GAF Corporation, New York City, N.Y.

Filed May 2, 1969, Ser. No. 821,409

Int. Cl. B31f 1/00

U.S. Cl. 425-115

8 Claims



Surface covering materials such as foamed vinyl floor coverings are manufactured by applying a foamable resin layer to a base or substrate, printing a pattern on the foamable layer, applying a transparent wear layer over the printing, heating the product to develop the foam, and then passing the foamed product through an embossing nip formed between a backing roll and an embossing roll, the latter having lands and valleys conforming with the printed pattern. The product is pulled through the embossing nip by drive means located beyond the embossing and backing rolls, the product being retained in sufficient surface contact with the backing roll to effect rotation of the backing roll without slippage, and the embossing roll is driven from the backing roll through a transmission providing for variation in the peripheral surface speed of the embossing roll to maintain registration of the lands and valleys of the embossing roll with the printed pattern.

3,655,313

PLASTIC INJECTION MOLDING APPARATUS

Mahito Kunogi, Nagoya, Japan, assignor to Meiki Seisgkusho, Ltd., Nagoya City, Aichi-ken

Filed June 3, 1970, Ser. No. 43,019

Claims priority, application Japan, June 13, 1969, 44/47085; Sept. 4, 1969, 44/70229; Apr. 11, 1970, 45/31025

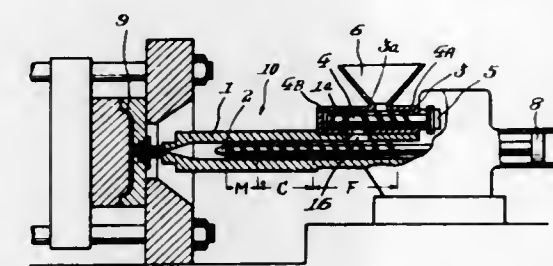
Int. Cl. B29f 3/00

U.S. Cl. 425-130

9 Claims

An injection molding apparatus is provided characterized by having an injection screw rod rotatably and reciprocally

mounted in a heating cylinder, there being a channel between the thread convolutions on the screw rod, and a portion of that channel correspondingly in the metering zone of the screw rod being shallow in depth within limits prescribed by empirical formula so as to have the screw rod efficiently constrain against backflow of molten plastic material on in-



jection stroke, and there further being drive means and feed means interrelated in the apparatus for the feed means to supply raw plastic material to the screw rod in a feed zone of the latter at a rate commensurate with power demanded of the drive means for rotating the screw rod to feed raw plastic material forwardly from the feed zone being within practical limits.

3,655,314

SPINNING APPARATUS COMPOSED OF MODULAR SPINNING UNITS ON COMMON HEATING BEAM

Erich Lenk, Remscheid-Lennep, and Theodor Krawszik, Remscheid, both of Germany, assignors to Barmag Barmer Maschinenfabrik Aktiengesellschaft, Wuppertal, Germany

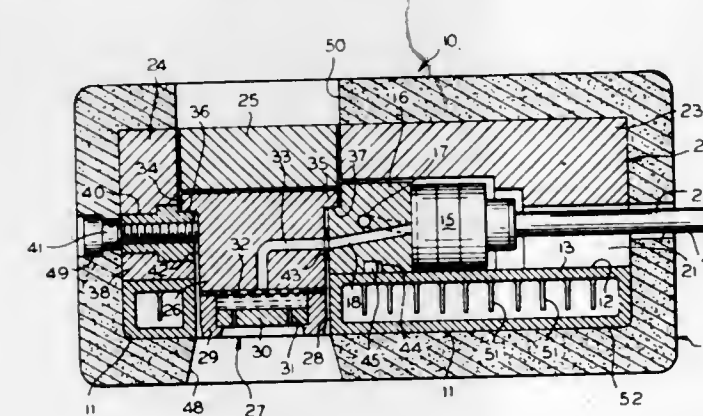
Filed Feb. 17, 1970, Ser. No. 11,954

Claims priority, application Germany, Feb. 19, 1969, P 19 08 207.6

Int. Cl. D01d 3/00, 5/08

U.S. Cl. 425-131

10 Claims



Elongated spinning beam with elongated, hollow heating member of flat, L- or U-cross section having removable mounted thereon a plurality of side-by-side melt spinning units, each having block-like units of pumps, spinning nozzle packs, and melt-conveying connecting units; interposed block-like members with melt distribution lines including stopcocks for supplying melt along the beam to respective pumps; and upper heat-conductive distributor plates or bars above the pumps and nozzle packs for uniform heat distribution within an encapsulating, heat insulating jacket.

3,655,315

HYDRAULIC CYLINDER APPARATUS

Cecil W. Bopp, Waterloo, Iowa, assignor to Go Corp. Inc., Adrian, Mich.

Filed Feb. 2, 1970, Ser. No. 7,570

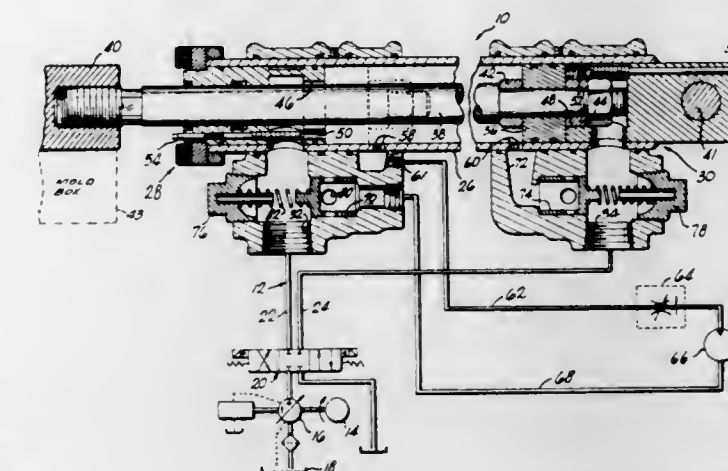
Int. Cl. B28b 13/02

U.S. Cl. 425-145

7 Claims

A feed drawer cylinder assembly for a concrete block molding machine. The assembly is constructed and arranged

in association with the hydraulic circuit for the agitator motor of the machine to open a circuit to the motor in timed relation to movement of the cylinder piston to a discharge



3,655,316

UNLOADING MECHANISM FOR SINGLE-LEVEL PLATEN PRESS

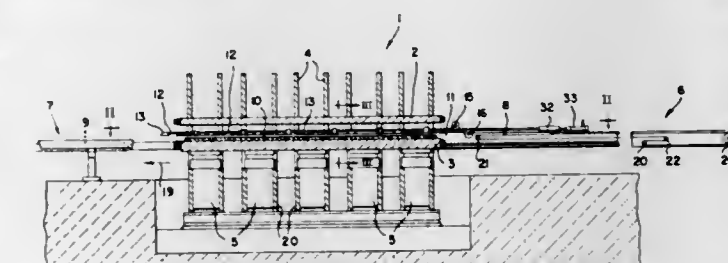
Walter Hugues, Krefeld, Germany, assignor to G. Siempelkamp & Co., Krefeld, Germany

Filed Feb. 17, 1970, Ser. No. 11,972

Int. Cl. B30b 15/32

U.S. Cl. 425-161

9 Claims



A conveyor tray, insertable from one side between two press platens for the deposition of a pile of particulate material to be bonded under heat and pressure to form a board, is mounted on a horizontally slidable frame which also carries inwardly swingable suction arms for gripping a finished board and discharging it from the press at the opposite side while a new pile is delivered by the conveyor tray.

3,655,317

AUTOMATIC MOLD STRIPPING MACHINE

Harold F. Funkhouser, and Charles W. Daugherty, both of Xenia, Ohio, assignors to Baxter Laboratories, Inc., Morton Grove, Ill.

Filed Feb. 26, 1970, Ser. No. 14,424

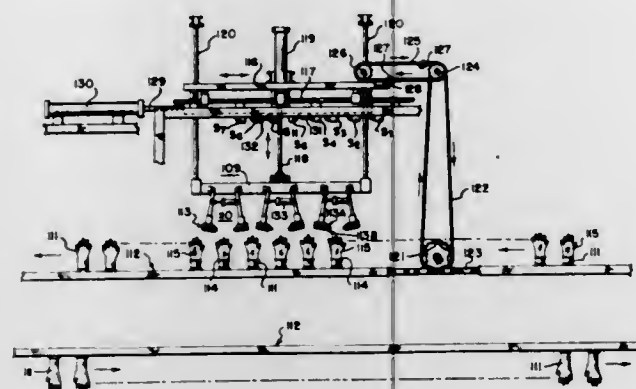
Int. Cl. B29c 13/04; B29h 3/044

U.S. Cl. 425-165

12 Claims

A machine for automatically stripping thin, flexible molded products from their molds on a continuously moving conveyor comprises, in essence, a movable array of arm pairs for clamping onto the molds, each arm having a pair of fingers for clamping onto a cuff or bead at the bottom of the molded product. The array of arms is attached to a movable carriage on a track parallel to the conveyor. A pneumatically actuated piston rod raises and lowers the array. Mechanical drive means are provided for engaging the carriage when the arm pairs are centered over the molds and for driving it at the

same speed at the conveyor. As the carriage moves, it activates a series of switches which lower the array, clamp the arms onto the molds, clamp the fingers onto the beads,



spread the arms again, and raise the array. A shuttle platform is driven under the raised array, and the stripped products are released. The carriage and the shuttle are then returned to their initial positions for a repetition of the cycle.

3,655,318

APPARATUS FOR FILLING AND COMPACTING A MIX INTO A FORM FOR MAKING PRECAST ELEMENTS

Wolfgang Schneider, Mushardweg 8, and Klaus Schneider, Feldweg 18, both of 2150 Buxtehude, Germany

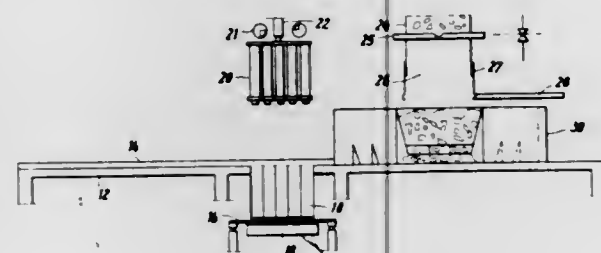
Filed Nov. 21, 1969, Ser. No. 878,682

Claims priority, application Germany, Nov. 21, 1968, P 18 10 128.5

Int. Cl. B28b 13/02

U.S. Cl. 425-218

7 Claims



Mass production of small precast concrete elements is improved with regard to uniformity of dimensions and of concrete compactability by a novel method and apparatus for filling the concrete mix into the form and compacting the mix in the form. According to the invention the form is evenly filled with a premetered quantity of concrete mix and any surplus due to inhomogeneities in the mix is removed during compacting of the concrete.

3,655,319

CLAY-WARE SHAPING MACHINE WITH ADJUSTABLE TOOL SUPPORTING MEANS

Arthur Bradshaw, and Frank William Meadows, both of Stoke-on-Trent, England, assignors to Service (Engineers) Limited, Cobridge, Stoke-on-Trent, England

Filed Mar. 3, 1970, Ser. No. 16,233

Claims priority, application Great Britain, Mar. 7, 1969,

12,067/69

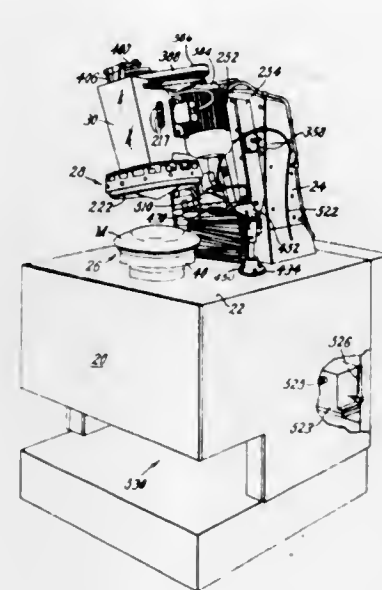
Int. Cl. B28b 1/02

U.S. Cl. 425-267

10 Claims

An improved machine for producing ceramic flatware by shaping clay pieces to a plaster mould carried on a rotatable

mould support using a roller shaping tool. The improvement which reflects itself in increased production is obtained by inclusion of means for raising the mould support to a uniform



height in successive operating cycles of the machine and means for providing vertical adjustment of the tool with respect to the mould during operation of the machine.

3,655,320

VACUUM MOLDING MACHINE FOR ANGULATED CAVITY FORM

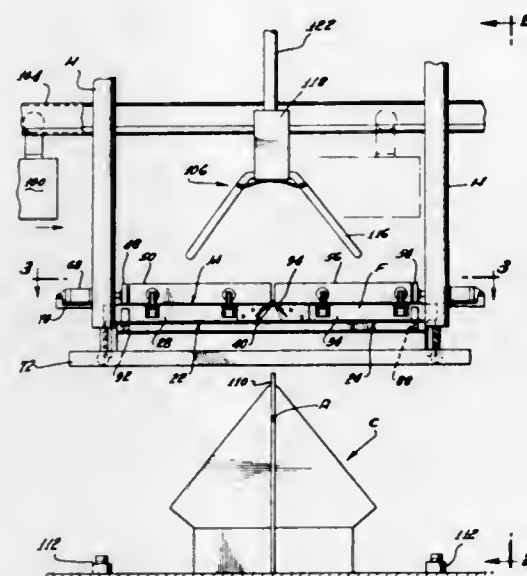
Edward A. Heavener, Long Beach, Calif., assignor to Gulf Development, Inc., Los Angeles, Calif.

Original application Dec. 20, 1967, Ser. No. 692,193, now Patent No. 3,574,807, dated Apr. 13, 1971. Divided and this application May 4, 1970, Ser. No. 34,085

Int. Cl. B29c 17/02, 17/04

U.S. Cl. 425-388

9 Claims



Sheet material to be formed over the angulated cavity form C (FIGS. 1 and 2) is clamped on a frame F. The frame F and

preheated sheet M are lowered by hydraulic motors H. Abutments A engage the lowering frame F and cause it to fold about the angulated form (FIGS. 4a and 4b) progressively to effect seals along side flanges S of the form (FIG. 2) and ultimately to form seals along the end flanges E by an overdraw. Vacuum is then applied. The depth of draw is minimized; the wall thickness is substantially maintained to achieve substantial strength in the finished part; very little plastic material is wasted as the molded part is trimmed.

3,655,321

APPARATUS FOR PRODUCING A HOLLOW HAMMER HANDLE WITH LONGITUDINALLY TENSIONED GLASS FIBERS

Wayne Wolf, Cedar Rapids, Iowa, assignor to Vaughan & Bushnell Mfg. Co., Hebron, Ill.

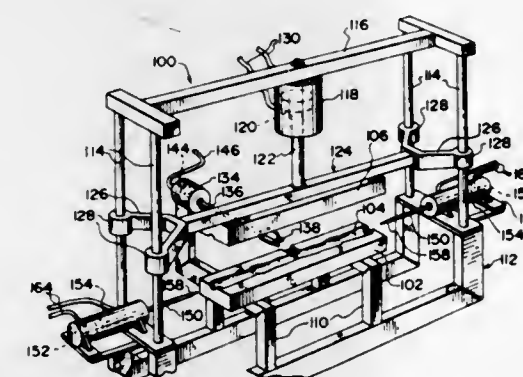
Division of Ser. No. 817,805, Apr. 25, 1969

Filed Sept. 22, 1970, Ser. No. 74,447

Int. Cl. B29c 3/00

U.S. Cl. 425-395

4 Claims



Molding apparatus for the production of two tandem-arranged hollow hammer handles having longitudinally tensioned fiber glass strands extending throughout their length. Upper and lower mold blocks, when brought together, define a mold cavity having open ends. Plastic-saturated fiber glass roving which is positioned in the mold cavity is pierced by a pair of mandrels which are projected into the mold cavity through such open ends to spread the glass fibers apart and establish within the handles voids which result from polymerization of the plastic material in the mold cavity.

3,655,322

HOLLOW BRICK MOLD BOX

Walter Kaitna, Vienna, Austria, assignor to Wienerberger Ziegelfabriks-Und Baugesellschaft

Filed Feb. 24, 1970, Ser. No. 13,665

Claims priority, application Austria, Feb. 25, 1969, A 1909/69

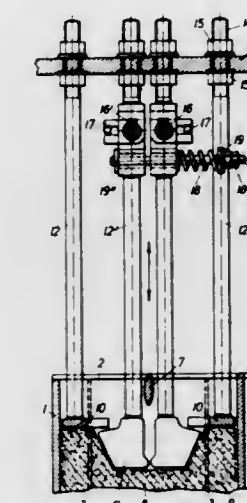
Int. Cl. B28b 7/00

U.S. Cl. 425-431

5 Claims

Hollow bricks are molded about cores supported by core bars in a mold box. The moldable material in the box is compacted by a pair of vertically movable compaction tools. The core bars are of beveled cross section to form respective vertically extending camming surfaces tapering upwardly and

downwardly, and each core bar is centered between the compaction tools of each pair of tools, with one of the camming surfaces facing a respective tool during vertical movement of the tools adjacent the bar. Springs normally reciprocate the



tools of each pair towards each other, the camming surfaces being arranged first to reciprocate the tools apart as the tools vertically move downwardly into contact with the camming surfaces and, upon further downward movement, to permit reciprocation towards each other by the action of the springs.

3,655,323

MOLDING DIE STRUCTURE

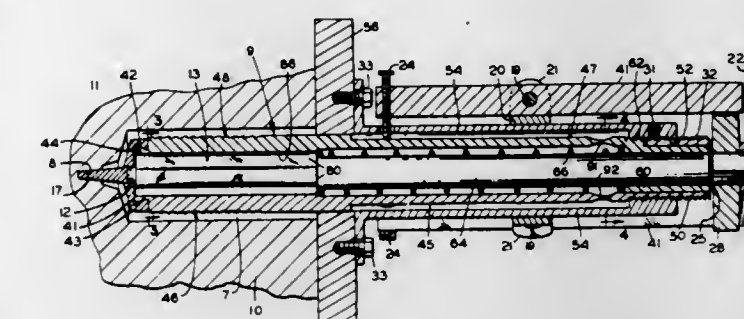
Leland V. Hall, Riddle, Oreg., assignor to Oasis Electronics, Riddle, Oreg.

Filed Mar. 9, 1970, Ser. No. 17,379

Int. Cl. B29c 1/06

U.S. Cl. 425-438

3 Claims



A core to be used for injection molding of or the forming of molded or extruded cylinders whereas they have threaded or otherwise undercut internal surfaces, in which the core die is collapsible enough to allow the molded or extruded part to be ejected from die. The walls of the core are not hinged but are formed from two sleeves which are slotted to form tines or springy segments, all of which are solidly paired together at one end. The segments are locked in place by means of a cam. The cam holds the segments so as to form an extremely solid die wall.

3,655,324

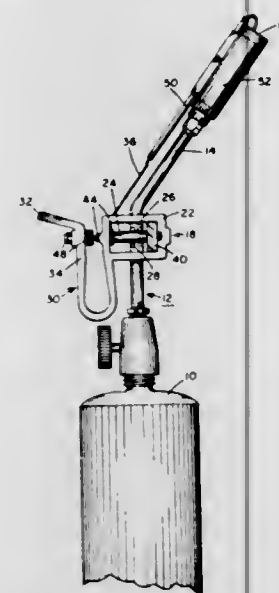
IMPACT TYPE PIEZOELECTRIC MECHANISM

Earl O. Schweitzer, Wickliffe, Ohio, assignor to Vernitron Corporation, Bedford, Ohio

Filed May 18, 1970, Ser. No. 38,233

Int. Cl. F23q 3/00

U.S. Cl. 431-258



An impact type piezoelectric mechanism for use in igniting a gaseous fuel from a torch or a similar device. A piezoelectric element is housed in a plastic-like casing which simultaneously serves as an insulator and which is integrally connected with a U-shaped spring carrying an impact body for manually striking the piezoelectric element.

18 Claims U.S. Cl. 274-14

3,655,325

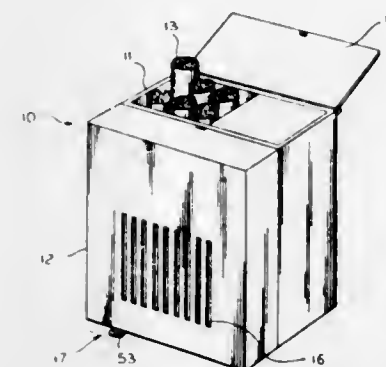
SMOKING DETERRENT

Lewis R. Toppel, Chicago, Ill., assignor to Topp Ltd., Incorporated, Chicago, Ill.

Filed Mar. 9, 1970, Ser. No. 17,644

Int. Cl. G11b 17/06

10 Claims



A pseudo-cigarette package that produces simulated coughing sounds when the package is picked up by a potential user to remove the cigarette therefrom. The simulated coughing noises are reproduced from a battery-driven disk recording played through a miniature loudspeaker in the package. A unique actuating lever arrangement enables the almost instantaneous replaying of the record each time the package is moved.

CHEMICAL

3,655,326

ACETYLATION OF TEXTILE ARTICLES OF CELLULOSE

Andre Rajon, Tassin-la-Demi-Lune, France, assignor to Societe Rhodiaceta, Paris, France

Filed Nov. 5, 1969, Ser. No. 874,366

Claims priority, application France, Nov. 6, 1968, 172765

Int. Cl. D06m 13/20; C08b 3/06

U.S. Cl. 8-121

6 Claims

The heterogeneous acetylation of regenerated cellulose textile articles is carried out using acetic anhydride as the acetylating agents and an alkali metal acetate, especially potassium acetate, as catalyst at 100°-135° C., keeping the acetic anhydride content of the acetylation bath above 95 percent by weight, and also keeping the constituent filaments of the articles at constant length. The process is quick and thus suitable for continuous operation, and avoids mutual cohesion of the filaments as a result of softening or partial solution.

3,655,327

FABRIC PROCESS

William H. Rollins, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Continuation-in-part of application Ser. No. 458,955, May 26, 1965, now abandoned. This application Sept. 19, 1969, Ser. No. 871,397

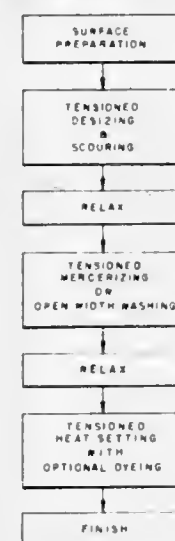
Int. Cl. D06m; A02g 3/04

U.S. Cl. 8-130.1

13 Claims

A process for imparting stretch characteristics to a woven

fabric comprising applying greater than usual warp yarn ten-



sion to a fabric in a plurality of increments and then setting the fabric in its new configuration.

3,655,328

PROCESS FOR A LIQUID TREATMENT OF CLOTH

Yoshikazu Sando; Takashi Tsuchihashi, and Hiroshi Ishidoshiro, all of Wakayama-ken, Japan, assignors to Santo Iron Works Co., Ltd., Wakayama-shi, Wakayama-ken, Japan

Filed Dec. 12, 1969, Ser. No. 884,575

Claims priority, application Japan, May 19, 1969, 44/38545;

June 16, 1969, 44/47410; Nov. 4, 1969, 44/88320

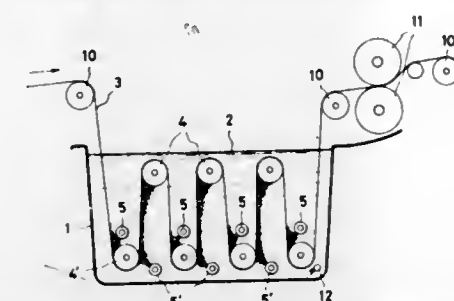
Int. Cl. B05c 3/152

U.S. Cl. 8-149.1

4 Claims

A process and an apparatus for a liquid treatment of cloth,

such as washing in water, desizing and scouring, in which



numberless foams are fed between guide rollers positioned in a treatment liquor and the cloth is put on the guide rollers.

3,655,329

POLY ALUMINUM HYDROXY COMPLEXES AND PROCESS FOR THEIR PRODUCTION

I-Kao Shih; Eric Blaser, both of, Toronto, Ontario, Canada, assignors to Warner-Lambert Company, Morris Plains, N.J.

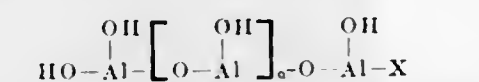
Filed Jan. 2, 1968, Ser. No. 789,059

Int. Cl. C01f 1/00

U.S. Cl. 23-50 R

1 Claim

A new class of poly aluminum hydroxy complexes of the formula:



which are prepared by neutralizing poly aluminum hydroxide with a water soluble acid having a pKa of less than 5, for example, hydrochloric acid, hydrobromic acid, nitric acid, lactic acid, acetic acid, to obtain poly aluminum hydroxy complex of the formula: PAH-X, in which PAH is poly aluminum hydroxy and X is the anion; the PAH-X thus formed can be treated further with aqueous solution of water soluble salts to make other derivatives. These poly aluminum hydroxy PAH-X complexes are useful as deodorant, anti-perpirant and astringent agents.

3,655,330

PROCESS FOR THE PREPARATION OF ALUMINA AND MAGNESIUM ALUMINATE BODIES

Richard Raymond Rettew, Laurel; David Griffith Wirth, Jr., Wheaton, and Newton Levy, Jr., Ellicott City, all of Md., assignors to W. R. Grace & Co., New York, N.Y.

Filed Mar. 12, 1970, Ser. No. 19,121

Int. Cl. C01f 7/02, 7/34

U.S. Cl. 23-52

13 Claims

A process for preparing strong, chemically inert, alpha alumina or magnesium aluminate spinel (MgAl_2O_4) bodies. The alpha alumina bodies have densities of greater than 3.92 grams per cc, grain sizes of 2-6 microns and purities in excess of 99.9 percent and are sinterable to fine grain microstructures at temperatures below 1,550° C. The calcination of the alumina or spinel precursor is carried out in a system that carefully controls the rate of temperature rise and that carries out the calcination in the presence of water vapor.

3,655,331

PRODUCTION OF SODIUM CARBONATE

Leonard Seglin, New York, N.Y., and Henry S. Winnicki, New Canaan, Conn., assignors to Intermountain Research & Development Corporation, Cheyenne, Wyo.

Continuation of application Ser. No. 356,880, Apr. 2, 1964, now abandoned, which is a continuation-in-part of application Ser. No. 72,145, Nov. 28, 1960, now patent No. 3,131,996, which is a continuation-in-part of application Ser. No. 632,236, Jan. 2, 1957, now Patent No. 2,962,348. This application June 6, 1969, Ser. No. 835,878. The portion of the term of this patent subsequent to May 5, 1981, has been disclaimed.

Int. Cl. C01d 7/00

U.S. Cl. 23-63

15 Claims

A process for preparing refined soda ash from crude trona by calcining the crude trona to crude sodium carbonate, mixing the crude sodium carbonate with an aqueous solution

containing at least 6 percent of sodium carbonate to form a saturated solution of sodium carbonate, separating the solution from the gangue solids, evaporating the solution to crystallize sodium carbonate therefrom, separating the sodium carbonate crystals and calcining to soda ash.

3,655,332

PROCESS FOR PREPARING LITHIUM COMPOUNDS OF THE FORMULA LiMF_6 WHEREIN M IS ARSENIC OR ANTIMONY

William Novis Smith, Jr., Exton, Pa., assignor to Foote Mineral Company, Exton, Pa.

Filed June 15, 1970, Ser. No. 46,543

Int. Cl. C01d 11/02; C01b 27/00, 29/00

U.S. Cl. 23-88

8 Claims

Lithium compounds of the formula LiMF_6 wherein M is arsenic or antimony are prepared by a metathesis reaction in an inert organic solvent between lithium tetrafluoroborate and an alkali metal compound of the formula ZMF_6 , wherein Z is potassium or sodium and M is as defined above.

3,655,333

PROCESS FOR PRODUCING ANHYDROUS SODIUM CHLORIDE AND PURIFIED SATURATED BRINE

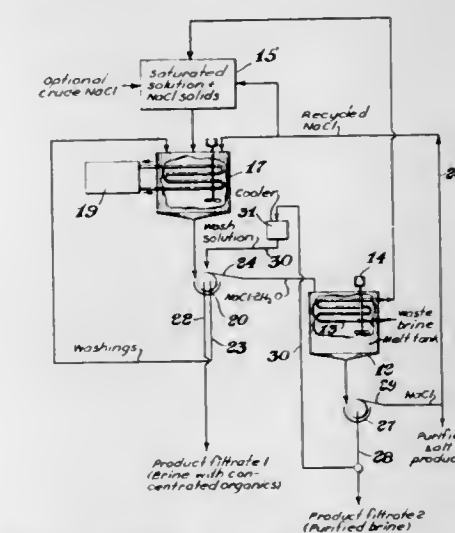
Vernon A. Stenger, and Walter R. Kramer, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 4, 1970, Ser. No. 34,420

Int. Cl. C01d 3/06, 3/14

U.S. Cl. 23-89

6 Claims



Solid sodium chloride is incorporated into a sodium chloride-saturated brine containing dissolved matter, other than sodium chloride, to be concentrated. The temperature of the system is reduced to within the range from about 0° C. to about -21° C. to form sodium chloride dihydrate. The dihydrate is separated from the aqueous system thereby increasing the concentration of the other dissolved matter relative to the remaining liquid phase. The process is particularly useful for concentrating dilute systems for further treatment or ultimate disposal.

3,655,334

METHOD FOR PRODUCING ALKALI METAL AND/OR ALKALI EARTH-METAL PHOSPHATES

Kurt Willi Harri Kribbe, deceased, late of Knapsack near Cologne, Germany (by Gertrude Katharina Kribbe nee Hanhardt, Heinrich Kribbe, Edith Kribbe nee Kuhrt, Heinz Harnisch, Joseph Crener, heirs), assignor to Knapsack-Griesheim Aktiengesellschaft, Knapsack near Cologne, Germany

Continuation of application Ser. No. 375,388, June 15, 1964, now abandoned. This application Nov. 17, 1969, Ser. No. 871,521

Claims priority, application Germany, July 8, 196, K 50156

Int. Cl. C01b 25/30

U.S. Cl. 23-106

1 Claim

A process for obtaining alkali metal phosphates by introducing an alkali metal compound into a phosphorus-oxigen flame, the amount of alkali metal compound fed into

the reactor being such that an excess of 1-50 mol percent of P_2O_5 is maintained with respect to the ratio of metal oxide to P_2O_5 in the final product.

3,655,335

PRODUCTION OF PHOSPHATES

John A. Peterson, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Dec. 31, 1968, Ser. No. 789,011. The portion of the term of the patent subsequent to Jan. 14, 1986, has been disclaimed.

Int. Cl. C01b 25/28, 25/30

U.S. Cl. 23-107

14 Claims

A process for making pure alkali metal or ammonium phosphates wherein wet process phosphoric acid is treated with iron powder, the acid-iron mixture neutralized with a basic material to a pH of 3.5-9. The resulting slurry is filtered and a pure phosphate product recovered from the filtrate.

3,655,336

PROCESS FOR THE CATALYTIC PRODUCTION OF HYDROXYL-AMMONIUM SALTS

Heinz Heine, Krefeld, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 15, 1969, Ser. No. 866,718

Claims priority, application Germany, Nov. 2, 1968, P 18 06 537.7

Int. Cl. C01g 1/10; C01c 1/28

U.S. Cl. 23-117

3 Claims

Improvement in the process of reacting nitric oxide and hydrogen in an acid reaction medium in the presence of a catalyst of the platinum group which is suspended on graphite, active carbon or a mixture thereof wherein the process is carried out in the presence of carbon dioxide to improve the selectivity of the catalyst for hydroxyl ammonium salt production.

3,655,337

PROCESS FOR DESULFATION OF ALKALINE SOLUTIONS

Samuel M. Polinsky, Salt Lake City, Utah, and Alfred K. Schellinger, White Plains, N.Y., assignors to Kennecott Copper Corporation, New York, N.Y.

Filed May 16, 1969, Ser. No. 825,388

Int. Cl. C01f 11/46, 7/02

U.S. Cl. 23-122

6 Claims

A process for removing sulfates from alkaline solutions using barium hydroxide which is solubilized by heating a mixture of barium hydroxide and water. The barium hydroxide solution is then added to the alkaline solution containing sulfate ions, from which barium sulfate precipitates. Substantially all of the sulfate ions are precipitated with virtually no entrapment of other valuable ions. The barium sulfate can be regenerated to barium hydroxide by known means and recycled.

3,655,338

CENTRIFUGAL FILTRATION OF MAGNESIUM SULFITE SLURRIES

Indravadan S. Shah, Forest Hills, N.Y., assignor to Chemical Construction Corporation, New York, N.Y.

Filed June 10, 1970, Ser. No. 45,254

Int. Cl. C01d 5/16

U.S. Cl. 23-129

6 Claims

Magnesium sulfite slurry, derived from the scrubbing of a waste gas stream for sulfur dioxide removal with a circulating aqueous magnesium oxide-sulfite slurry, is processed to recover a solids cake rich in magnesium sulfite which may be subsequently calcined. The aqueous magnesium sulfite slurry is passed through a thickener so as to decant clear liquor,

and the thickened slurry is heated to convert magnesium sulfite hexahydrate to the trihydrate form. The slurry is then passed through centrifugal separation means under controlled conditions of feed rate, initial total solids content and speed in revolutions per minute (rpm) of the centrifuge, so as to produce a residual wet solids cake with a moisture content of less than 5 percent by weight and an aqueous solution phase containing less than 1 percent residual solids by weight.

3,655,339

PRODUCTION OF LOW-SODA ALUMINA

George MacZura, East St. Louis, Ill., and Alan Pearson, St. Louis, Mo., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed July 18, 1969, Ser. No. 843,181

Int. Cl. C01f 7/02

U.S. Cl. 23-142

5 Claims

Production of a low-soda alumina by calcining an alumina starting material of low-soda content at 1,100°-1,400° C followed by leaching. The starting alumina material contains less than 0.25 percent by weight soda, and the final alumina contains less than 0.1 percent by weight soda. The calcining is continued until the product is at least 75 percent by weight alpha alumina. Reduction in amount of soda from the alumina starting material to the final alumina product is at least 75 percent.

3,655,340

METHOD OF MANUFACTURING DIAMOND CRYSTALS

Tatsuo Kuratomi, 2-18 4-Chome, Hamatake Chigasaki-shi, Kanagawa-ken, Japan

Filed Aug. 7, 1969, Ser. No. 848,344

Claims priority, application Japan, Nov. 27, 1968, 43/086378

Int. Cl. C01b 31/06

U.S. Cl. 23-209.1

5 Claims

Diamond crystals are produced by subjecting to elevated temperatures and pressures a mixture of a nondiamond form of carbon together with a mixture or alloy of nickel and phosphorus, which serves as the solvent and catalyst for the conversion to diamond form. Use of nickel and phosphorus for solvent and catalyst allows conversion of nondiamond carbon to diamond at lower pressures than previously utilized, i.e., from about 38,500 to about 49,000 atmospheres.

3,655,341

CARBON BLACK PRODUCTION

Paul H. Johnson, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Sept. 4, 1969, Ser. No. 855,113

Int. Cl. C09c 1/48

U.S. Cl. 23-209.4

4 Claims

A method of increasing the photometer of thermal black by passing the black through a furnace black reactor and in contact with hot gases produced therein. The mixture of thermal black and hot gases can be passed in indirect heat exchange with hydrocarbon feed to form the thermal black which is then passed into the furnace.

3,655,342

DRYING CHLORINE

Otis C. Taylor, Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Feb. 20, 1970, Ser. No. 13,184

Int. Cl. C01b 7/02, 7/08

U.S. Cl. 23-219

6 Claims

Water is removed from chlorine gas or liquid by incorporating phosgene into the chlorine and contacting the mixture with a drying catalyst which promotes hydrolysis of the phosgene. Water contents are thus reduced to a few parts per million, e.g. less than 10 parts per million, on a volume basis.

In a preferred embodiment, chlorine gas containing some carbon monoxide is passed through a phosgene generating catalyst such as activated carbon. The reaction conditions in the carbon bed are controlled to produce a sufficient amount of phosgene to react with much, if not all, of the water present in the chlorine gas on later contact with the drying catalyst.

3,655,343

APPARATUS FOR OXIDIZING A SPENT PULPING LIQUOR

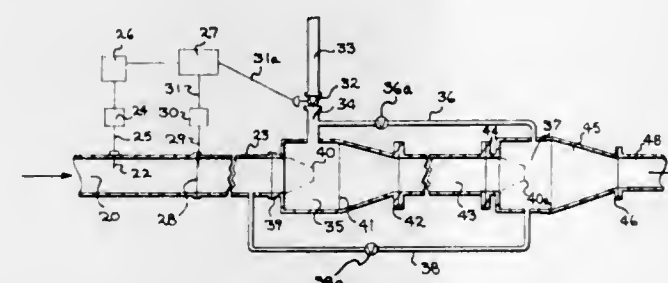
Sergio F. Galeano, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed Apr. 13, 1970, Ser. No. 27,496

Int. Cl. B01j 1/00; D21c 11/14

U.S. Cl. 23-284

2 Claims



A dual stage oxidation apparatus having a first and a second oxidation chamber arranged so that the first chamber convergently extends in a pipelike manner and discharges into the second chamber, an inlet conduit for supplying spent pulping liquor into the first chamber, an atomizing nozzle attached to the end of the inlet conduit for spraying the spent liquor into the first chamber, the first chamber converging from a large radius to a lesser radius and forming a conduit, a second atomizing nozzle attached to the converging conduit end formed from the first chamber and terminating in the second chamber for spraying the now partially oxidized spent liquor leaving the first chamber into the second chamber, for essentially complete oxidation, an outlet formed by the converging of the second reaction chamber from a large radius to a lesser radius forming thereby the exit conduit, an externally mounted oxygen line supplying oxygen to both the first chamber and the second chamber, an externally mounted circulating conduit connecting the inlet spent liquor conduit with the second reaction chamber, detection means for measuring the liquid volume flow and detection means for measuring the sulfide concentration of the spent liquor with both means mounted on the inlet conduit and measuring the flow and sulfide concentration before the spent liquor enters into the first chamber, and said detection means governing the amount of oxygen supplied to both the first chamber and to the second for oxidizing the spent pulping liquor.

3,655,344

TREATMENT OF TITANIUM TETRACHLORIDE DRIER RESIDUE

Robert F. Mitchell, and Gordon A. Carlson, both of New Martinsville, W. Va., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sept. 2, 1969, Ser. No. 854,597

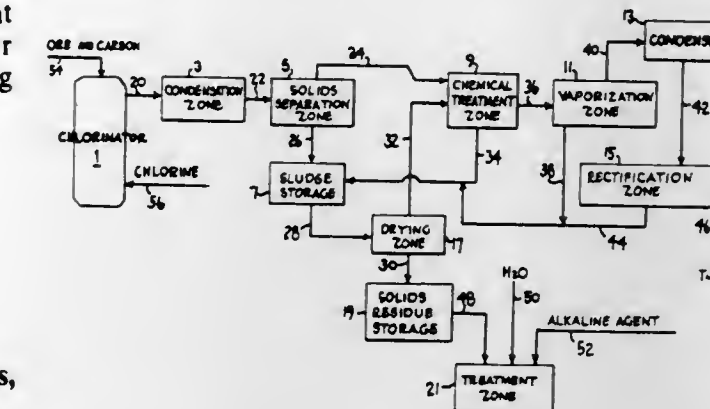
Int. Cl. B01d 9/02, 11/02; C01g 31/00

U.S. Cl. 23-299

7 Claims

The production of titanium tetrachloride by chlorination of titaniferous ores is described. Drier residue obtained from

treatment of impure titanium tetrachloride is further treated



3,655,345

METHOD OF GROWING ROD-SHAPED DISLOCATION-FREE MONOCRYSTALS, PARTICULARLY OF SILICON, BY CRUCIBLE-FREE FLOATING ZONE MELTING

Hans-Eberhard Longo, Munich; Wolfgang Keller, Pretzfeld, and Carl-Heinz Vogel, Beleck-Mohne, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Apr. 8, 1968, Ser. No. 711,641

Claims priority, application Germany, Mar. 9, 1967, S 108715

Int. Cl. B01j 17/10

U.S. Cl. 23-301 SP

3 Claims



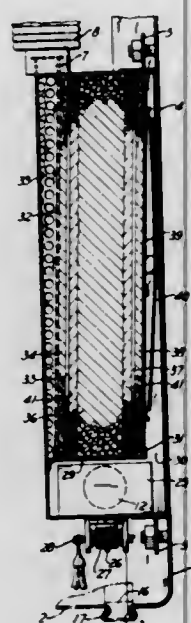
Method of growing rod-shaped monocrystals by floating zone melting includes adjusting the orientation of the seed crystal in its holder so that a main crystal axis thereof, which extends substantially in the longitudinal direction thereof, is inclined at an angle between 0.5° and 5° to the direction in which the rotary axis of the seed holder extends, and, at the start of the relative movement between the induction heating coil and the rod for passing a molten zone axially through the rod, the rod holder and the crystal holder are moved relatively away from one another so as to increase the spacing therebetween and form a bottleneck-shaped constriction at the end of the rod to which the seed crystal is fused.

3,655,346

EMERGENCY BREATHING APPARATUS

Harry N. Cotabish, Allison Park; Layton A. Wise, Washington, and Elmer E. Buban, Monroeville, all of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.
Filed Feb. 19, 1970, Ser. No. 12,201
Int. Cl. B01j 7/00

U.S. Cl. 23—281



In emergency breathing apparatus a case has a back section and a removable front cover section that are normally held together. Inside the case an air regenerating canister is secured to the back section and has a port in one end, to which a flexible breathing hose is connected. The opposite end of the canister is provided with an opening in each side, each of which is connected with an opening in one end of a breathing bag extending along that side of the canister. The hose and bags normally are folded within the case. The other ends of the bags are connected by means formed to extend around the back of the neck of a user of the apparatus to suspend the bags over his chest when they are removed from the case, with the canister between the bags.

3,655,347

PROCESS OF EXTRACTING COPPER WITH CERTAIN SUBSTITUTED 2-HYDROXYBENZOPHENOXIMES

Philip L. Mattison, New Brighton, and Ronald R. Swanson, New Hope, both of Minn., assignors to General Mills, Inc.
Original application Mar. 18, 1968, Ser. No. 714,040.
Divided and this application Aug. 12, 1970, Ser. No. 63,279

Int. Cl. B01d 11/04; C01g 3/00

U.S. Cl. 23—312

14 Claims

Certain 2-hydroxy benzophenoximes containing an electron withdrawing substituent(s). Compositions comprised of such benzophenoximes and certain α -hydroxy aliphatic oximes. Compounds and compositions are useful for the extraction of metal values.

3,655,348

PALLADIUM PHOSPHIDE CHALCOGENIDES

Tom Allen Bither, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Sept. 12, 1969, Ser. No. 857,560
Int. Cl. C01b 17/00, 19/00, 25/14

U.S. Cl. 23—315

5 Claims

At high pressures and temperatures in the vicinity of 1,000° C., palladium, phosphorus and a chalcogen, X, which can be S or Se combine to form compounds having the formula PdP_xX_{2-y} in which y is 0.67 when X is S and y is 0.4 to 0.8 when X is Se and which have a pyrite-type crystal structure. The compounds PdP_xX_{2-y} are electrical conductors

with an essentially zero temperature coefficient of resistance from liquid helium temperature to room temperature. The compounds are useful as electrical resistors.

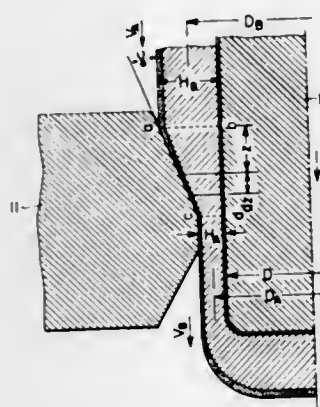
3,655,349

COATED SEAMLESS CONTAINERS AND METHOD OF FORMING

Dipak C. Shah; George W. Ward, and Roger L. Whiteley, all of Bethlehem, Pa., assignors to Bethlehem Steel Corporation
Filed Sept. 5, 1969, Ser. No. 855,475
Int. Cl. B23p 3/20

U.S. Cl. 29—196.4

10 Claims



Sheet steel having differentially coated surfaces of corrosion-resistant metal for use in drawing and ironing seamless articles and the method of forming said articles including coating the opposite surfaces of the sheet steel with metallic coatings having differing lubricity, drawing the coated sheet into a preform and ironing the preform.

3,655,350

COAL PELLET AND A METHOD OF MANUFACTURING SAME

Ronald W. Utley, Bethlehem, Pa., assignor to Bethlehem Steel Corporation
Continuation-in-part of application Ser. No. 732,449, May 27, 1968, now abandoned. This application Jan. 2, 1970, Ser. No. 399

Int. Cl. C10I 5/00, 5/16

U.S. Cl. 44—10 R

12 Claims

A coal pellet which is resistant to hydration and has good compressive strength and resistance to impact, containing fine particles of coal, and a coal tar pitch binder having a softening point of about 90° F. to about 190° F. and having a moisture content not greater than 10 percent. The coal pellet is produced by spraying coal tar pitch heated to a temperature of about 300° F. to about 600° F. onto fine particles of coal having a moisture content of about 12 percent to about 30 percent in a mixing vessel, pelletizing the resultant mixture and drying the pellets to the desired moisture content.

3,655,351

GASOLINE COMPOSITION

Ernest J. Jamieson, Highland Park, N.J., assignor to Cities Service Oil Company, Tulsa, Okla.

Filed May 29, 1969, Ser. No. 829,143

Int. Cl. C10I 1/18, 1/22

U.S. Cl. 44—66

13 Claims

Improved hydrocarbon fuel compositions suitable for employment in internal combustion engines, e.g., spark-ignition engines, compression-ignition engines, and turbine engines, and the operation of said internal combustion engines therewith. The hydrocarbon fuel compositions of the instant invention comprise a major proportion of a hydrocarbon fuel, especially one boiling in the gasoline boiling range, and a minor proportion of an additive which imparts to the hydrocarbon fuel composition detergent, anti-icing, and anti-

corrosion properties. The additives are hydrocarbon fuel-soluble organic compounds containing at least two amide linkages.

3,655,352

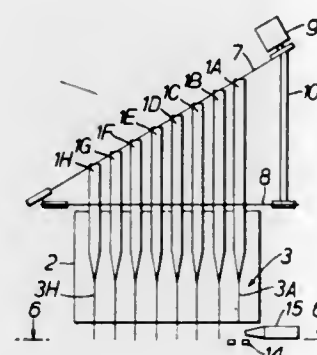
METHOD OF MAKING CONTINUOUS FIBER BUNDLE

Ian R. Elliot, Leeds, England, assignor to The Rank Organisation Limited, London, England
Filed Apr. 7, 1970, Ser. No. 26,237
Claims priority, application Great Britain, Apr. 25, 1969, 21,319/69

Int. Cl. C03c 23/20, 29/00

U.S. Cl. 65—4

6 Claims



A method of producing long continuous bundles of fibers consists in drawing out and bringing together fibers from rods of softenable material of different lengths. The rods are moved transversely during the drawing operation in the direction from the longest to the shortest rod. As each rod becomes too short for further use it is removed, its place being taken by the next shorter rod, and as each rod previously the longest rod is moved transversely its place is taken by a fresh rod of maximum length. Apparatus for manufacturing long continuous bundles of fiber includes a furnace and means for moving the rods axially into the furnace. It also includes means for moving the rods transversely at the same time and means for inserting fresh rods of maximum length and removing rods of minimum length.

3,655,353

GLASS FIBER SIZE

Charles E. Nalley, Shelby, and Joseph B. Lovelace, Forest City, both of N.C., assignors to PPG Industries Inc., Pittsburgh, Pa.

Filed May 21, 1969, Ser. No. 826,715

Int. Cl. C03c 25/02; B44d 1/16

U.S. Cl. 65—3

9 Claims

An aqueous forming size for treating a glass fiber strand, said size consisting essentially of a polypropylene emulsion, a textile lubricant and a coupling agent. The polypropylene emulsion can contain some emulsified polyethylene. The sized strands can be further coated with an aqueous rubber adhesive composition in preparation for use as reinforcement for rubber.

3,655,354

GRAPHITE CRUCIBLES FOR USE IN PRODUCING HIGH QUALITY QUARTZ

Herbert C. Quandt, Lakewood, Ohio, assignor to Union Carbide Corporation

Filed May 23, 1968, Ser. No. 731,616

Int. Cl. C03b 39/00

U.S. Cl. 65—24

4 Claims

An improved graphite crucible suitable for fusing quartz particles to produce quartz boules of high quality produced by treating a crucible manufactured from highly oriented graphite stock of high purity and high permeability with a solution of a metal salt such as aluminum chloride. Quartz boules

3,655,355

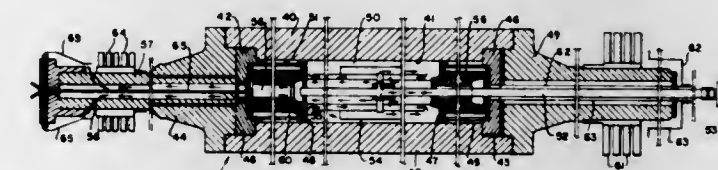
METHOD AND APPARATUS FOR THE PRODUCTION OF SHEET GLASS

Pierre Tissier, Saint-Gobain, France, assignor to Compagnie De Saint-Gobain, Neuilly-sur-Seine, France
Filed Aug. 21, 1969, Ser. No. 851,905

Claims priority, application France, Aug. 27, 1968, 164244
Int. Cl. C03b 13/18

U.S. Cl. 65—83

9 Claims



Process and apparatus for improving the smoothness and planarity of a sheet or ribbon of glass having a surface temperature of about 780° to 920° C. and having a viscosity of the order of 10^{6.5} to 10⁸ poises just before passing to and between a pair of metallic spaced smoothing and reducing rollers maintained uniformly at a surface temperature selected from a range of about 400° to 650° C. and by which the ribbon is reduced to 75 percent to 95 percent of its thickness prior to entry between the rollers. The surface temperature of the rollers is selected inversely as the temperature of the glass, within the ranges stated, and as shown upon the graph of Figure 1.

3,655,356

REFRACTORY BLOCK FURNACE WALL

Gustave Javaux, Brussels, Belgium, assignor to Glaverbel, Watermael-Boitsfort, Belgium

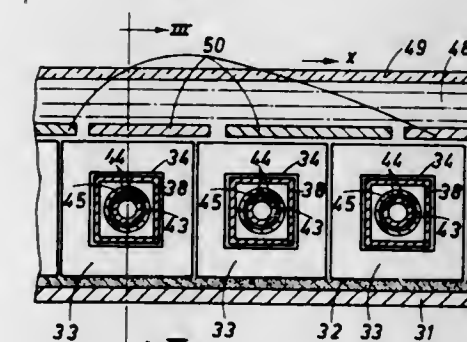
Filed Oct. 3, 1969, Ser. No. 863,617

Claims priority, application Luxembourg, Oct. 4, 1968, 57030

Int. Cl. C03b 18/02

U.S. Cl. 65—182 R

9 Claims



A wall of a refractory furnace comprises a plurality of refractory blocks positioned in side-by-side and/or end-to-end relationship. Each of the blocks is provided with a through passage and a structural member traverses the passage for anchoring the blocks to a supporting structure. The structural member may pass through a number of blocks placed in end-to-end relationship and the fluid medium may be conveyed through the passages for thermally conditioning the wall of the furnace.

3,655,357

BORON PHOSPHATE AS BORON SOURCE FOR PLANT LIFE

Louis F. Ray, West Carrollton, Ohio, assignor to Monsanto Company, St. Louis, Mo.
Continuation-in-part of application Ser. No. 673,279, Oct. 6, 1967, now abandoned. This application July 22, 1969, Ser. No. 843,846

Int. Cl. C05b 17/00

U.S. Cl. 71-1

5 Claims

Boron phosphate provides a boron source which slowly releases nutrient amounts of soluble boron in soil for plant assimilation.

3,655,358

STABILIZED LIQUID FERTILIZER COMPOSITION

Robert S. Rickard, and Donald L. Whitfill, both of Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed July 3, 1969, Ser. No. 839,083

Int. Cl. C05b 7/00

U.S. Cl. 71-34

4 Claims

A high-analysis suspension fertilizer is prepared by ammoniating phosphoric acid containing polyphosphoric acid to produce a supersaturated solution of ammonium phosphate containing ammonium polyphosphate, and comminuted chrysotile asbestos as a suspension aid. Additional plant nutrient salts may be blended into said saturated solution in forming the suspension product.

3,655,359

PLANT GROWTH CONTROL

Eriks V. Krumkalns, and Harold M. Taylor, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of application Ser. No. 785,737, Dec. 20, 1968, now abandoned. This application Oct. 16, 1969, Ser. No. 867,058

Int. Cl. A01n 9/22

U.S. Cl. 71-94

9 Claims

The growth of unwanted weed seeds and seedling weeds is inhibited by applying to the locus thereof a herbicidal composition containing one or more substituted 3-pyridylmethanes as the herbicidally active ingredient. The growth of suckers on tobacco plants is controlled by applying these compositions to the growing plants.

3,655,360

METALS AND METAL ALLOYS AND PREPARATION THEREOF

Robert H. Lindquist, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of application Ser. No. 796,222, Feb. 3, 1969, which is a continuation-in-part of application Ser. No. 582,238, Sept. 27, 1966, now Patent No. 3,458,306. This

application Nov. 24, 1969, Ser. No. 879,610. The portion of the term of this patent subsequent to July 29, 1986, has been disclaimed.

Int. Cl. B22f 9/00

U.S. Cl. 75-0.5 AC

3 Claims

Process for preparing dispersion-hardened metals and metal alloys, comprising forming a solution comprising metal halide precursors, selected from fluorides, bromides and iodides, of the continuous and dispersed phases of the final product, adding an epoxy compound to said solutions whereby a gel comprising metal hydroxides is formed, converting said metal hydroxides to oxides, and reducing the oxide precursors of the continuous phase of the final product, and products so prepared.

3,655,361

CONTROLLED REMOVAL OF OFF-GAS FROM OXYGEN STEEL CONVERTERS

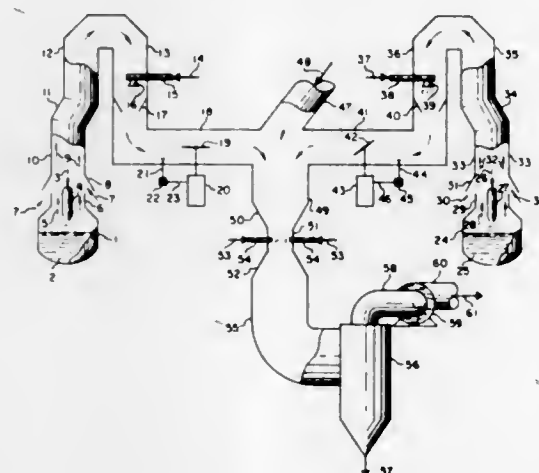
Bernard C. Brown, East Rockaway, N.Y., and Frank C. Braemer, Teaneck, N.J., assignors to Chemical Construction Corporation, New York, N.Y.

Filed Nov. 20, 1969, Ser. No. 878,435

Int. Cl. C21c 5/38

U.S. Cl. 75-60

3 Claims



A plurality of oxygen steel converters discharge off-gas streams via individual air-ventilated hoods to a common disposal system. The dampers which control individual hood off-gas flows are modulated to provide an adequate removal rate from a converter hood at the peak of the blow period.

3,655,362

PROCESS FOR THE THERMAL REDUCTION OF ALUMINA-BEARING ORES

Walther Schmidt, Richmond, and Hubert Martin, Chesterfield County, both of Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed May 16, 1969, Ser. No. 825,399

Int. Cl. C22b 21/02

U.S. Cl. 75-68 A

9 Claims

Aluminum-silicon alloys having an aluminum content greater than 50 weight percent aluminum are prepared by the thermal reduction of a furnace feed comprising alumina- and silica-bearing ores and elemental silicon to form aluminum alloys. The furnace feed is characterized by containing specified amounts of water of hydration in relation to the total amount of silica and alumina present, a specified amount of elemental silicon in relation to the total amount of silica and alumina and the feed has a silica to alumina ratio falling within specified limits. The thermal reduction is carried out by applying a rate of throughput of materials fast enough to effect dehydration while at the same time minimizing subsequent densification and induration in such a way that the furnace feed does not become fully calcined prior to introduction into the reaction zone of the furnace.

3,655,363

METHOD OF RECOVERING PALLADIUM

Mitsutoshi Tsutsumi, Kurashiki, Japan, assignor to Kuraray Co., Ltd., Kurashiki, Japan

Filed Oct. 23, 1970, Ser. No. 83,617

Int. Cl. C22b 11/04, 11/08

U.S. Cl. 75-101 R

6 Claims

Palladium is recovered from the palladium-containing precipitate formed in a palladium catalyzed alkylene glycol ester synthesis by a process which comprises dissolving said precipitate in an aqueous solution of at least one of alkaline compound selected from the group consisting of alkali metal

3,655,366

LOW ALLOY STRUCTURAL STEEL

Robert Allen De Paul, Sloatsburg, N.Y., assignor to The International Nickel Company, Inc., New York, N.Y.

Filed Oct. 13, 1969, Ser. No. 865,995

Int. Cl. C22c 39/20, 39/14

U.S. Cl. 75-123 J

6 Claims

Low cost, precipitation hardenable, structural steels containing carbon, nickel, molybdenum and columbium, the steels being capable of developing high strength and both ambient and low temperature toughness. Other constituents can be present, notably copper, manganese, silicon, etc.

3,655,364

PROCESS FOR TREATING LOW-IRON NICKELIFEROUS ORES

David J. I. Evans, Site No. 9, R.R. No. 6, North Edmonton, Alberta, Canada, and Nicolas Zubryckij, Praca Roamos de Azewedo 254, Sao Paulo, Brazil

Filed Feb. 27, 1970, Ser. No. 15,242

Int. Cl. C22b 23/04

U.S. Cl. 75-103

4 Claims

Low iron nickeliferous weathered serpentine is mixed with an iron oxide bearing additive material. The mixture is calcined under controlled reducing conditions to convert contained nickel values to a leachable stage. The calcine material is then leached with an aqueous ammoniacal ammonium carbonate solution in contact with free oxygen containing gas to extract nickel values. The additive is substantially free of substances which would contaminate the leach solution and is substantially free of nickel or contains nickel in such form or amount that the additive is not, in itself, amenable to treatment by the above described calcining and leaching process. The additive is added in an amount sufficient to provide an iron content in the mixture of up to about 60% by weight.

3,655,365

HIGH SPEED TOOL ALLOYS AND PROCESS

Frederick C. Holtz, Jr., Evanston, Ill., assignor to IIT Research Institute, Chicago, Ill.

Continuation-in-part of application Ser. No. 518,181, Jan. 3, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 435,733, Feb. 26, 1965. This application May 1, 1970, Ser. No. 33,990

Int. Cl. C22c 39/08, 39/50; C21d 7/14

U.S. Cl. 75-123 J

13 Claims



Compositions suitable for tool use and containing from about 10 to about 40% of a material selected from the group consisting of tungsten and molybdenum and mixtures thereof; from about 0.5 to about 4% carbon; at least one reactive metal selected from the group consisting of chromium, vanadium, niobium, tantalum, silicon and manganese; the balance a mixture of iron and cobalt. The alloy is formed by the hot consolidation of pre-alloyed powders and results in an alloy having a uniformly dispersed carbide phase of a grain size less than 3 microns.

3,655,368

VACUUM SWITCH CONTACTS

John L. Walter, Scotia; Harvey E. Cline, Schenectady, and James D. Cobine, Rexford, all of N.Y., assignors to General Electric Company

Filed Jan. 7, 1970, Ser. No. 1,313

Int. Cl. C22c 19/00

U.S. Cl. 75-170

2 Claims

Improved vacuum switch contact members have been fabricated from an electrically conductive hard metallic matrix containing a dispersoid of an electrically conductive metallic material which is insoluble in the matrix and which has a relatively high vapor pressure when heated by an arc developed between two such contact members. A specific example of a 96 weight per cent nickel, two per cent beryllium and 2 per cent bismuth composition is disclosed.

3,655,369

PERSISTENT INTERNAL POLARIZATION PROCESS IN ELECTROPHOTOGRAPHY

Koichi Kinoshita, Narashino-shi, Japan, assignor to Katsuragawa Denki Kabushiki Kaisha, Tokyo-to, Japan

Filed Sept. 3, 1968, Ser. No. 756,956

Claims priority, application Japan, Sept. 5, 1967, 42/56947

Int. Cl. G03g 13/00

U.S. Cl. 96-1

7 Claims

In a method of forming an electrostatic latent image wherein a first electric field of one polarity is applied across a perfectly insulated type photosensitive element or an element including a transparent highly insulative layer integrally bonded to a photoconductive layer and then a second field of the opposite polarity is applied concurrently with the projection of a light image onto one side, uniform light is irradiated upon the opposite side of the photosensitive element concurrently with or before or after application of the first field but before application of the second field to improve the image forming property.

3,655,370

PHOTOELECTROPHORETIC IMAGE TRANSFER

Leonard M. Carreira, Penfield, and Vsevolod Tulagin, Rochester; both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Original application Apr. 12, 1966, Ser. No. 542,050, now Patent No. 3,565,614, which is a continuation-in-part of application Ser. No. 384,737, July 23, 1964, now Patent No. 3,384,565. Divided and this application Aug. 24, 1970, Ser. No. 66,381. The portion of the term of this patent subsequent to May 21, 1985, has been disclaimed.

Int. Cl. G03g 13/22, 17/00

U.S. Cl. 96-1.3

15 Claims

A photoelectrophoretic imaging system is described in which the formed image is electrostatically transferred. The transfer is aided by using uniform or imagewise light radiation of the image during transfer.

3,655,371

METHOD AND APPARATUS FOR REPRODUCING OPTICAL INFORMATION

George J. Chafaris, East Syracuse, N.Y., assignor to General Electric Company

Filed June 22, 1959, Ser. No. 822,097

Int. Cl. B41m 5/20

U.S. Cl. 96-1.1

14 Claims

The disclosure relates to a method and apparatus for storing and reproducing information using a deformable material containing a volumetrically homogeneous distribution of particles for scattering light transmitted through said material. The information can be introduced and read-out in optical form.

3,655,372

IMAGE REVERSAL IN MANIFOLD IMAGING

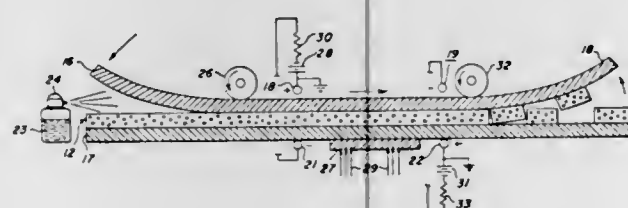
Ivar T. Krohn; Geoffrey A. Page, and Gedeminas J. Reinis, all of Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of application Ser. No. 609,058, Jan. 13, 1967, now abandoned. This application Oct. 16, 1970, Ser. No. 81,357

Int. Cl. G03g 13/22

U.S. Cl. 96-1.3

23 Claims



An imaging system wherein there is provided a manifold set comprising a cohesively weak imaging layer sandwiched between a donor sheet and a receiver sheet. An electrical potential is placed across the set and the imaging layer is exposed to extended imagewise activating electromagnetic radiation. The electrical potential across the set is then modified causing the image which conventionally adheres to the receiver sheet upon separation to adhere to the donor sheet and the image which conventionally adheres to the donor sheet to adhere to the receiver sheet.

3,655,373

CLEANING METHOD FOR ELECTROSTATIC COPYING MACHINES

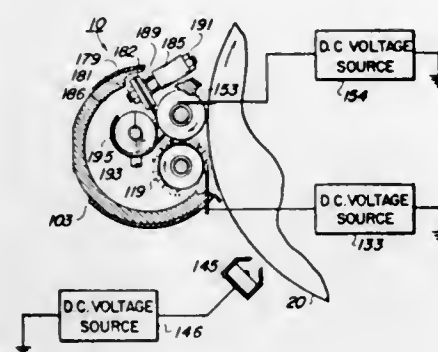
Donald J. Fisher, and Gerard T. Severynse, both of Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Original application Aug. 26, 1968, Ser. No. 755,267, now Patent No. 3,572,923. Divided and this application May 11, 1970, Ser. No. 36,019

Int. Cl. G03g 13/22

U.S. Cl. 96-1.4

3 Claims



Method and apparatus for removing residual images from a recording surface for reuse in a copying system. This is effected by wiping the electrostatic recording surface with an electrically non-conductive element to mechanically remove the toner particles from the surface. At the same time, an electrical bias of a polarity opposite that of the toner particles of sufficient magnitude is applied to the element so as to pull toner from the surface onto the element thereby removing substantially all of the toner from the surface. The element is advanced past an electrically biased means to remove the toner from the element thereby freeing it of the residual toner so that continuous cleaning action is obtained. After this, the toner is removed from the electrically biased means and collected for reuse in the system.

3,655,374

IMAGING PROCESS EMPLOYING NOVEL SOLID DEVELOPER MATERIAL

Frank M. Palermitti, Pittsford, and Arun K. Chatterji, Webster, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Original application June 5, 1967, Ser. No. 643,377, now Patent No. 3,590,000. Divided and this application Aug. 27, 1970, Ser. No. 67,562

Int. Cl. G03g 13/16, 9/02

U.S. Cl. 96-1.4

4 Claims

An electrostatic latent image is developed by using a finely-divided, rapid melting toner comprising a colorant, a solid, stable hydrophobic metal salt of a fatty acid, and a polymeric esterification product of a dicarboxylic acid and a diol comprising a diphenol.

3,655,375

INTERMITTENT GRIT REMOVAL PROCESS

Robert William Madrid, Macedon, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 29, 1969, Ser. No. 888,671

Int. Cl. G03g 13/14

U.S. Cl. 96-1.4

6 Claims

In an electrostatographic reproduction process involving cascade-type development, an improvement is provided allowing intermittent removal of grit generated in the developer. The improvement comprises intermittently bypassing the normal reproduction cycle and interposing a grit-removal cycle wherein a charge is imposed upon the electrostatographic imaging surface relatively opposite in polarity to the charge of the accumulated grit in the developer; the developer is then cascaded over the charged

imaging surface and the grit is preferentially attracted thereto and separated from the developer system.

3,655,376

ELECTROPHOTOGRAPHIC DENITRIFIED GLASS BINDER PLATE

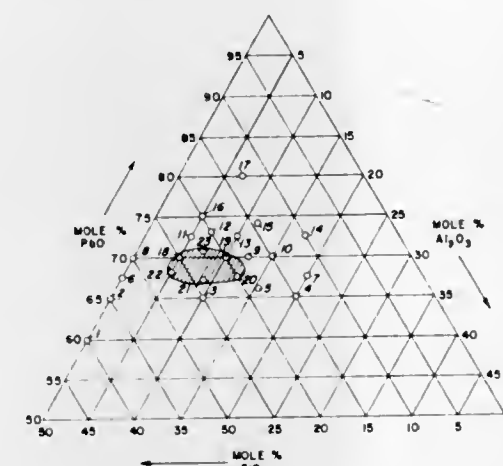
Charles Wood, Sycamore, Ill.; John C. Schottmiller, Penfield, N.Y., and Rustum Roy, State College, Pa., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of application Ser. No. 539,097, Mar. 31, 1966, now abandoned. This application May 20, 1970, Ser. No. 39,691

Int. Cl. G03g 5/04

U.S. Cl. 96-1.5

6 Claims



A xerographic plate comprising a two-phase layer, one component of which is a photoconductive metal oxide which has been recrystallized in a glassy binder. The two-phase photoconductive plate is prepared by mixing a major proportion of the photoconductive metal oxide and minor proportions of other glass formers, fusing the mixture and cooling it so as to form a single glass phase, and then heat treating the single phase glass so as to precipitate the metal oxide as finely divided, uniformly dispersed particles.

3,655,377

TRI-LAYERED SELENIUM DOPED PHOTORECEPTOR

Ronald P. Sechak, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of application Ser. No. 583,686, Oct. 3, 1966, now abandoned. This application June 26, 1970, Ser. No. 50,265

Int. Cl. G03g 5/00

U.S. Cl. 96-1.5

23 Claims

A photosensitive element having a three layered photoconductive portion comprising a first layer of vitreous selenium or a vitreous arsenic-selenium alloy, a second layer comprising a vitreous selenium-tellurium alloy, and a third layer comprising a vitreous alloy of arsenic-selenium. A method of imaging the photosensitive element is also described.

3,655,378

CHARGE-TRANSFER COMPLEXES OF DIBENZOFURAN-FORMALDEHYDE OR DIBENZOTHIOPHENE-FORMALDEHYDE RESINS AS PHOTOCONDUCTIVE MATERIALS

Lawrence E. Contois, Webster; Stewart H. Merrill, Rochester, both of NY, and George S. Grau, Hightstown, N.J., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 1, 1971, Ser. No. 119,956

Int. Cl. G03g 5/06

U.S. Cl. 96-1.5

10 Claims

Certain formaldehyde resins are disclosed which form complexes with Lewis acids such as trinitrofluorenone to

3,655,379

PRINTING BY VAPOR PROPULSION

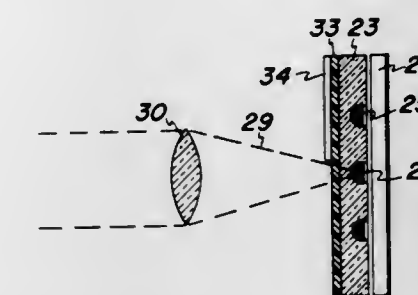
Robert W. Gundlach, Victor, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Oct. 29, 1969, Ser. No. 872,135

Int. Cl. G03c 5/00

U.S. Cl. 96-27

8 Claims



A liquid ink layer is formed on the surface of a transparent substrate. The ink layer is exposed through the substrate to high energy radiation causing exposed ink areas to move to a receiver sheet. It is believed that the ink is transferred by the rapid expansion of vapor.

3,655,380

DIFFUSION TRANSFER PRODUCT AND PROCESS CONTAINING 5-SELENO-1,2,3,4-TETRAZOLE

Timothy F. Parsons, Hilton, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 14, 1970, Ser. No. 2,964

Int. Cl. G03c 5/54

U.S. Cl. 96-29

14 Claims

Seleno tetrazoles such as 1-phenyl-5-seleno-1,2,3,4-tetrazole, 1-allyl-5-seleno-1,2,3,4-tetrazole, etc. are used as toners in a diffusion transfer process. The toner can be incorporated in the receiving sheet or in a processing solution. These toners are particularly useful when employed in a diffusion transfer process to improve the stability of the toned image.

3,655,381

PROCESS FOR THE PRODUCTION OF INTEGRALLY FORMED, RANDOM DOT PHOTOGRAPHIC IMAGES

Whitelaw C. Roemer, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 24, 1969, Ser. No. 819,088

Int. Cl. G03f 7/02, 5/00

U.S. Cl. 96-33

11 Claims

Integrally screened, random dot images are prepared with no conventional screening by using grainy images as the exposure image for high-contrast, light sensitive elements. The resultant dot images can be used directly or advantageously, for example, as a lith type image for the preparation of lithographic plates.

3,655,382

PROCESSES FOR CONVERTING ZERO-VALENT METALS PHOTOGRAPHIC IMAGES TO FORMAZAN DYE IMAGES

Albert T. Brault, Rochester, and Vernon L. Bissonette, Brockport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 25, 1970, Ser. No. 14,229

Int. Cl. G03c 5/24, 7/24

U.S. Cl. 96-48

11 Claims

A zero valent metal image in which the metal has a standard oxidation potential more positive than -0.98 volt is ad-

vantageously converted to a nondiffusible formazan dye image by the single process step of contacting the metal image with a solution of a tetrazolium salt that contains a metal complexing moiety when the combination of tetrazolium salt, metal and water produces a solution reaction potential E of at least +0.01 volt.

3,655,383

METHOD FOR REPRODUCING IMAGES OF A SOLID PHOTOCATALYST WITH AN OXIDIZING AGENT

Joseph W. Shepard, St. Paul, and Benjamin L. Shely, White Bear Lake, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of application Ser. No. 517,469, Dec. 29, 1965, now Patent No. 3,429,706, which is a continuation of application Ser. No. 221,329, Sept. 4, 1962, now abandoned, which is a continuation-in-part of application Ser. No. 809,927, Apr. 30, 1959, now Patent No. 3,152,903. This application Nov. 29, 1968, Ser. No. 780,283. The portion of the term of this patent subsequent to Feb. 25, 1986, has been disclaimed.

Int. Cl. G03c 5/54

U.S. Cl. 96-64

3 Claims

The present invention relates to an embodiment of the invention disclosed in U.S. Pat. No. 3,152,903 in which a radiation image is reproduced by exposing a carrier bearing a photocatalyst and an oxidizing agent to radiation to reduce a portion of the oxidizing agent present to a free metal defining a latent image which serves as a catalyst site for the subsequent development reaction of a reducing agent and the non-reduced oxidizing agent.

3,655,384

ANTI-STATIC COATING FOR PHOTOGRAPHIC EMULSION LAYERS

Henry Walter Wood, Ilford, England, assignor to Ilford Limited, Ilford, Essex, England

Filed July 31, 1970, Ser. No. 60,100

Int. Cl. G03c 1/76

U.S. Cl. 96-67

6 Claims

This application describes a method of improving the surface electrical conductivity of photographic material which is characterized in that it comprises coating on to the surface of the photographic material an aqueous solution of kappa-carrageenan and a sufficient amount of a salt of potassium or ammonium to cause the kappa-carrageenan to gel, allowing the coated layer to gel and drying the photographic material.

3,655,385

TORTILLA AND PROCESS USING EDIBLE HYDROPHILIC GUM

Manuel Jesus Rubio, Bridgeport, Conn., assignor to Roberto Gonzalez Barrera, Monterrey, Mexico

Filed June 8, 1970, Ser. No. 44,585

Int. Cl. A21d 2/18

U.S. Cl. 99-80 R

12 Claims

To retard the staling of tortillas, which are an unleavened unshortened food product made from nixtamalized corn or corn flour and to increase the yield of dough and tortillas by incorporating an additive in making the tortilla dough. The additive is edible hydrophilic gum.

3,655,386

ANTI-STATIC COATINGS FOR PHOTOGRAPHIC MATERIALS

Henry Walter Wood, Ilford, England, assignor to Ilford Limited, Ilford, Essex, England

Filed Feb. 9, 1970, Ser. No. 9,951

Claims priority, application Great Britain, Feb. 10, 1969, 7,151/69

Int. Cl. G03c 1/82

U.S. Cl. 96-87 A

5 Claims

This application describes a method for improving the surface conductivity of photographic material which is charac-

terized in that it comprises coating on to the surface of the photographic material an aqueous alcohol solution which comprises at least 0.2 percent by weight of sodium cellulose sulfate which has, on an average, at least two sulfate radicals per glucose unit in the cellulose chain, and then drying the photographic material.

3,655,387

ANTISTATIC PHOTOGRAPHIC COMPOSITIONS

Pierre Daniel Collet, and Guy Clero, both of Vincennes, France, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 15, 1970, Ser. No. 72,534

Int. Cl. G03c 1/82

U.S. Cl. 96-87 A

9 Claims

Improved photographic compositions are disclosed comprising a support, a photographic silver halide layer and at least one layer containing a static-inhibiting amount of a compound which is a salt of glycerophosphoric acid.

3,655,388

SILVER HALIDE MATERIAL CONTAINING A MONOAZO DYESTUFF

Bernhard Piller, Marly-le-Petit, Switzerland, assignor to Ciba Limited, Basel, Switzerland

Filed Feb. 11, 1970, Ser. No. 10,602

Claims priority, application Switzerland, Feb. 13, 1969, 2163/69

Int. Cl. G03c 1/10

U.S. Cl. 96-99

11 Claims

Photographic light-sensitive material especially for the silver dyestuff bleaching process containing a monoazo dyestuff of the formula $G-N=N-E(M)_{m-1}(NH-Y-Q)_{n-1}NH-Z-A$

in which G is a naphthalene radical which in 1-position contains an azo group, in 2-position a phenylamino group and in 8-position a hydroxyl group and at least one sulfonic acid or sulfonic acid amide group, E is an aromatic radical which contains at most 2 sulfonic acid or sulfonic acid amide groups, M is a phthalic acid imide or an $-NH-X-D-$ radical, X and Y are $-CO-$ or $-CO-NH-$ radicals, D and Q are aromatic radicals, Z is an $-SO_2-$, $-CO-$ or $-CO-NH-$ radical, A is an aliphatic aromatic or heterocyclic radical and m and n are 1 or 2. These dyestuff are magenta dyestuffs and are fast to diffusion, easily soluble in water insensitive to calcium ions and completely bleachable to white.

3,655,389

COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL CONTAINING SILVER OCCLUSION PREVENTING AGENT

Yukio Yasuda; Nobuo Tsuji, and Takushi Miyazako, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 22, 1970, Ser. No. 74,521

Claims priority, application Japan, Sept. 22, 1969, 44/75465

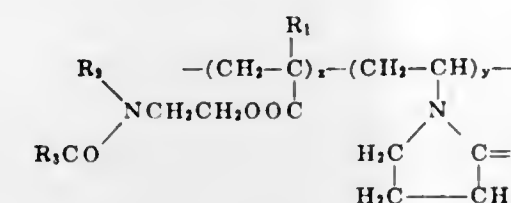
Int. Cl. G03c 1/40

U.S. Cl. 96-100

12 Claims

A color photographic silver halide light-sensitive material comprising a support having a silver halide light-sensitive emulsion layer thereon wherein a copolymer is incorporated in said light-sensitive emulsion layer or a non-light-sensitive

auxiliary layer on said support, said copolymer being represented by the following formula:



wherein R_1 represents hydrogen or methyl, R_2 represents hydrogen, methyl, ethyl, propyl or butyl, R_3 represents hydrogen, methyl, ethyl, propyl and x/y varies from 95/5 to 20/80.

3,655,390

DIRECT POSITIVE EMULSIONS CONTAINING AMINE BORANES AND BISMUTH SALTS

Joseph De Witt Overman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sept. 26, 1969, Ser. No. 861,501

Int. Cl. G03c 1/28, 1/36

U.S. Cl. 96-108

10 Claims

Direct positive photographic silver halide emulsion layers containing about 0.00033 gram to 12.0 grams of an amine borane per mole of silver halide, and about 1.5×10^{-7} to 1.2×10^{-5} moles of a salt of bismuth per 1.5 moles of silver nitrate used to prepare the silver halide.

3,655,391

AZODICARBONAMIDE FOG INHIBITORS

Paoli Merii, Condomino Isonzo-Via Colombo, Pordenone, and Luigi Valbusa, Via Gramsci, Ferrania, Savona, both of Italy

Continuation-in-part of application Ser. No. 856,485, Sept. 9, 1969. This application Oct. 23, 1969, Ser. No. 868,908

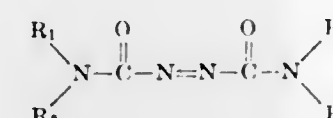
Claims priority, application Italy, May 16, 1969, 37, 118 A/69; Aug. 1, 1969, 39, 154 A/69; Sept. 9, 1969, 39, 648 A/69

Int. Cl. C07c 107/02; G03c 1/34

U.S. Cl. 96-109

11 Claims

Azodicarbonamides, preferably having the general formula



wherein R_1 , R_2 , R_3 and R_4 individually are hydrogen, alkyl, aryl, or heterocyclic groups, or wherein the pairs of groups $R_1 - R_2$ or $R_3 - R_4$ represent atoms necessary to complete a heterocyclic ring, are effective fog-inhibitors for silver halide photographic emulsions.

3,655,392

PHOTOGRAPHIC SILVER HALIDE EMULSION SENSITIZED WITH A METHINE DYE

Arthur Fumia, Jr., Hilton, and Leslie G. S. Brooker, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 4, 1969, Ser. No. 830,483

Int. Cl. G03c 1/08

U.S. Cl. 96-131

14 Claims

Novel cyanine and merocyanine dyes are provided which feature a nucleus selected from the group consisting of a 1-(3,4,4a,5,6,7-hexahydro-2-naphthyl)pyrrolidine group, a 1-(3,3a,4,5-tetrahydro-2H-inden-6-yl)pyrrolidine group, a 1-(2-norbornylidene)-pyrrolidine group, and a 1-(1-indanylidene)pyrrolidine group.

3,655,393

PHOTOGRAPHIC EMULSION CONTAINING TERTIARY AMINO ALKYL SUBSTITUTED RHODANINE AND THIOBARBITURIC ACID MEROCYANINE DYE

Earl J. Van Lare, and Arthur Fumia, Jr., both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed June 16, 1969, Ser. No. 833,748

Int. Cl. G03c 1/08

U.S. Cl. 96-140

6 Claims

Novel merocyanine dyes are provided which feature first and second nuclei joined by a double bond, a dimethine, a tetramethine or hexamethine linkage, the first nucleus being a rhodanine nucleus or 2-thiobarbituric acid nucleus joined at the five-carbon atom thereof to said linkage; and, the other nucleus being a five- to six-membered nitrogen-containing heterocyclic basic nucleus of the type used in merocyanine dyes joined at a carbon atom thereof to said linkage, said heterocyclic nitrogen atom of said nucleus having attached thereto a tertiary aminoalkyl group.

3,655,394

PREPARATION OF SILVER HALIDE GRAINS

Bernard D. Illingsworth, deceased, late of Rochester, N.Y. (by Mary D. Illingsworth, executrix), assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of application Ser. No. 500,366, Oct. 21, 1965, now abandoned. This application Aug. 25, 1969, Ser. No. 853,236

Int. Cl. G03c 1/28, 1/02

U.S. Cl. 96-108

14 Claims

Photographic emulsions comprising cubic-regular grains free of reduction sensitization are prepared by running an aqueous solution of silver nitrate and an aqueous solution of a silver halide simultaneously into an agitated aqueous solution of a peptizer in a double-run precipitation procedure while maintaining the pH at no more than 4.0 and the pAg at a value within the range of 8.6 to 9.1. In one aspect of this invention, emulsions prepared by the above procedure are chemically sensitized with a compound containing a labile atom selected from the group consisting of sulfur, selenium and tellurium and spectrally sensitized with a cyanine dye having an anodic half-wave potential less than 1.0 volt and a cathodic half-wave potential less than -0.8 volt.

3,655,395

PROCESS FOR TREATING WASTE MATERIALS

John N. Karnemaat, 1304 West Maple St., Kalamazoo, Mich.

Filed Jan. 10, 1969, Ser. No. 790,475

Int. Cl. A23k 1/22; C05c 9/00; C02b 1/18

U.S. Cl. 99-2 R

6 Claims

A process for treating odiferous industrial and municipal waste materials by adding formaldehyde, nitric acid and urea to the waste materials in sequence in order to obtain an economically desirable product.

3,655,396

PROCESS FOR PREPARING PULVERIZED FEED FOR ANIMALS

Yasuo Goto, Chita-gun, Aichi, and Akio Taki, Handa-shi, Aichi, both of Japan, assignors to Nihon Shokuhin Kako Co., Ltd., Tokyo, Japan

Filed May 6, 1969, Ser. No. 822,188

Claims priority, application Japan, May 14, 1968, 43/31916

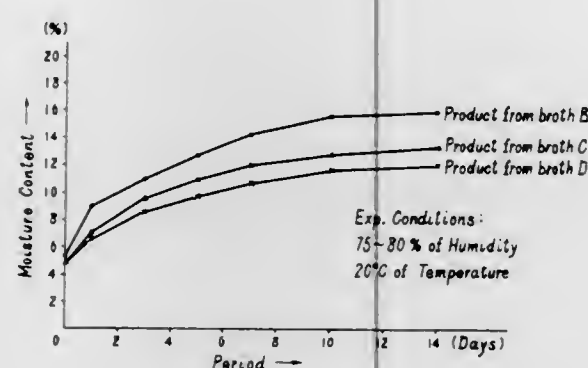
Int. Cl. A23k 1/00; C12b 1/00

U.S. Cl. 99-9

10 Claims

A process for preparing pulverized feed for animals which comprises inoculating light steep liquor of corn with non-pathogenic microorganisms (yeasts, molds and bacteria) having the property of metabolizing lactic acid under aerobic

conditions to culture said microorganisms, and concentrating and drying the resulting cultured broth wherein the amount



of the lactic acid is reduced, to obtain the pulverized feed therefrom.

3,655,397

FLAVOR COMPOSITIONS AND PROCESSES

Thomas H. Parliment, Valley Cottage; William P. Clinton, Monsey; Richard Scarpellino, Ramsey; Robert J. Soukup, New York, and Martin F. Epstein, Pearl River, all of N.Y., assignors to General Foods Corporation, White Plains, N.Y. Continuation-in-part of application Ser. No. 867,887, Oct. 20, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 857,227, Sept. 11, 1969, now abandoned. This application Mar. 30, 1971, Ser. No. 129,609

Int. Cl. A23f 1/12; A23i 1/26

U.S. Cl. 99-65

15 Claims

Enhancement of the flavor of foodstuffs, especially coffee-flavored foodstuffs, is achieved by the addition of 2-nonenal or 2-nononenol. Particular derivatives of both the alcohol and the aldehyde are also useful.

3,655,398

PROCESS FOR MANUFACTURE OF COFFEE EXTRACT

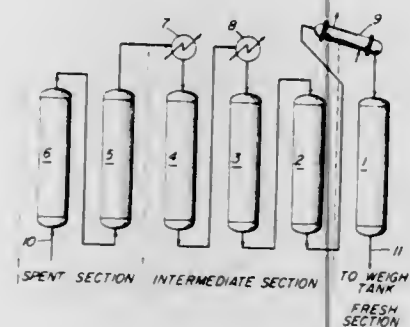
Esra Pitchon, Flushing; Martin Gottesman, Suffern, and Robert W. Meier, Massapequa, all of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed May 25, 1970, Ser. No. 40,064

Int. Cl. A23f 1/08

U.S. Cl. 99-71

13 Claims



A new coffee extraction process has been discovered whereby a high concentration coffee extract, about 30-41 percent solids by weight of extract, can be produced in an ordinary percolation set with little, if any, loss of extraction yield. The key steps in this process include the use of inter-column heaters to raise the temperature of the extraction liquor as it passes from column to column and reversing the flow of the extraction liquor through the extraction columns, at least in the spent end of the percolator set.

3,655,399 INSTANT COFFEE AND PROCESS FOR MAKING SAME

Esra Pitchon, Flushing, and Ernest L. Earle, Jr., New City, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,810

Int. Cl. A23f 1/08

U.S. Cl. 99-71

11 Claims

An improved instant coffee having a flavor which is more like that of home brewed coffee is prepared by a unique new process. A portion of the roasted coffee is treated prior to percolation to remove desirable flavor notes. The partially extracted coffee is then combined with the remainder of the roasted coffee and subjected to a standard percolation operation. The liquor containing the flavor notes is added back into the system at the fresh stage in percolation or is combined with the final extract from the percolators.

3,655,400

PRODUCTION OF SHELF STABLE REHYDRATABLE RICE

Joseph Cseri, Tarrytown; Joseph John Halik, Ossining, and Milton Kaplow, White Plains, all of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed July 17, 1969, Ser. No. 842,691

Int. Cl. A23i 1/10

U.S. Cl. 99-80 PS

6 Claims

Production of shelf stable dehydrated rehydratable rice having greater than usual moisture contents by cooking rice in a solution comprising polyhydric alcohols salts, and an antimicrobial agent.

3,655,401

PASTA PROCESS AND PRODUCTS

Joseph John Halik, Ossining, N.Y., assignor to General Foods Corporation, White Plains, N.Y.

Filed July 28, 1969, Ser. No. 845,484

Int. Cl. A23i 1/16

U.S. Cl. 99-85

6 Claims

Process of producing shelf stable dehydrated rehydratable pasta products having greater than usual moisture contents, by cooking said pasta products in a solution comprising polyhydric alcohols salts, and an antimicrobial agent.

3,655,402

COMBINED FOOD PASTRY AND FILLING

Ernest V. Dougan, Anaheim, Calif., assignor to Hunt-Wesson Foods, Inc.

Filed Nov. 3, 1969, Ser. No. 873,474

Int. Cl. A21d 13/00

U.S. Cl. 99-86

14 Claims

A frozen unbaked pastry dough in an annular configuration having a bottom surrounding a frozen filling encased in an open bottomed metal cylinder which, upon baking, forms a patty shell with raised sides for containing the filling after removal of the cylinder, is described, along with a process for preparing the frozen and baked products.

3,655,403

TREATMENT OF FLOUR AND DOUGH

Frederick D. Vidal, Englewood Cliffs, N.J., assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed June 27, 1969, Ser. No. 837,344

Int. Cl. A21d 2/26

U.S. Cl. 99-91

20 Claims

For the improvement of flour, dough and baked products, notably bread, a partial hydrolysate of edible protein, such as soya protein or wheat gluten, is prepared by acid hydrolyzing treatment which is controlled to limit the hydrolysis within a range short of completeness, and this hydrolysate product is incorporated with the flour, e.g., in dough mixtures. Such

treatment of the flour provides improved properties, as in the dough and notably as to volume and texture of the resulting loaves or other products. The partial hydrolysate, useful in a wide range of proportions, is effective alone or in coaction with chemical-type improving agents, and can be formulated with finely-divided diluent to yield a pulverulent composition readily suitable for addition to or with flour, in making up dough.

3,655,404

SHELF STABLE FRENCH TOAST

George Glasser, Ossining, N.Y.; Frank Hollis, Hillsdale, N.J., and Milton Kaplow, White Plains, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Apr. 3, 1969, Ser. No. 813,300

Int. Cl. A21d 13/08

U.S. Cl. 99-92

6 Claims

French toast having a moisture content between 14 and 32 percent and an A_w between 0.80 and 0.90 is prepared by saturating bread with an emulsion containing 15 to 35 percent water soluble sugar solids, 3-15 percent edible polyhydric alcohol and an effective level of antimicrobial to prevent mold growth. The product may be stored for long periods of time without the need of sterilization or refrigeration.

3,655,405

SOUFFLE MIX

Albert J. Karas, and John E. Vey, both of Baltimore, Md., assignors to McCormick & Company, Inc., Cockeysville, Md.

Filed Jan. 8, 1970, Ser. No. 1,562

Int. Cl. A21d 2/02, 2/18

U.S. Cl. 99-94

4 Claims

A dry, essentially fat-free souffle composition is packaged in two containers. One package contains a dry sauce mix which is a blend of regular starch, pregelatinized starch, whey solids, a sweetening agent and a confectionery flavoring agent. The second package contains a dry albumen mix which is a blend of egg white solids, a leavening agent, a stabilizing agent and a sweetening agent. Water is separately added to the dry mixes and the resulting wet mixes are folded together and baked to produce a high quality souffle.

3,655,406

CAROTENOID COMPOSITIONS

Heinrich Klau, Riehen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Feb. 2, 1970, Ser. No. 8,004

Claims priority, application Switzerland, Feb. 7, 1969, 1888/69

Int. Cl. A23i 1/26

U.S. Cl. 99-148 C

12 Claims

Carotenoid compositions dispersed in a hydrophilic, organic colloid such as gelatin which is distributed on the particles of a pulverulent carrier material such as starch which has a lipophilic surface.

3,655,407

METHOD OF COATING DILUTE AQUEOUS EMULSIONS

Carl W. McGraw, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 10, 1969, Ser. No. 805,788

Int. Cl. G03c 1/72, 1/78

U.S. Cl. 96-114

5 Claims

An aqueous composition of a hydrophilic colloid, wherein said colloid comprises from about .1 to about 6 per cent by weight of said solution, is given increased viscosity by the low-level addition of a copolymer comprising: (1) at least 50 mole per cent of units of an acrylic acid and (2) up to 50 mole per cent of units of an alkyl acrylate. The copolymer is added at a concentration in the range of about 0.01 to about

1 per cent by weight of the aqueous composition. Aqueous compositions of hydrophilic colloids such as, for example, silver halide photographic emulsions, are thickened as described and can be coated on a wide variety of supports in single- or multi-layer photographic elements.

3,655,408

AROMATIC SUBSTANCES OBTAINED FROM ANIMAL OR VEGETABLE TISSUES

Pierre L. J. Charier-Vadrot, 1, route de Lagnes, 84 Cavaillon, France

Filed May 9, 1969, Ser. No. 823,531

Claims priority, application France, May 10, 1968, 22272

Int. Cl. A23i 1/28

U.S. Cl. 99-140 R

20 Claims

Animal or vegetable tissues having no perceptible flavoring properties are soaked in an aqueous solution until the solution becomes aromatic. The aqueous solution in which the animal tissues are soaked contains sugar, vitamin and an inorganic salt while that in which the vegetable tissues are soaked contains various inorganic salts. The temperature of the solution, the illumination and atmosphere surrounding the solution, and the length of time of the soaking step are controlled. The animal or vegetable tissue employed can be lyophilized.

3,655,409

COCONUT PRODUCTS AND PROCESSES

George Glasser, Ossining, and Joseph Cseri, North Tarrytown, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Aug. 19, 1969, Ser. No. 851,469

Int. Cl. A23i 1/00

U.S. Cl. 99-125

6 Claims

Producing high moisture shelf stable comminuted coconut having greater than usual moisture contents, by subjecting the coconut to pressurized heating sufficient to increase the surface area releasing the pressure and, treating said coconut in a solution comprising polyhydric alcohols, salts and an antimicrobial, and mixing said solution treated coconut with sugar blends.

3,655,410

METHOD OF PACKAGING TWO OR MORE DISCRETE FOODSTUFFS

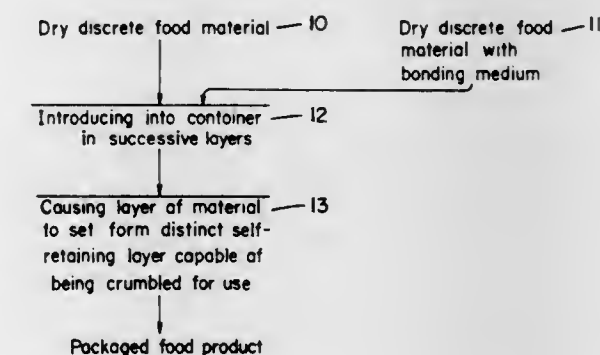
John H. Forkner, 6037 North Van Ness Blvd., Fresno, Calif.

Filed Feb. 24, 1969, Ser. No. 801,297

Int. Cl. B65b 3/00

U.S. Cl. 99-171 R

11 Claims



A method of making a consumer food package consisting of at least two layers of different dried food materials by introducing the materials into a container in discrete form and there after causing one of the materials to take a set form whereby it remains as a solid.

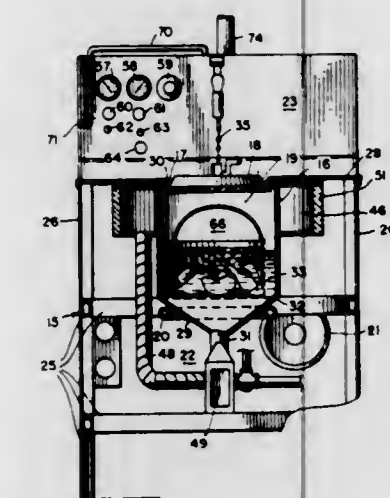
3,655,411

APPARATUS FOR PRESSURIZED COOKING OF FOODS IN HIGH-TEMPERATURE NON-AQUEOUS LIQUIDS

Charles Jere Albright, 313 West N. Ave., Chicago, Ill.
Filed Aug. 5, 1968, Ser. No. 750,353
Int. Cl. A47j 27/08

U.S. Cl. 99—330

29 Claims



The essential concept of this invention involves an improved structuring of an apparatus for the pressurized cooking of foods in high-temperature, non-aqueous liquids for a time-controlled period and effect a nearly instant separation of the cooked foods from the pressure and the hot liquid at the termination of each cooking period so as to retain in the cooked food the juices inherent in the food.

3,655,412

PROCESS FOR THE PRODUCTION OF DISPERSIONS OF COLLOIDAL SILVER

Akira Kumai, and Yasuhisa Ogawa, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

Filed Nov. 15, 1968, Ser. No. 776,272

Claims priority, application Japan, Nov. 15, 1967, 42/73502

Int. Cl. C23c 3/02

U.S. Cl. 106—1

7 Claims

Dispersions of colloidal silver having a neutral black or slightly bluish-black color are disclosed.

The process for forming the above described dispersions in gelatin comprises mixing an aqueous alkaline gelatin solution with an aqueous solution of a water-soluble silver salt and from 0.005 to 0.7 moles of a water-soluble manganous salt per mole of said silver salt, and then reducing the silver salt by adding thereto at least 0.2 moles per mole of said silver salt of an alkali metal sulphite and an excess of a water-soluble silver salt reducing agent.

3,655,413

COMPOSITION FOR RENDERING CELLULOSIC FABRICS WATER-AND-OIL-REPELLENT

Samuel E. Ellzey, Jr.; William J. Connick, Jr., both of New Orleans; Wilson A. Reeves, and George L. Drake, Jr., both of Metairie, all of La., assignors to The United States of America as represented by the Secretary of Agriculture

Filed Dec. 9, 1969, Ser. No. 883,624

Int. Cl. C09k 3/18

U.S. Cl. 102—2

1 Claim

The reaction product of tetrakis(hydroxymethyl) phosphonium salts and primary 1,1-dihydroperfluoroalkylamines, when applied from aqueous emulsions, renders cellulosic materials repellent to oil and water and increases their resistance to staining by oily materials.

3,655,414

FOUNDRY MOLD PROCESS AND PATTERN COMPOSITION

William D. Hoffman, Park Forest, and Allen E. Larson, Chicago, both of Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed June 10, 1969, Ser. No. 832,013

Int. Cl. C08h 9/06

U.S. Cl. 106—38.8

18 Claims

Novel pattern materials for use in investment casting by the Lost Wax process are disclosed. The pattern materials consist essentially of waxes such as petroleum waxes, natural vegetable or mineral waxes, synthetic waxes and various resinous materials derived from the refining of petroleum and wood resin, and mixtures of the above. The base wax generally has a melting point of between about 120° to 180° F. The base wax composition is improved by the inclusion of up to about 75 percent by weight, preferably a minor amount, of solid filler particles of a phthalic acid. Isophthalic acid is the preferred filler.

3,655,415

ASTERIATED SYNTHETIC CORUNDUM GEM STONES AND METHOD AND APPARATUS FOR THEIR PRODUCTION

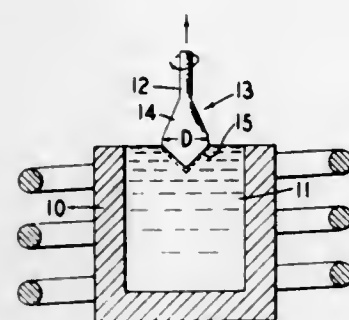
George A. Keig, El Cajon, Calif.; James C. Smith, Indianapolis, Ind., and John M. J. Watts, Poway, Calif., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 31, 1968, Ser. No. 788,255

Int. Cl. B01j 17/18; C01f 7/02; C04b 35/00

U.S. Cl. 106—42

7 Claims



Asteriated synthetic corundum gem stones are provided which have their asteriating compounds as well as coloring compounds uniformly distributed throughout the body and which are free of the heavy banding characterizing previously made synthetic asteriated corundum gem stones. Method and apparatus for the production of these gem stones is also provided.

3,655,416

LIPID-PROTEIN MEMBRANE AND PROCESS

Leonard J. Vinson, Glen Rock, N.J., and Thomas Masurat, London, England, assignors to Lever Brothers Company, New York, N.Y.

Filed Dec. 18, 1968, Ser. No. 784,943

Int. Cl. C08h 1/06, 7/06

U.S. Cl. 106—155

3 Claims

A lipid-protein membrane having water vapor permeability characteristics similar to those of mammalian skin is produced by combining stratum corneum cells with an unsaturated fatty acid in controlled amounts in carbon tetrachloride to form an emulsion, casting the emulsion into a thin film on a smooth surface, and oxidizing the film to form a strong membrane having a lipid-to-protein ratio between the range of 1.25 to 2.5.

3,655,417

CLAY PROCESSING

John H. Chapman, Sandersville, Ga., assignor to Georgia Kaolin Company, Elizabeth, N.J.

Filed Mar. 2, 1970, Ser. No. 15,837

Int. Cl. C09c 1/42

U.S. Cl. 106—288 B

14 Claims

A method of bleaching discolored mineral comprising forming an aqueous slurry of said mineral, adding a small amount of water soluble sodium hypochlorite and a small amount of hydrogen peroxide to said slurry and then adding a water soluble hydrosulfite to said slurry.

3,655,418

PRODUCTION OF PIGMENTS

Clarence James Hardy, Wantage; Edward Sydney Lane, Didcot, and Mervyn John Hannam, East Hendred, all of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 14, 1969, Ser. No. 850,217

Claims priority, application Great Britain, Aug. 20, 1968, 39,748/68

Int. Cl. C09c 1/24; C08h 17/04

U.S. Cl. 106—304

10 Claims

A route for the production of a black pigment comprises making an aqueous solution of iron and manganese salts and reacting it with a base in the presence of a protective colloid to produce a granular precipitate. The colloid is preferably in the base but it may also be in the salt solution.

3,655,419

ELECTROPHOTOGRAPHIC REVERSAL DEVELOPING PROCESS

Yasuo Tamai; Seiji Matsumoto, and Satoru Honjo, all of Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

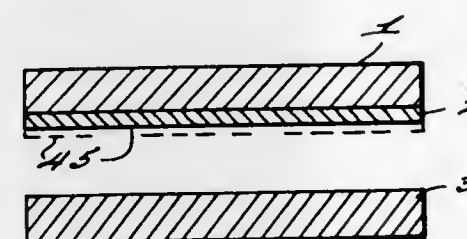
Filed Nov. 12, 1969, Ser. No. 875,641

Claims priority, application Japan, Nov. 12, 1968, 43/82696

Int. Cl. G03g 13/08, 13/10

U.S. Cl. 117—17.5

8 Claims



An electrophotographic reversal developing process where a charged electrophotographic element exposed to an optically negative image on an image bearing member where the area of the negative image is not over 10 percent of the area of the image bearing member. The electrophotographic element is next disposed with respect to a developing electrode which is completely electrically insulated from its surroundings to thereby induce on said electrode a potential which causes an electric field to occur at the image portions of the whole electrostatic latent image which is oppositely directed from that occurring at the background portion which corresponds to the area of maximum charge density. Next, toner particles having a charge of the same polarity as that of the background portion are introduced between the developing electrode and the electrophotographic element to develop the image portions.

3,655,420

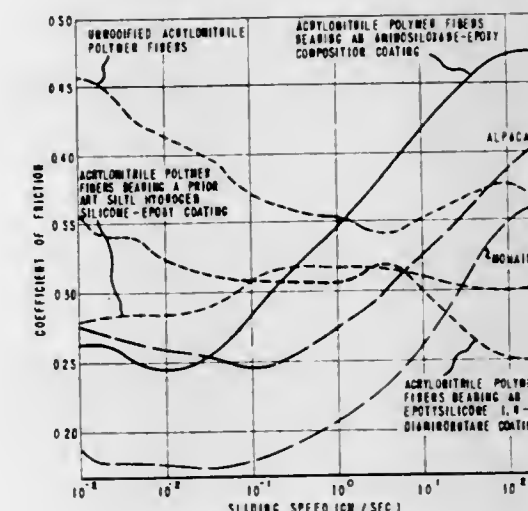
SYNTHETIC ORGANIC TEXTILE FIBER WITH IMPROVED, DURABLE, SOFT, LUBRICATED FEEL

Robert L. Tichenor, Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 813,280, Apr. 3, 1969, now abandoned. This application Mar. 6, 1970, Ser. No. 17,205

Int. Cl. D06m 15/66; D06c 19/00

U.S. Cl. 117—138.8 A

5 Claims



Process comprising treating synthetic organic textile fibers with a finishing composition that is (1) a mixture of a polyepoxide and an aminosiloxane, (2) a mixture of an epoxysiloxane and a polyamine, or (3) a mixture of an epoxysiloxane and an aminosiloxane, and thereafter curing said composition by subjection to elevated temperature. The treated fibers possess a durable, soft, lubricated feel.

3,655,421

METHOD OF FORMING PATTERNS ON SUBSTRATE SURFACES

Fred E. Long, Stow, Ohio, assignor to The General Tire & Rubber Company

Continuation-in-part of application Ser. No. 758,145, Sept. 6, 1968, now abandoned. This application Aug. 18, 1969, Ser. No. 851,039

Int. Cl. B44d 1/16, 5/06

U.S. Cl. 117—45

10 Claims

This invention concerns a process of forming an aesthetically pleasing random pattern on the surface of a substrate comprising the steps of coating the surface with a retractable liquid, the retractable liquid having a surface tension that is at least about 2 dynes/centimeter above the critical surface tension of wetting of the surface and also concerns the articles produced by this process.

3,655,422

FIRE RETARDING TREATMENT

Leroy J. Goldbeck, Neenah, and Norbert L. Van Den Elzen, Hilbert, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed Sept. 18, 1970, Ser. No. 73,412

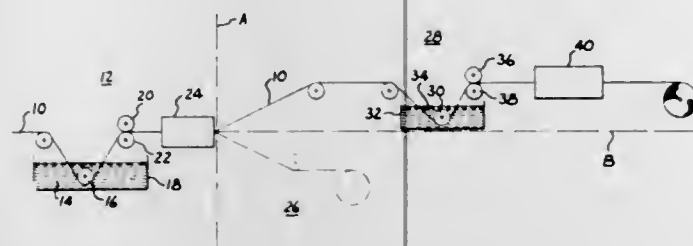
Int. Cl. B44d 1/46; C09k 3/28

U.S. Cl. 117—46 CA

4 Claims

A process is illustrated for rendering a water repellent fabric fire retardant without adversely affecting the fabric's water repellent characteristics. The water repellent fabric is treated with an aqueous medium containing a fire retarding

agent and a thermally degradable surfactant such as the diacetyl dilauryl amide derivative of triethylenetetramine and



then dried. On drying, the surfactant degrades and the water repellent characteristics of the fabric are restored.

3,655,423 PRETREATMENT OF PLASTIC SURFACES BEFORE THE APPLICATION OF AN ADHERENT ORGANIC COATING

Kingso C. Lin, Newark, Ohio, and Emil J. Geering, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

Filed Mar. 3, 1970, Ser. No. 15,916
Int. Cl. B44d 1/092, 1/14

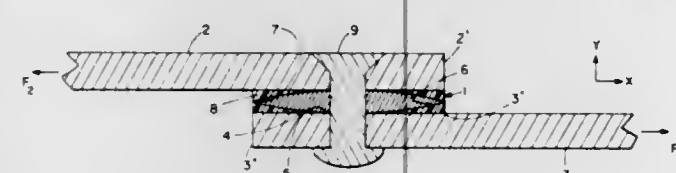
U.S. Cl. 117-47 12 Claims
The adhesion of organic coatings, e.g., paints, varnishes, dyes, and the like, to plastic substrates is improved by pretreating a plastic substrate with a reaction product of elemental phosphorus and a nucleophilic reagent or an organometallic compound. Following this pretreatment, which deposits a low oxidation state phosphorus compound at the plastic surface, the thus-treated surface is coated with an organic coating composition.

3,655,424 ADHESIVE TAPE

Egon Orowan, Belmont, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 24, 1968, Ser. No. 731,769
Int. Cl. C09j 7/02

U.S. Cl. 117-68.5 17 Claims



An adhesive tape embodying a core strip (preferably a metallic strip) and an adhesive upon the major surfaces of the strip. The cross section of the core has a substantially thick portion that diminishes in thickness towards the edges. In a preferred embodiment the edges are provided with fins that prevent the adhesive from being squeezed from between structural parts joined by the tape as the parts are drawn together by rivets, bolts, or the like.

3,655,425 CERAMIC CLAD FLAME SPRAY POWDER

Frank N. Longo, Ellwood, Huntington, and Mahesh S. Patel, Elmhurst, both of N.Y., assignors to Metco Inc.

Filed July 1, 1969, Ser. No. 838,319
Int. Cl. B44d 1/094, 1/02

U.S. Cl. 117-100 M 10 Claims
A flame spray powder comprises finely-divided core particles of a metal or a metal alloy coated with discrete particles of a ceramic or cermet that remains in solid phase at least

100°F above the fusing or melting temperature of the metal. The average particle size of the ceramic is less than 25 percent of the average particle size of the metal and the amount used is insufficient to totally cover the surface of the metal particles so that on the average in the range of 5 to 75 percent of the surface area of the metal particles is exposed to ambient conditions.

When used in flame spraying, this new ceramic clad metal powder in one embodiment forms a flame spray coating where the ceramic is in the continuous phase and the coating is relatively soft and abrasion resistant, and in another embodiment the metal of the coating is in the continuous phase and the coating is relatively hard and erosion resistant.

3,655,426 PROCESS OF COATING METAL WITH POLYVINYL FLUORIDE AND RESULTANT PRODUCT

Otto Fuchs, Troisdorf-Oberlar, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, near Cologne, Germany

Filed Oct. 27, 1969, Ser. No. 869,912
Claims priority, application Germany, Nov. 2, 1968, P 18 06 551.5

Int. Cl. B44d 1/14; B32b 15/08 15 Claims
U.S. Cl. 117-75
In the coating of metal with polyvinyl fluoride by applying a primer coat to the metal surface and applying a finish coat of polyvinyl fluoride over the primer coat, the improvement which comprises providing the primer coat by applying a mixture of basically reacting metal oxide and polyvinyl fluoride dissolved or suspended in an organic solvent, drying the primer coat, and applying on the primer coat, a coat of polyvinyl fluoride.

3,655,427 CORRECTABLE GRAPHIC SYSTEM

Walter J. Smith, Arlington, and John W. Rafferty, Marblehead, both of Mass., assignors to The Parker Pen Company, Janesville, Wis.

Filed Oct. 28, 1969, Ser. No. 871,971
Int. Cl. B32b 25/06; B44d 1/4, 5/04

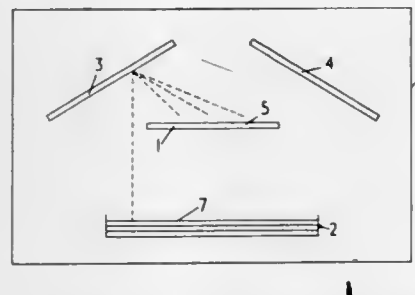
U.S. Cl. 117-76 P 1 Claim
A correctable graphic system which will permit easy correction of written material by the application of a correcting fluid of dilute aqueous ammonia solution comprising: a paper base, a rubber latex or acrylic emulsion barrier coating which is insoluble in the correcting fluid and relatively resistant to the penetration of ink and a proteinaceous ink receptive surface coating which is soluble in the correcting fluid.

3,655,428 COATING METALLIC MATERIALS

Adolphe Andre Bragard, Bressoux, Belgium, assignor to Centre National De Recherches Metallurgiques, Brussels, Belgium

Filed Jan. 2, 1970, Ser. No. 301
Claims priority, application Belgium, Jan. 2, 1969, 726,416
Int. Cl. C23c 11/00

U.S. Cl. 117-106 R 6 Claims



In a low pressure enclosure (10^{-1} to 10^{-5} Torr), a substance intended to serve as a coating is held at a temperature

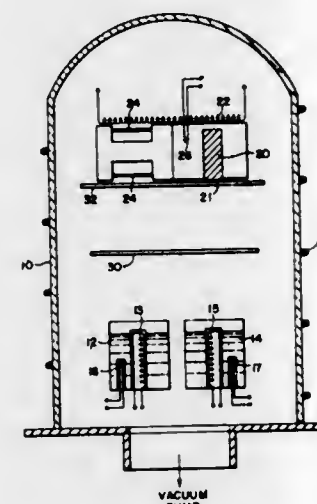
at which it vaporizes. The material to be coated is disposed near the substance, at least part of the material being opposite the free surface of the substance. At least one screen is positioned in such a manner that at least part of the vaporized substance coming into contact with the screen is reflected from the screen towards parts of the material facing away from the free surface. The screen is held at a temperature at least equal to the melting temperature of the substance.

3,655,429 METHOD OF FORMING THIN INSULATING FILMS PARTICULARLY FOR PIEZOELECTRIC TRANSDUCERS

John Deklerk, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 505,714, Oct. 29, 1965, now abandoned. This application Apr. 16, 1969, Ser. No. 816,486

Int. Cl. B44d 1/18 6 Claims
U.S. Cl. 117-106

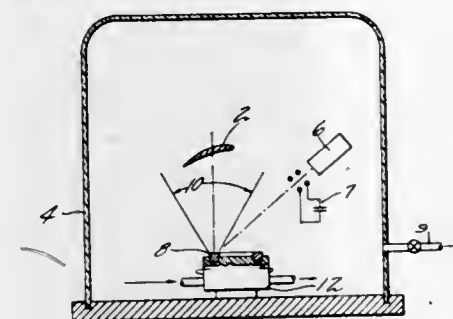


A film of an insulating compound is formed by evaporating constituent elements from sources screened by a baffle from the substrate while maintaining the substrate at a temperature at which individual elements will not deposit. II-VI, III-V and other compounds are so formed including compounds such as oxides. The film is stoichiometric and highly oriented when formed on a suitable substrate. Metal oxides, including those of zinc, silicon, magnesium, beryllium, titanium, zirconium and binary oxides such as lithium-gallium oxide, are formed with a low substrate temperature (at least -75°C). Piezoelectric transducers, as well as other devices, may be so formed in highly oriented films of which zinc oxide offers the highest known electromechanical coupling coefficient.

3,655,430 VAPOR DEPOSITION OF ALLOYS

Wellington N. Greaves, Cromwell, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed May 21, 1969, Ser. No. 826,495
Int. Cl. C23c 13/02; D21h 1/18; C23c 11/00 7 Claims
U.S. Cl. 117-107



In the coating of substrates with alloys containing elemental constituents characterized by significant differences in

melting point and vapor pressure under the coating conditions, the material to be coated is provided as a plurality of individual elements comprising the coating constituents and the time-temperature relationship for each constituent in the melting cycle is adjusted to compensate for the varying degrees of difficulty in vaporizing the respective constituents.

3,655,431 CEILING TILE CARRYING ANTI-SAG COATING

Ronald Raymond House, Darien, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed June 2, 1969, Ser. No. 829,706
Int. Cl. C03c 25/02 7 Claims

U.S. Cl. 117-126 R
The sag resistance of ceiling tile of the "lay in" type coated with a melamine-formaldehyde-carbohydrate resin (wherein the weight of the carbohydrate is up to one-half the weight of the melamine-formaldehyde) is about the same as the sag resistance of ceiling tile coated with an all melamine-formaldehyde resin. The presence of carbohydrate permits a cheapening of the product and in preferred instances an improvement in performance.

3,655,432 ABRASION RESISTANT COATING OF POLYETHER POLYURETHANE

Robert W. Hausslein, Lexington, and Henry E. Molvar, Jr., Billerica, both of Mass., assignors to Amicon Corporation, Lexington, Mass.

Filed May 2, 1969, Ser. No. 821,472
Int. Cl. B44d 5/00; B32b 27/08, 23/08 5 Claims

U.S. Cl. 117-138.8 F
Abrasion resistant coatings for use on plastic articles which coatings are the cured reaction products formed of (1) a polyfunctional biuret formed of an aliphatic diisocyanate and water and (2) a polyethylene glycol. Plastic articles include acrylic, cellulose propionate and polycarbonate substrates. Preferred embodiments of the invention are those containing little or no solvent.

3,655,433 PLATABLE POLYMERS

Wassily Poppe; Habet M. Khelghatian, both of Springfield, Pa., and James E. Fitzpatrick, Naperville, Ill., assignors to Standard Oil Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 732,545, May 28, 1968. This application July 6, 1970, Ser. No. 52,784
Int. Cl. B32b 27/32 4 Claims

U.S. Cl. 117-138.8 E
In the art of electroplating nonconductive materials, adhesion of metal to the material is enhanced by incorporating into the material from 1 to 25 percent by weight of a metal resinate. Crystalline polyolefins, such as polyethylene, polypropylene and propylene-ethylene copolymer, are modified with calcium resinate, zinc resinate, aluminum resinate, sodium resinate, potassium resinate or ammonium resinate to improve the adhesion of metal thereto.

3,655,434 PROCESS FOR TREATING RUBBER SURFACES

Henry Van Stelten, 335 Skycrest Ave., La Habra, Calif.

Filed June 25, 1969, Ser. No. 836,637
Int. Cl. C08c 17/24 2 Claims

U.S. Cl. 117-139
A process for treating the surfaces of rubber tires for vehicles comprising applying to said surfaces a composition containing, by weight:

glycerine	3-8%
alcohol	20-30%
stabilizer	.05-5%
coloring agent	.01-1%
rust inhibitor	up to 2%
water	balance

3,655,435

PROCESS FOR IMPARTING WATER-AND OIL-REPELLENT EMULSION FINISH FOR CELLULOSIC MATERIALS

William J. Connick, Jr., and Samuel E. Ellzey, Jr., both of New Orleans, La., assignors to The United States of America as represented by the Secretary of Agriculture
Original application July 20, 1967, Ser. No. 655,266, now Patent No. 3,518,218. Divided and this application May 27, 1969, Ser. No. 841,176
Int. Cl. D06m 15/16

U.S. Cl. 117-139.5 A 2 Claims

A process is described for preparing a stable aqueous emulsion of a polymer derived from an alkyl perfluoralkanoate and an alkyl enamine, employing 2.5-10 percent (based on total solvent weight) of a water-miscible polymer solvent, and special emulsifiers.

When fibrous cellulosic materials are treated with such emulsions using about from 1 to about 10 weight percent (based on the total emulsion weight) of the fluorinated ester, the resultant treated materials are rendered durably oleophobic and slightly hydrophobic. These desirable properties may be imparted by a simple drying step without resorting to a high temperature cure step.

3,655,436

METHOD OF IMPARTING SOIL RELEASE PROPERTIES TO FABRICS

Jean Dupre, Levittown, Pa.
Filed Oct. 14, 1969, Ser. No. 866,367
Int. Cl. D06m 15/04

U.S. Cl. 117-139.5 C 4 Claims

A method for treating materials to facilitate removal of soil therefrom is disclosed, involving contacting the soiled material with a nitrogen-bearing starch adduct having a pKa value from about 3 to 8. Novel compositions which impart soil release properties to materials without causing soil redeposition from the wash liquor are also taught, comprising the said starch adducts.

3,655,437

PROCESS FOR TEXTILES WITH AQUEOUS LIQUORS OF POLYISOCYANATES AND SILICA SOLS

Gustav Becker, Leverkusen-Schlebusch; Heinz Griepentrog, Cologne; Wolfgang Klebert, and Friedrich Reich, both of Leverkusen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
Filed Mar. 27, 1969, Ser. No. 811,258
Claims priority, application Germany, Apr. 6, 1968, P 17 69 121.3

Int. Cl. C10m 7/48; D06c 29/00

U.S. Cl. 117-161 ZB 5 Claims

An improvement in the process of treating textile materials with aqueous compositions of polyisocyanate materials containing free-isocyanate groups is obtained by incorporating silica sol in the composition. The presence of the silica sol allows the compositions to be applied by the exhaustion method. Optionally, emulsion stabilizer, e.g., polymers of vinyl monomers can be added, as well as electrolytes which speed up drawing onto the textile fibers.

METHOD OF FORMING SILICON OXIDE COATINGS IN AN ELECTRIC DISCHARGE

Henley Frank Sterling, Ware, England, and Richard Charles George Swann, North Palm Beach, Fla., assignors to International Standard Electric Corporation, New York, N.Y.
Continuation-in-part of application Ser. No. 452,487, May 3, 1965, now Patent No. 3,485,666. This application Oct. 20, 1969, Ser. No. 867,472
Int. Cl. H01b 1/04; B44d 1/34, 1/02

U.S. Cl. 117-201 7 Claims

This is a method of depositing a coherent solid layer of an oxide of silicon deposited upon a surface of a substrate by establishing a glow discharge adjacent to said surface in an atmosphere containing a gaseous compound of the element or elements comprising the material.

3,655,439

METHOD OF PRODUCING THIN LAYER COMPONENTS WITH AT LEAST ONE INSULATING INTERMEDIATE LAYER

Hartmut Seiter, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany
Filed June 16, 1969, Ser. No. 833,341
Claims priority, application Germany, June 19, 1968, P 17 69 627.4

U.S. Cl. 117-212 18 Claims



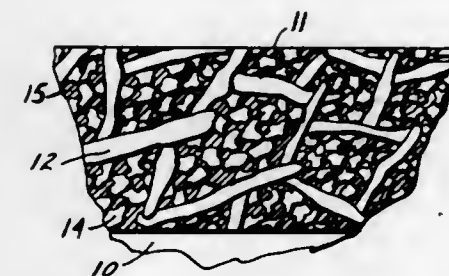
Described is a method of producing thin layer components, separated by at least one insulating layer and comprised of semiconductor material, particularly silicon. The method is characterized by the fact that an amorphous layer of insulating material is pyrolytically precipitated on a substrate wafer, comprised of monocrystalline semiconductor material. The amorphous layer is converted into a monocrystalline layer by using the monocrystalline substrate and the thus formed substrate, which has a homogeneous crystallographic orientation, is used to grow another epitaxial semiconductor layer, preferably of silicon.

3,655,440

ELECTRICAL RESISTANCE ELEMENTS, THEIR COMPOSITION AND METHOD OF MANUFACTURE

Lynn J. Brady, Edwardsburg, Mich., assignor to CTS Corporation, Elkhart, Ind.
Filed Mar. 3, 1969, Ser. No. 803,688
Int. Cl. H01b 1/02, 1/08

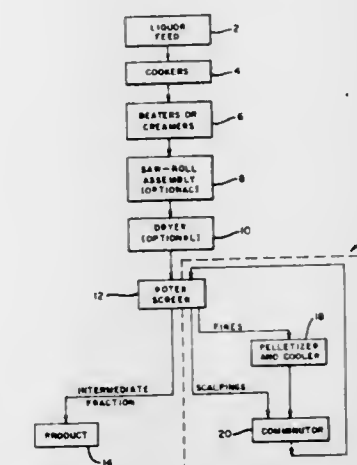
U.S. Cl. 117-227 21 Claims



An electrically nonconductive crystal growth controlling agent comprising submicron inert particles is mixed with a crystalline conductive phase comprising an oxide of Ruthenium or Iridium, a vehicle, and a moisture impervious binder with which the inert particles will not react and in which the inert particles will not dissolve to any appreciable extent at elevated temperatures. After being applied to a high temperature-resistant, electrically nonconductive substrate, the composition is fired at elevated temperatures for a sufficient period of time to permit the crystals of the conductive phase to grow until an equilibrium condition is reached. This condition is determined in part by the crystal growth controlling agent. Upon cooling, the binder bonds together a composite mass comprising an inert intersticed matrix made up of the crystal growth controlling agent and the crystalline conductive phase which forms an interstitial mass within the interstices of the matrix. The method comprises the steps of thoroughly mixing the above-identified materials, applying a layer of the mixture to the substrate, and firing the substrate and layer of material for 45 to 60 minutes to a preferred peak temperature in the range of 975°-1025° C. During the firing cycle the crystals of the conductive phase increase in size until further growth is limited by the crystal growth controlling agent.

um or Iridium, a vehicle, and a moisture impervious binder with which the inert particles will not react and in which the inert particles will not dissolve to any appreciable extent at elevated temperatures. After being applied to a high temperature-resistant, electrically nonconductive substrate, the composition is fired at elevated temperatures for a sufficient period of time to permit the crystals of the conductive phase to grow until an equilibrium condition is reached. This condition is determined in part by the crystal growth controlling agent. Upon cooling, the binder bonds together a composite mass comprising an inert intersticed matrix made up of the crystal growth controlling agent and the crystalline conductive phase which forms an interstitial mass within the interstices of the matrix. The method comprises the steps of thoroughly mixing the above-identified materials, applying a layer of the mixture to the substrate, and firing the substrate and layer of material for 45 to 60 minutes to a preferred peak temperature in the range of 975°-1025° C. During the firing cycle the crystals of the conductive phase increase in size until further growth is limited by the crystal growth controlling agent.

the crystallized product is screened to produce an intermediate, salable, fraction of the desired particle size, a coarse material (scalpings) and a fine material. The fine material is pelletized and combined with the coarse material and passed

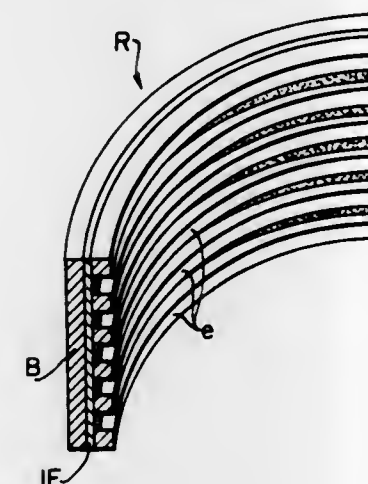


3,655,441

ELECTROLESS PLATING OF FILAMENTARY MAGNETIC RECORDS

John H. Kefalas, North Billerica, Mass., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Aug. 22, 1966, Ser. No. 574,147. The portion of the term of the patent subsequent to July 20, 1988, has been disclaimed.

U.S. Cl. 117-237 14 Claims



A magnetic record having a non-magnetic substrate carrying information-storing tracks of magnetic material has a gelatinous material coating the substrate and particulate silver metal secured on the gelatinous material in accordance with the pattern of the recording tracks. The silver is provided in this pattern by coating the gelatinous material with a photographic emulsion that is subsequently exposed and developed according to the desired pattern of recording tracks.

3,655,442

METHOD OF MAKING SUGAR AND SUGAR PRODUCTS

Frederick W. Schwer, Orinda, and Chester E. Kean, Lafayette, both of Calif., assignors to California and Hawaiian Sugar Company
Filed Aug. 27, 1969, Ser. No. 853,361
Int. Cl. C13f 1/02

U.S. Cl. 127-58 3 Claims

Process of making sugar and products containing predominantly sugar wherein sugar syrups are evaporated and then beaten to make a fondant-like material by a process wherein

through a comminutor and the comminuted product is returned to the screening stage. This produces a product having a particle size distribution within a narrow range which is free flowing and in practically 100 percent yield.

3,655,443

PROCESS FOR MAKING A BATTERMIX STARCH FOR BREADED DEEP FRIED FOODS

Charles S. Campbell, Hammond, Ind., assignor to American Maize Products Company
Filed Dec. 10, 1969, Ser. No. 884,052
Int. Cl. C13f 1/08

U.S. Cl. 127-70 6 Claims

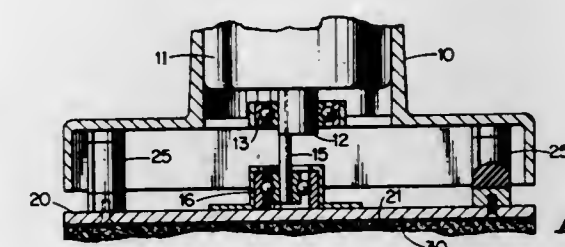
A battermix starch having consistently high adhesion characteristics and a process for making the same are disclosed. The protein content of a commercial starch is adjusted to 0.7 percent or more by weight of the starch and the high-protein starch is then modified by oxidative treatment.

3,655,444

METHODS AND MEANS FOR TREATING SURFACES

Edward G. Young, Gloucester, Mass., assignor to C. T. & R. E., Inc., Danvers, Mass.
Filed Aug. 7, 1969, Ser. No. 848,210
Int. Cl. A47f 1/134; B08b 7/02

U.S. Cl. 134-6 13 Claims



Oscillatory-drive machine for cleaning rugs and hard surfaces. It employs in contact with the surface of a rug, tile or floor a layer of elastic material the working face of which has an irregular contour.

3,655,445

METHOD FOR REMOVING SHELLFISHES AND CRUSTACEANS GREGARIOUSLY SETTLING ON RUBBER HOSES

Masaru Yamato, Tokyo, Japan, assignor to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Filed July 30, 1969, Ser. No. 846,286

Claims priority, application Japan, Aug. 17, 1968, 43/58256
Int. Cl. B08b 7/00

U.S. Cl. 134-42

1 Claim

Maintaining the efficacy of rubber hoses that are used to transport oil from a ship to a shore facility by wrapping the rubber hoses, prior to immersion in sea water, with a strip that can thereafter be readily removed and replaced once it has accumulated an undesirable quantity of sea life.

3,655,446

METHOD OF PREPARATION OF CUPRIC SULFIDE ELECTRODES

Gerard Marcel Gerhier, Biard, and Victor Louis Dechenaux, Poitiers, both of France, assignors to Societe Des Accumulateurs Fixes et de Traction (Societe Anonyme), Romainville, France

Filed July 8, 1970, Ser. No. 53,311

Claims priority, application France, July 11, 1969, 6923837
Int. Cl. H01m 35/02

U.S. Cl. 136-23

21 Claims

An improved method of preparing cupric sulfide electrodes for electrochemical cells wherein the electrodes are made by preparing a first mixture comprising the total stoichiometric amount of copper required and about 25 to 35 percent by weight of the required stoichiometric amount of sulfur and heating this first mixture in a pre-sulfuration step to a temperature of between 120° and 160° C., then preparing a second mixture by adding to the product of the pre-sulfuration step the complementary balance of the stoichiometric amount of required sulfur relative to the whole amount of copper or a slightly larger amount, compressing the second mixture in a mold under a pressure of from 0.25 to 2 t/cm² and heating the second mixture in a sulfuration step for about 15 hours to a temperature between 120° and 160° C., thereafter demolding and cooling the mold contents and then heating the cooled content now in form of an electrode again to a temperature of from 120° to 160° C. for about 10-15 hours to provide the cupric sulfide electrode.

The process avoids limitations of amounts of cupric sulfide that may be formed while avoiding ignition of the sulfur during sulfuration of the copper which ignition danger currently limits production to 20 gram batches.

Electrodes and electrochemical cells with such electrodes are also described.

3,655,447

MEANS AND METHOD FOR MAKING POROUS BODIES OF INTEGRAL STRUCTURE

Leonard B. Griffiths, North Reading, and Richard H. Krock, Peabody, both of Mass., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Sept. 8, 1969, Ser. No. 862,616

Int. Cl. H01m 41/00

U.S. Cl. 136-30

7 Claims

Porous zinc fabricated bodies are disclosed. The bodies are integral and are essentially of zinc, comprising a continuous network of interconnected pores formed by the zinc. Total porosities of greater than 50 percent are obtained through novel methods utilizing low temperature compaction. The structures are of high strength and good machinability and show interlocking rod shaped particles of zinc.

3,655,448

HYDROGEN GENERATOR DESULFURIZER EMPLOYING FEEDBACK EJECTOR

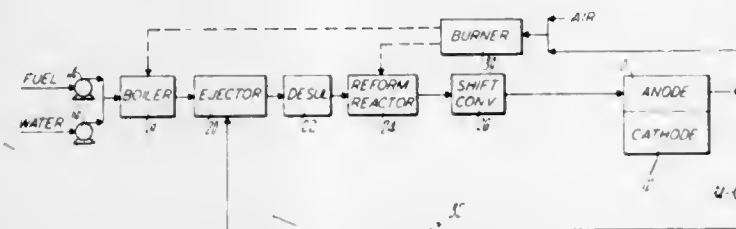
Herbert J. Setzer, Ellington, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Original application Sept. 26, 1967, Ser. No. 670,640.

Divided and this application May 22, 1969, Ser. No. 858,212
Int. Cl. H01m 27/00, 27/14

U.S. Cl. 136-86 C

1 Claim



Water which is to be mixed with hydrocarbon fuel for feedstock in a hydrogen generator has low pressure hydrogen diffused therein so as to permit a hydrogen rich fuel-water admixture to enhance desulfurization of the admixture, without fuel sulfur poisoning of a diffuser. The hydrogen is fed back serially or in parallel from any point downstream of a steam reforming reactor.

3,655,449

DRY CELL COMPRISING A SEPARATOR COMPOSED OF THREE LAYERS

Shohei Yamamoto, Toyonaka-shi; Jun Watanabe, Osaka; Susumu Hosoi, Neyagawa-shi; Masahiro Kuwazaki; Akira Ota, both of Osaka; Toshikatsu Takata, and Junichi Asaoka, both of Moriguchi-shi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 20, 1969, Ser. No. 867,795

Claims priority, application Japan, Oct. 28, 1968, 43/80162

Int. Cl. H01m 21/00

U.S. Cl. 136-107

12 Claims

A dry cell having a separator layer interposed between a positive electrode and a negative zinc electrode, which separator layer is composed of three layers consisting of a paper having excellent water absorbing and water retaining properties, a barrier membrane formed of polyvinyl alcohol alone or polyvinyl alcohol incorporating a material which has at least one of water absorbing property, water retaining property, swelling property and adhesive property, and a paste layer.

3,655,450

BATTERY ELECTRODE AND METHOD OF MAKING THE SAME

Luis A. Soto-Krebs, Santiago, Chile, assignor to ESB Incorporated

Continuation-in-part of application Ser. No. 445,904, Apr. 6, 1965. This application Sept. 2, 1970, Ser. No. 68,918. The portion of the term of this patent subsequent to Oct. 26, 1988, has been disclaimed.

Int. Cl. H01m 21/00

U.S. Cl. 136-107

6 Claims

A battery electrode composed of a principal active material and a secondary active material and the method of making the same, which electrode will achieve the discharge potential characteristic of the secondary active material wherein the sole electronic path for discharge of principal active material is through the secondary active material. The discharge product of the secondary active material must be readily oxidized by the principal active material.

3,655,451

METHOD OF MAKING AN ALKALINE IMPREGNATED ELECTRODE

Raymond W. Blossom, Brooklyn, and Allen Charkey, Flushing, both of N.Y., assignors to Yardney International Corp., New York, N.Y.

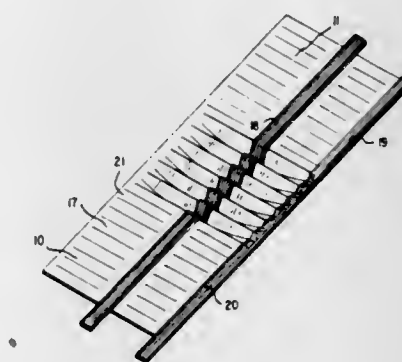
Filed Apr. 14, 1969, Ser. No. 816,077

Int. Cl. H01m 13/08, 43/02

U.S. Cl. 136-126

4 Claims

An improved method is described for manufacturing an electrode impregnated with potassium hydroxide. Potassium hydroxide in powder form having a low content of water is mixed with the anode metal in powder form and blended to form a coherent mixture. The mixture is spread over a conductive grid, subjected to a pressing operation to form a unitary structure of the desired electrode shape and then heated in the absence of air. The electrode is then stored in an airtight container. A strong KOH-impregnated metal anode capable of long storage is obtained.



3,655,452

BUTTON CELL BATTERY

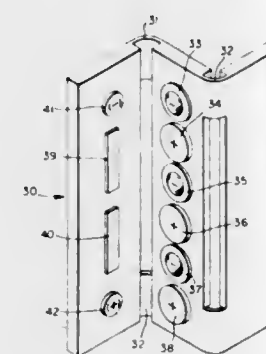
Everett Roy Cich, Monona, Wis., assignor to ESB Incorporated

Filed June 25, 1970, Ser. No. 49,661

Int. Cl. H01m 21/00

U.S. Cl. 136-111

5 Claims



A button cell battery assembly is shown in which the button cells, in planar array, are electrically connected by pressure contact.

3,655,453

CATHODE MATERIAL FOR SOLID STATE BATTERIES
Demetrios V. Louzos, Rocky River, and Geoffrey W. Mellors, Strongsville, both of Ohio, assignors to Union Carbide Corporation, New York, N.Y.

Filed July 16, 1970, Ser. No. 55,624

Int. Cl. H01m 13/02, 15/06; C01c 3/08

U.S. Cl. 136-121

6 Claims

The reaction product of elemental iodine and cyanides of zinc, cadmium or alkali metal produced by heating equimolar proportions of iodine and the cyanide at a temperature of about 220° C. in a sealed vessel in the absence of water is a good cathode material for solid electrolyte cells.

3,655,454

PROCESS FOR PRODUCING A HOLLOW BODY OF NONDEVELOPABLE FORM FROM A STARTING MATERIAL OF A DEVELOPABLE FORM

Giorgio Tangorra, Milan, Italy, assignor to Industrie Pirelli S.p.A.

Filed Jan. 13, 1970, Ser. No. 2,500

Claims priority, application Italy, Jan. 20, 1969, 11,737 A/69
Int. Cl. B29h 7/03, 17/22

U.S. Cl. 156-132

4 Claims

A process for manufacturing a hollow body having a non-developable form from a single piece of starting material

which is flexible and which is either flat or in a developable form. The process involves the formation of folds or corrugations in the starting material and the subsequent shaping of

same into a nondevelopable form with an accompanying unfolding of the corrugations thereby providing the additional length of material needed to satisfy the nondevelopable form.

3,655,455

METHOD FOR THE MANUFACTURE OF BATTERIES
Kenneth R. Jones, Mequon, Wis., assignor to Globe-Union Inc., Milwaukee, Wis.

Original application July 16, 1964, Ser. No. 383,159, now Patent No. 3,431,148. Divided and this application Aug. 16, 1968, Ser. No. 777,932

Int. Cl. H01m 31/00

U.S. Cl. 136-175

6 Claims

A method of encasing batteries where the battery electrodes are assembled with spacers maintaining the electrodes in a spaced relationship to define an electrolyte cavity. In practicing the method, the electrode assembly is immersed in a body of molten casing material whereby the casing material solidifies to form a web between the electrodes and define the electrolyte cavities. The supports for the assembly during immersion extend across the electrodes and are coated with casing material so that upon removal of the supports transverse tubular manifolds are defined. A single port to the manifold and the plurality of electrolyte cavities is also provided upon removal of the supports.

3,655,456

DRY CELL BATTERY

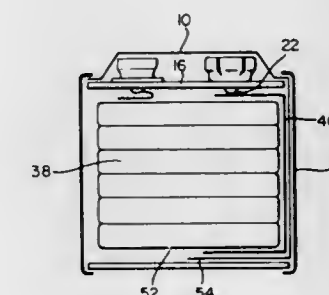
David O. Hamel, Madison, Wis., assignor to ESB Incorporated

Filed June 15, 1970, Ser. No. 46,429

Int. Cl. H01m 5/04

U.S. Cl. 136-181

3 Claims



A dry cell battery is described characterized by having a terminal board with one or more electrical terminals mounted thereon and a terminal protector adhesively fastened to the terminal board.

3,655,457

METHOD OF MAKING OR MODIFYING A PN-JUNCTION BY ION IMPLANTATION

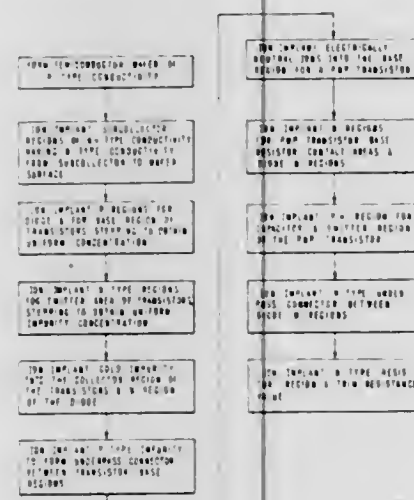
Michael C. Duffy, Poughkeepsie; Paul A. Schumann, Jr., Wappingers Falls, and Tsu-Hsing Yeh, Poughkeepsie, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 6, 1968, Ser. No. 750,650

Int. Cl. H01L 7/00

U.S. Cl. 148—1.5

31 Claims



Monolithic integrated circuits are made utilizing various ion implantation techniques for making diodes, transistors, resistors, capacitors, underpass connections, sub-collector junctions, etc., and for altering impurity profiles, gold doping, trimming resistance values, altering junctions depth, and isolating regions.

3,655,458

PROCESS FOR MAKING NICKEL-BASED SUPERALLOYS

Steven H. Reichman, Ann Arbor, Mich., assignor to Federal-Mogul Corporation

Filed July 10, 1970, Ser. No. 53,870

Int. Cl. C22f 1/10; B22f 9/00, 3/14

U.S. Cl. 148—11.5 F

10 Claims



A process for making nickel-based superalloys that possess excellent high-temperature properties which includes the steps of providing a metal powder having a controlled amount of oxygen and carbon which is confined and densified at an elevated temperature forming a billet that can be further deformed, if desired, to provide an appropriate shaped component. Thereafter, the billet or deformed part is subjected to heat treatment to effect a growth in the grain size thereof to attain optimum physical properties, whereafter the alloy is carburized to increase the carbon content thereof to a level in excess of about 500 parts per million (ppm) which is performed in a manner so as to preferentially promote carbide formation at the grain boundaries of the al-

loy, thereby stabilizing the alloy against further grain growth when subjected to elevated temperatures during use.

3,655,459

METHOD FOR PRODUCING MINIMUM-RIDGING TYPE 430 MO STAINLESS STEEL SHEET AND STRIP

Kenneth G. Brickner, O'Hara Township, Allegheny County, and George A. Ratz, Bethel Park, both of Pa., assignors to United States Steel Corporation

Filed Aug. 13, 1970, Ser. No. 63,612

Int. Cl. C21d 9/48

U.S. Cl. 148—12

4 Claims

A process for producing a Type 430 Mo stainless steel sheet product with substantially reduced ridging characteristics when drawn. Commencing in slab form, the Type 430 Mo steel is hot rolled at 2000°–2100°F and finished at below 1400°F, with a reduction of at least 30 percent per pass; box annealed at 1750–1850°F for at least 10 hours and then at 1450°–1500°F for at least 2 hours; cold rolled to final thickness; and continuous annealed at 1575°–1625°F.

3,655,460

METHOD FOR HEAT TREATING METALLIC STRIP MATERIAL

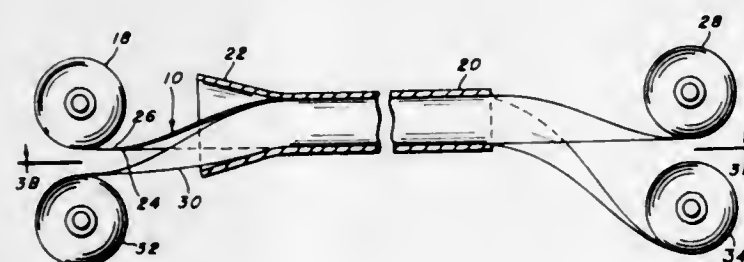
John T. Hayden, Jr., Richmond, Va., and Casimir F. Plasewicz, Baltimore, Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 24, 1970, Ser. No. 49,430

Int. Cl. C21d 1/34

U.S. Cl. 148—13.1

7 Claims



A method for heat treating metallic strip stock in cylindrical form by drawing the strip stock through a funnel-shaped element and then through a heated tube, characterized in that a protective sheet is passed through the heated tube along with the metallic strip stock to be heat treated such that it encircles and envelops the cylindrical form to be heat treated and prevents damage to its outer surface due to frictional drag between the heated tube and the cylindrical form passing therethrough.

3,655,461

FLUX FOR ALUMINUM SOLDERING

Keiji Miwa, Gifu, Japan, assignor to Sanyo Electric Works Ltd., Gifu, Japan

Continuation-in-part of application Ser. No. 741,217, June 28, 1968, now abandoned. This application Sept. 2, 1970, Ser. No. 69,131

Int. Cl. B23k 35/34

U.S. Cl. 148—23

11 Claims

A flux for soldering aluminum and other nonferrous metals and iron to the same or different metals comprising 50–70 percent epoxide resin, 15–30 percent rosin, 12–18 percent triethanolamine and 3–5 percent of a heavy metal fluoroborate or boron trifluoride monoethylamine and optionally an aromatic amine or amide.

3,655,462

CAST NICKEL-BASE ALLOY

Douglas H. Maxwell, Monsey, N.Y., assignor to United Aircraft Corporation, East Hartford, Conn.

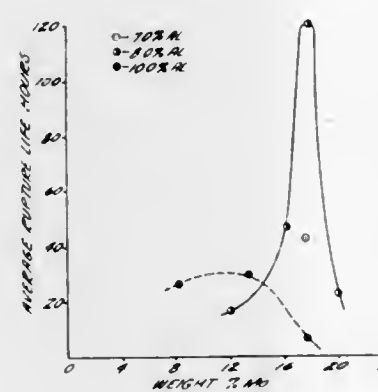
Original application Feb. 19, 1969, Ser. No. 800,591. Divided and this application Mar. 22, 1971, Ser. No. 126,802

Int. Cl. C22c 19/00

U.S. Cl. 148—32.5

2 Claims

ALLOY
STRESS CORRUPTION RESISTANCE AS INFLUENCED BY AL & Ni CONTENTS ABOUT 1500 PSI



A cast nickel-base alloy having outstanding utility in very high temperature application at a composition consisting essentially of, by weight, 17.5–18.5 percent molybdenum, 7.75–8.25 percent aluminum, up to 0.05 percent carbon, balance nickel.

3,655,463

SINTERED COBALT-RARE EARTH INTERMETALLIC PROCESS USING SOLID SINTERING ADDITIVE

Mark G. Benz, Burnt Hills, N.Y., assignor to General Electric Company

Filed Apr. 30, 1970, Ser. No. 33,348

Int. Cl. B22f 3/00; H01f 1/08

U.S. Cl. 148—101

16 Claims

A process for preparing novel sintered cobalt-rare earth intermetallic products which can be magnetized to form permanent magnets having stable improved magnetic properties. A particulate mixture is formed of a base CoR alloy and an additive CoR alloy, where R is a rare earth metal. The base CoR alloy is one which, at sintering temperature, exists as a solid Co₂R intermetallic single phase. The additive CoR alloy is richer in rare earth metal than the base CoR alloy, and at sintering temperature is solid. The base and additive alloys, in particulate form, are each used in an amount to form a mixture which has a cobalt and rare earth metal content substantially corresponding to that of the final desired sintered product. The mixture is pressed into compacts and sintered to the desired sintered product phase composition and density. At sintering temperature, the final sintered product has a phase composition lying outside the Co₂R single phase on the rare earth richer side. Specifically, the final sintered product contains a major amount of the Co₂R solid intermetallic phase and up to about 35 percent by weight of the product of a second solid CoR intermetallic phase which is richer in rare earth content than the Co₂R phase.

3,655,464

PROCESS OF PREPARING A LIQUID SINTERED COBALT-RARE EARTH INTERMETALLIC PRODUCT

Mark G. Benz, Burnt Hills, N.Y., assignor to General Electric Company

Filed Apr. 30, 1970, Ser. No. 33,347

Int. Cl. B22f 3/00; H01f 1/08

U.S. Cl. 148—101

16 Claims

A process for preparing novel sintered cobalt-rare earth intermetallic products which can be magnetized to form per-

manent magnets having stable improved magnetic properties. A particulate mixture is formed of a base CoR alloy and an additive CoR alloy, where R is a rare earth metal. The base CoR alloy is one which, at sintering temperature, exists as a solid Co₂R intermetallic single phase. The additive CoR alloy is richer in rare earth metal than the base CoR alloy, and at sintering temperature is at least partly liquid. The base and additive alloys, in particulate form, are each used in an amount to form a mixture which has a cobalt and rare earth metal content substantially corresponding to that of the final desired sintered product. The mixture is pressed into compacts and sintered to the desired sintered product phase composition and density. At sintering temperature, the final sintered product has a phase composition lying outside the Co₂R single phase on the rare earth richer side. Specifically, the final sintered product contains a major amount of the Co₂R single phase on the solid intermetallic phase and up to about 35 percent by weight of the product of a second solid CoR intermetallic phase which is richer in rare earth content than the Co₂R phase.

3,655,465

HEAT TREATMENT FOR ALLOYS PARTICULARLY STEELS TO BE USED IN SOUR WELL SERVICE

Edwin Snape, Monsey, N.Y., and Frank W. Schaller, Ringwood Passaic, N.J., assignors to The International Nickel Company, Inc., New York, N.Y.

Filed Mar. 10, 1969, Ser. No. 805,827

Int. Cl. C21d 1/18

U.S. Cl. 148—134

26 Claims

Steel characterized by high yield strength, e.g., over 90,000 p.s.i., is rendered greatly less susceptible to Sulfide Corrosion Cracking in sour oil wells or comparable environments through the use of a sequence of heat treating operations in which the steel is heated within its A_{c1} and A_{c3} region and thereafter heated below its A_{c1} temperature.

3,655,466

UNIVERSAL JOINT CROSS OF POWER TRANSMISSIONS AND A METHOD OF ITS HEAT TREATMENT

Grigory Arkadievich Ostrovsky, Delegatskaya ulitsa, 14/2, kv. 21; Anatoly Georgievich Orlovsky, Simferopolsky, bulvar, 12/14, korpus 1, kv. 26; Vladimir Filippovich Nikonov, Avtozavodskaya ulitsa, 7 kv. 116; Veniamin Davydovich Kalner, Lomonosovskiy prospekt, 15, kv. 137; Isaak Nakhimovich Shklyarov, Simonovskiy val, 26, Korpus, 2, kv. 94; Anatoly Logvinovich Stepin, ulitsa Shumkina, 2/24, kv. 2; Alexandr Moiseevich Bysink, Leninsky prospekt, 32, kv. 272; Konstantin Zakharovich Shepelyakovskiy, Avtozavodskaya, ulitsa, 6, kv. 125, and Stanislav Ivanovich Smirnov, ulitsa Novinki, 23, korpus 2, kv. 24, all of Moscow, U.S.S.R.

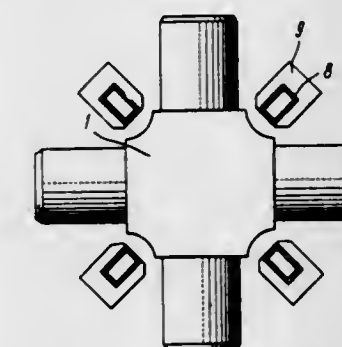
Filed Oct. 31, 1969, Ser. No. 872,889

Claims priority, application U.S.S.R., Oct. 31, 1968, 1279470

Int. Cl. C21d 1/18

U.S. Cl. 148—145

5 Claims



A universal joint cross for power transmissions, said cross including a base having arms adapted to be engaged by bear-

ing needles, said cross being made of a steel consisting essentially of 0.4 to 1.2 percent carbon and 0.1 to 0.3 percent manganese, the surface hardness of the arms at their points of contact with said bearing needles being in the range of 60 to 67 Rockwell C, and at the points near the base being in the range of 50 to 56 Rockwell C. The method of heat treatment comprises the steps of heating said cross to its hardening temperature, cooling said cross to obtain a hardened surface layer and then nonuniformly tempering said cross.

3,655,467

ETCHING OF ALUMINUM BASE ALLOYS

Albert L. Sopp, Jr., New Kensington, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Filed May 14, 1969, Ser. No. 824,691

Int. Cl. C23g 1/22, 1/26

U.S. Cl. 156—22

4 Claims

Treating aluminum base alloys with a cleaning-etching solution made up of a caustic and a soluble pyro- or polyphosphate to inhibit formation of an undesirable film thereon.

3,655,468

FLUID-HANDLING CONSTRUCTIONS, APPARATUS AND METHODS OF PRODUCTION

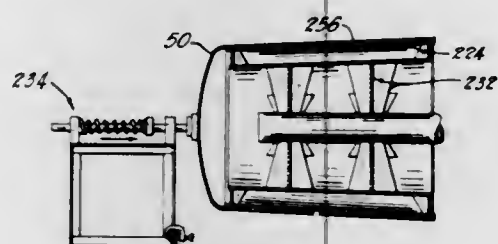
Andrew L. Bastone, Granville; Justin R. Boeker, Newark, both of Ohio, and Fred E. Klimpl, West Orange, N.J., assignors to Owens-Corning Fiberglas Corporation

Original application Aug. 6, 1964, Ser. No. 387,945, now Patent No. 3,412,891, dated Nov. 26, 1968. Divided and this application Apr. 13, 1970, Ser. No. 22,431

Int. Cl. B32b 17/04

U.S. Cl. 156—62.2

8 Claims



Production of large underground corrosion resistant storage tanks, e.g., 10,000 gallon capacity, from a normally mobile resin and chopped reinforcement. Ability to "hold" the rein in place until it cures is provided by a stabilizing mat layer or medium.

3,655,469

PROCESS FOR FORMING A DECORATIVE STRUCTURE

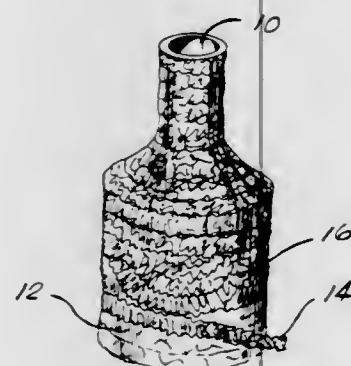
Josephine E. Huron, 5527 W. 78th St., Los Angeles, Calif.

Filed May 19, 1969, Ser. No. 825,701

Int. Cl. B31f 1/08; B32b 31/20; B44c 1/20

U.S. Cl. 156—63

14 Claims



A process for forming a decorative structure wherein crimped elongate strips of thin papery material are wet with a

water-based paste and applied to a base to form a coating thereon. The coated base is heated at an elevated temperature below a bake temperature for a time sufficient to cause shrinkage of applied material but insufficient to dry the applied material, and is then heated at a bake temperature for a time to substantially dry the applied material, whereupon a lacquer coating is applied.

3,655,470

PROCESS FOR THE PRODUCTION OF A FOAMED THERMOPLASTIC RESIN SHEET

Akio Takeshima; Tadashi Ueyama; Akinori Ohki, and Tetsuo Mori, all of Minato-ku, Nagoya, Japan, assignors to Toa Gosei Chemical Industry Co., Ltd., Tokyo, Japan

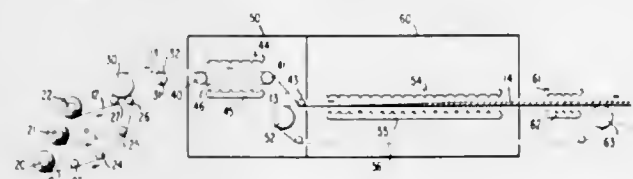
Filed Dec. 16, 1968, Ser. No. 784,001

Claims priority, application Japan, Mar. 29, 1969, 44/24050

Int. Cl. B32b 5/18

U.S. Cl. 156—79

6 Claims



Process for continuously producing a foam sheet by heating a continuous sheet of a soft thermoplastic synthetic resin, said sheet prepared by a calendering process, which contains a chemical foaming agent at a temperature lower than the decomposition temperature of said chemical foaming agent eliminating the internal stress of said sheet elongating a corrugation formed on the sheet during said heating in the direction of the width thereof, and then heating at a temperature higher than the decomposition temperature of said chemical foaming agent to foam said sheet.

ERRATUM

For Class 156—132 see: Patent No. 3,655,454

3,655,471

METHOD OF PRODUCING A FIBROUS SHEET COMPOSITION

Lawrence W. Healy, P.O. Box 504, Johnsonville, S.C.; Wu Lan Wang, 298 Crafton Ave., Newark, N.J., and Tsu-Huai Wang, 17 Paisley Drive, Wilmington, Del.

Continuation-in-part of application Ser. No. 562,532, July 5, 1966., This application Aug. 28, 1970, Ser. No. 68,010

Int. Cl. B32b 31/12

U.S. Cl. 156—148

7 Claims

Leather like compositions are produced by needling a fleece into a foam, compressing resulting product, depositing an elastomer into the compressed product, again compressing and optionally coating.

3,655,472

METHOD OF MAKING HIGH BRIGHTNESS REFLECTION SCREENS

Jasper S. Chandler, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 16, 1969, Ser. No. 858,328

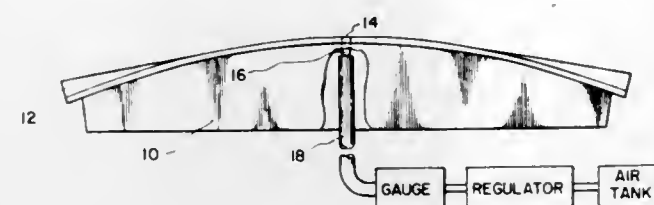
Int. Cl. B29c 17/00

U.S. Cl. 156—156

5 Claims

High brightness reflection screens of the type described in U.S. Pat. No. 3,408,132 can be formed to the required curva-

ture from nonself-supporting aluminum foil without the use of rigid molds by employing air pressure in the manner



described to inflate the foil. The aluminum foil is made self-supporting with resin and resin reinforcing materials.

3,655,473

PRE-SPLICE FILM CLEANER

Robert J. O'Brien, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,206

Int. Cl. B65h 69/06

U.S. Cl. 156—157

2 Claims

Photographic film is conditioned, say for splicing, by means of a brief intense flash of broad band light. The invention is especially useful in making durable splices of pre-processed film: Whereas prior art splicing of pre-processed film is from "emulsion side-to-emulsion side," flashing according to the invention causes the ordinarily hard, and smooth, rem-jet side of pre-processed film not only to be cleaned, but in addition fuses the rem-jet to the film base, and so conditions the rem-jet that it becomes an amorphous matte to which splice material may be secured easily. The rem-jet—except that thereof which was flashed—is dissolved away during film processing.

3,655,474

METHOD OF PRODUCING SHRINK-STABILIZED COMPOSITE FABRICS

Thomas T. Constantine, South Easton, Mass., assignor to Fabric Research Laboratories, Dedham, Mass.

Filed Sept. 19, 1969, Ser. No. 859,452

Int. Cl. B32b 5/00

U.S. Cl. 156—178

13 Claims

The disclosure relates to the shrink-stabilization of laminated and bonded fabrics, herein referred to as composite fabrics, by mechanical compressive shrinkage techniques adapted especially to handle the composite material. The disclosure also relates in part to a new product, in the form of a shrink-stabilized composite fabric. In the disclosed process, a mechanically settable thermoplastic tricot backing fabric is bonded to a desired outer or shell fabric to form the composite. The composite is mechanically compressively shrunk in a two roll compactor, including a feeding roll and a retarding roll. The composite fabric is so oriented relative to the compacting apparatus that the tricot backing fabric contacts the retarding roll, and the relationship of peripheral speeds of the feeding and retarding rolls is such as to effect longitudinal upsetting of the knitted loops of the backing material, confined wholly within the lengths of the loops to avoid pleating of the fabric. The mechanical compressive shrinkage operation is so carried out that the settable backing fabric material is semi-permanently set in an upset condition, at least partly by reason of self-generated heat of formation, resulting from the mechanical compacting operation. The new product, in addition to having a desirable stabilization against excess shrinkage, has a noticeably improved hand, as compared to the same material prior to processing, rendering the processed composite fabric more attractive for many applications, particularly garments.

3,655,475

METHOD OF AND APPARATUS FOR MAKING HONEYCOMB CORE

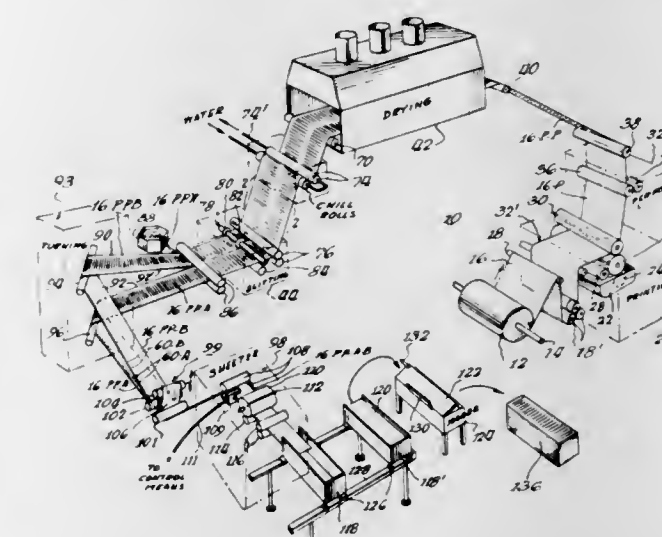
Walter R. Stelling, Jr., Wauwatosa, Wis.; Burton L. Siegal, Skokie, Ill., and Michael M. Talbott, Key Biscayne, Fla., assignors to Orbitex, Inc., Miami, Fla.

Filed May 26, 1969, Ser. No. 827,781

Int. Cl. B31d 3/02

U.S. Cl. 156—197

30 Claims



A web of thin flexible material such as resin-impregnated cloth suitable for making expanded honeycomb core structures is drawn from a roll, the web being somewhat more than twice the width of the lay-up which is intended to be made. The double web passes through a printing station at which only one face has transverse lines of adhesive imprinted thereon. Each line extends only half-way across the web, and the lines on one half of the web are staggered along the length of the web with respect to the lines on the other half by a constant spacing. The web is slit into two halves, each being approximately one half of the width of the original double web. From the cutting station the two half webs pass over a pair of spaced turning bars which change the direction of movement of the respective half webs so that they are aligned edge to edge but with both printed faces in the same orientation so that the face of the bottom web engages the back of the top web.

3,655,476

METHOD OF MAKING HONEYCOMB CORE

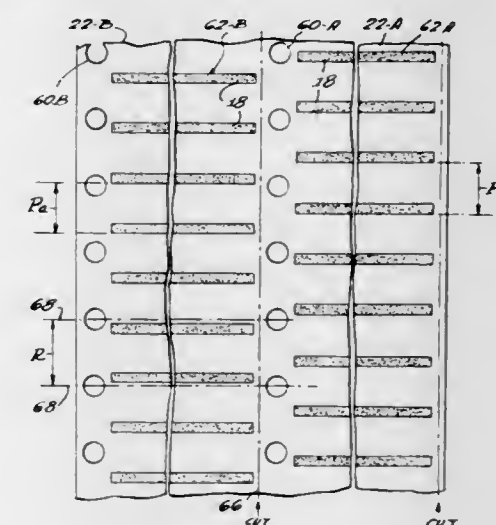
Burton L. Siegal, Skokie, Ill., assignor to Orbitex, Inc., Miami, Fla.

Filed May 26, 1969, Ser. No. 827,782

Int. Cl. B31d 3/02

U.S. Cl. 156—197

15 Claims



Two webs are imprinted with transverse lines of adhesive, the pattern on one web being staggered with respect to the

pattern on the other web, so that if properly cut and stacked, there can be formed a lay-up which may eventually be expanded to produce honeycomb core.

3,655,477

METHOD OF MAKING HEAT-SEALED ARTICLES

Carl W. Scholl, and Milo L. Raffaelli, Sr., both of Chicago, Ill., assignors to The Scholl Mfg. Co., Inc., Chicago, Ill.

Original application Jan. 4, 1967, Ser. No. 607,247, now Patent No. 3,520,755, dated July 14, 1970. Divided and this application Feb. 12, 1970, Ser. No. 10,808. The portion of the term of this patent subsequent to July 14, 1987, has been disclaimed.

Int. Cl. B31f 1/00; B23k 9/00

U.S. Cl. 156—202

1 Claim



A method of electronically heat sealing thermoplastic flexible cover material to a more rigid backing member to form a panel-like article, the method being such that the article is shaped over the side edge of the backing member and heat-sealed to that side edge, leaving only the rear face of the backing member exposed.

3,655,478

CELLULAR STRUCTURAL PRODUCTS

Robert C. Geschwender, 1800 Center Park Road, Lincoln, Nebr.

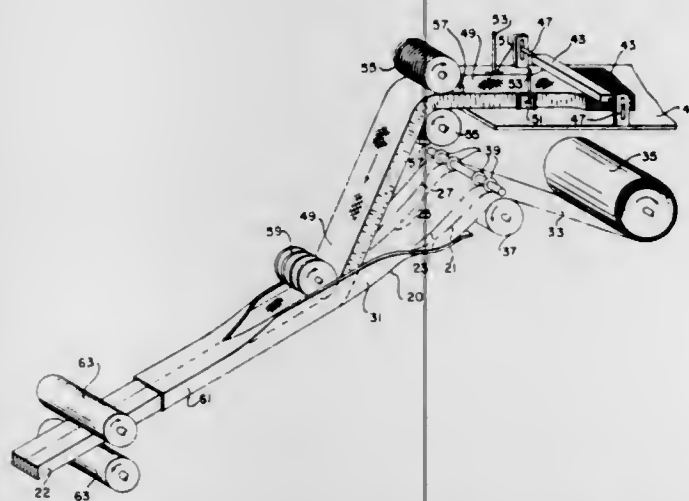
Continuation of application Ser. No. 769,165, Oct. 21, 1968, now abandoned, which is a division of application Ser. No.

671,864, Sept. 29, 1967, now Patent No. 3,587,479. This application Aug. 10, 1970, Ser. No. 62,625

Int. Cl. B31f 1/00

U.S. Cl. 156—202

6 Claims



A cellular plank is made by continuously pulling a band of cellular material from a supply of the material. As the band is pulled, adhesive is applied to its upper, lower and sidewise faces. It is then directed into a folder which also receives a strip of wrapping material from a supply. Before the wrapping material enters the folder, it is scored along lines which will register with the four corners of the cellular band. The width of the scored strip is equal to the perimeter of an orthogonal cross section of said band. Then as the band and the wrapper pass through the folder, the latter is wrapped about the former so as to be adhered to it by means of the adhesive. After the combined material leaves the folder and

the adhesive has set, it is in the form of a wrapped plank which is then cut into appropriate lengths for structural use. A preferred form is that of a block. In some cases several strips are employed for wrapping the blocks but in any event the wrapper covers the top, bottom and two sides of the block leaving the end faces open. The preferred form of cellular material is of the honeycomb type, although it is contemplated that a polyurethane or other like foam material may also be employed.

3,655,479

METHOD FOR GLUING A STRIP OF MATERIAL AGAINST THE SIDE OF A FLAT WORK PIECE, LIKE A TABLE LEAF, AND A DEVICE FOR PERFORMING THIS METHOD

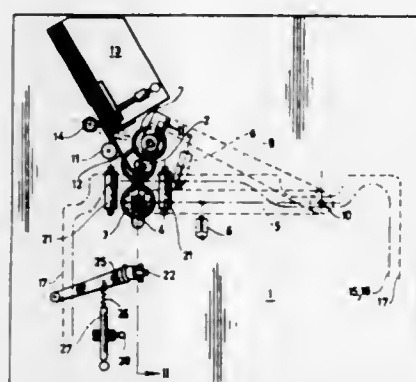
Gerardus P. Helmes; Wilhelmina P. M. Helmes; Christiaan T. Helmes; Johan P. H. Helmes, and Franciscus J. Helmes, all of Steyl-Tegelen, Netherlands, assignors to Helmes Machin-efabriek N.V., Steyl, Netherlands

Filed Mar. 27, 1969, Ser. No. 811,098

Int. Cl. B29c 17/02

U.S. Cl. 156—212

9 Claims



Apparatus for applying an adhesive strip to a peripherally irregularly contoured edge of a panel by moving the panel continuously passed an adhesive strip applicator roller. The panel is held in broadside relation on a centerless table capable of rotatable rectilinear and general plain motions which is supported by and shiftable on a bed. A cam having a contour conforming substantially to the peripherally irregularly contoured edge of the panel is carried by the table. The table is driven by driving and pressure rollers which engage the cam and rotate at a constant angular speed. Thus, the irregularly contoured periphery of the panel is movable past the applicator at varying surface speeds to ensure equal pressure application of the adhesive along the entire periphery of the panel.

3,655,480

HEATING PARISON PREFORMS IN LIQUID FLUORINATED ORGANIC COMPOUND

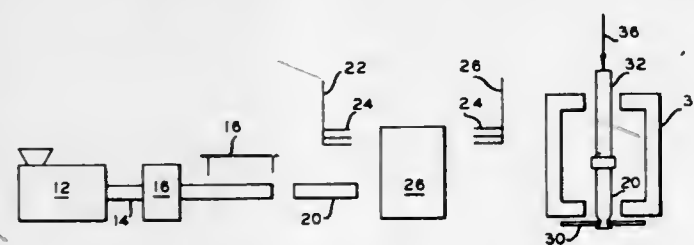
Richard K. Young, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Aug. 18, 1969, Ser. No. 850,782

Int. Cl. B29c 17/07, 17/14; B29f 3/08

U.S. Cl. 156—256

7 Claims



Parison preforms are heated to orientation temperature in a liquid fluorinated organic compound bath. The thus heated

parisons can be sealed, stretched and blow molded to give intense but brief first stage and a longer less intense second oriented hollow articles such as bottles.

3,655,481

ADHERING RESINS TO SUBSTRATES, ESPECIALLY METAL, BY RADIATION

Roger P. Hall, Mayfield Heights, Ohio, assignor to SCM Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 682,140, Nov. 13, 1967, and a continuation-in-part of 737,576, June 17, 1968. This application Oct. 3, 1968, Ser. No. 764,963

Int. Cl. B29c 27/04

U.S. Cl. 156—272

15 Claims

A process for coating by radiation a substrate, and especially one having a metallic surface, with a substantially catalyst-free system containing a polymerizable organic unsaturated resin susceptible to free-radical catalysis; and the resulting product. In one form, a film of the resin is superimposed upon the substrate while a facing side of either the resinous film or substrate is contacted at any time prior to such radiation with a selected chromium Werner complex. The Werner complex has a polar moiety attractive to the substrate and an organic unsaturated moiety which is sufficiently responsive to high energy radiation to react chemically with the resin. Thereafter, the film and substrate are subjected to the high energy radiation to adhere one to the other.

The process is also adapted for coating articles with normally air-inhibited, thermosetting resins by a two-step process, wherein the resin film is first passed through one treating zone effective to impart mass integrity and thereby define a sheet, and the sheet together with the Werner complex and the substrate is then passed through another treating zone effective substantially to complete the cure of the resin and simultaneously adhere the sheet to the substrate, at least one of the treating zones comprising exposure to high energy radiation.

3,655,482

BONDING METHOD AND PRODUCT

Sid I. Schildkraut, Flushing; Albert L. Yates, Huntington Station, and Peter J. Cohn, New York, all of N.Y., assignors to Edo Corporation, College Point, N.Y.

Filed Dec. 23, 1969, Ser. No. 887,775

Int. Cl. B32b 31/00

U.S. Cl. 156—276

5 Claims

A process for adhering smooth mechanical surfaces via an intermediate adhesive of a predetermined thickness includes mixing spherical particles of a size comparable to the desired thickness with the adhesive. The adhesive-particle mixture is deposited between the surfaces and the adhesive cured, sufficient pressure being applied to effect only a single plane of the particles.

3,655,483

PROCESS OF MANUFACTURING STRATIFIED MATERIALS OF GLASS FIBERS AND POLYESTERS USING ULTRA-VIOLET IRRADIATION

Philippe Borrel, and Jean Leheureau, both of Lyon, France, assignors to Progil, Paris, France

Filed June 10, 1970, Ser. No. 45,007

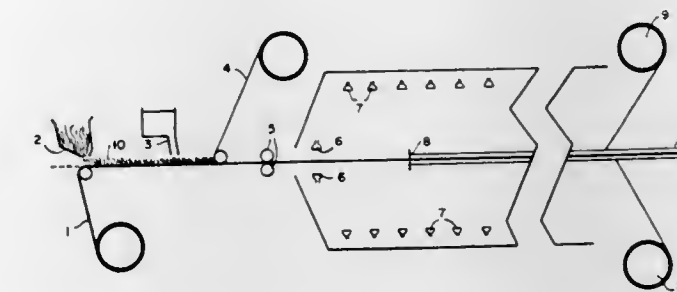
Claims priority, application France, June 12, 1969, 6919610

Int. Cl. B32b 27/16; C08f 1/20

U.S. Cl. 156—272

7 Claims

A laminate of improved properties is obtained by photopolymerization of a polyester in two stages including an



stage, whereby the ethylenically unsaturated monomer migrates in part to the surface of the laminate.

3,655,484

METHOD FOR FUSING CARBON ELECTRODES AND INSULATING SPACERS USED IN ELECTRIC OVERVOLTAGE ARRESTERS

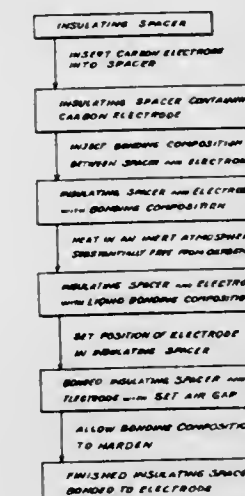
Vinayak K. Patel, Chicago, Ill., assignor to Cook Electric Company, Morton Grove, Ill.

Filed Oct. 15, 1969, Ser. No. 866,495

Int. Cl. B29c 1/08

U.S. Cl. 156—293

4 Claims



An improved process for fusing a carbon electrode to an insulating spacer is provided for use in making a component for electric overvoltage arresters. The improved process involves heating an insulating spacer, a carbon electrode and a bonding composition used to fuse the electrode to the spacer in an inert atmosphere substantially free from oxygen until the bonding composition is liquefied, setting the position of the electrode in the insulating spacer while the bonding composition is in a liquid condition, and then allowing the bonding composition to harden so that the electrode is permanently secured within the spacer.

3,655,485

PROCESS OF LAMINATING A VINYL DESIGN TO A VINYL BACKING SHEET

Thomas A. Zompa, East Providence, R.I., assignor to Trina, Inc., Fall River, Mass.

Filed June 9, 1969, Ser. No. 831,432

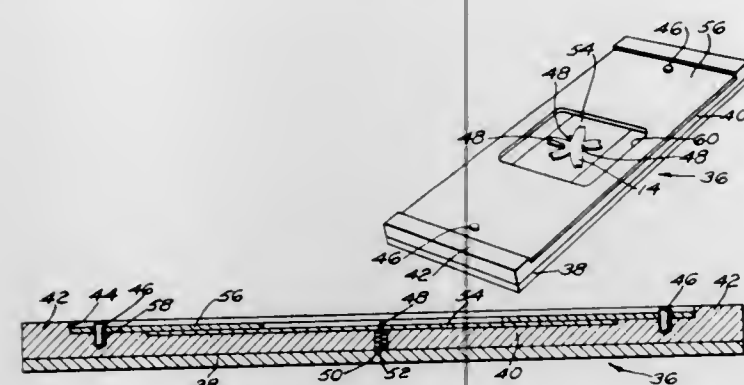
Int. Cl. B32b 31/26

U.S. Cl. 156—256

7 Claims

A process of laminating a vinyl design to a vinyl backing sheet comprising the steps of first die cutting the design to the desired configuration, then placing the cut vinyl design on a support surface, then placing the vinyl backing sheet over the cut design so that the latter is properly oriented with

respect to the former, then applying heat and pressure to the surface of the backing sheet opposed from the surface with



which the cut design is in contact in order to fuse the cut design to the backing sheet.

3,655,486

APPARATUS FOR PRODUCING THERMOPLASTIC SYNTHETIC RESIN LAMINATED MATERIAL HAVING A LARGE NUMBER OF INDEPENDENT AIR CELLS

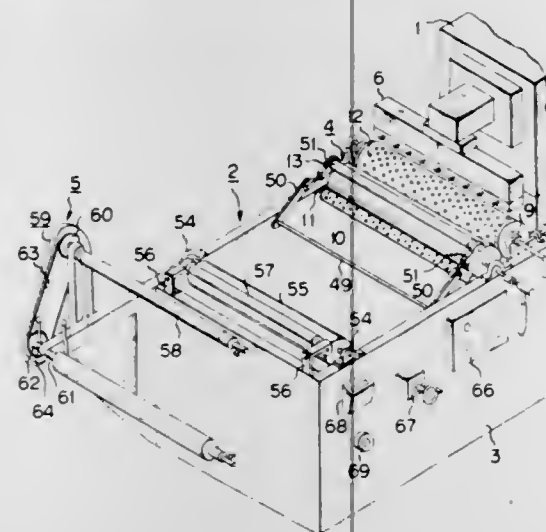
Seiji Hagino, Nagoya-shi; Kohel Masuda, Yokkaichi-shi; Kazumasa Hasegawa, Yokkaichi-shi; and Yasuzi Hosono, Yokkaichi-shi, all of Japan, assignors to Hagino Kiko Company Limited, Nagoya-shi and Mitsubishi Petrochemical Company Limited, Tokyo-to, Japan

Filed May 26, 1969, Ser. No. 827,657

Int. Cl. B29j 1/00; B32b 3/30

U.S. Cl. 156—360

6 Claims



Production of thermoplastic synthetic resin laminated material having a large number of independent air cells, the method comprising steps of extruding two sheets of filmy molten resin, engaging one of the sheets of filmy molten resin onto an endless molding belt, which has a large number of independent holes, and before the filmy molten resin sheets harden, applying a suction to the one filmy molten resin sheet corresponding to the holes of the endless molding belt, and bonding the other sheet of filmy molten resin on the flat side of the one of the filmy molten resin sheets, the product may be used for packing or buffering of articles.

3,655,487

HEAT SEALING APPARATUS

Robert D. Farkas, 5601 First Ave., Brooklyn, N.Y.

Filed Mar. 9, 1970, Ser. No. 17,373

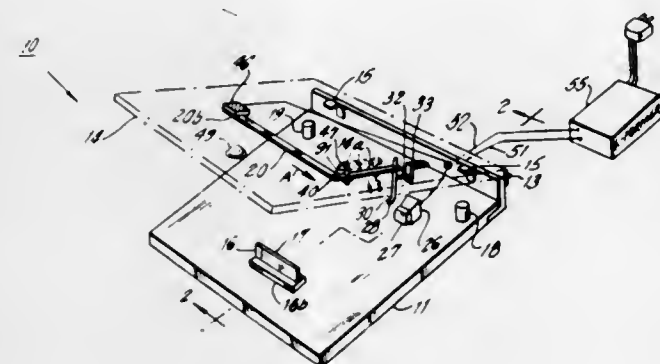
Int. Cl. B29c 27/02; B32b 31/16

U.S. Cl. 156—380

11 Claims

Apparatus for heat sealing sheets of thermoplastic material is constructed with a Nichrome strip constituting the heated

die element. The die strip is mounted to the movable press element, with one end fixedly secured thereto, and the other end of the strip being free to move longitudinally as the strip temperature increases. The motion of the strip is transmitted through a motion multiplying linkage to operate a movable contact out of engagement with a stationary contact when the strip has reached a predetermined temperature, which will occur after sufficient heat for sealing has been applied



and prior to the application of excessive heat. The movable contact is automatically latched in the open position to maintain the flow of heating power to the strip interrupted at the end of the sealing operation. The latch releases the movable contact when the cooled strip is moved out of sealing position so that when the strip is next moved to sealing position the movable contact automatically engages the stationary contact to complete the heating circuit for the strip.

3,655,488

APPARATUS FOR JOINING SHEET MATERIAL

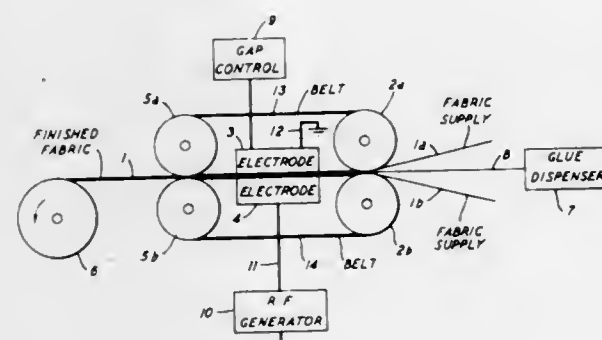
Milton Goldstein, Yonkers, N.Y.; George R. Hair, Clifton, N.J.; Jack Kutzenko, Westfield, N.J., and Jacques J. Marchand, Newark, N.J., assignors to Bondit Corp., Rahway, N.J.

Original application July 7, 1967, Ser. No. 653,787, now Patent No. 3,575,760, dated Apr. 20, 1971. Divided and this application June 18, 1969, Ser. No. 871,158

Int. Cl. B29c 27/10; B65c 11/06

U.S. Cl. 156—380

10 Claims



A method and apparatus for joining sheet material is disclosed in which the material to be joined is fed from supply rolls, a dry monofilament adhesive is interfed between the materials in the area thereof to be joined, the material and the interfed adhesive is then concurrently compressed and subjected to radio frequency heating energy whereby the adhesive melts and covers the sheet areas to be joined. The adhesive hardens as the material advances beyond the vicinity of the radio frequency field and is rewound on a take-up roll.

3,655,489

WINDING AND FEEDING MANDREL FOR FORMING TUBING FROM STRIP MATERIAL

Peder Ulrik Poulsen, Lønholt Ladegård, 3480 Fredensborg, Lyngby, Denmark

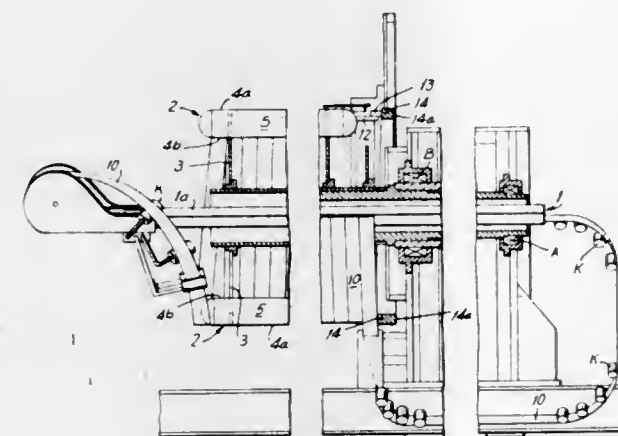
Filed May 14, 1969, Ser. No. 824,576

Claims priority, application Denmark, May 14, 1968, 2231/68

Int. Cl. B65h 81/00

U.S. Cl. 156—429

2 Claims



An apparatus for helically winding a strip forming the revolving surface of a winding mandrel at a pitch corresponding to the strip width, including a plurality of strip supports distributed about the winding axis of the mandrel, extending parallel thereto, spaced equally therefrom and adapted to rotate about the axis, and a stationary strip guide ring mounted concentrically with the convolutions.

3,655,490

APPARATUS FOR PRODUCTION OF PILE CARPETING

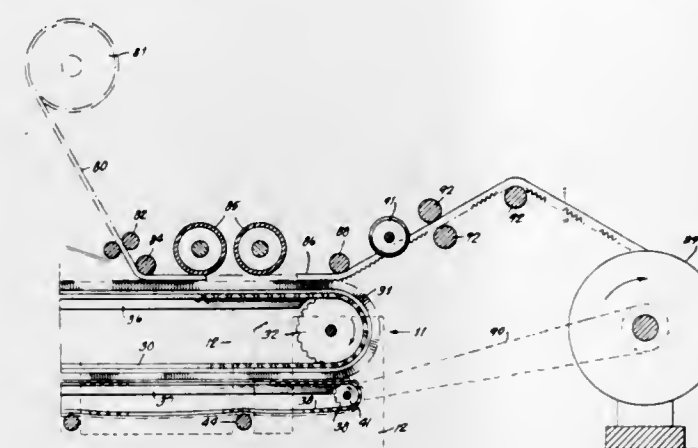
Ralph M. Adler, New York, N.Y., assignor to Adler Process Corp., New York, N.Y.

Continuation-in-part of application Ser. No. 793,842, Jan. 24, 1969, which is a continuation-in-part of application Ser. No. 520,402, Jan. 13, 1966, now Patent No. 3,424,632. This application May 18, 1970, Ser. No. 38,384

Int. Cl. D04h 11/08; D03d 39/00

U.S. Cl. 156—435

10 Claims



An improved process and technique for the manufacture of non-woven pile fabrics is provided by an array of loop-forming members disposed in side-by-side relationship, the array of loop-forming members being moved continuously or intermittently between a loop-forming station wherein a loop-forming member or blade descends between two adjacent loop-forming members to press yarns downwardly between said adjacent loop-forming members so as to form loops of yarn therebetween. Between the pair of loop-forming members containing the immediately previously formed

loops of yarn a gauge blade is inserted to a distance not greater than and preferably less than the distance said loop-forming blade descends into said first mentioned pair of loop-forming members so as to maintain said previously formed loops of yarn in position and/or at a desired depth between the loop-forming members containing the previously formed loops of yarn as said loop-forming blade descends to form additional loops of yarn.

3,655,491

STATIONERY BONDING APPARATUS

Leslie Alexander Dyke, Chigwell, England, assignor to Form-master Limited, Peterborough, England

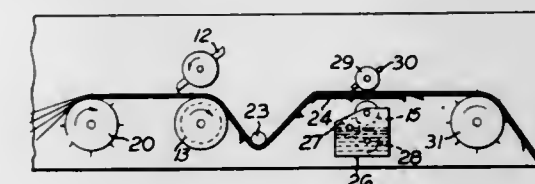
Original application Dec. 27, 1968, Ser. No. 788,673, now abandoned, which is a continuation of application Ser. No. 638,347, May 15, 1967, now abandoned. Divided and this application June 2, 1969, Ser. No. 829,244

Claims priority, application Great Britain, May 25, 1966, 23,251/66

Int. Cl. B32b 31/08, 31/18

U.S. Cl. 156—459

3 Claims



Apparatus for producing stationery assemblies comprising means for moving a plurality of superposed webs along a path of travel, tab-cutter which cuts a plurality of superposed tabs in said webs and bends the tabs so that their free ends extend outwardly of the webs and in a leading direction along said path of travel, and a roller adhesive applicator which rotates in a direction opposite to the direction of movement of the webs. A controlled amount of quickdrying adhesive is simultaneously applied to the free ends of the tabs by the roller, with the position of the roller relative to the webs and the speed of rotation thereof being adjustable to vary the amount of adhesive applied to the free ends of the tabs and also to vary the area of the tabs to which the adhesive is applied.

3,655,492

LABEL IMPRINTING AND APPLYING MACHINE AND METHOD

Robert Burton, Philadelphia, Pa., assignor to Avery Products Corporation, San Marino, Calif.

Filed Jan. 9, 1970, Ser. No. 1,719

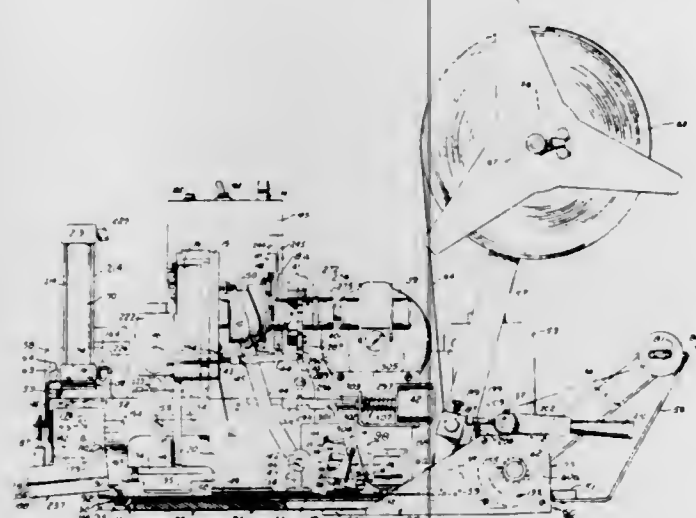
Int. Cl. B65c 9/18; B32b 31/20

U.S. Cl. 156—541

10 Claims

A label imprinting and applying machine and method for sequentially imprinting die-cut pressure-sensitive labels carried on a backing tape drawn from a roll thereof and for synchronously applying the so imprinted labels to articles or packages of merchandise to be labeled thereby, such machine including a tape-carried label supply, a tape bed, a printer disposed above the plane of the tape bed, including a vertically reciprocable plunger and a type-bearing printer head carried thereby and an impression pad therebeneath in the plane of the tape bed, and a type inker disposed above the tape bed, an angularly adjustable label peeler immediately adjacent the impression pad of the printer, around which the label peeler for intermittently transporting the labels through the printer and past the peeler, a pneumatic label applicator having a suction head disposed in operative juxtaposition to the peeled label, for vacuum-engaging the payed-out label and applying it to an article or package of merchandise, a label sensor disposed above the tape bed in operative juxtaposition to the labels thereon for starting and stopping the

tape take-up, and mechanical, electrical, magnetic and pneumatic means for cycling the label applicator in timed relation to the label payed-out from the peeler and electromechanical means for cycling the printer and the inker in timed relation to the label transport cycle, and means for adjusting the location of the label sensor longitudinally of the tape bed and



means for adjusting the label peeler and the label applicator in a direction longitudinally of the tape bed, whereby the machine can be adjusted for label lengths ranging from a length substantially less than either of the two adjustments to a length more than twice the length of either of the two adjustments.

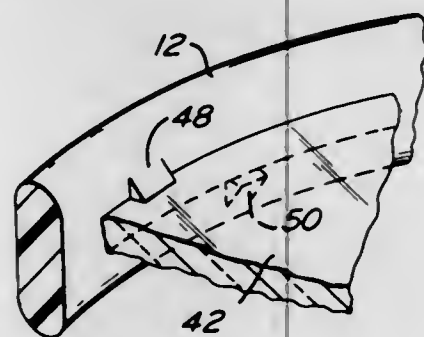
3,655,493

SIMULATED LEADED STAINED GLASS

Jay E. Campbell, Upper Black Eddy, Pa., assignor to Fairview-Development Service, Inc., Forked River, N.J.
Filed Mar. 4, 1970, Ser. No. 16,512
Int. Cl. B44f 1/00

U.S. Cl. 161-5

7 Claims



The decorative panel includes a molded plastic frame having a plurality of closed loops of different configurations. Decorative glass panels are snap-fitted into the closed loops and have a configuration corresponding to the shape of the closed loop. The glass panels may be ribbed, dimpled, and are of different colors whereby the panel simulates leaded stained glass or Tiffany glass objects.

3,655,494

I. D. CARD LAMINAR STRUCTURES AND PROCESSES FOR MAKING SAME

Harold O. Buzzell, Wollaston, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 12, 1969, Ser. No. 823,670

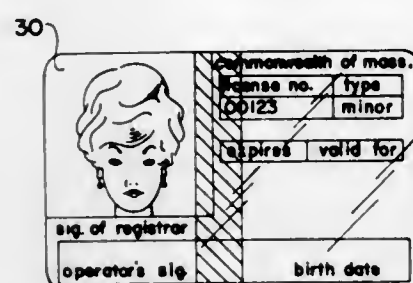
Int. Cl. B32b 27/04; G03c 5/54; G09b 3/02

U.S. Cl. 161-5

10 Claims

Laminar structures such as identification (ID) cards and the like including an information-bearing surface, e.g., a

photograph, having affixed thereto a substantially transparent overlay including a layer at least a portion of which is light-polarizing and which is preferably dyed or stained to provide a protective security feature for said structure, the laminar



structure being characterized as having a strong dry bond, but possessing a poor wet bond whereby attempts to separate the information-bearing surface from the overlay with the aid of a solvent, e.g., water, will cause the polarizing layer to curl up and be effectively destroyed so that it cannot be reused.

3,655,495

ORNAMENTAL ARTIFICIAL CHRISTMAS TREE

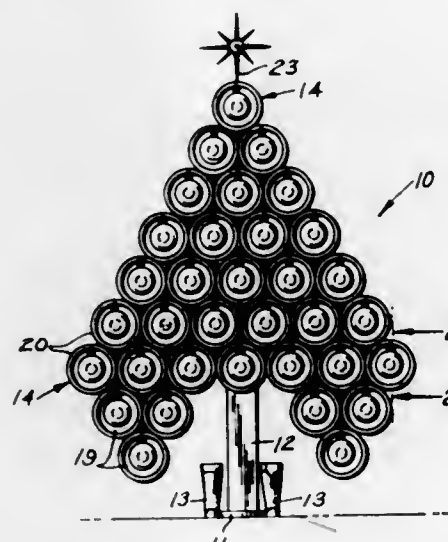
Harvey A. Carrell, Box 14, Bonita Springs, Fla.

Filed Dec. 3, 1970, Ser. No. 94,874

Int. Cl. A47g 33/06, 33/16

U.S. Cl. 161-16

4 Claims



An artificial Christmas tree structure including an upright post member secured to a base, the post member supporting a multiple number of attached cans. Each of the cans of the device has on its interior a reflector and a bulb which lights intermittently, the open portion of the cans also having colored ornaments depending centrally of the can opening, the structure also including smaller ornaments positioned between the secured cans.

3,655,496

TAPE TRANSFER OF SINTERABLE CONDUCTIVE, SEMICONDUCTIVE OR INSULATING PATTERNS TO ELECTRONIC COMPONENT SUBSTRATES

Kitty S. Ettre, Norwalk, and George Richard Castles, Stamford, both of Conn., assignors to Vitta Corporation, Wilton, Conn.

Filed Sept. 25, 1969, Ser. No. 860,866

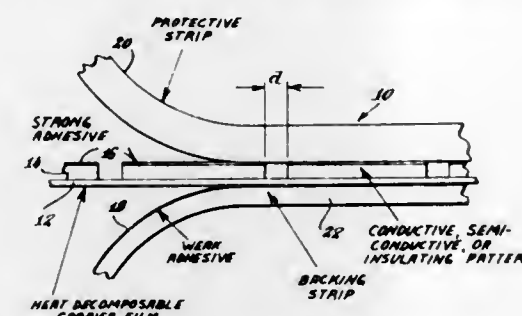
Int. Cl. B32b 7/04

U.S. Cl. 161-39

6 Claims

Conductive, semiconductive or insulating patterns such as fine line, thick film circuitry, or dot configurations are applied to electronic component substrates from a continuous transfer tape. In the transfer tape the patterns are formed

with prearranged spacing on a heat decomposable carrier film, which in turn is supported on a backing strip and covered by a protective strip. In use the protective strip is peeled off and the patterns, still adhered to the carrier film and supported by the backing strip, are adhesively secured to a group or a continuously fed series of pre-aligned substrates.



The backing strip is then peeled off, and the substrates with the applied patterns, now supported only by the heat decomposable carrier film, are placed in an oven for sintering and decomposition of the carrier film. The transfer tape and method of the invention lend themselves readily to automated, production-line procedures.

3,655,497

SYNTHETIC SUEDE

Norman Forrest, White Plains, N.Y., assignor to Tenneco Chemicals, Inc.

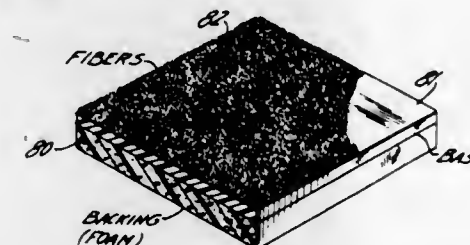
Original application Sept. 28, 1967, Ser. No. 671,304.

Divided and this application Nov. 7, 1969, Ser. No. 874,788

Int. Cl. B32b 5/02

U.S. Cl. 161-62

6 Claims



A synthetic suede product, which is produced from a plastic material, such as a vinyl plastisol, has the appearance and shading characteristics of natural suede leather. The product has about 10,000 to 500,000 untapered surface fibers per square inch, the diameters of which are a small fraction of their length.

3,655,498

PLEXIFILAMENTARY STRUCTURES PREPARED FROM NON-CRYSTALLINE SYNTHETIC ORGANIC POLYMERS

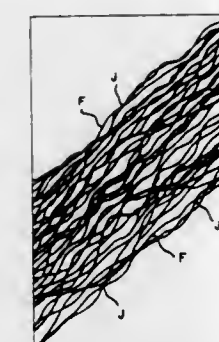
Rudolph Woodell, Richmond, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 677,949, Oct. 25, 1967, now abandoned. This application Sept. 11, 1970, Ser. No. 71,582

Int. Cl. D02g 3/00

U.S. Cl. 161-172

7 Claims



Plexifilamentary structures prepared by flash-spinning solutions of non-crystalline synthetic organic polymers. The

structures show no long-period diffraction when subjected to small-angle X-ray analysis, and consist of a three-dimensional plexus of interconnected fibrils, which are in turn composed of uniaxially oriented film-fibril elements of the polymer.

3,655,499

POLYTETRAALLYL**BENZOPHENONETETRARCARBOXYLATE**

Walter P. Barle, Jr., Shaler Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

Filed July 2, 1970, Ser. No. 52,115

Int. Cl. B32b 27/04

U.S. Cl. 161-88

5 Claims

The homopolymer of tetraallyl benzophenonetetracarboxylate is described. It is prepared as a casting resin or is used in preparing laminates.

3,655,500

A RESILIENT CUSHIONING DUNNAGE PRODUCT FOR USE IN PACKAGING AND PACKING

George R. Johnson, Chagrin Falls, Ohio, assignor to The Arpax Company, Chagrin Falls, Ohio

Original application Feb. 7, 1968, Ser. No. 703,588, now

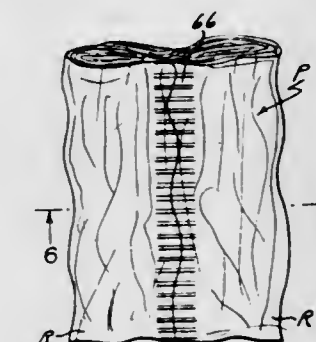
Patent No. 3,509,798. Divided and this application Feb. 9,

1970, Ser. No. 9,620

Int. Cl. B32b 3/04

U.S. Cl. 161-104

7 Claims



A resilient cushioning dunnage product for use in packaging or packing comprising an elongated pad-like article formed of a generally loosely inwardly crumpled web of sheet-like material, such as paper sheet, with the lateral edges of the web having been rolled generally inwardly prior to the crumpling thereof, and then connected together along the generally central portion of the pad-like article lengthwise thereof.

3,655,501

FLEXIBLE MATERIALS

Guenther Horst Tesch, 13, Route de mon Repos, CH-1700 Fribourg, Switzerland

Filed Mar. 26, 1969, Ser. No. 810,565

Claims priority, application Switzerland, Mar. 26, 1968,

4565/68

Int. Cl. B32b 3/10

U.S. Cl. 161-109

5 Claims



A sheet material having at least one adhesive surface or one non-slip surface, respectively, and provided with slits which allow the sheet material to expand in at least one direction.

3,655,502

HEAT INSULATING LAMINATE

Yutaka Yoshikawa, No. 2-24, Hattodai, Shibuya-ku, Tokyo, Japan

Continuation-in-part of application Ser. No. 716,471, Mar. 27, 1968, now Patent No. 3,574,109. This application Dec. 1, 1970, Ser. No. 93,933

Claims priority, application Japan, May 9, 1967, 42/28895 Int. Cl. B32b 3/28

U.S. Cl. 161-127

4 Claims



At least one metal foil and at least one thermoplastic resin film are bonded at a number of bonding points uniformly distributed throughout the surface to obtain heat insulating material. The heat insulating material is heated to cause shrinkage of the resin film and wrinkles of the metal foil whereby air spaces between the metal foil and the resin film are formed to obtain heat insulating layer.

3,655,503

PACKAGE OF COMPOSITE FILM WITH PEELABLE, HEATSEALABLE SURFACES

Hugh E. Stanley, Lafayette, and George M. Tokos, Dublin, both of Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif.

Filed Jan. 13, 1969, Ser. No. 790,708

Int. Cl. B32b 27/08; B65d 17/00

U.S. Cl. 161-165

4 Claims



A package comprised of a composite, peelable, heatsealable thermoplastic film having at least two layers, said film having a heatseal strength of less than about 1.0 pound per inch width. The low heatseal strength is achieved by an outer thermoplastic layer having a caliper of less than about 0.4 mil, the outer layer being characterized in having a tensile strength of less than about 10,000 psi and having an interlaminar steel strength of the outer layer to the molecularly different other layer of less than about 1.0 pound per inch width. Numerous combinations of thermoplastics may be employed for the outer and other layers.

3,655,504

LAMINATED METAL PLATES

Heinz Mueller-Tamm, Ludwigshafen, and Alfred Hofmann, Rothenheim, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

Filed May 19, 1969, Ser. No. 825,929

Claims priority, application Germany, May 24, 1968, P 17 69 434.7

Int. Cl. B32b 15/08

U.S. Cl. 161-165

1 Claim

Laminated metal plates made of (1) an outer layer of a metal, (2) an intermediate layer of a polymer, (3) an inner layer of a metal, (4) an intermediate layer of a polymer and (5) an outer layer of a metal. It is a characteristic of the invention that the polymer of layers (2) and (4) is a special terpolymer.

3,655,505

TWO-STAGE PURIFICATION OF FIBROUS CELLULOSE MATERIAL EMPLOYING GASEOUS CHLORINE DIOXIDE IN ONE STAGE AND A PEROXYGEN COMPOUND IN THE OTHER

Frederick H. Yorston, Montreal, and Norman Liebergott, Chomedey, Quebec, both of Canada, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec, Canada

Continuation-in-part of application Ser. No. 559,714, June 23, 1966, now abandoned. This application Dec. 12, 1969, Ser. No. 884,749. The portion of the term of this patent subsequent to June 22, 1988, has been disclaimed.

Claims priority, application Great Britain, June 25, 1965, 27,158/65

Int. Cl. D21c 9/14

U.S. Cl. 162-67

5 Claims

A two stage process for bleaching an unbleached chemical cellulosic pulp in which the first stage comprises fluffing a pulp that has been adjusted in moisture content to a consistency of from about 20 to 60 percent, contacting the pulp with gaseous chlorine dioxide diluted with a non-reactive gas at a temperature of between 15° and 100° C. for a period of 20 seconds to 60 minutes, the pulp then being washed with water; and finally in the second stage adjusting the pulp moisture content to 5 percent and contacting the pulp with a peroxygen compound having a peroxygen content of from 0.025-1.5 percent by weight based on the weight of the dry pulp at a temperature up to 100° C. for a period of from ½ to 5 hours.

3,655,506

WATER-SOLUBLE POLYALKANOLAMINE RESINS

Joseph M. Baggett, Freeport, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 873,118, Oct. 31, 1969. This application Sept. 17, 1970, Ser. No. 73,236

Int. Cl. D21d 3/00

U.S. Cl. 162-164

16 Claims

Water-soluble thermosetting cationic resins having advantageous properties are prepared by a two-step process wherein a relatively small excess of epichlorohydrin is first reacted with aqueous ammonia, an ammonia-polyamine mixture, or a polyamine to form an intermediate resin solution and additional epichlorohydrin is then reacted with that solution. The resin is useful as an additive to paper pulp to provide enhanced wet strength in the finished paper.

3,655,507

PRESS NIP OF A PAPER MACHINE COMPOSED OF A SUCTION ROLL AND A PRESSURE ROLL

Erik A. Nykopp, Tampere, Finland, assignor to Oy Tampella Ab, Tampere, Finland

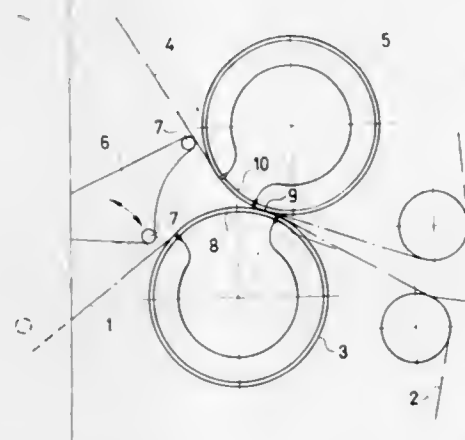
Filed Jan. 7, 1970, Ser. No. 1,203

Claims priority, application Finland, Jan. 27, 1969, 247/69

Int. Cl. D21f 3/10, 5/18

U.S. Cl. 162-358

6 Claims



In a paper machine a paper web is conducted by a continuous felt or the like into the press nip between two rolls. One

roll is a suction roll and the other roll is a pressure roll having a single pressure opening located opposite to the suction opening of the suction roll such that it does not encompass the nip between the two rolls. From the pressure opening of the pressure roll a gas, preferably heated, is conducted into the space between the rolls most appropriately before the press nip. A blocking member such as a beam with a triangular cross section may be positioned on the incoming side of the rolls to form a confined space between it and the rolls to prevent escape of the warmed, pressurized gas.

3,655,508

ELECTROSTATIC FIELD APPARATUS FOR REDUCING LEAKAGE OF PLASMA FROM MAGNETIC TYPE FUSION REACTORS

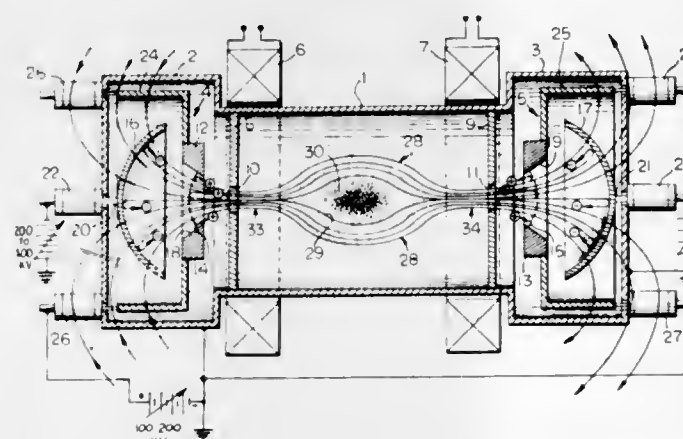
Robert L. Hirsch, Potomac, Md., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 12, 1968, Ser. No. 736,355

Int. Cl. G21b 1/00

U.S. Cl. 176-5

6 Claims



This invention relates to a fusion reactor of the magnetic mirror type having a plasma trap defined by relatively widely spaced field lines, and end regions closed substantially by said field lines. Plasma leakage from the trap occurs primarily through the end regions inasmuch as the plasma particles tend to follow the field lines instead of moving transversely thereto. Electrostatic reflectors serve to reflect particles that have escaped from the plasma trap via the end regions back thereto along the escape paths, these electrostatic reflectors taking the form of positively and negatively charged field-forming electrodes arranged in tandem such that positively charged plasma particles will be reflected by one electrode and negatively charged particles will be reflected by the other.

3,655,509

PROCESS FOR THE SEPARATION OF VIRUS FROM NON-VIRAL PROTEINS

Joseph E. Fields, Ballwin, and John H. Johnson, Kirkwood, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 777,499, Nov. 20, 1968, which is a continuation-in-part of application Ser. No. 590,127, Aug. 19, 1966, Original application Mar. 18, 1965, Ser. No. 440,991, Continuation-in-part of application Ser. No. 248,881, Jan. 2, 1963. Divided and this application May 29, 1969, Ser. No. 829,146

Int. Cl. C12k 7/00

U.S. Cl. 195-1.5

31 Claims

Viruses are selectively separated from an aqueous mixture of virus and nonviral protein by contacting the aqueous mixture with a water-insoluble polyelectrolyte polymer containing basic groups to selectively sorb the virus on the polymer and then if desired removing the polymer containing the virus from the aqueous mixture. The polyelectrolyte polymers are polycationic or polyampholytic in nature and contain imide groups selected from the group consisting of

diloweralkylaminoloweralkylimide groupings and loweralkyliminodi(loweralkylimide) linkages as exemplified by crosslinked dimethylaminopropylimide derivatives of isobutylene/maleic anhydride copolymers.

3,655,510

PROCESS FOR PREPARING AMINO ACIDS FROM HYDROCARBONS

Katsunobu Tanaka, and Kazuo Kimura, both of Machida-shi, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Continuation of application Ser. No. 695,329, Jan. 3, 1968, now abandoned. This application June 14, 1968, Ser. No. 736,958

Int. Cl. C12b 1/00

U.S. Cl. 195-28 R

14 Claims

A process for producing an amino acid, such as L-glutamic acid, L-lysine, L-ornithine, L-valine and L-homoserine, by fermentation from hydrocarbons as the main carbon source. The process is conducted by culturing a mixture of a microorganism capable of assimilating hydrocarbons and a microorganism capable of producing amino acids under aerobic conditions in an aqueous nutrient medium containing at least one hydrocarbon. Large yields of amino acids may be obtained by conducting a mixed culture of, for example, Micrococcus glutamicus with a hydrocarbon-assimilating microorganism such as Arthrobacter paraffineus or Brevibacterium ketoglutamicum.

3,655,511

RECOVERY OF MICRO-ORGANISMS CULTIVATED ON HYDROCARBONS

Jean Baptiste Bonavita, Epernon, France, assignor to The British Petroleum Company Limited, London, England

Filed May 29, 1968, Ser. No. 732,824

Claims priority, application Great Britain, June 27, 1967, 29,514/67

Int. Cl. C12b 1/00

U.S. Cl. 195-28 R

11 Claims

Process which comprises cultivating a micro-organism which is capable of growing on at least some straight chain hydrocarbons, for example a yeast, such as a Candida tropicalis, cultivation being carried out in the presence of a hydrocarbon feedstock which consists in part of straight chain hydrocarbons in the presence of an aqueous nutrient medium and in the presence of a gas containing free oxygen and thereafter separating from the product, an aqueous phase and a product mixture, the product mixture comprising the micro-organism, unconsumed hydrocarbons and an aqueous phase, thereafter treating the product mixture with an alcohol and a solvent hydrocarbon used in either order or together each part by volume of said product mixture being treated with 0.5 to 2 parts by volume of said alcohol and with 0.5 to 2 parts by volume of said solvent hydrocarbon, the treated product mixture being thereafter subjected to phase separation with recovery of a phase comprising the solvent hydrocarbon and unconsumed hydrocarbons and with recovery of a phase mixture comprising alcohol, water and the micro-organism.

3,655,512

PROCESS FOR PRODUCING SACCHARIDES BY FERMENTATION

Katsunobu Tanaka, 1662 Honmachi, and Takeo Suzuki, B-744 Kosha Apt. 1857, Kogasaki, both of Machida-shi, Japan

Continuation of application Ser. No. 648,213, June 23, 1967, now abandoned. This application July 31, 1968, Ser. No. 748,933

Claims priority, application Japan, July 4, 1966, 41/43018

Int. Cl. C12d 13/04

U.S. Cl. 195-28 R

13 Claims

Process for producing saccharides by fermentation which comprises culturing a microorganism capable of assimilating hydrocarbons and of producing saccharides under aerobic

conditions in an aqueous nutrient medium containing at least one hydrocarbon as the main carbon source and an additive selected from the group consisting of at least one surface active agent, at least one antibiotic and mixtures thereof. The process gives good yields of sugars such as trehalose, glucose, mannose, arabinose, fructose, ribose, their glycosides and polymerized compounds.

3,655,513

PURIFICATION OF PROTEASE

Moshe Sternberg, South Bend, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Continuation-in-part of application Ser. No. 785,399, Dec. 19, 1968, now abandoned. This application Jan. 25, 1971, Ser. No. 109,567

Int. Cl. C07g 7/02

U.S. Cl. 195—66 R

7 Claims

Proteases can be isolated and separated from impurities, such as colored bodies, sugars, polysaccharides and minerals, by mixing a protease solution containing impurities with a heteropoly acid to form a precipitate with the protease. The resulting precipitate is then separated from the remaining solution and dried. Useful heteropoly acids are phosphotungstic acid, arsenotungstic acid, silicotungstic acid, borotungstic acid, phosphomolybdic acid, arsenomolybdic acid, silicomolybdic acid, boromolybdic acid, phosphovanadic acid, arsenomolybdic acid, silicovanadic acid, borovanadic acid and mixtures and combinations thereof.

3,655,514

PROCESS FOR PURIFYING L-ASPARAGINASE

Masao Tanaka, Machida-shi; Tsuneo Kagawa, Sunto-gun, Shizuoka-ken; Kazuo Mochizuki, Sunto-gun, Shizuoka-ken, and Masahiro Kohagura, Sunto-gun, Shizuoka-ken, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed June 11, 1969, Ser. No. 832,454

Claims priority, application Japan, June 12, 1968, 44/39934

Int. Cl. C07g 7/028

U.S. Cl. 195—66 A

9 Claims

In a process for purifying an enzymatic preparation of L-asparaginase obtained from an L-asparaginase-producing micro-organism belonging to the genus *Serratia* wherein said micro-organism produces, together with the L-asparaginase, factors which inactivate the enzymatic activity of L-asparaginase, the improvement which comprises inhibiting the L-asparaginase inactivating factors and thus stabilizing the L-asparaginase preparation during the purification process by adding to said enzymatic preparation a heavy metal ion such as silver, cadmium, copper or zinc, and recovering purified L-asparaginase having an effective anti-tumor activity.

3,655,515

SAMPLE DEVICE AND METHOD

Daniel O. Noorlander, Fresno, Calif., assignor to Milk Producers, Inc., San Antonio, Tex.

Filed Sept. 25, 1969, Ser. No. 861,068

Int. Cl. C12k 1/04

U.S. Cl. 195—103.5

22 Claims

A container for analyzing milk and water for bacteria count formed of a flexible bag having at least one orifice for insertion of a sample and a seal for the orifice. The flexible outer bag is of sufficient size to accommodate a receptacle and cover in spaced-apart relation and allow for manipulation of the cover and receptacle into a closed relationship while within the bag and thereby avoiding undue environmental contamination.

3,655,516

UREA ASSAY PROCESS AND COMPOSITION

Robert J. Roon, and Bruce Levenberg, both of Ann Arbor, Mich., assignors to The Regents of the University of Michigan, Ann Arbor, Mich.

Filed Oct. 10, 1969, Ser. No. 865,503

Int. Cl. G01n 3/14

U.S. Cl. 195—103.5 R

7 Claims

Assay of urea is provided by spectrophotometric measurement of a test solution containing the urea to be assayed together with ATP: urea amido-lyase and adenosine triphosphate as co-substrate for the enzyme, together with nicotine adenine dinucleotide, reduced; phosphoenol pyruvate; lactate dehydrogenase; pyruvate kinase; and magnesium and potassium ions. The transformation of the urea is followed quantitatively by optical absorption measurements at 340 millimicrons. The assay is unaffected by the presence of non-urea nitrogen, such as ammonia.

3,655,517

MOLDED PLASTIC SOLAR STILL

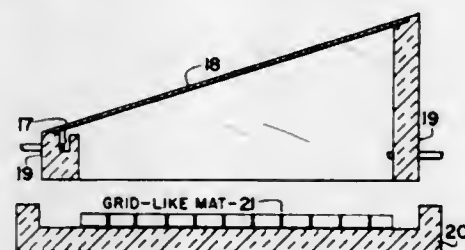
Justin C. Hensley, Jr., 4464 Davenport Ave., Oakland, Calif., and Paul G. Young, 6500 Buena Ventura Ave., Oakland, Calif.

Filed Oct. 22, 1969, Ser. No. 868,478

Int. Cl. B01d 3/00

U.S. Cl. 202—234

5 Claims



A dimensionally rigid solar distillation apparatus for vaporization and condensation of water, including a slanting transparent sheet supported on generally upright wall members extending from a generally flat base wherein the wall members and base are formed from pressure molded, foamed plastic material.

3,655,518

RETORT SYSTEM FOR OIL SHALES AND THE LIKE

Paul Schmalfeld, Bad Homburg; Hans Sommers, Essen, and Heinrich Janssen, Hanau, all of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt and Ruhr-gas Aktiengesellschaft, Essen, Germany

Filed Nov. 19, 1969, Ser. No. 877,996

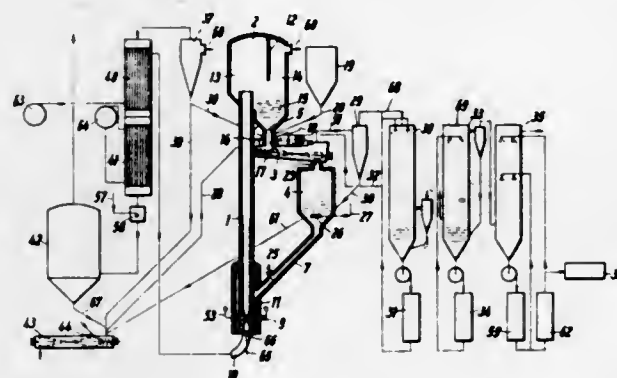
Claims priority, application Germany, Nov. 20, 1968, P 18 09

874.3

Int. Cl. C10b 1/06, 7/10, 47/20

U.S. Cl. 202—108

7 Claims



In apparatus for retorting oil shale, oil sands and similar materials wherein finely divided solids residue is used as a heat carrier and is heated in a vertical pneumatic conveyor-burner, mixed with fresh finely divided solid feed, product

distillation vapors are removed from the mixture, and the solid distillation residue is returned to the conveyor-burner, the improvement whereby the propellant gas is introduced axially to the bottom of the conveyor-burner and the cool heat carrier is introduced thereinto from a concentric annular chamber thereabout through slits or openings in the propellant gas conduit by means of a flow of a control gas.

Other specific improvements of portions of the retorting apparatus and solids circulating system are exemplified and claimed, especially a screw conveyor-mixer retorting chamber.

3,655,519

PROCESS FOR PURIFYING LIQUID HYDROCYANIC ACID BY ACID ADDITION AND SUBSEQUENT SEPARATION

Bernhard Scherhag, Leverkusen, and Arnold Hausweiler, Dormagen, both of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen and Erdolchemie Gesellschaft mit beschränkter Haftung, Cologne, Germany

Filed Jan. 31, 1969, Ser. No. 795,534

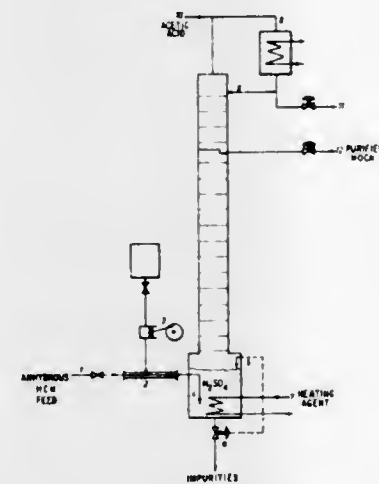
Claims priority, application Germany, Feb. 2, 1968, P 16 67

786.4

Int. Cl. B01d 3/34

U.S. Cl. 203—6

7 Claims



Purification of hydrocyanic acid such as obtained from amoxidation by reacting the crude product containing aliphatic and/or isocyclic unsaturated hydrocarbons and/or heterocyclic compounds with a hydrohalic acid or an oxyacid of sulfur or phosphorus, preferably in concentrated form, and thereafter separating the reaction products from the hydrocyanic acid, such as by distillation or adsorption, and recovering substantially pure hydrocyanic acid.

3,655,520

DISTILLATION OF OLEFINS WITH ALKANOL ADDITION TO PREVENT DEGRADATION

Alvin E. Harkins, Jr., Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

Filed Mar. 6, 1969, Ser. No. 804,967

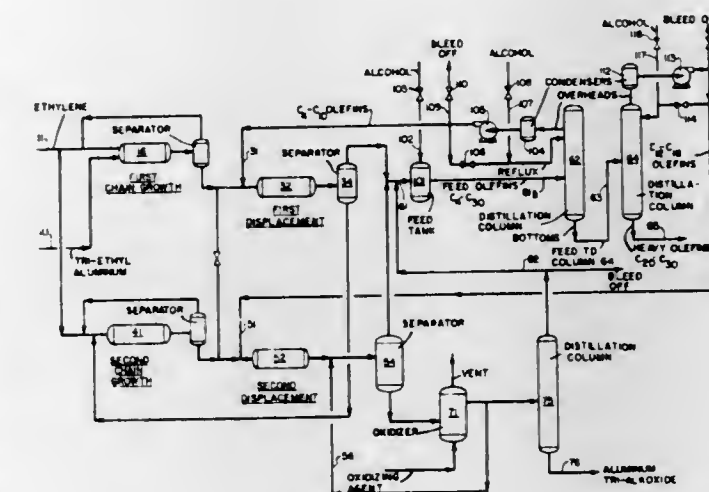
Int. Cl. B01d 3/34; C07f 5/06

U.S. Cl. 203—6

5 Claims

The disclosure describes methods of improving the operation of olefin fractionation systems wherein residual materials contained in the olefins catalyze side reactions of the olefins

during the distillation operations or subsequent thereto. The improvement is obtained by the addition of alcohols of



selected molecular weight at several critical locations in the system, one location in particular.

3,655,521

PRETREATMENT PROCESS FOR THE DISTILLATION OF CRUDE PHTHALIC ANHYDRIDE

Hubert Gehrken, Weiden; Gerd Helms, Junkersdorf; Gerhard Keunecke, Geyen, and Herbert Krimphove, Cologne-Müngersdorf, all of Germany, assignors to Chemiebau Dr. A. Zieren GmbH and Co. KG, Cologne, Germany

Filed Mar. 27, 1969, Ser. No. 842,417

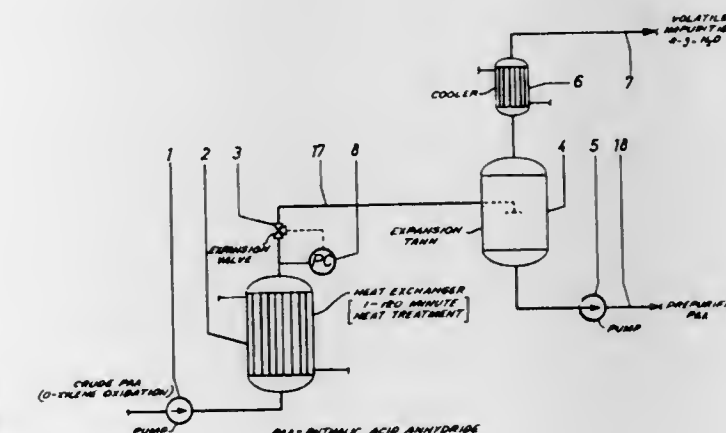
Claims priority, application Germany, Mar. 27, 1968, P 17

68 059.0

Int. Cl. B01d 3/06; C07c 63/18

U.S. Cl. 203—28

9 Claims



Crude liquid phthalic anhydride produced from the catalytic air oxidation of o-xylene, and containing minor quantities of acids such as phthalic acid and in addition, compounds more volatile than phthalic anhydride, is subjected to a special pretreatment to remove the acids and the more volatile materials, said pretreatment having a relatively short residence time and comprising heating said crude liquid phthalic anhydride under a first pressure in the liquid phase to a temperature of about 235°–330° C for a sufficient time to convert said phthalic acid to phthalic anhydride and then expanding said heated liquid to a lower pressure than said first pressure to volatilize gases containing at least a portion of said more volatile substances and simultaneously cool resultant liquid to a temperature lower than the boiling point of phthalic anhydride at said lower pressure.

3,655,522

PURIFICATION OF PHENYLPHENOL FROM DIBENZOFURAN BY AZEOTROPIC DISTILLATION
Harold O. Seeburger, and Lee H. Horsley, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 9, 1970, Ser. No. 88,101
Int. Cl. B01d 3/36; C07c 39/12

U.S. Cl. 203—59 6 Claims
Dibenzofuran is separated from a mixture with ortho- or para-phenylphenol, or a mixture thereof, by an azeotropic distillation utilizing an azeotropic agent which is a glycol, glycol monoalkyl ether, alkanolamine, or dialkylenetriamine having an appropriate boiling point.

3,655,523

METHOD FOR SEPARATING A 2- AND 4-CHLOROBIPHENYL FROM THE CORRESPONDING HYDROXYBIPHENYL COMPOUNDS
Harold O. Seeburger, and Lee H. Horsley, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 15, 1969, Ser. No. 866,734
Int. Cl. B01d 3/36; C07c 25/18

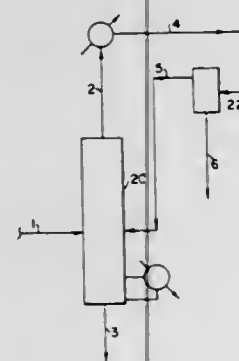
U.S. Cl. 203—59 6 Claims
2-Chlorobiphenyl, 4-chlorobiphenyl or mixtures thereof may be separated from a mixture with the corresponding hydroxybiphenyl compound by adding to the mixture of such compounds an azeotropic agent which is a glycol, glycol monoalkyl or phenyl ether, glycerol, glycerol alkyl ether, alkanolamine or dialkylenetriamine having a boiling point within about 45° C. of the halobiphenyl compound at atmospheric pressure, and then fractionally distilling the mixture thus formed at a pressure of up to about 200 mm. Hg. absolute.

3,655,524

GLYCIDOL ISOLATION BY AZEOTROPIC DISTILLATION WITH A LOWER-BOILING ENTRAINER
Sol Abraham Mednick, Baltimore, Md., assignor to FMC Corporation, New York, N.Y.

Filed Apr. 27, 1970, Ser. No. 32,273
Int. Cl. B01d 3/36

U.S. Cl. 203—67 6 Claims



This specification discloses a process for isolating glycidol from a solution in a solvent which boils above 126° C. and which forms a low-boiling azeotrope with glycidol that is homogeneous when condensed and cooled to room temperature. The glycidol separation is affected by adding to this solution, tetrachloroethylene or a liquid aliphatic, cycloaliphatic or chlorinated aliphatic hydrocarbon; these additives form even lower boiling azeotropes with glycidol, and the lower boiling azeotrope can be distilled away from the original solvent. The noted additives have the property that their lower boiling azeotropes with glycidol, upon condensation and cooling, separate at 20° to 40° C. and even above, into two phases; one phase is rich in glycidol and the second phase contains relatively little glycidol. The two

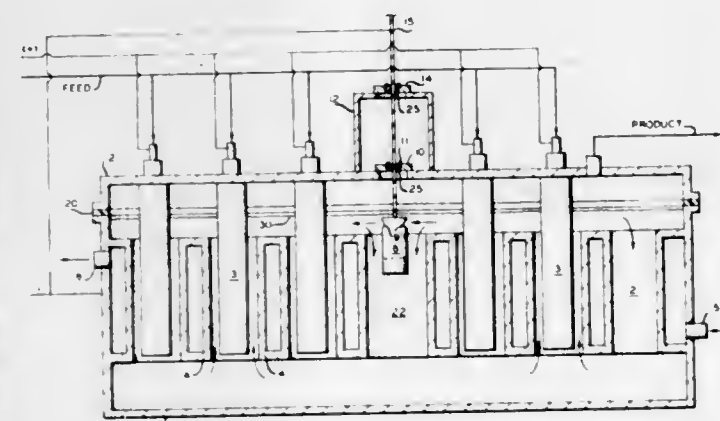
phases can be easily separated, for example, by decantation. If glycidol of higher purity than that of the glycidol-rich phase is desired, it may be obtained by distillation of that phase.

3,655,525

SLUDGE REMOVAL FROM ELECTROCHEMICAL CELL
William V. Childs, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Feb. 25, 1970, Ser. No. 14,063
Int. Cl. B01k 3/00

U.S. Cl. 204—1 R 7 Claims



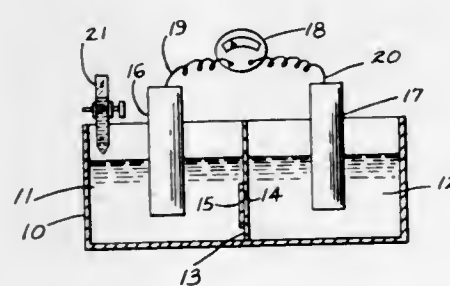
Circulation of electrolyte in an electrochemical cell, e.g., fluorination cell, is maintained sufficiently high to keep solids in suspension. In the cell there is a relatively small settling zone provided with a removal bucket or other means for disposing of sludge which is collected in said zone. A cyclone arrangement, deceleration through an orifice or other means can be provided to cause the sludge to enter the bucket. Natural gas-lift combined with convection circulation can be relied on to maintain sufficient velocity to keep the sludge in suspension throughout the cell except in the settling section. The cell is usually equipped with cooling means such as a tubes-and-sheets heat exchanger structure.

3,655,526

POTENTIOMETRIC TITRATION PROCESS
Gary Dale Christian, Lexington, Ky., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Nov. 20, 1969, Ser. No. 878,312
Int. Cl. G01n 27/40, 27/46

U.S. Cl. 204—1 T 7 Claims



Potentiometric titration of a wide variety of reagents in solution can be conducted using an ion selective sensing device including a standard reference electrode, a reference electrolyte and a semipermeable polymeric membrane which separates the reference electrolyte from the solution containing the ion being titrated. The semipermeable polymeric membrane contains an ester of phthalic or isophthalic acid which serves to discriminate between the ion being titrated and other ions in the medium.

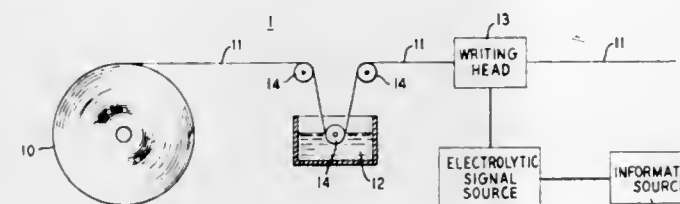
3,655,527

ELECTROLYTIC PRINTING USING POLYVINYL ALCOHOL

Robert Kyran Curran, Stirling; Robert Eugene Kerwin, Westfield, and Theodore Arthur Shankoff, Mendham, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Sept. 14, 1970, Ser. No. 71,718
Int. Cl. B21h 1/20

U.S. Cl. 204—2 5 Claims



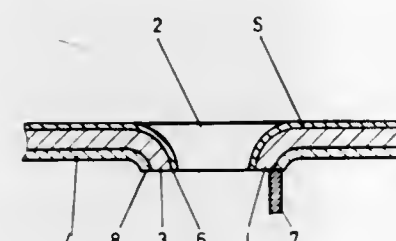
Hard copy prints are produced by an electrolytic scanning process. Free iodine is generated in the printing sheet at the writing electrode and reacts with colorless polyvinyl alcohol (PVA) in the 5,000 to 500,000 molecular weight range to produce optically dense colored spots. The color depends upon the molecular weights of the vinyl alcohol polymers present.

3,655,528

METHOD OF MAKING A CUTTING FOIL OR PLATE FOR SHAVERS

Bodo Futterer, Schonbuhrling 37, Switzerland
Original application Sept. 16, 1968, Ser. No. 760,011.
Divided and this application May 18, 1970, Ser. No. 48,742
Int. Cl. C23b 7/00, 5/48

U.S. Cl. 204—11 2 Claims



A process for producing a cutting foil for dry shavers in which a bearing metal is provided on the underside thereof to minimize wear and friction between the foil and a cutter blade.

3,655,529

ELECTRODEPOSITION PROCESS FOR PRODUCING PERFORATED FOILS WITH RAISED PORTIONS AT THE EDGES OF THE HOLES

Bodo Futterer, Schonbuhrling 37 CH-6000, Luzern, Switzerland

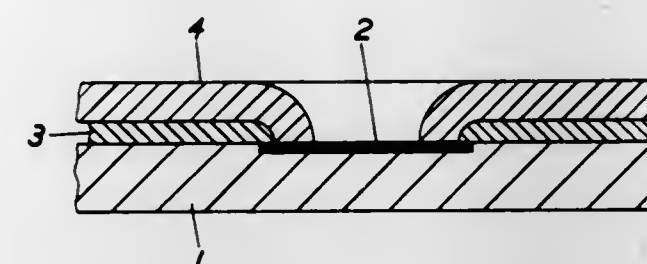
Original application July 6, 1967, Ser. No. 651,548, now abandoned. Divided and this application July 7, 1970, Ser. No. 52,806

Int. Cl. C23b 7/00; B01k 1/00

U.S. Cl. 204—11 2 Claims

A repairable master negative and a process for producing a master negative suitable for the production of a number of perforated foils and for regenerating such a master negative when it is worn, comprising applying insulating material to one surface of a metallic base plate that is stable in a bath of an alkali at selected areas thereof which conform with the perforations in the foils to be produced, applying a coating of a metal which is erodable in a bath of an alkali which is built

up on the metallic base plate after the insulating areas have been applied to it, and passivating the metallic coating. When the master negative is worn due to the production of a



number of perforated foils, it is repaired by stripping off electrolytically in a bath of an alkali the metallic coating and a new metallic coating is electrodeposited on the metallic base plate without disturbing the insulated areas.

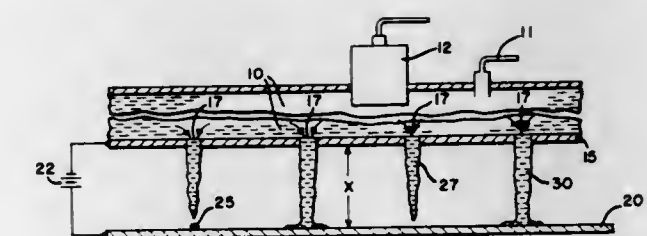
3,655,530

FABRICATION OF ORIFICES

Richard P. Taylor, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed June 15, 1970, Ser. No. 46,395
Int. Cl. C23b 5/56, 5/48; B01k 3/00

U.S. Cl. 204—26 6 Claims



A method and apparatus for fabricating an aperture of predetermined cross-sectional area in an orifice plate for use in a non-contact printer, includes the steps of fabricating in the orifice plate an aperture of cross-sectional area no less than the predetermined cross-sectional area, flowing an electrolytic deposition solution under pressure through the aperture, applying a constant frequency stimulating disturbance to the stream of electrolytic deposition solution emerging from the aperture, placing an electrically conductive surface in the path of the stream and at a distance from the orifice plate equal to the unbroken filament length of said stream through an aperture of the predetermined cross-sectional area, causing the deposition solution to deposit on the walls of the aperture by connecting the orifice plate and the electrically conductive surface to opposite sides of a source of electric potential whereby the unbroken filament comprises part of the closed electro-deposition circuit, and continuing to supply the electrolytic deposition solution to the aperture until the aperture attains the predetermined cross-sectional area thereby producing filament breakup ahead of the electrically conductive surface and automatically opening the electro-deposition circuit.

3,655,531

METALIZING SUBSTRATES

Edward J. Quinn, Tonawanda, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Continuation-in-part of application Ser. No. 747,495, July 25, 1968, now abandoned. This application June 6, 1969, Ser. No. 831,224

Int. Cl. C23b 5/60

U.S. Cl. 204—30 13 Claims

Substrates, particularly thermoplastic resins and polymers, are plated with metals by pre-treatment of the substrate with phosphorus in an organic solvent to deposit phosphorus at

the surface, followed by contacting the treated surface with a metal salt or complex thereof, to form a metal-phosphorus compound. Thereafter the substrate is subjected to an aqueous hypophosphite solution. The resulting treated surface is conductive and can be readily electroplated by conventional techniques.

3,655,532

METHOD FOR ELECTROPLATING NICKEL

Reuven Merker, Englewood Cliffs, and Salvatore Lucca, Paramus, both of N.J., assignors to The Metalux Corporation, Paterson, N.J.

Filed May 6, 1970, Ser. No. 35,225

Int. Cl. C23b 5/08, 5/46

U.S. Cl. 204—49

5 Claims

Method for electroplating nickel to obtain a bright deposit by adding to a conventional nickel acidic bath solution effective amounts of a brightening agent having the general formula



where R is a phenyl, alkyl or alkenyl radical with one to 14 carbon atoms, Y is hydrogen or an alkyl radical with one to six carbon atoms, n is a numeral from one to six, and Z is a metal imparting water solubility to the brightening agent.

3,655,533

ZINC ELECTROPLATING PROCESS AND ACIDIC ZINC FLUOBORATE ELECTROLYTE THEREFOR

Walter Page, Convent, N.J.; William R. Schevey, Hawley, Pa., and John E. Vander Mey, Stirling, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Nov. 12, 1970, Ser. No. 89,068

Int. Cl. C23b 5/12

U.S. Cl. 204—55 R

21 Claims

An acidic zinc electroplating bath comprising zinc fluoborate dissolved in an aqueous liquid containing as an iron- and metal oxide-deposition inhibitor a small effective amount of a mixture of a 4-hydroxy-, 4-alkyl- or aryl-, 5-acyl- or aryl-piperidine and thiourea or N-substituted derivative thereof. The invention also includes an improved process for zinc-electroplating ferrous metals from such bath.

3,655,534

ALKALINE BRIGHT ZINC ELECTROPLATING

Marcis M. Kampe, Cleveland Heights, Ohio, assignor to Enthone, Incorporated, West Haven, Conn.

Filed Feb. 24, 1970, Ser. No. 13,791

Int. Cl. C23b 5/12, 5/46

U.S. Cl. 204—55

26 Claims

Bright zinc is electrodeposited from alkaline zinc electrodepositing baths comprising an alkaline solution containing a source of zinc ions and an effective amount, as a brightening agent, of a bath-soluble reaction product obtained by the reaction of a nitrogen-containing heterocyclic compound with an acyclic amine having at least two functional groups separated by at least one different group, formaldehyde, and an epihalohydrin or a glycerol chlorohydrin.

3,655,535

MULTI-POROSITY ELECTRODE FOR ELECTROCHEMICAL CONVERSION

Forrest N. Ruehlen, and Homer M. Fox, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Continuation of application Ser. No. 739,505, June 24, 1968, now abandoned. This application Sept. 24, 1970, Ser. No. 75,292

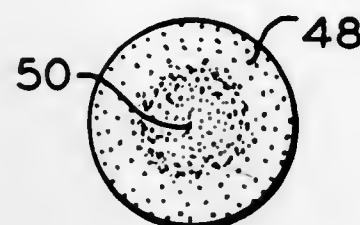
Int. Cl. B01k 3/00

U.S. Cl. 204—59

11 Claims

In an electrochemical process, the reaction takes place

within the confines of a porous electrode element having a core section which is relatively impervious to the electrolyte



and an outer section in contact with the electrolyte which has relatively large pores.

3,655,536

ANODIC PROCESS FOR THE PREPARATION OF TETRAALKYL LEAD COMPOUNDS

William H. Harwood, Lawton, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed Nov. 6, 1969, Ser. No. 874,688

Int. Cl. B01k 1/00

U.S. Cl. 204—59

8 Claims

An electrochemical process for the anodic alkylation of lead using KAIR_2X_2 and RX , where R is selected from the group consisting of ethyl, propyl, isopropyl, butyl and isobutyl and X is selected from the group consisting of bromine, chlorine and iodine, with a lead anode and an inert conductor as the cathode.

3,655,537

PROCESS FOR SEPARATING GASES

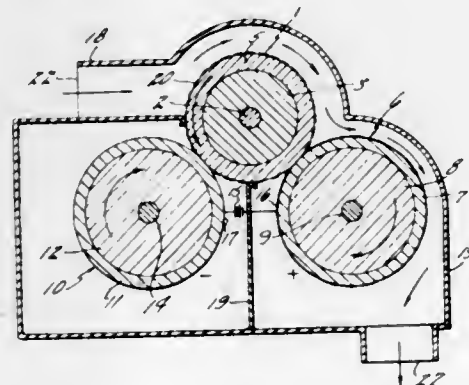
Cornelius R. Russell, West Hartford, and Sid Russell, Suffield, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Nov. 18, 1970, Ser. No. 90,527

Int. Cl. B01k 1/00

U.S. Cl. 204—60

8 Claims



A process for removing a gaseous constituent from a gaseous mixture involving contacting a layer of electrolyte with the gaseous mixture and then electrolytically decomposing the gaseous constituent into its component parts.

3,655,538

PROCESS FOR ELECTROWINNING ZINC FROM SULFIDE CONCENTRATES

Howard C. Renken, and Theodor W. Zegers, both of Columbus, Ohio, assignors to Texas Gulf Sulphur Company, New York, N.Y.

Filed May 19, 1969, Ser. No. 825,578

Int. Cl. C22d 1/22; C01b 17/06

U.S. Cl. 204—114

8 Claims

This disclosure is directed to leaching zinc sulfide concentrates to facilitate the production of zinc and sulphur solution. To provide for increased recovery the copper sulfate leach

The zinc sulfide is leached with a copper sulfate solution, preferably under oxidizing conditions, to produce a copper sulfide and a zinc sulfate solution. The elemental sulphur can be obtained from the copper sulfide by a subsequent oxidizing leach and the zinc metal can be obtained by electrolyzing the zinc sulfate leach may be accomplished in a staging operation to establish an excess of zinc sulfide concentrate in the initial leach step.

3,655,539

SOLUBLE CHROMATE PURIFICATION BY ELECTROLYSIS

George F. Schoendorfer, Atlanta, Ill.; Roger J. Morschhauser, Cleveland, Ohio; Thomas S. Gardner, Painesville, and Donald L. Thompson, Perry, Ohio, assignors to Diamond Shamrock Corporation, Cleveland, Ohio

Filed Feb. 15, 1967, Ser. No. 616,165

Int. Cl. C01b 7/06; C01d 7/34

U.S. Cl. 204—128

8 Claims

The halide content of chromate solutions is reduced by subjecting the impure solutions to electrolysis in a diaphragmless electrolytic cell whereby, at least a portion of said halide is converted to gaseous halogen which may then be readily separated from the aqueous chromate solution.

3,655,540

METHOD OF MAKING SEMICONDUCTOR DEVICE COMPONENTS

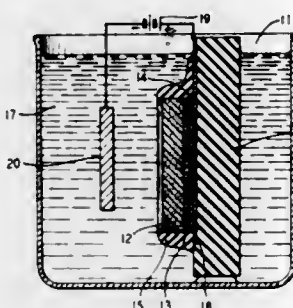
John Calhoun Irvin, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed June 22, 1970, Ser. No. 48,315

Int. Cl. B23p 1/00

U.S. Cl. 204—143 GE

6 Claims



Extremely thin semiconductor wafers are formed by growing an N-conductivity epitaxial layer on an N⁺-type substrate. A Schottky barrier contact is formed on the epitaxial layer and the assembly is immersed in an appropriate fluid for electrolytic etching. Because of differential etch rates as a function of conductivity, and with an appropriate contact voltage, the substrate is selectively dissolved, leaving only the thin epitaxial layer adhered to the contact. The contact is then removed, leaving the epitaxial layer as an independent ultrathin wafer.

3,655,541

CONTINUOUS ELECTROPHORESIS CELL WITH LATERAL PH GRADIENT

Allen Strickler, Fullerton, Calif., assignor to Beckman Instruments, Inc.

Filed Jan. 22, 1970, Ser. No. 5,021

Int. Cl. B01k 5/00

U.S. Cl. 204—180 R

17 Claims

In a continuous electrophoresis cell, the present invention comprises means for establishing a lateral pH gradient in the electrolyte curtain whereby electrophoresis may be conducted at different lateral positions within the curtain, and in which, if desired, components may equilibrate at different lateral positions according to their isoelectric points. According to a first embodiment of the present invention, two cur-

tain solutions of different pH are introduced continuously at laterally spaced positions. A gradient smoothing device is provided for partially mixing the two curtain solutions to such an extent that the plot of pH from one side of the cur-



tain to the other is a continuous function, preferably approximately linear. According to a second embodiment of the invention, a hybrid arrangement permits either a two-curtain solution feed for pH effect exploration or a single curtain solution feed for conventional operation.

3,655,542

MODIFIED CELLULAR PARTICLE AND PROCESS FOR THE PRODUCTION THEREOF

Isamu Tamai; Minoru Oyama; Atsushi Osakada, and Yasuo Shinohara, all of Otsu-shi, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Mar. 5, 1969, Ser. No. 804,435

Int. Cl. C08f 47/10, 29/04

U.S. Cl. 204—159.2

2 Claims

A modified cellular particle is provided for molding cellular articles and comprises a partially foamed thermoplastic resin containing excess foaming agent which decomposes upon heating to generate a gas. The cellular particle has a mean specific gravity of 95–10 percent of the specific gravity of the resin composition, the polymer is cross-linked to a gel content of 20–90 percent and the particle has substantially no surface pores. The particles have a mean volume of 0.01–2 cc.

3,655,543

METHOD OF COATING THE SURFACES OF ELECTRICALLY CONDUCTING AND SEMICONDUCTING MATERIALS WITH AN ELECTRICALLY INSULATING POLYMERIC FILM BY MEANS OF ELECTROLYSIS

Rinse Dijkstra, and Cornelis Bernardus Van Diepen, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

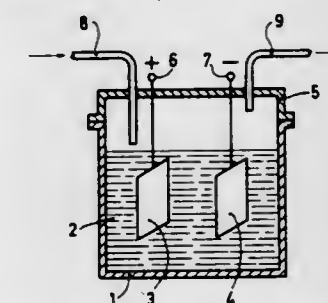
Filed July 18, 1969, Ser. No. 842,878

Claims priority, application Netherlands, July 19, 1968, 6810338

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

8 Claims



Method of forming a polymeric phenolic coating on an object used as an anode in the electrolytic polymerization of an anhydrous electrolyte containing a phenol.

3,655,544

REFRACTORY METAL/REFRACTORY METAL NITRIDE RESISTOR FILMS

John R. Rairden, III, Niskayuna, N.Y., assignor to General Electric Company

Filed Mar. 2, 1970, Ser. No. 15,473

Int. Cl. C23c 15/00

U.S. Cl. 204—192

5 Claims

Low temperature coefficient of resistance, high resistivity films of a refractory metal/refractory metal nitride are formed by sputtering a tungsten or molybdenum cathode in a chamber containing a mixture of an inert gas and nitrogen wherein nitrogen forms between 0.3 and 3.0 percent of the sputtering chamber pressure. The deposited films characteristically are a mixture of the sputtered metal and at least 5 percent by volume of the metal nitride with films having especially superior electrical characteristics containing the metal nitride in concentrations between approximately 40 and 60 percent by volume of the resistor film.

3,655,545

POST HEATING OF SPUTTERED METAL OXIDE FILMS

Frank H. Gillery, Allison Park, and Jean P. Pressau, Evans City, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of application Ser. No. 709,135, Feb. 28, 1968, now abandoned. This application July 2, 1970, Ser. No. 56,117

Int. Cl. C23c 15/00

U.S. Cl. 204—192

10 Claims

This invention relates to a novel method of producing electroconductive metal oxide films by cathodic sputtering. It especially pertains to a method of increasing the electroconductivity of sputtered metal oxide films by mildly reducing said films. The reduction step follows sputtering and generally involves heating the metal oxide film in a non-oxidizing or reducing atmosphere for a sufficient period of time to reduce the oxygen content of said film by a minor amount but without substantially reducing the oxide film to metallic form.

3,655,546

ELECTROCHEMICAL CELL

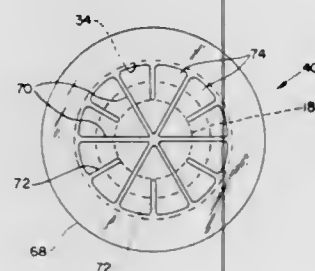
Frank A. Marovich, Hacienda Heights, and Ray I. Wilson, La Habra, both of Calif., assignors to Beckman Instruments, Inc.

Filed Apr. 22, 1969, Ser. No. 818,214

Int. Cl. G01n 27/46

U.S. Cl. 204—195

5 Claims



An electrochemical cell for determining a constituent in a sample in which a pair of electrodes are joined by an electrolyte and separated from the sample by a selectively permeable membrane. A perforated plate overlying the membrane adjacent to the sensing electrode of the cell is spring biased toward said electrode. As a consequence, when the cell is subjected to a vacuum environment, the spring biased perforated plate will prevent alterations in the thickness of the electrolyte film space between the membrane and sensing electrode or bursting of the membrane due to the relatively higher pressure within the cell. The cell is stable in a vacuum

environment and has fast response when utilized at low sample gas pressure.

3,655,547

ELECTROCHEMICAL CELL HAVING A BIPOLAR ELECTRODE

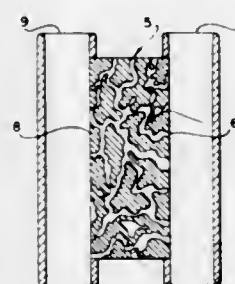
Ernest H. Lyons, Jr., Menlo Park, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Aug. 27, 1969, Ser. No. 853,469

Int. Cl. B01k 3/04; C22d 1/02

U.S. Cl. 204—248

1 Claim



An electrochemical cell is disclosed which comprises a bipolar electrode having two spaced surfaces adapted for exposure to an oxidizing agent and a reducing agent, respectively. The two electrode surfaces are interconnected by ion and electron conveyance means. The electrochemical cell may be used in recovering sulfur from flue gases in the form of sulfuric acid of commercial purity and concentration.

3,655,548

TREATED POROUS ANODE FOR ELECTROCHEMICAL FLUORINATION

William V. Childs, Austin, Tex., assignor to Phillips Petroleum Company

Original application June 24, 1968, Ser. No. 739,509, now Patent No. 3,558,449. Divided and this application July 24, 1970, Ser. No. 57,938

Int. Cl. B01k 3/04

U.S. Cl. 204—284

12 Claims



In an electrochemical fluorination process wherein the reaction takes place within the confines of a porous electrode element, the lower portion of this element is impregnated with a surfactant having a fluorocarbon radical having a terminal $-CF_3$ group.

3,655,549

FIXTURES FOR ELECTROCHEMICAL PROCESSES

Robert G. Wild, Fraser, Mich., assignor to Michael Ladney, Jr., Grosse Pointe Shores, Mich.

Filed June 3, 1970, Ser. No. 43,149

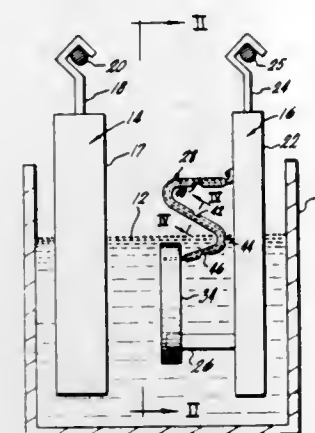
Int. Cl. C23b 5/70; B01r 3/04

U.S. Cl. 204—297 R

4 Claims

A rack for use in electroplating having current-carrying metal workpiece mounting brackets which are substantially covered with insulation but which have selected areas not

covered with insulation so as to expose the bare metal of the brackets to the surrounding plating solution or air in order to



provide efficient transfer of heat from the bracket to the surrounding medium.

3,655,550

ELECTROSTATIC PIGMENT FILTER

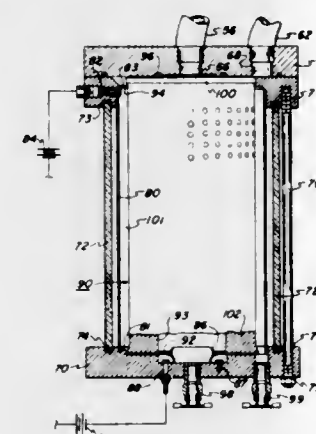
Terence J. Davies, Santa Barbara, Calif., assignor to Xerox Corporation, Rochester, N.Y.

Filed Mar. 12, 1969, Ser. No. 806,637

Int. Cl. B01d 13/02

U.S. Cl. 204—302

13 Claims



Method and apparatus for removing solid particles from a suspension by moving the suspension through a filter in which an electrostatic charge is generated. In one embodiment the electrically sensitive solid particles are attracted to and held by a dielectric porous filter material while an electrically insulating fluid carrier continues through the filter housing where it exits free from solid particle contamination.

3,655,551

HYDROCRACKING-HYDROGENATION PROCESS

Robert H. Hass, Fullerton; Paul F. Helfrey, Whittier, and Nicholas L. Kay, Fullerton, all of Calif., assignors to Union Oil Company of California, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 792,619, Jan. 21, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 592,482, Nov. 7, 1966, now abandoned.

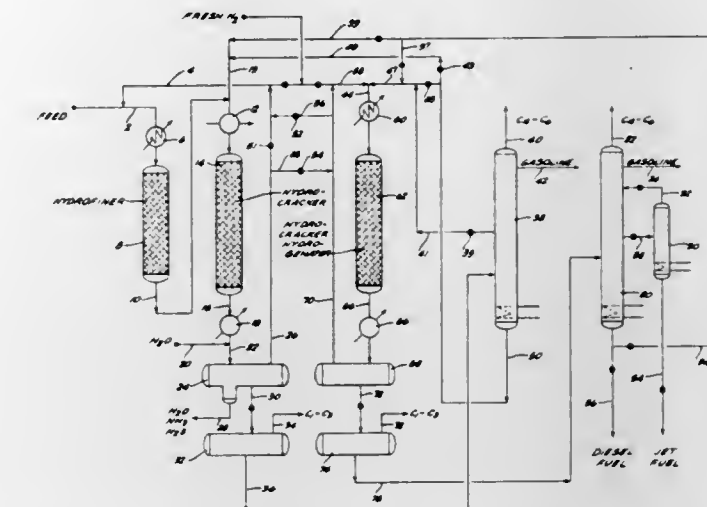
This application June 1, 1970, Ser. No. 42,053

Int. Cl. C10g 13/02; C07c 5/02; B01j 11/40

U.S. Cl. 208—59

25 Claims

A cyclic hydrocracking-hydrogenating process comprising a gasoline-producing cycle, passing a mineral oil feedstock through a first and second catalyst contact zone to effect a substantial synthesis of gasoline; and in a middle distillate producing cycle, passing the feedstock through the first zone to effect a substantial synthesis to middle distillate, and passing unconverted oil and middle distillate from the first contacting zone in the substantial absence of hydrogen sul-



phide through the second contacting zone to substantially hydrogenate without substantially hydrocracking and uncon-

3,655,552

METHOD FOR REMOVING PHOSPHATE FROM WASTE WATER

Howard George Flock, Jr., Bethel Park, and Emerson George Rausch, Corapolls, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Filed Feb. 16, 1971, Ser. No. 115,850

Int. Cl. C02b 1/20

U.S. Cl. 210—47

6 Claims

Phosphate is removed from municipal and industrial waste water by treating the water with a synergistic admixture of a water-soluble high molecular weight nonionic polymer, preferably polyacrylamide, and a water-soluble salt containing ferric ions, preferably ferric chloride.

3,655,553

PROCESS FOR GRAFTING POLYMERIC VINYL AND VINYLIDENE CHLORIDE SIDE-CHAINS TO POLYOLS AND FLUID DISPERSION COMPOSITIONS

Raymond C. De Wald, Douglassville, Pa., assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Mar. 12, 1970, Ser. No. 19,105

Int. Cl. C08f 29/24

U.S. Cl. 252—1

28 Claims

This invention comprises a process for grafting polymeric sidechains of vinyl and vinylidene chloride to triols such as polyethylenoxy or polypropylenoxy triols and the product produced thereby. It has been found that by the polymerization of specific mixtures of vinyl chloride and vinylidene chloride in the presence of such triols, polymeric sidechains are grafted to the polyols in such a manner that the grafted products have much lower viscosities than are obtained when either the vinyl chloride or the vinylidene chloride is used alone in otherwise identical grafting operations. The mixture can also contain a chain transfer agent to aid further in reducing the viscosity. The proportions used in the monomer mixtures are in the range of 15–88% by weight of vinyl chloride, 12–85%, preferably 15–85% vinylidene chloride, and 0–5 parts by weight of a chain transfer agent. The proportion of monomer in the polyol mixture is advantageously in the range of 21–45%, preferably 25–45% by weight based on the combined weight of monomer and polyol, and the resultant product advantageously has at least 15% by weight chlorine. The resultant chlorinated polyol is particularly useful in the preparation of polyurethanes having fire retardant properties, by the reaction of the polyols with diisocyanates such as toluene diisocyanate.

3,655,554

FIRE EXTINGUISHING FOAMS CONTAINING FINELY DISPERSED SILICA

Hans-Ferdi Fink; Gotz Koerner; Gerd Rossmly, and Gunter Schmidt, all of Essen, Germany, assignors to Th. Goldschmidt A.-G., Essen, Germany

Filed Sept. 29, 1970, Ser. No. 76,602

Claims priority, application Germany, Oct. 9, 1969, P 19 50 856.6

Int. Cl. A62d 1/00; A62c 1/12

U.S. Cl. 252—3

5 Claims

The fire extinguishing characteristics of fire extinguishing agents, such as foam forming liquids, containing surface active substances, are enhanced by incorporating into the agent about 1 to 10% by weight of finely dispersed silica. Particularly advantageous results are obtained if the silica is present in fire extinguishing liquids in colloidal dissolved form.

3,655,555

FIRE EXTINGUISHING FOAM CONCENTRATE COMPRISING AN ORGANIC FLUORINE COMPOUND AND A SOLUBILIZING AGENT

Gerd Rossmly, and Gotz Koerner, both of Essen, Germany, assignors to Th. Goldschmidt A.G., Essen, Germany

Filed Oct. 31, 1969, Ser. No. 873,130

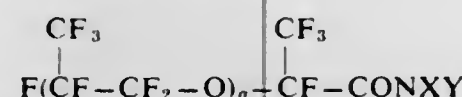
Claims priority, application Germany, Dec. 4, 1968, P 18 12 531.0

Int. Cl. A62d 1/00

U.S. Cl. 252—3

7 Claims

A water containing fire extinguishing foam concentrate comprises an active ingredient about 1% to 10% by weight of a compound of the general formula



wherein

n is a number of between one and three inclusive. X is hydrogen or Y and Y is a hydrophilating group such as polyethyleneglykol or an aminoxyd or ammoniumsalt containing group.

The concentrate may also contain solubilizing agents.

3,655,556

NITROGEN-, PHOSPHORUS- AND SULFUR-CONTAINING LUBRICANT ADDITIVES

John Wight Allen, Euclid, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

Filed Aug. 14, 1970, Ser. No. 63,946

Int. Cl. C10m 1/48

U.S. Cl. 252—32.7 E

19 Claims

Compositions useful as antioxidants, corrosion inhibitors and extreme pressure agents in lubricants are prepared from hydrazine or a substituted hydrazine, carbon disulfide, and the product obtained by reacting a hydroxy-substituted phosphorothioic acid triester with an inorganic phosphorus acid, oxide or halide and neutralizing a substantial portion of the acidic intermediate thus obtained with an amine.

3,655,557

DETERGENT ADDITIVES

John F. Marsh, Oxford, and Joseph M. Swietlik, Reading, both of England, assignors to Esso Research and Engineering Company

Filed Sept. 4, 1969, Ser. No. 855,378

Claims priority, application Great Britain, Sept. 11, 1968, 43,253/68

Int. Cl. C10m 1/46

U.S. Cl. 252—32.7 HC

14 Claims

Detergent additives for lubricating oils which are highly

basic are prepared by reacting a carboxylic acid (e.g. formic acid) with a metal alcoholate in the presence of a surfactant (e.g. a sulphonate) dissolved in an oil.

3,655,558

MINERAL LUBRICATING OIL COMPOSITIONS CONTAINING ALKALINE EARTH METAL SULFONATES AND PHOSPHITES AND PROCESS PRODUCING SAME

Jerome Geyer, Elizabeth; Shih-En Hu, Westfield, and Max L. Robbins, South Orange, all of N.J., assignors to Esso Research and Engineering Company

Filed Apr. 24, 1969, Ser. No. 819,108

Int. Cl. C10m 1/40

U.S. Cl. 252—33

23 Claims

Mineral lubricating oil compositions containing oil-soluble overbased alkaline earth metal hydrocarbon sulfonates, employed in internal combustion engines, are improved as to their antirust, sludge inhibiting and/or antiwear properties by incorporating into such compositions, in colloidal form, small amounts, for example 0.01 to 10.0 wt. percent, of the total oil composition, of in situ formed oil-insoluble inorganic alkaline earth metal phosphorus salts derived from the lower oxy or thio acids of phosphorus or from the corresponding oxides or sulfides of phosphorus which, upon hydrolysis, yield the lower oxy or thio acids of phosphorus. The preferred process of preparing such compositions involves the treatment of the neutral or overbased alkaline earth metal sulfonates, either of petroleum origin or of synthetic long chain alkaryl origin, or mineral oil concentrates thereof, and which have been in the past, conventionally employed as oil additives, with up to the stoichiometric amount of the phosphorus acid, thio acid, oxide or sulfide required to at least partially neutralize the free alkalinity of the overbased sulfonate, filtering therefrom any precipitate formed as a result of such treatment of the sulfonate or oil concentrate thereof, and recovering an oil-soluble alkaline earth metal sulfonate product, or oil concentrate thereof, containing colloidal oil-insoluble alkaline earth metal phosphorus compounds of reducing nature formed in situ.

3,655,559

ALKYLATED DIPHENYLAMINES AS STABILIZERS

Brian Holt, Royton, Lancs., England, assignor to CIBA-GEIGY Corporation, Ardsley, N.Y.

Filed Apr. 9, 1970, Ser. No. 27,176

Claims priority, application Great Britain, Apr. 11, 1969, 18,617/69

Int. Cl. C10m 1/34

U.S. Cl. 252—51.5 A

14 Claims

The use of tris 2,4,4'-alkyldiphenylamines for stabilizing organic material and compositions thereof especially synthetic lubricating oils. Such compositions are stabilized against oxidative deterioration.

3,655,560

FUELS AND LUBRICANTS CONTAINING AMINOGUANIDINE ANTIOXIDANTS

Harry J. Andress, Jr., Pittman, N.J., assignor to Mobil Oil Corporation

Filed May 18, 1970, Ser. No. 38,500

Int. Cl. C10m 1/32, 1/36; C10I 1/22

U.S. Cl. 252—51.5 A

14 Claims

Organic compositions are provided containing, as improving agents, compounds selected from the group consisting of ketimines of aminoguanidine, aldimines of ketimines of aminoguanidine and aldimines of amides of aminoguanidine. These compounds act as antioxidants and metal deactivators for fuel oils, lubricating oils and greases.

3,655,561

LUBRICANT COMPOSITIONS CONTAINING ARYL-INDANO SECONDARY AMINES

John W. Schick, Cherry Hill, and Robert M. Gemmill, Jr., Woodbury, both of N.J., assignors to Mobil Oil Corporation

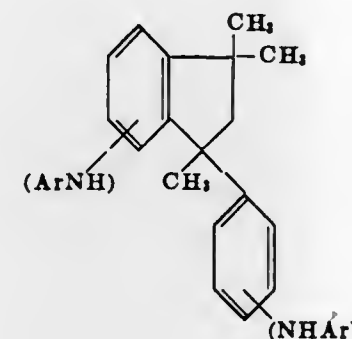
Filed June 24, 1969, Ser. No. 836,168

Int. Cl. C10m 1/34

U.S. Cl. 252—51.5 A 0000

6 Claims

Organic base compositions, subject to oxidative deterioration, are provided containing a stabilizing amount of an aryl-indano secondary amine having the structure:



wherein Ar is phenyl, naphthyl, alkyl substituted phenyl or alkyl substituted naphthyl. The method for the preparation of these aryl-indano secondary amines is also provided.

3,655,562

STABLE SYNTHETIC ESTER LUBRICANT COMPOSITION

Tai S. Chao, Homewood, and Allan N. Roush, Park Forest, both of Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Jan. 15, 1970, Ser. No. 3,203

Int. Cl. C10m 1/34

U.S. Cl. 252—51.5 A

12 Claims

A normally-liquid, synthetic ester base lubricant composition having enhanced oxidation retardation at temperatures greater than 400° F. is disclosed. The composition contains, in addition to the base lubricant, minor amounts of an alpha-alkyl styrenated aromatic amine which is the condensation product of (1) a secondary aromatic mono or diamine having non-olefinic, non-acetylenic hydrocarbon radicals of about one to 20 carbon atoms and at least one non-olefinic, non-acetylenic aromatic hydrocarbon radical of about six to 16 atoms attached to an amine group, and (2) an alpha-alkyl styrene, particularly an alpha-lower alkyl styrene.

3,655,563

LUBRICATING COMPOSITION

Eugene M. Fauber, Hammond, Ind., and Hallard C. Moyer, Homewood, Ill., assignors to Atlantic Richfield Company, New York, N.Y.

Filed Apr. 20, 1970, Ser. No. 30,215

Int. Cl. C10m 1/54

U.S. Cl. 252—59

5 Claims

A protective lubricant composition suitable for use as a wire rope lubricant, comprising about 75 to 95 weight percent of an asphalt, about 4 to 20 weight percent of a high viscosity index, distillate mineral lubricating oil and about 0.5 to 15 weight percent of Fischer-Tropsch wax.

3,655,564

WATER-REPELLANT THERMAL INSULATING COMPOSITION

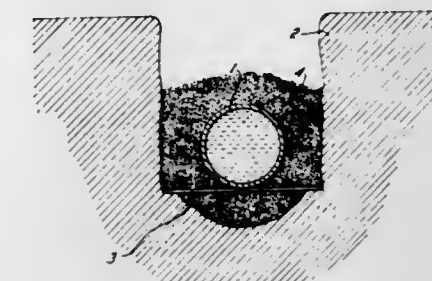
Jonathan Barrington, Malvern, Pa., assignor to Insul-Fil Manufacturing Company, Primos, Pa.

Filed May 9, 1968, Ser. No. 727,971

Int. Cl. F16l 1/00, 59/00

U.S. Cl. 252—62

1 Claim



A mixture of hydrophobically coated expanded perlite particles of a particular size with particles of a particular and different size having a hydrophobic surface, which mixture functions as a water-repellant thermal insulation.

3,655,565

ELECTRICALLY INSULATING COMPOSITIONS OF DIELECTRIC POLYMER, MICA FLAKES AND SILICONE RESIN

Joseph L. McDonald, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 7, 1970, Ser. No. 1,283

Int. Cl. H01b 3/04, 3/46

U.S. Cl. 252—63.2

8 Claims

Compositions suitable as electrical insulation comprised of synthetic dielectric polymer, mica flakes having specific surface area of about 7 square meters per gram or greater and a minor amount of a silicone resin that is substantially compatible but not reactive with the polymer. The compositions can withstand high electrical voltages over extended periods of time (being extremely resistant to corona breakdown) and also have good mechanical properties (e.g., toughness, strength and flexibility).

3,655,566

BLEACH HAVING STABLE BRIGHTENERS

Ronald A. Robinson, Garden Grove, and Benjamin R. Briggs, Los Alamitos, both of Calif., assignors to Purex Corporation, Ltd., Lakewood, Calif.

Filed Mar. 5, 1970, Ser. No. 16,927

Int. Cl. C11d 7/54

U.S. Cl. 252—95

12 Claims

Liquid household bleach composition containing optical brighteners protectively carried in the bleach solution against chemical deterioration by a finely particulate sequentially prepared synthetic organic polymer which is dispersed through the bleach solution.

3,655,567

BLEACHING AND DETERGENT COMPOSITIONS

Frederick William Gray, Summit, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of application Ser. No. 679,611, Nov. 1, 1967, now abandoned. This application Jan. 11, 1971, Ser. No. 105,653

Int. Cl. C11d 7/54

U.S. Cl. 252—95

10 Claims

Bleaching and detergent compositions containing a water-soluble peroxide and a water-soluble imide e.g. N-m-chlorobenzoylsuccinimide and N-m-chlorobenzoyl-5,5-dimethyl-dantoin.

3,655,568

ENZYME CONTAINING DETERGENT COMPOSITION HAVING IMPROVED PHYSICAL AND STABILITY CHARACTERISTICS

Wahib Nassif Zaki, 66B Avenue de Tervueren, Brussels, Belgium; Jean Marie Louis Coulomb, Residence Puccini, Rue Antione di Dominico, Martiques, France, and Peter Lovgren, Holmelundsvej 8, 2650 Hvidovre, Copenhagen, Denmark

Filed Jan. 5, 1970, Ser. No. 797

Claims priority, application France, Jan. 10, 1969, 6900346

Int. Cl. C11d 7/18, 7/56

U.S. Cl. 252—99

6 Claims

An enzyme containing granular detergent composition having improved physical and stability characteristics which is comprised of a water-soluble inorganic or organic builder, an enzyme and water-soluble alkali metal salt, ester, or C₁₋₂ alkyl- or alkylolamide of a copolymer of maleic anhydride and a vinyl compound of the formula RCH—HCR, wherein one R represents a hydrogen atom, while the other R represents a C₁₋₄ alkyl ether radical, or a hydrogen atom.

3,655,569

DETERGENT COMPOSITIONS CONTAINING A SEQUESTANT AND OPTIONALLY A BLEACHING AGENT HAVING A REDUCED TENDENCY TO ATTACK COPPER, ZINC AND ALUMINUM

Martin Hellsten, Odsal, and Jan Emanuelsson, Stenungsund, both of Sweden, assignors to Mo Och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed Aug. 6, 1969, Ser. No. 848,084

Int. Cl. C11d 7/54

U.S. Cl. 252—99

17 Claims

Detergent compositions are provided that are especially formulated with a sequestant for use in hard water, and optionally, a bleaching agent, and that contain a corrosion inhibitor lessening the tendency of the composition to attack copper, zinc and aluminum.

3,655,570

DETERGENT CONTAINING ALKALI PROTEASE

Masao Isono, Nishinomiya; Katsumi Tomoda, Toyonaka, Osaka; Kouichi Miyata, Takatsuki, Osaka; Kazutaka Maejima, Nishinomiya, and Keisuke Tsubaki, Suita, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Feb. 3, 1969, Ser. No. 795,951

Claims priority, application Japan, Feb. 8, 1968, 43/7863; Mar. 15, 1968, 43/16970

Int. Cl. C11d 7/42, 9/40

U.S. Cl. 252—132

5 Claims

Alkaline protease if produced by cultivating an alkaline protease-producing microorganism from the genus *Fusarium* or *Giberella* in a proper growth supporting medium and the alkaline protease is recovered from the medium. The alkaline protease degrades protein under conditions of high pH and thus is useful in the formulation of detergent and other cleanser compositions.

3,655,571

CORROSION INHIBITOR MIXTURE

Robert J. Tedeschi, Whitehouse Station, and Paul W. Natali, Middletown, both of N.J., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Dec. 31, 1968, Ser. No. 789,022

Int. Cl. C23g 1/06

U.S. Cl. 252—148

4 Claims

Aqueous acid solutions are inhibited against corrosion of metals, especially ferrous metals, by incorporation of a corrosion-inhibiting mixture composed of a combination of 1-hexyn-3-ol, 5-decyn-4,7-diol and urea.

3,655,572

WATER-CONTAINING DRY CLEANING COMPOSITIONS

Alan E. Straus, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jan. 21, 1970, Ser. No. 4,736

Int. Cl. C09d 9/04; C11d 7/50; C23g 5/02

U.S. Cl. 252—171

10 Claims

Combinations of surface active materials which solubilize significant quantities of water in dry cleaning solvents, the combination comprising from 70 to 90 percent by weight of a dialkyl benzene sulfonate in which the alkyl groups are substantially linear and contain from six to 10 carbon atoms and from 10 to 30 percent by weight of a C₁₅₋₂₀ branched chain monoalkyl benzene sulfonate.

3,655,573

SYNERGISTIC METAL SEQUESTANT

Ronald H. Carlson, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Continuation-in-part of application Ser. No. 680,011, Nov. 2, 1967, now abandoned. This application July 13, 1970, Ser. No. 54,662

Int. Cl. C02b 5/06; C11d 7/32, 7/36

U.S. Cl. 252—180

4 Claims

Mixtures of tris(hydroxymethyl)phosphine oxide, and nitrilotriacetic acid as well as the alkali metal salts thereof, exhibit marked synergism as sequestant compositions over a broad pH range. The sequestant compositions are useful as additives for detergents, metal cleaning baths, peroxide compositions and dyes. The chelate products are useful in the field of agriculture for the introduction of trace elements into plant life and especially in the treatment of iron chlorosis in plants.

3,655,574

OPTICAL BRIGHTENING COMPOSITION MIXTURE OF THREE ANALOGOUS COMPOUNDS

Hans Frischkorn; Erich Schinzel, both of Hofheim/Taunus, and Gunter Rosch, Altenhain/Taunus, all of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Jan. 12, 1970, Ser. No. 2,396

Claims priority, application Germany, Jan. 18, 1969, P 19 02 445.4

Int. Cl. C09k 1/102

U.S. Cl. 252—301.2 W

7 Claims

An optical brightener composition consisting of an unsymmetrical bis-triazinylamino-stilbene disulfonic acid and of the two corresponding symmetrical compounds is superior to the single components as regards the degree of whiteness obtained thereby and the multiplicity of applications for brightening of fibrous materials of cellulosic and polyamide fibers.

3,655,575

CATHODOLUMINESCENT PHOSPHOR COMPOSITIONS

Sixdeniel Faria, Towanda, and Lyle K. Williams, Wysox, both of Pa., assignors to Sylvania Electric Products Inc.

Filed Feb. 2, 1970, Ser. No. 7,450

Int. Cl. C09k 1/12

U.S. Cl. 252—301.6 S

5 Claims

Cathodoluminescent phosphors exhibiting improved properties and that provide colored emission throughout a substantial portion of the visible range of colors, are disclosed that consist essentially of a zinc sulfide and cadmium sulfide host material having a Zn:Cd weight ratio of about 2:98 to about 98:2 and an activator material having an amount of silver of from about 50 to about 300 ppm by weight based on the weight of the host material and from about 75 to 600 ppm of aluminum on the same basis. The blue-emitting phosphor compositions consisting essentially of a host having a Zn:Cd ratio of from about 90:10 to about 97:3 and an ac-

tivator material having from about 100 to about 300 ppm of silver and from about 75 to about 150 ppm of aluminum are found to have extremely high brightness. Additionally the green-emitting phosphor compositions consisting of a host having a Zn:Cd weight ratio from about 55:45 to about 65:35 and an activator material having from about 50 to about 300 ppm of silver and from about 75 to about 300 ppm of aluminum is also an extremely bright phosphor. Red-emitting phosphors having a Zn:Cd weight ratio of from about 25:75 to about 15:85 and levels of silver and aluminum of from about 100 to 300 ppm are also disclosed.

3,655,576

PRODUCTION OF CALCIUM HALOPHOSPHATE PHOSPHORS

Harry D. Layman, Ulster, and Robert E. Taylor, Towanda, both of Pa., assignors to Sylvania Electric Products Inc.

Filed Sept. 8, 1970, Ser. No. 70,550

Int. Cl. C09k 1/36

U.S. Cl. 252—301.6 P

7 Claims

An improved process for the production of calcium halophosphate phosphors comprising forming a first substantially uniform admixture of (a) a calcium phosphate source selected from mono and di calcium orthophosphates, calcium pyrophosphates and mixtures thereof, (b) a secondary calcium source having a volatile anion, in stoichiometric proportions to form tricalcium orthophosphate, and (c) the desired sources of dopants, heating the first admixture under temperature and time conditions sufficient to form a doped tricalcium orthophosphate, forming a second uniform admixture, in proper molar ratios, of the doped tricalcium orthophosphates and the calcium halide forming ingredients and heating for a sufficient time and temperature to form a calcium halophosphate phosphor.

3,655,577

PHOSPHORS

Tsuyoshi Kano, Higashi-Murayama, Yoshiro Otomo, Mitaka, and Hajime Yamamoto, Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 24, 1970, Ser. No. 49,250

Claims priority, application Japan, June 30, 1969, 44/51,607

Int. Cl. C09k 1/14

U.S. Cl. 252—301.4 S

5 Claims

An oxy-sulfide phosphor having extremely improved luminescent intensity which comprises europium as an activator; praseodymium or a mixture thereof with terbium as a sensitizer; and a base having a composition capable of making the sensitizing actions of said elements particularly marked.

3,655,578

HIGH SURFACE AREA STABILIZED SILICA SOLS AND PROCESS FOR PREPARING SAME

Paul C. Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 8, 1969, Ser. No. 823,184

Int. Cl. B01j 13/00; C01b 33/14

U.S. Cl. 252—313 S

14 Claims

Compositions consisting essentially of colloidal silica sols having a surface area of from 500 m²/gram to 1500 m²/gram stabilized with a co-stabilizer system consisting of: (1) an organic or inorganic base having a basic dissociation constant greater than 10⁻⁵ and (2) at least one non-aromatic organic compound having (a) only hydrogen, carbon, and oxygen, (b) at least two oxygen atoms per molecule in the form of hydroxy or ether groups and (c) a water solubility at 25° C. of at least

3,655,579

POWDER GELLING COMPOSITION

Homer E. Crotty and Charles R. Coffey, Cincinnati, and Thomas C. Tesdahl, Forest Park, Ohio, assignors to Chemed Corporation, Cincinnati, Ohio

No Drawing. Original application Aug. 2, 1968, Ser. No. 749,585, now Patent No. 3,578,499, dated May 11, 1971. Divided and this application Sept. 18, 1970, Ser. No. 73,656

Int. Cl. B01j 13/00

U.S. Cl. 252—316

5 Claims

The disclosed invention includes a powder gelling composition containing a gelling agent, a neutral diluent, a wetting agent, and desirably a dye or coloring additive. The powder gelling composition when added to water forms a gel. To this gel may be added acid or alkaline materials for cleaning, biocidal agents for sanitizing, or other materials to produce a desired effect. The significant advantage of this method is the increased residence time and hence contact time between agents in the gel and the surface to be acted on.

3,655,580

AGGLOMERATED SILICA BODIES AND METHOD

Raymond Beau, Massy, and Jean Fourniquet, Paris, France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Continuation-in-part of application Ser. No. 760,714, Sept. 18, 1968. This application June 3, 1970, Ser. No. 43,219

Claims priority, application France, Sept. 20, 1967, 121,591

The portion of the term of the patent subsequent to Nov. 3, 1987, has been disclaimed

Int. Cl. C01b 33/16

U.S. Cl. 252—317

7 Claims

The production of agglomerated bodies of silica wherein a composition formed in whole or in part of silica hydrogel microballs is agglomerated and which includes the treatment of the microballs prior to agglomeration with an alkaline medium to increase the composite strength of the agglomerated bodies.

3,655,581

COMPOSITION AND PROCESS FOR PREPARING FLEXIBLE POLYESTER BASED POLYURETHANE FOAMS

Richard A. Bachura, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Sept. 25, 1968, Ser. No. 762,613

Int. Cl. B01f 17/00

U.S. Cl. 252—351

7 Claims

A composition is disclosed which consists essentially of (1) 75 to 95 percent by weight of a trimethylsilyl end-blocked siloxane-polyoxyethylene copolymer, and (2) 5 to 25 percent by weight of a fatty acid having from 10 to 40 carbon atoms. This composition is useful as a surfactant in the preparation of flexible polyester based polyurethane foams where it minimizes problems of splitting

and shrinkage of the foams, promotes uniformity of cell size, promotes compatibility of the reactants and catalyst, and allows wider processing and formulation latitude.

3,655,582

SYNERGISTIC COMBINATION OF SILICATES AND BARIUM SALTS FOR INHIBITING THE ATTACK OF ALKALINE SOLUTIONS ON ALUMINUM CONTAINING MATERIALS

Jean Dupre, Levittown, and Keith A. Booman, Dresher, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Filed June 18, 1969, Ser. No. 834,499

Int. Cl. C23f 11/18, 11/06

U.S. Cl. 252—387

1 Claim

Materials which are principally comprised of aluminum, and which are sensitive to the attack of alkaline solutions, are protected against such attack by a synergistic combination of water soluble silicates and barium salts, with or without well-known surface active agents and solvents.

3,655,583

VANADY COMPOUND HAVING CYCLIC HYDRO-CARBON SUBSTITUENT AND POLYMERIZATION CATALYST CONTAINING SAID COMPOUND

Keisaku Yamamoto, Ibaraki, Hiroyoshi Takao, Takatsuki, Masaaki Hirooka, Ibaraki, and Teruo Oshima, Nishinomiya, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed July 23, 1969, Ser. No. 844,178

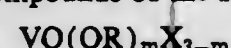
Claims priority, application Japan, July 30, 1968, 43/53,816

Int. Cl. C08f 15/04, 3/02, 3/04

U.S. Cl. 252—431

24 Claims

Novel vanadyl compounds of the formula



where R is a group containing a cyclic hydrocarbon having 5 to 20 carbon atoms, X is a halogen atom and m is an integer from 1 to 3, are mixed with organoaluminum compounds to make catalysts useful for homopolymerizing or copolymerizing alpha-monoolefins in solution, if desired with a polyene such as a conjugated or non-conjugated diene. Examples of the vanadium compounds are vanadyl tricyclohexoxide, monochlorovanadyl dicyclohexoxide, vanadyl tribornylxide and monochlorovanadyl dinorbornylmethoxide. Conjugated dienes have less retarding effect on the catalyst than on conventional catalyst.

3,655,584

CATALYST FOR THE RING OPENING POLYMERIZATION OF CYCLOPENTENE

Wolfgang Oberkirch, Cologne, Peter Gunther, Opladen, and Gottfried Pampus, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Apr. 20, 1970, Ser. No. 30,336

Int. Cl. C08f 5/00

U.S. Cl. 252—429 A

2 Claims

Catalyst for producing homo- and copolymers of cyclopentene comprising tungsten hexachloride which has been

irradiated with light of a wave length of up to 7000 A. and an organo aluminum compound.

3,655,585

METHOD OF PREPARING CATHODIC ELECTRODES

Arabinda N. Dey, Needham, and Bernard P. Sullivan, Bedford, Mass., assignors to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed Aug. 28, 1969, Ser. No. 853,817

Int. Cl. H01b 1/06; C01g 31/00

U.S. Cl. 252—506

10 Claims

A method for preparing cathodes having vanadium pentoxide active cathode material wherein direct use of vanadium pentoxide is not required. Electrodes having high porosity and providing highly efficient utilization of active cathode material are provided by pyrolytic decomposition of a pentavalent vanadium salt admixed with particulate conductive filler.

3,655,586

COPOLYMERS OF CYCLIC PHOSPHATES AND EPOXIDES OR ALDEHYDES

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 690,433, Dec. 14, 1967. This application Feb. 13, 1970, Ser. No. 11,338

The portion of the term of the patent subsequent to July 21, 1987, has been disclaimed

Int. Cl. C08g 33/16, 37/36

U.S. Cl. 260—2 P

10 Claims

Solid copolymers of cyclic phosphates such as alkylene alkyl phosphates and phenylene alkyl phosphates with epoxides such as epichlorohydrin or ethylene oxide or with aldehydes such as trioxane are provided.

3,655,587

METHODS AND DEVICES FOR THE REGENERATION OF ION EXCHANGERS

Jean Bouchard, Paris, Roger Frison, Nanterre, and Pierre Treille, Saint-Cloud, France, assignors to Degremont, Societe Generale d'Epuration et d'Assainissement, Ruell-Malmaison, France

Filed Sept. 11, 1970, Ser. No. 71,310

Claims priority, application France, Oct. 14, 1969, 35,091

Int. Cl. B01d 15/06; C02b 1/76

U.S. Cl. 260—2.1 R

8 Claims

Method for regeneration of ion exchangers having the same ionic nature and disposed in superposed layers in the same apparatus, said ions being saturated by circulating the liquid to be treated in downward flow through the superposed layers of ion exchangers which are regenerated by circulating the regeneration reagent in counter-current flow through the layers of ion exchangers. At least one regeneration reagent is passed upwards through the different superposed layers of ion exchangers and at least one additional stream of liquid is introduced in the vicinity of the interface between two superposed layers of ion exchangers, said additional stream being also circulated upwards through the layer or layers of ion exchangers together with the stream of regeneration reagent.

3,655,588
URETHANE-CONTAINING AMINIC POLYOLS AND FOAMS DERIVED THEREFROM
Paul R. Mosso, Natrona Heights, and Carl R. Faelten, Pittsburgh, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Jan. 2, 1970, Ser. No. 384
Int. Cl. C08g 22/48

U.S. Cl. 260—2.5 AM

26 Claims

This invention relates to novel polyols containing urethane groups derived by coupling an aminic polyol with a polyisocyanate. Moreover, this invention relates to novel polyurethane resins, particularly novel polyurethane foams, prepared from the polyols of the invention.

3,655,589
FLAMEPROOFED ORGANIC SYNTHETIC RESINS
Frank Wiegler, Leverkusen, Werner Dietrich, Cologne-Stammheim, Herbert Bartl, Odenthal-Hahnenberg, and Karl-Josef Kraft, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 11, 1970, Ser. No. 18,760
Claims priority, application Germany, Mar. 27, 1969, P 19 15 681.1

Int. Cl. C08g 53/10, 22/44; C08f 37/16

U.S. Cl. 260—2.5 FP

2 Claims

Mixtures of 30 to 95% by weight of an organic synthetic resin and 5 to 70% by weight of a halogen-containing copolymer of 2 to 30% by weight of ethylene and/or propylene, alpha-butylene or isobutylene, 98 to 20% by weight of a halogen-containing alpha-olefin, and if desired, 0 to 40% by weight of an OH-containing copolymerizable monomer and 0 to 50% by weight of a halogen-containing telogen.

3,655,590
POLYURETHANE FOAMS PREPARED FROM STARCH-BASED POLYETHER POLYOLS
Philip H. Moss and Michael Cuscurida, Austin, Tex., assignors to Jefferson Chemical Company, Inc., Houston, Tex.

No Drawing. Filed June 29, 1970, Ser. No. 50,901

Int. Cl. C08g 22/46, 22/14; C08b 19/06

U.S. Cl. 260—2.5 AS

4 Claims

A low cost, easily prepared rigid polyurethane polyol of low viscosity may be made by reacting corn starch with glycol ethers and alkoxylating the product. The polyol may be used to prepare high quality rigid polyurethane foam. Rigid polyurethane foam is an excellent heat insulator and structural material.

3,655,591
OPAQUE, NON-PIGMENTED MICROPOROUS FILM AND PROCESS AND COMPOSITION FOR PREPARING THE SAME

Jerome A. Selner, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 524,953, Feb. 1, 1966. This application Jan. 13, 1970, Ser. No. 2,534

Int. Cl. C08 1/26

U.S. Cl. 260—2.5 M

29 Claims

This invention relates to films which are opaque and microporous, but which do not contain pigments to enhance their whiteness. The continuous, opaque films are prepared by mixing a homogeneous solution of thermosetting polymeric material with a solvent mixture for said polymeric material comprising at least two miscible liquids, at least one of said liquids being a non-solvent for said polymeric material and having a lower volatility than that of the other liquids in said mixture. Upon curing of the resin material, the non-solvent which is precipitated in the resin matrix is evaporated to form a film

containing discrete closed cells. The films are useful in producing heat and mar resistant paints and coatings without the addition of costly pigments.

3,655,592
EXPANSIBLE PEARLS CONTAINING ETHYLENE, PROPYLENE, AND SO₂ GROUPS IN A COPOLYMER AND PROCESSES OF MAKING THEM

Jean Chatelain, Lyon, France, assignor to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Aug. 29, 1968, Ser. No. 756,291

Claims priority, application France, Aug. 30, 1967, 119,424; July 22, 1968, 160,075

Int. Cl. C08f 47/10, 13/06

U.S. Cl. 260—2.5 B

10 Claims

Expansible pearls containing propylene, ethyl-ethylene, and SO₂ groups with butene-1 and propane. They are useful as adjuvants to soil in agriculture, as insulation against sound and heat, and to make cellular articles by molding.

3,655,593
POLYMERIC ORGANIC PHOSPHORUS COMPOUNDS

John H. Johnson and William R. Richard, Jr., Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 849,246, July 29, 1969, which is a continuation-in-part of application Ser. No. 392,601, Aug. 27, 1964. This application June 29, 1970, Ser. No. 50,921

Int. Cl. C08g 1/08, 15/00

U.S. Cl. 260—9

4 Claims

A flameproofing composition which is formed by the reaction product of a trivalent phosphorus halide compound having at least one chlorine or bromine atom attached to the phosphorus atom, a carbonyl compound which is an aldehyde or a ketone, and an ester of a trivalent phosphorus atom. The carbonyl compound may be (1) copolymerization products of olefins with carbon monoxide, such as ethylene/carbon monoxide copolymers, (2) vinyl ketone polymers, (3) polymers with appended aldehyde groups and (4) polymeric dialdehyde starches.

3,655,594
ACRYLIC RESIN CONTAINING TOUCH-UP FILLER COMPOUND

Joseph J. Medica, St. Petersburg, Kenneth G. Trout, Tampa, and Stanley C. Kyminas, St. Petersburg, Fla., assignors to The Celotex Corporation, Tampa, Fla.

No Drawing. Filed Aug. 13, 1969, Ser. No. 849,864

Int. Cl. C09d 5/34

U.S. Cl. 260—17 R

3 Claims

A single application filler compound for touching up gouges in fiberboard products contains about 50% by weight of a water base thermoplastic acrylic copolymer with a low pigment to binder ratio and a high viscosity.

3,655,595
EPOXY BINDER FOR MAGNETIC COATING COMPOSITION

Louis M. Higashi, Monte Sereno, Calif., assignor to Memorex Corporation, Santa Clara, Calif.

No Drawing. Filed Feb. 20, 1969, Ser. No. 801,193

Int. Cl. C08g 30/16

U.S. Cl. 260—18 EP

5 Claims

A fluid, thermosetting magnetic coating composition comprising magnetic particles and a film-forming composition or binder stable at room temperatures. The binder or film-forming composition comprises an adduct based upon dimer acid and the diglycidyl ether of bisphenol A with terminal oxirane rings, and having a molecular weight of from about 800 to about 5000 and an epoxide

equivalent weight of from about 400 to about 2600 and adapted to form a flexible film upon hardening, a fatty acid polyamide, and a curing agent comprising an amine and a Lewis acid-alkyl amine complex salt.

3,655,596

SHORT OIL ALKYD RESINS

Haruo Kozu, Morio Kimura, Tadashi Watanabe, and Naosumi Iwasawa, Hiratsuka, and Michio Yoshida, Amagasaki, Japan, assignors to Kansai Paint Company, Limited, Amagasaki-shi, Japan

No Drawing. Filed Mar. 18, 1970, Ser. No. 20,813

Claims priority, application Japan, Mar. 26, 1969,

44/22,364

Int. Cl. C08g 17/16; C09d 3/64

U.S. Cl. 260—22 R

9 Claims

Short oil alkyd resins suitable for use in both baking type and non-baking type paints, and being excellent in hardness, toughness, chemical resistance, compatibility with other film-forming materials, etc., and being made from polybasic acids, glycols and tetrahydric and/or trihydric alcohols, and saturated and/or unsaturated fatty acids having 6–18 carbon atoms.

3,655,597

SINGLE-STEP PROCESS FOR PREPARING A CELLULAR PRODUCT HAVING A VERY COMPACT ELASTOMERIC SKIN

Albert Pierre Strassel, Ville d'Avray, France, assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich.

No Drawing. Continuation of application Ser. No.

672,726, Oct. 4, 1967. This application May 4,

1970, Ser. No. 31,883

Claims priority, application France, Dec. 26, 1966,

88,838

Int. Cl. C08g 53/10

U.S. Cl. 260—2.5 AZ

2 Claims

Molded polyurethane-polyurea products having a cellular body with a thick, adherent skin having a high density are produced by a process in which the rate at which the various ingredients react is adjusted as a function of the quantity of water present in the ingredients.

3,655,598

SILICONE-POLYBUTADIENE RESINS

Robert C. Antonen and Gust J. Kookootsedes, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed June 29, 1970, Ser. No. 50,987

Int. Cl. C08k 1/66

U.S. Cl. 260—18 S

9 Claims

Silicone-polybutadiene resins wherein a siloxy-terminated polybutadiene having vinyl groups on alternate carbon atoms of the diene backbone is condensed by means of functionality on the silicon atoms with a hydroxyl-functional organosilicon resin, the vinyl groups of the diene being cyclized by means of an organic peroxide catalyst, have utility as protective coatings.

3,655,599

RUBBER ACCELERATORS FOR LIQUID COMPOUNDING

Edward L. Kay and Joseph A. Beckman, Akron, Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Filed May 18, 1970, Ser. No. 38,283

Int. Cl. C08c 9/00, 11/54

U.S. Cl. 260—23.7 M

6 Claims

Bis(2-alkylamino-4-dialkylamino-6-triazinyl) disulfide and 2-diethylamino-4-amino-6-cyclohexylaminothio-triazine and the like are accelerators used in the liquid compounding of a rubber polymer derived at least in part from a diene.

**3,655,600
FLAME RESISTANT MATERIALS AND METHODS FOR PRODUCING SAME**

Stephen S. Stevens, Encino, Calif., assignor of fractional part interest to Morris Sankary

No Drawing. Filed Jan. 13, 1970, Ser. No. 2,690

Int. Cl. C08j 1/30

U.S. Cl. 260—2.5 B

13 Claims

A flame resistant material formed by dry blending a combination of finely powdered alkali metal silicate, an inorganic filler and a plurality of porous expanded polymer beads or granules with a minor amount of an alkali stable surfactant which wets the surfaces of the beads and permits the adhesion of the powdered alkali metal silicate thereto, such as a long chain alkyl phenoxy polyethoxy ethanol, and thereafter coalescing said alkali metal silicate with heat to form an integral porous structure.

3,655,601

PROCESS FOR THE MANUFACTURE OF BASIC OXAZINE DYE STUFFS

Norbert Ottawa and Gustav Schafer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

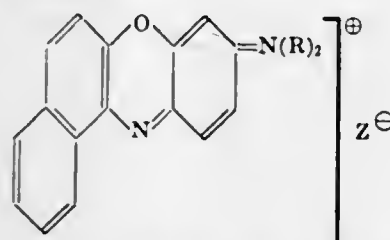
No Drawing. Filed Feb. 13, 1969, Ser. No. 799,085

Int. Cl. C07d 87/50

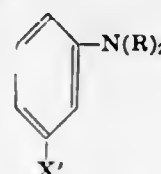
U.S. Cl. 260—242

10 Claims

In the process for the manufacture of basic oxazine dye-stuffs of the formula



in which R represents an alkyl group of from 1 to 4 carbon atoms and Z^- represents Cl^- or $ZnCl_3^-$ by heating an amine of the formula



in which R is defined as above and X' represents a hydrogen atom or an alkoxy group of from 1 to 4 carbon atoms, with nitrous acid in an aqueous-acetic acid or aqueous-alcoholic solution and condensing the p-nitroso compound so obtained with β -naphthol, the improvement which comprises condensing the suspension of the p-nitroso compound obtained as described above with the β -naphthol without being intermediately isolated.

3,655,602

SILICONE-CONTAINING HYDROPHYLIC RESINS DISPERSIBLE IN WATER

Kazys Sekmakas, Chicago, Ill., assignor to DeSoto, Inc., Chicago, Ill.

No Drawing. Continuation-in-part of applications Ser. No. 478,736, Aug. 10, 1965, and Ser. No. 605,607, Dec. 29, 1966. This application Aug. 16, 1967, Ser. No. 660,931

The portion of the term of the patent subsequent to Sept. 23, 1986, has been disclaimed

Int. Cl. C08g 31/16

U.S. Cl. 260—29.2 M

15 Claims

Silicone-containing hydrophilic resins that are dispersible in water with the aid of a base and water miscible organic solvents are formed from solution addition copolymers having OH or alkoxy-functional silicon-containing material condensed therein as an ether. The hydroxy functionality is preferably provided by reacting

a portion of the carboxy functionality of the copolymers with a monoepoxide. Organopolysiloxanes are preferably used and these can be condensed with hydroxy monomers and then polymerized or the condensation reaction can be carried out with the hydroxy functional polymer. Aqueous dispersions of the resin having minimum acid number and a pH above 8.4 are particularly adapted to be electrodeposited at the anode where the silicone component adds gloss and whether resistance. Cure is preferably effected using aminoplast resins, especially water insoluble heat-hardening benzoguanamine-formaldehyde resin which deposit in direct proportion to the concentration thereof by association in the electrocoating bath with the resins of the invention. Deposited films may be baked to form solvent resistant coatings with the aminoplast resin aiding the cure.

3,655,603

RESIN IMPREGNATED FIBROUS MATERIAL HAVING LOW FRICTION

Henry Clifford Morton, East Greenbush, and Thomas J. Rasmussen, Schenectady, N.Y., assignors to The Bendix Corporation

Continuation-in-part of application Ser. No. 577,297,

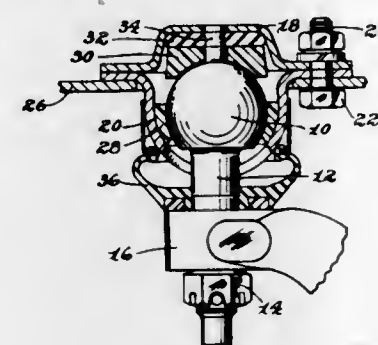
Sept. 6, 1966. This application Dec. 26, 1969, Ser.

No. 888,547

Int. Cl. C08g 51/24

U.S. Cl. 260—29.3

8 Claims



A bearing material having a resin impregnated matrix is disclosed herein. The resin is a reaction product of a homogeneous distribution of tetrafluoroethylene particles and a sulfomethylated phenolic resin which is subsequently polymerized after having impregnated a suitable matrix material and been formed into the desired shape.

3,655,604

COATING COMPOSITIONS CONTAINING FLUOROCARBON POLYMER AND COLLOIDAL SILICA

Clifford H. Strolle, Springfield, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 15, 1969, Ser. No. 825,041

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 F

6 Claims

A composition for priming a surface to improve adhesion of a fluorocarbon polymer topcoat. The composition contains an ammonia stabilized colloidal silica sol, a particulate fluorocarbon polymer and a liquid carrier.

3,655,605

SURGICAL CEMENTS FROM ZINC OXIDE AND AQUEOUS POLY(ACRYLIC ACID)

Dennis Clifford Smith, Cheadle Hulme, England, assignor to National Research Development Corporation, London, England

No Drawing. Continuation-in-part of application Ser. No. 692,711, Dec. 22, 1967. This application June 26, 1969, Ser. No. 836,991

Claims priority, application Great Britain, Dec. 30, 1966, 58,472/66

Int. Cl. C08f 29/34; A61k 5/00

U.S. Cl. 260—29.6 M

22 Claims

Dental cements are prepared by mixing a surgical grade zinc oxide powder with an aqueous solution of

3,655,606

HEAT STABILIZATION OF POLYIMIDES FORMED FROM 3,4-DICARBOXY-1,2,3,4-TETRAHYDRO-1-NAPHTHALENE SUCCINIC DIANHYDRIDES AND DIPRIMARY DIAMINES

Howard Robert Lucas, Danbury, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 1, 1971, Ser. No. 130,525

Int. Cl. C08g 51/62

U.S. Cl. 260—32.6 N

7 Claims

There is provided a heat-stabilized resinous polyimide obtained by incorporating into an inert organic solid solution of a polyimide resinous reaction product of 3,4-dicarboxy-1,2,3,4-tetrahydro-1-naphthalene succinic dianhydride (Tetralin dianhydride) and a diprimary diamine, a small but effective stabilizing quantity of either ferrocene or benzoyl ferrocene ranging from about 0.25% to about 2.5%, based on the weight of the polyimide solids.

3,655,607

FLAME-RESISTANT RESISTOR COATINGS

Lawrence G. Bockstie, Jr., Bradford, Pa., assignor to Corning Glass Works, Corning, N.Y.

No Drawing. Filed July 11, 1967, Ser. No. 652,412

Int. Cl. C08g 41/02; C09d 5/18

U.S. Cl. 260—33.8

5 Claims

Flame resistant polyimide resistory coatings containing chlorinated polyphenyl and antimonyl trioxide.

3,655,608

PAPER COATING COMPOSITIONS AND PAPER THEREWITH

Karl R. Guenther Middletown, and Donald G. Havekost, Madison, Wis., assignors to Bergstrom Paper Company

No Drawing. Filed Jan. 7, 1969, Ser. No. 789,616

Int. Cl. C08g 51/02, 51/04, 51/06

U.S. Cl. 260—37 N

36 Claims

A process by which paper coating pigments are treated with a hydroxyl- or hydrogen-reactive organic chemical and subsequently combined with a polymerizable binder material to form a uniform, high-pigment-content, thixotropic water-free coating composition to be applied to paper, film, or web materials to produce a smooth coated product with superior properties, and the product thereof.

3,655,609

BINDER MIXTURE FOR FRICTION ELEMENTS COMPRISING PHENOLIC RESIN AND PRECIPITATED SILICATE

Edward Michael Evans, Penarth, Glamorgan, and Kerry David Jeffreys, Rhiwbina, Cardiff, Wales, assignors to BP Chemicals (U.K.) Limited, London, England

No Drawing. Filed Sept. 30, 1969, Ser. No. 862,497

Claims priority, application Great Britain, Oct. 4, 1968, 47,091/68

Int. Cl. C08g 37/14

U.S. Cl. 260—38

8 Claims

Binder resin compositions for the preparation of friction elements e.g. brake and clutch linings having good hot wear properties comprise from 5 to 95 parts by weight of a phenolic resin and from 95 to 5 parts by weight of a precipitated alkali metal silicate. The resins

may be compounded with conventional additives, e.g. asbestos and barytes and moulded under heat and pressure to form friction elements.

3,655,610

FLUOROPOLYMER COATING COMPOSITIONS

Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed May 21, 1970, Ser. No. 39,575
Int. Cl. C08g 51/04

U.S. Cl. 260—39 R 10 Claims
A coating composition containing a tetrafluoroethylene/hexafluoropropylene copolymer, an epoxy resin, an amino-plast resin and zinc, all in an organic liquid, useful for lining water heaters and the like.

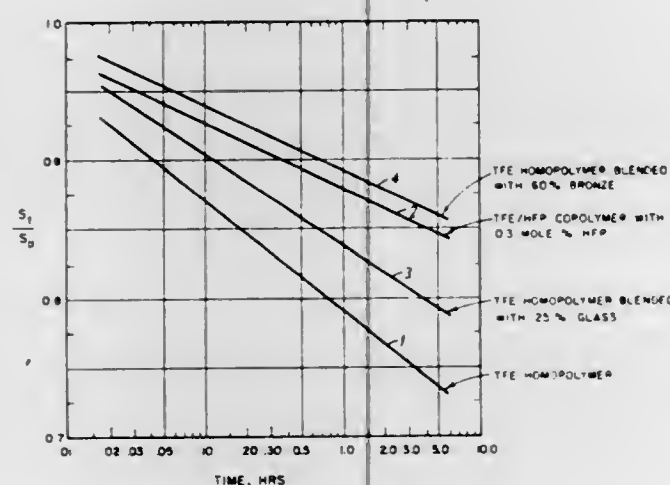
3,655,611

COLD FLOW RESISTANT HOMOGENEOUS POLYMERS OF TETRAFLUOROETHYLENE AND HEXAFLUOROPROPENE AND PROCESS FOR PREPARING THEM

Max B. Mueller, Morristown, Peter P. Salatiello, Morris Plains, and Herman S. Kaufman, Teaneck, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed Aug. 9, 1968, Ser. No. 751,554
Int. Cl. C08f 15/06, 45/04

U.S. Cl. 260—41 7 Claims



Granular homogeneous copolymers of tetrafluoroethylene and between about 0.05 mole percent and about 0.50 mole percent of hexafluoropropene having superior physical properties and adapted for molding into objects having enhanced resistance to cold flow under loads and process for preparing them.

3,655,612

PRESERVATIVE AND IMPERVIOUS SURFACE COATING PASTE

Gianfranco Stella, Milan, Italy, assignor to MPM-Materiali Protettivi Milano S.R.L., Milan, Italy
No Drawing. Filed Dec. 31, 1968, Ser. No. 788,346
Claims priority, application Italy, Nov. 2, 1968, 11,574A/68, Patent 828,105
Int. Cl. C08c 11/16

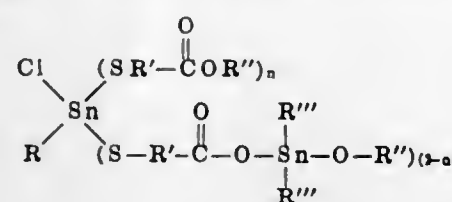
U.S. Cl. 260—41.5 2 Claims
A preservative and impervious surface coating paste, consisting of a mixture of a vehicle made of an elastomer, a pigment made of a metal powder, preferably aluminum or copper, a thickener made of a fibrous filler and an additive of synthetic resins, which may be applied in a single coat to any supporting surface without requiring undercoats, fillers or primers.

3,655,613 STABILIZED HALO-VINYL RESIN COMPOSITIONS

Anatole Wowk, Edison, N.J., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Filed June 15, 1970, Ser. No. 46,483
Int. Cl. C08f 45/62

U.S. Cl. 260—45.75 K 14 Claims
This invention comprises novel compounds exhibiting the formula:



wherein R, R', R'' and R''' are hydrocarbons and n is 0 or 1, methods of preparing these novel compounds, and polymers stabilized by these novel compounds against the deteriorative effects of heat and light.

3,655,614

STABILIZED POLYOLEFIN COMPOSITIONS CONTAINING ALKYLATED p-HYDROXYPHENYL-ALKYLPHOSPHINATES

John Denon Spivack, Spring Valley, N.Y., assignor to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 618,988, Feb. 27, 1967, which is a continuation-in-part of application Ser. No. 612,336, Jan. 30, 1967. This application Sept. 30, 1970, Ser. No. 76,970
Int. Cl. C08f 45/58

U.S. Cl. 260—45.95 4 Claims
Unstable organic material is stabilized with certain alkylated p-hydroxyphenylalkylphosphinates. This invention is particularly useful in stabilizing polyolefins such as polypropylene and polyethylene. A particularly preferred stabilizer compound is n-octadecyl(3,5-di-tert-butyl-4-hydroxybenzyl)ethane phosphinate.

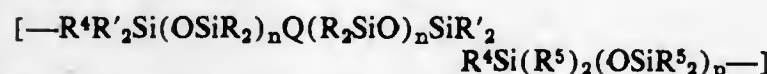
3,655,615

COMPOUNDS CONTAINING SILICON AND NITROGEN

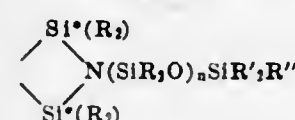
Richard P. Bush, Penarth, and Bryan Thomas, Tonyrefail, Wales (both % Midland Silicones Limited, Reading, England)

No Drawing. Filed Feb. 2, 1970, Ser. No. 8,017
Int. Cl. C08f 11/04

U.S. Cl. 260—46.5 E 6 Claims
Organosilicon polymers, for example, those containing units of the general formula



wherein R is a lower alkyl radical or phenyl radical, R' and R⁵ are monovalent hydrocarbon or monovalent halogenated hydrocarbon radicals free of aliphatic unsaturation, R'' is a hydrocarbon radical containing aliphatic unsaturation, R⁴ is a divalent hydrocarbon radical, Q represents a cyclic silazane or cyclic siloxazane structure which is attached to adjacent silicon atoms through silicon-nitrogen linkages, n is 0 or 1 and p is 0 or an integer, are prepared by reacting (A) an organosilicon compound containing at least one Si-bonded hydrogen atom with (B) a cyclic silazane or siloxazane containing from 1 to 3 inclusive groups of structure



These polymers are useful as lubricants and elastomers.

3,655,616

STABILIZED HALOGEN-CONTAINING RESINS

James T. Freeze, Huntington, N.Y., and Alan L. Fikes, Dublin, Calif., assignors to Pfizer Inc., New York, N.Y.
No Drawing. Continuation of application Ser. No. 598,942, Dec. 5, 1966, which is a continuation-in-part of application Ser. No. 398,065, Sept. 21, 1964. This application Oct. 20, 1970, Ser. No. 82,519
Int. Cl. C08f 45/62

U.S. Cl. 260—45.75 K 2 Claims
Mixtures of sulfur-containing organo-tin compounds and organo-tin maleates as stabilizers for halogen-containing resins.

3,655,617

HARDENING OF POLYEPOXY COMPOUNDS WITH DICYANDIAMIDE AND A HETEROCYCLIC SECONDARY AMINE ACCELERATOR

Wolfgang Imoehl, Unna, and Peter Borner, Aldunnen, Germany, assignors to Schering AG., Bergkamen, Germany
No Drawing. Filed Feb. 13, 1970, Ser. No. 11,288
Claims priority, application Germany, Feb. 18, 1969, P 19 08 752.6
Int. Cl. C08g 30/14

U.S. Cl. 260—47 EN 15 Claims
Process for hardening polyepoxides with dicyandiamide in the additional presence of a heterocyclic accelerator containing an imine group. Thermally hardenable mixtures comprising a polyepoxide, dicyandiamide, and such a heterocyclic accelerator. Hardening agents for polyepoxides comprising dicyandiamide and the reaction product of such a heterocyclic accelerator with a polyepoxide compound.

3,655,618

POLYVINYL HALIDE THIOETHER POLYMERS

Edward D. Well, Yonkers, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 651,689, July 7, 1967. This application Apr. 9, 1970, Ser. No. 27,115
Int. Cl. C08f 27/06, 27/07

U.S. Cl. 260—47 UP 5 Claims
Polyvinyl halide thioethers having aryl groups substituted on sulfur and wherein the polymers are of from 20,000 to 100,000 number average molecular weight are prepared by the displacement of halogen in polyvinyl halide with an aryl mercaptide in a polar solvent at elevated temperature in the presence of substantially equivalent amount of an alkali metal alkylate. The polymer is characterized by having substantially greater thermostability as compared to the unmodified polyvinyl halide polymer, good curability with formaldehyde in the manner of a phenolic and greater receptivity to dyes as compared to the unreacted polyvinyl halide, for example.

3,655,619

ALKOXYLATED MANNICH BASE URETHANE PREPOLYMER COMPOSITION AND METHOD OF PREPARATION

Lucien Sellet, Saddle River, N.J., assignor to Diamond Alkali Company
No Drawing. Original application Aug. 22, 1966, Ser. No. 573,789. Divided and this application Jan. 24, 1969, Ser. No. 807,154
Int. Cl. C08g 22/08

U.S. Cl. 260—47 CB 2 Claims
Treating agents which are the reaction product of an hydroxyl containing nitrogen compound, an isocyanate terminated urethane prepolymer and an acid or quaternizing agent, said reaction products being useful in the treatment of fibrous, porous and nonporous substrates.

3,655,620

2-CARBOXY-4,4,6-TRIMETHYL-2,5-HEPTADIENOIC ACID

Marc Julia, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Original application Oct. 9, 1967, Ser. No. 673,994, now Patent No. 3,558,659, dated Jan. 26, 1971. Divided and this application May 1, 1969, Ser. No. 843,249
Claims priority, application France, Oct. 12, 1966, 79,723; Feb. 24, 1967, 96,477, 96,478
Int. Cl. C07c 57/02

U.S. Cl. 260—537 N 1 Claim
Pyrocine, an intermediate in the preparation of chrysanthemic acid, is made by cyclizing 2-carboxy-4,4,6-trimethyl-2,5-heptadienoic acid.

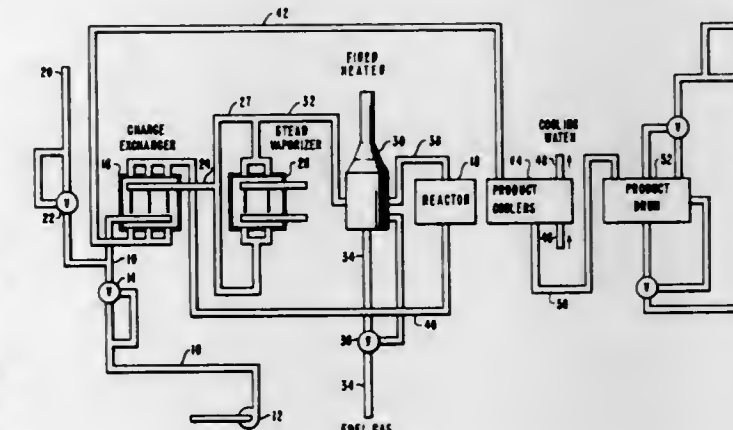
3,655,621

ADDING MERCAPTAN SULFUR TO A SELECTIVE HYDROGENATION PROCESS

Archibald S. Kasperik, Palos Verdes Estates, Calif., and Herbert A. Fuchs, El Dorado, Ark., assignors to Signal Oil and Gas Company, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 739,904, June 14, 1968, which is a continuation of application Ser. No. 490,518, Sept. 27, 1965. This application Mar. 23, 1970, Ser. No. 21,621
Int. Cl. C07c 11/08; C10g 23/02

U.S. Cl. 260—677 H 12 Claims



A process for reducing the sulfuric acid requirements of a C₄ hydrocarbon-containing alkylation feed comprises selectively hydrogenating acid polymerizable materials selected from the group consisting of butadiene, ethyl acetylene, and mixtures thereof to butylene in a C₄ hydrocarbon-containing stream in the presence of a pre-sulfided high nickel content catalyst and hydrogen in the vapor state at about 300–500° F. and in the presence of at least about 1 grain of mercaptan per 100 s.c.f. of the stream and in the substantial absence of sulfur-bearing nickel catalyst poisons.

3,655,622

POLYESTER RESINS FROM 5-CARBOXY-m-PHENYLENEDIACETIC ACID

Martin Hauser, West Hartford, Conn., and Christine Elizabeth Holnacki, Vienna, Va., assignors to American Cyanamid Company, Stamford, Conn.
No Drawing. Original application June 29, 1967, Ser. No. 651,648. Divided and this application June 3, 1969, Ser. No. 830,099
Int. Cl. C08g 17/04

U.S. Cl. 260—75 R 4 Claims
A new compound, i.e. 5-carboxy-m-phenylenediacetic acid, new carboxy-terminated polyester resins produced

therefrom with a saturated dicarboxylic acid and a saturated diol and rocket propellant compositions containing said polyesters as binders are disclosed.

3,655,623

SEGMENTED POLYURETHANES DERIVED FROM 2,5-DIISOPROPYL-P-XYLENE DIISOCYANATE
Elmore L. Martin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application Dec. 30, 1966, Ser. No. 605,967, now Patent No. 3,542,839. Divided and this application June 16, 1970, Ser. No. 46,816
Int. Cl. C08g 22/22

U.S. Cl. 260—77.5 AT 10 Claims
Segmented polyurethanes based on 2,5-diisopropyl-p-xylylene diisocyanate as capping reagent provide spandex fibers and films which exhibit high whiteness retention and high elastic power. The diisocyanate may be prepared from 2,5-diisopropyl-p-xylylenediamine.

3,655,624

MOLDING MATERIALS BASED ON EPOXIDE COMPOUNDS

Herbert Saran and Manfred Budnowski, Dusseldorf-Holt-Hausen, Germany, assignors to Henkel & Cie, GmbH, Dusseldorf-Holt-Hausen, Germany
No Drawing. Filed Aug. 19, 1968, Ser. No. 753,781
Claims priority, application Germany, Oct. 20, 1967, H 64,229
Int. Cl. C08g 30/14

U.S. Cl. 260—77.5 NC 2 Claims
This invention relates to a hardenable molding material based on organic compounds containing more than one epoxide group in the molecule consisting of (1) a mixture of organic compounds containing more than one epoxide group in the molecule, said mixture containing from 66 2/3% to 100% of solid triglycidyl isocyanurate and (2) an amine epoxide resin hardener prereaction product of (a) crystalline triglycidyl isocyanurate and (b) an amine, in such a proportion that from 5% to 30% of the amine groups of said amine are reacted with the epoxide groups of said crystalline triglycidyl isocyanurate. The invention also relates to the hardened epoxide resin produced by heating said hardenable molding material.

3,655,625

POLYURETHANE-CINNAMATE PHOTOPOLYMER
Daniel C. Thomas, Covina, Calif., assignor to Lithoplate, Inc., Covina, Calif.

No Drawing. Filed July 28, 1969, Ser. No. 845,548
Int. Cl. C08g 27/04

U.S. Cl. 260—77.5 AM 5 Claims
A blocked polyurethane resin, isocyanate terminated, with isocyanate groups treated with phenol, and then heated to drive off the phenol and reacted with a polyol, is reacted with a cinnamoylating agent to make a polyurethane cinnamate which is a photopolymer.

3,655,626

INTERPOLYCARBONATES FROM 9,10-BIS(HYDROXYMETHYL)-S-OCTAHYDROANTHRA-CENE-BIS(ALKYL OR ARYL CARBONATES)
Marjan Kolobijski, Baltimore, Md., assignor to United States Steel Corporation

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,637
Int. Cl. C08g 17/13

U.S. Cl. 260—77.5 5 Claims
Linear, highly polymeric interpolycarbonates of 9,10-bis(hydroxymethyl)-s-octahydroanthracene-bis(alkyl or aryl carbonate) copolymerized with a bis(carbonate) of a polyoxyethylene glycol of s-octahydroanthracene or

with a bis(carbonate) of an aliphatic glycol. The interpolycarbonates melt between about 200° and 300° C. and can be fabricated into fibers, extrusions or molded articles by ordinary commercial means.

3,655,627

PROCESS FOR PREPARING SOLID PARTICLES OF UREA-URETHANE POLYMERS
George J. Hutzler, Williamsville, and Basil S. Farah, Elma, N.Y., assignors to Textron Inc.

No Drawing. Filed June 19, 1969, Ser. No. 834,859
Int. Cl. C08g 22/04

U.S. Cl. 260—77.5 AA 27 Claims
Urethane prepolymer compositions made from diisocyanates and polyols are reacted in an aqueous medium with primary diamines, e.g., 1-amino-3-aminomethyl-3,5,5-trimethyl cyclohexane, to give solid, particulate urea-urethanes which can be formed as films such as coatings on a substrate or as independent sheets, or the urea-urethanes can be formed as materials of greater thickness or as fibers. The products exhibit good strength and elastomeric characteristics and other desirable properties, and especially when made from aliphatic polyols, aliphatic diisocyanates and aliphatic diamines, the products have high resistance to the discoloring effects of ultra-violet light. The polyol of the composition can, for example, have as its major component aliphatic polyol. The glycols, especially the polyether glycols, are suitable polyol reactants. A variety of diisocyanates can be employed and can be aliphatic, cycloaliphatic, or aromatic.

3,655,628

NOVEL COPOLYMERS OF α -AMINO ACID-N-CARBOXYLIC ANHYDRIDE WITH ORGANIC ISOCYANATES AND PROCESS FOR PREPARING THE SAME

Shinzi Uchida, Hiroshi Nishizawa, and Yasuo Sone, Hitachi-shi, Japan, assignors to Hitachi Chemical Company Ltd., Tokyo, Japan

No Drawing. Filed Dec. 24, 1969, Ser. No. 888,028
Claims priority, application Japan, Dec. 27, 1968, 44/95,479

Int. Cl. C08g 22/00

U.S. Cl. 260—77.5 CA 10 Claims
Novel polypeptide-polyurea copolymers are prepared by dissolving an α -amino acid-N-carboxylic anhydride and an organic isocyanate in an organic solvent, adding to the resulting solution an organic amine as a reaction initiator and then reacting the resulting mixture at room temperature or an elevated temperature, preferably at a temperature within the range of room temperature to 70° C.

3,655,629

POLYCONDENSED ACID COMPOSITION AND PRODUCTION THEREOF

Masaki Takahara, 13 Sakurano-cho, 6-chome, Toyonaka-shi, Osaka-fu, Japan

No Drawing. Filed Jan. 14, 1970, Ser. No. 2,966
Int. Cl. C08f 3/60, 3/70, 3/80

U.S. Cl. 260—78.4 D 11 Claims
A polycondensed acid composition soluble in alkali solution and having an acid value of 30 to 250 and a softening point of 0 to 150° C., which is obtained by polycondensing an olefinic hydrocarbon (having a boiling point ranging from 20 to 300° C. and being abundant in hydrocarbons of 5 to 11 carbon atoms) with an unsaturated carboxylic acid or its anhydride in the presence of a radical catalyst together with a dehydrating catalyst at 20 to 180° C. The resultant resinous product is useful as a paper sizing agent, an emulsifier for polymerization in synthetic rubber production, a resin for paint and printing ink, etc.

3,655,630

HIGH STRENGTH CRYSTALLINE ORIENTED FILAMENTS

Joseph Zimmerman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 693,725, Dec. 27, 1967. This application June 16, 1969, Ser. No. 833,768

Int. Cl. B29c 17/02; C08g 20/00
U.S. Cl. 260—78 10 Claims

This invention relates to polyamide filaments having a new crystal structure, whereby yarns of high tenacity and high thermal stability are produced.

3,655,631

POLYMERISATION PROCESS

James R. Fraser, Luton, and Victor F. Jenkins, St. Albans, England, assignors to Laporte Industries Limited, London, England

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,525
Claims priority, application Great Britain, Nov. 20, 1968, 55,163/68

Int. Cl. C08g 17/017
U.S. Cl. 260—78.3 R 13 Claims

Delta, epsilon, and zeta lactones are polymerized in the presence of strong organic acids such as halogen activated carboxylic acids or sulfonic acids as catalyst and compounds of the formula L—CH₂OH as initiator wherein L contains ethylenic unsaturation activated by amide or ester linkages. The resulting terminally unsaturated polylactones are suitable for copolymerization with ethylenically unsaturated monomers.

3,655,632

PROCESS FOR THE PRODUCTION OF AROMATIC POLYBENZIMIDAZOLES

Yoshio Ohfuji, Kurashiki, and Tamotsu Eguchi, Okayama, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

No Drawing. Filed Sept. 15, 1970, Ser. No. 72,537
Int. Cl. C08g 33/02

U.S. Cl. 260—78.4 N 10 Claims
A high molecular weight aromatic polybenzimidazole can be readily obtained by heating a mixture of an aromatic tetramine and an aromatic dinitrile in the presence of an ammonium salt of an inorganic acid or an organic sulfonic acid.

3,655,633

METHOD OF SILYLATING ORGANIC VINYLIC POLYMERS

John C. Saam, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed Aug. 25, 1970, Ser. No. 66,894
Int. Cl. C08g 23/00

U.S. Cl. 260—79 10 Claims
Polymerizing organic vinyl monomers by means of free radical initiation in the presence of organosilicon compounds having a chain transfer constant greater than 10⁻³ is a useful method for silylating organic vinyl polymers.

3,655,634

THIIRANE COPOLYMERS

Bernard Boucheron, Bethune, Paris, France, assignor to Societe Ethylene Plastique, Paris, France

No Drawing. Filed Sept. 8, 1970, Ser. No. 70,575
Claims priority, application France, Sept. 16, 1969, 6931476

Int. Cl. C08g 23/00
U.S. Cl. 260—79 9 Claims

Novel thermo-stable copolymers of thiirane are disclosed, these being statistical or sequential copolymers of thiirane and N,N'-methylene-bis-acrylamide containing

from 0.1 to 5 mole percent of units derived from N,N'-methylene-bis-acrylamide. They are obtained by polymerisation in a medium containing a polar aprotic solvent and an alkali metal or alkali metal derivative as initiator.

3,655,635

TALL OIL ROSIN OF LOW SULFUR CONTENT

Thomas F. Sanderson, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Jan. 28, 1969, Ser. No. 794,762
Int. Cl. C09f 1/02

U.S. Cl. 260—97.7 6 Claims
Disclosed is a process for removing sulfur compound impurities from tall oil rosin by dissolving tall oil rosin in a solvent followed by crystallization of the rosin component of the resulting solution.

3,655,636

PROCESS FOR THE SYNTHESIS OF PEPTIDES USING 4-PYRIDYLMETHYL AND RELATED GROUPS FOR THE PROTECTION OF C-TERMINAL CARBOXYL GROUPS

Geoffrey Tyndale Young, Oxford, England, assignor to National Research Development Corporation, London, England

No Drawing. Filed Sept. 3, 1968, Ser. No. 757,119
Claims priority, application Great Britain, Sept. 4, 1967, 40,286/67; Apr. 10, 1968, 17,321/68

Int. Cl. C07c 103/52, 31/32, 31/34
U.S. Cl. 260—112.5 12 Claims

In peptide synthesis peptides are purified by transferring them from the phase in which they have been prepared to a second phase, separated from impurity which remains in the first phase, and transferred back to a liquid phase to give a solution of purified peptide for a further coupling step if necessary. The peptide may be purified by binding it to an ion exchanger in a solid second phase or by taking it into a liquid second phase by solvent extraction. This purification uses novel peptide esters in which the ester protecting a terminal carboxyl contains a basic group, the preferred protecting group being 4-pyridylmethyl, which is stable to hydrogen bromide in acetic acid and to trifluoroacetic acid but which may be removed by hydrogenation, or treatment with aqueous alkali or ammonia or hydrazine. Using the 4-pyridylmethyl protecting group, amino acids and peptides are coupled in homogeneous solution in the conventional manner and examples describe the preparation of di-, tri- and tetra-peptides in which the product is insolubilized on SE-Sephadex after each coupling, and of an octapeptide, 1-L-(α)-aspartic acid-5-L-valine antitoxin II, in which the product is purified by transfer to aqueous citric acid after each coupling.

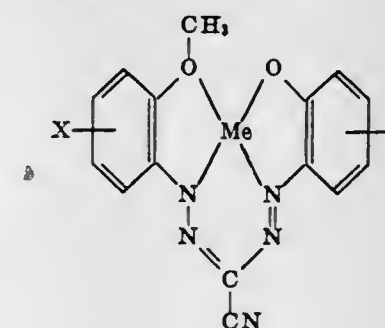
3,655,637

METAL COMPLEX DISPERSE FORMAZANE DYES FOR POLYAMIDE

Karl Heinz Lohmann, Toms River, N.J., assignor to Toms River Chemical Corporation, Toms River, N.J.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,807
Int. Cl. C09b 45/00; D06p 1/18, 3/26

U.S. Cl. 260—149 12 Claims
Compounds of the formula



wherein Me is copper or nickel, and X and Y are individually hydrogen, halogen such as chlorine or bromine, lower alkyl such as methyl, ethyl, propyl and butyl, lower alkoxy such as methoxy, ethoxy, propoxy or butoxy, nitro, acetamino, sulfamoyl or lower alkyl sulfonyl provide blue and violet dyeings of very good fastness and dyeing properties, particularly light and atmospheric fading fastness and excellent leveling characteristics on synthetic polyamide fibers. These dyes can also be applied on polyester and polyester blend fabrics by padding a dispersion of the dye, drying and subjecting the padded fabrics to dry heat, e.g., 210° C. for 60 seconds.

3,655,638

AZO DYESTUFFS CONTAINING TRIAZINES AND VATTABLE POLYCYCLIC QUINONES

Paul Ulrich, Basel, and Christoph Frey, Oberwil, Basel-Land, Switzerland, assignors to Ciba Geigy AG, Basel, Switzerland

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,169
Claims priority, application Switzerland, Feb. 8, 1968, 1,860/68; Dec. 13, 1968, 18,662/68

Int. Cl. C09b 62/08

U.S. Cl. 260—153

11 Claims

Dyestuffs wherein a six-membered heterocyclic ring containing three nitrogen atoms as ring members is bound to two vatable chromophores free from sulphonic acid groups to each through an —NH— bridge, and through an —O— or —NH— bridge to a non-metallizable azo dyestuff residue, are valuable vat dyestuffs with excellent properties of wet fastness and surprising properties in respect of application.

3,655,639

MONOAZO DYESTUFFS CONTAINING AN ALKOXY TRIAZINE

Henri Riat, Arlesheim, and Fritz Oesterlein, Basel, Switzerland, assignors to Ciba Geigy AG, Basel, Switzerland

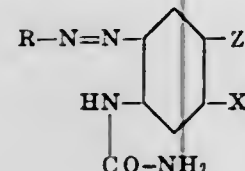
No Drawing. Filed May 13, 1969, Ser. No. 824,315
Claims priority, application Switzerland, May 17, 1968, 7,296/68

Int. Cl. C09b 62/08

U.S. Cl. 260—153

11 Claims

Monoazo dyestuffs of the formula



in which R represents a trisulphonic acid naphthyl-(2) residue, Z represents a hydrogen atom or a low-molecular alkyl or alkoxy group and X represents the residue of a 4-chloro- (or-bromo) - 2 - alkoxy - 1,3,5-triazine bound through an —NH— bridge.

3,655,640

WATER SOLUBLE LITHIUM-N-BENZOYL-2-[[1-(DICHLOROPHENYL)-3-METHYL-5- OXO-2-PYRAZOLIN-4-YL]AZO]SULFONATES

Robert C. Hoare, Hamburg, N.Y., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Apr. 23, 1969, Ser. No. 818,821

Int. Cl. C09b 29/38; D06p 1/06

U.S. Cl. 260—162

2 Claims

Lithium-N-benzoyl-2-[[1-(dichlorophenyl)-3-methyl-5-oxo-2-pyrazolin-4-yl]azo]sulfonates of excellent water solubility adapted for dyeing polyamide fibers in bright greenish yellow shades, fast to light and washing.

3,655,641 UNSYMMETRICAL DISAZO PIGMENTS DERIVED FROM DICHLOROBENZIDINE AND ACETYL-ARYLAMIDES

Alexander Hamilton, Glasgow, Scotland, assignor to Ciba-Geigy AG, Basel, Switzerland

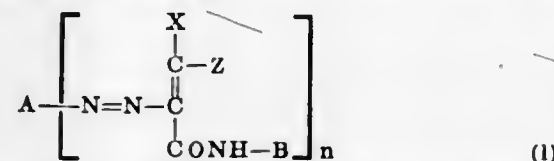
No Drawing. Filed June 5, 1969, Ser. No. 830,856
Claims priority, application Great Britain, June 5, 1968, 26,671/68

Int. Cl. C09b 43/00; C09d 11/00

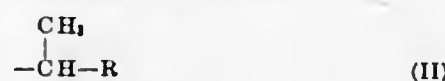
U.S. Cl. 260—176

6 Claims

Colourants suitable for use, e.g. in gravure inks, are azo compounds of the formula



wherein A represents an unsubstituted or substituted aryl residue; B represents an unsubstituted or substituted aryl residue; X represents an alkyl group having from 1 to 4 carbon atoms or a phenyl group; n represents 1 or 2; and when n is 1, Z represents —NH—Y, wherein Y represents either a group having the formula:



or the group:



wherein R is an aliphatic radical having from 5 to 18 carbon atoms and Q is an alkylene group having up to 5 carbon atoms, and when n is 2 either each Z represents the group —NH—Y or one Z represents —NH—Y and the other Z is —OH, Y being as defined hereinbefore. The colourants possess greater colour value than those known products obtained by heating together certain azoacylacetylarnides and primary aliphatic amines.

3,655,642

WATER-SOLUBLE MONOAZO DYESTUFFS CONTAINING A NAPHTHALENE DIAZO COMPONENT

Fritz Meininger, Frankfurt am Main, and Klaus Hunger, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

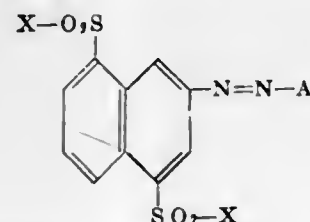
No Drawing. Filed Aug. 19, 1969, Ser. No. 851,431
Claims priority, application Germany, Aug. 24, 1968, P 17 93 275.1

Int. Cl. C09b 29/16

U.S. Cl. 260—194

8 Claims

A water-soluble monoazo dyestuff having in form of the free acid the formula



wherein X represents —CH=CH2, —CH2—CH2—OH,

—CH2—CH2—O—SO3H, —CH2—CH2—S—SO3H

—CH2—CH2—O—PO3H2, —CH2—CH2—Cl

—CH2—CH2—Br, —CH2—CH2—O—SO2—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

—CH2—CH2—O—SO2—C6H4—CH2—CH2—O—C(=O)—CH3

droxyphenylene substituted by lower alkyl, lower alkoxy or sulfo; hydroxynaphthylene, hydroxynaphthylene substituted by lower alkyl, lower alkoxy, sulfo, acetoacetylamin, benzoylamino, acryloylamino, 2,6-dichloro-s-triazinylamino, 2-chloro-6-amino-s-triazinylamino, 2,6-dihydroxy-s-triazinylamino, sulfoacetylamin or N-acetyl-N-methylamino; aminonaphthylene, aminonaphthylene substituted by sulfo or hydroxyl; 2-hydroxy-3-naphthoic acid anilide, 2-hydroxy-3-naphthoic acid anilide substituted on the benzene nucleus of the anilide radical by lower alkyl, lower alkoxy or chlorine or bromine; 2-hydroxy-3-naphthoic acid naphthylide, 2-hydroxy-3-naphthoic acid naphthylide substituted on the naphthalene nucleus of the naphthylide radicals by lower alkyl, lower alkoxy or chlorine or bromine; 1-phenyl-5-pyrazolone being substituted in the 3-position by lower alkyl, lower alkoxy, carb-lower alkoxy, carboxyl or carbamyl; 1-phenyl-5-pyrazolone being substituted in the 3-position by lower alkyl, lower alkoxy, carb-lower alkoxy, carboxyl or carbamyl and on the phenyl ring by chlorine, bromine or sulfo, 1-naphthyl-5-pyrazolone being substituted in the 3-position by lower alkyl, lower alkoxy, carb-lower alkoxy, carboxyl or carbamyl and on the naphthyl ring by chlorine, bromine or sulfo; said dyestuffs which have a high tinctorial strength being suitable for the dyeing or printing of fibrous materials consisting of wool, silk, polyamide fibres and native or regenerated cellulose fibres, the dyeings and prints obtained on said materials being distinguished by clear shades, good stability towards alkaline agents and dry cleaning, high degree of fixation and good to very good fastness properties to wetting and to light.

3,655,643

14β-HYDROXY-15α-ACYLOXY-CARDENOLIDES

Hans-Gunter Lehmann, Georg Zollner, and Rudolf Wiechert, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

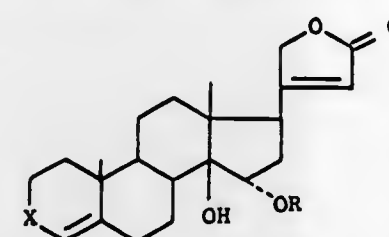
No Drawing. Filed July 27, 1970, Ser. No. 58,652
Claims priority, application Germany, July 29, 1969, P 19 39 164.1

Int. Cl. C07c 173/00

U.S. Cl. 260—210.5

21 Claims

14β-hydroxy-15α-acyloxy-cardenolides of the formula



wherein —OR is an esterified hydroxy group and X is >C=O or >CH—OR' in which —OR' is a free or esterified hydroxy group, tetrahydropyranloxy group or similar readily cleavable glycoside group are cardioactive compounds which increase heart strength without reducing heart frequency.

3,655,644

DERIVATIZED STARCH THINNING WITH HYDROGEN PEROXIDE

Harry Walter Durand, Muscatine, Iowa, assignor to Grain Processing Corporation, Muscatine, Iowa

No Drawing. Filed June 3, 1970, Ser. No. 43,211

Int. Cl. C08b 19/01

U.S. Cl. 260—233.3 R

4 Claims

Thinning of derivatized starch is accomplished with the use of hydrogen peroxide under alkaline conditions required for the derivatization.

The temperature at which thinning of derivatized starches is accomplished with the use of hydrogen peroxide is in the range of 80° to 130° F. and at a pH in the range of 7.0 to 12.0. A catalytic material such as copper ion is used in the amount of 5 parts to 100 parts per million based on the weight of starch to assist the thinning action of the hydrogen peroxide.

3,655,645

ESTERS OF ALKOXYLATED SACCHARIDES

Pierre Jacques, Tienen, Belgium, assignor to Raffinerie Tirlemontoise, Brussels, Belgium

No Drawing. Filed Nov. 28, 1967, Ser. No. 686,294
Claims priority, application Luxembourg, Dec. 2, 1966, 52,504; Nov. 17, 1967, 52,904

Int. Cl. C07c 69/32

U.S. Cl. 260—234 R

10 Claims

A process for the preparation of organic compositions comprising reacting simultaneously: one or more organic substances having one or more functional groups with a shiftable hydrogen, such as a saccharide; one or more organic substances with acid character and/or mineral salts or anhydrides thereof, such as a fatty acid or a fatty acid salt; and one or more oxyalkylation substances, such as an alkylene oxide or an alkylene imine, with or without a solvent is disclosed herein. The compositions prepared are useful, as for example, as a detergent.

3,655,646

TRIALOTHIONOACETAMIDES

Lowell R. Smith, St. Louis, and Angelo John Speziale, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Original application July 22, 1963, Ser. No. 296,427, now Patent No. 3,373,200, dated Mar. 12, 1968. Divided and this application Apr. 18, 1967, Ser. No. 631,594

Int. Cl. C07d 27/04, 29/36, 41/04

U.S. Cl. 260—239 B

2 Claims

Compounds of the class of trihalothionoacetamides useful for the inhibition of the germination and preemergent growth of grasses.

3,655,647

AZEPINOINDOLONES

Jackson B. Hester, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

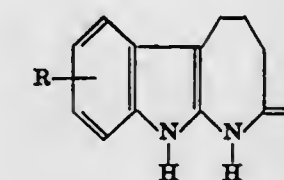
No Drawing. Original application Oct. 21, 1966, Ser. No. 588,288, now Patent No. 3,514,462. Divided and this application Mar. 16, 1970, Ser. No. 24,461

Int. Cl. C07d 57/02

U.S. Cl. 260—239.3

2 Claims

A 3,4,5,10 - tetrahydroazepino[2,3-b]indol - 1(2H)-one represented by the formula



wherein R is a member of the group consisting of hydrogen, alkyl, alkoxy, and halo radicals, wherein the alkyl and alkoxy radicals contain from 1 to 3 carbon atoms, inclusive. Useful intermediate for preparation of pharmacologically active compounds.

3,655,648

2,5-BENZODIAZONIN-3-ONES

William J. Houlihan and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application Mar. 17, 1967, Ser. No. 623,850, now Patent No. 3,551,411, dated Dec. 29, 1970. Divided and this application July 7, 1970, Ser. No. 52,991

Int. Cl. C07d 53/00, 57/04

U.S. Cl. 260—239.3 B

2 Claims

This invention relates to nitrogenous heterocyclic compounds which are useful as anti-depressants. The compounds are of three classes, i.e. (A) 4-loweralkyl-2-oxo-1,2,3,5,6,10b-hexahydroimidazo[2,1-a]isoquinolinium halides, e.g. 8,9-dimethoxy-4-methyl-1,2,3,5,6,10b-hexahydroimidazo[2,1-a]isoquinolinium iodide; (B) 5-loweralkyl-2,5-benzodiazonin-3-ones, e.g. 9,10-dimethoxy-5-methyl-2,5-benzodiazonin-3-one; and (C) 5-loweralkyl-2,5-diazonines, e.g. 9,10-dimethoxy-5-methyl-2,5-benzodiazonine bismaleate. Compounds (A) may be obtained by treating a 1,2,3,5,6,10b-hexahydroimidazo[2,1-a]isoquinolin-2-one with a lower alkyl halide, e.g. methyl iodide. Compounds (B) may be obtained by reducing compounds (A) with sodium in liquid ammonia. Compounds (C) may be obtained by reducing compounds (B) with lithium aluminum hydride.

3,655,649

PROCESS FOR THE PREPARATION OF 19-NORSTERIODS

Gerhard Habermehl, Seligenstadt, and Arthur Haaf, Ober-Ramstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

No Drawing. Filed Oct. 22, 1969, Ser. No. 868,570
Claims priority, application Germany, Oct. 25, 1968, P 18 05 236/3

Int. Cl. C07c 169/10, 169/34

U.S. Cl. 260—239.5

14 Claims

Pharmacologically and chemically useful 19-nor-3-keto- Δ^4 -steroids, e.g. norethisterone, are prepared by reacting a 19-hydroxy-3-keto- Δ^4 -steroid with a secondary amine to form the corresponding 19-nor-3,5-diene-3-amine. The latter is then hydrolyzed in a conventional manner with optionally additional steroid reactions being conducted subsequently or simultaneously.

3,655,650

PROCESSES FOR THE PREPARATION OF 5 β -H-6-KETO STEROIDS

Andor Fürst and André Furlenmeier, Basel, Albert Langemann, Binningen, and Guy Waldvogel, Riehen, Switzerland, and Peter Hocks, Ulrich Kerb, and Rudolf Wiechert, Berlin, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Feb. 29, 1968, Ser. No. 709,238. Divided and this application June 1, 1970, Ser. No. 42,595

Claims priority, application Switzerland, Aug. 13, 1965, 11,430/65; Oct. 8, 1965, 13,907/65; Jan. 28, 1966, 1,231/66; Mar. 24, 1966, 4,336/66; Germany, Sept. 24, 1965, Sch 37,774; Oct. 15, 1965, Sch 37,892; Jan. 27, 1966, Sch 38,384; Jan. 29, 1966, Sch 38,399

Int. Cl. C07c 167/16, 173/00

U.S. Cl. 260—239.55

5 Claims

This invention is directed to processes for the synthesis of 2,3-substituted-5 β -H-6-keto-steroids which are useful as metamorphosis hormones and are additionally useful as intermediates for the production of other insect hormones.

3,655,651

2-METHYL-5-PHENYL-1,2-DIHYDRO-3H-2-BENZ-AZEPINE OR A SALT THEREOF AND PROCESS FOR PREPARING SAME

David N. Harcourt and James R. Brooks, Bath, England, assignors to Allen & Hamburys Limited, London, England

No Drawing. Filed Mar. 5, 1970, Ser. No. 16,960
Claims priority, application Great Britain, July 17, 1969, 36,027/69

Int. Cl. C07d 41/08

U.S. Cl. 260—239 BB

6 Claims

The compound 2-methyl-5-phenyl-1,2-dihydro-3H-2-benzazepine and salts thereof are provided as well as a process for their production by the cyclization of 3-(N-benzylmethylamino)-1-phenyl-prop-1-yne. The compound has a sedative-hypnotic effect.

3,655,652

AROMATICALLY-UNSATURATED 9 α -METHYL STEROIDS

Robert V. Coombs, Summit, and Eugene E. Galantay, Morristown, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed July 23, 1969, Ser. No. 844,183

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 C

11 Claims

The compounds are 13-(lower)alkyl-9 α -methyl-gona-1,3,5(10)-trienes which may be substituted at the 3 and 17 positions, e.g., 3-methoxy-9 α -methylestra-1,3,5(10)-trien-17-one. The compounds are useful as pharmaceuticals.

3,655,653

PROCESS FOR PRODUCING 4,6-DIHALOPREGNA-4,6-DIENE

Richard Wightman Kierstead and Perry Rosen, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,323

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

25 Claims

A process for producing 4,6-dichloro-16-alkylidenepregna-4,6-diene-3,20-diones useful as progestational agents from 3-lower alkanoyloxy-17-hydroxy-16-alkylidene-pregn-5-en-20-ones, and intermediates therein.

3,655,654

DIPHENYLETHYLENE DERIVATIVES

Shigeyoshi Kitamura, Toyonaka, Hajime Hirai, Minoo, Yositosi Okuno, Toyonaka, and Keimel Fujimoto, Kobe, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Mar. 10, 1970, Ser. No. 18,349

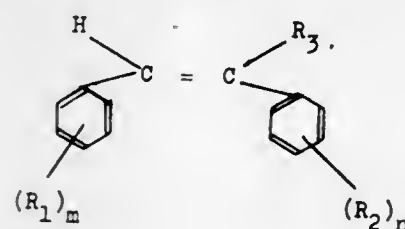
Claims priority, application Japan, Mar. 28, 1969, 44/24,230; Apr. 10, 1969, 44/27,918

Int. Cl. C07d 13/10

U.S. Cl. 260—240 D

5 Claims

1,2-diphenylethylene derivatives represented by the formula,



wherein R₁ and R₂ are respectively hydrogen, an alkyl, an alkoxy, methylenedioxy group bonded to two carbon

atoms adjacent to each other on the benzene ring, or a halogen, R₃ is a group of —COOR or —CH₂OR in which R is propargyl or allyl, and m and n are an integer of 1 to 5, and when m and/or n are an integer of 2 or more, the R₁'s and/or R₂'s may be the same or different. The 1,2-diphenylethylene derivatives may be useful as synergists.

3,655,655

PROCESS OF PREPARING 5-BENZYL-3-FURAN-METHANOL AND INTERMEDIATES THEREFOR

Gino R. Treves, Princeton, Pa., assignor to FMC Corporation, New York, N.Y.

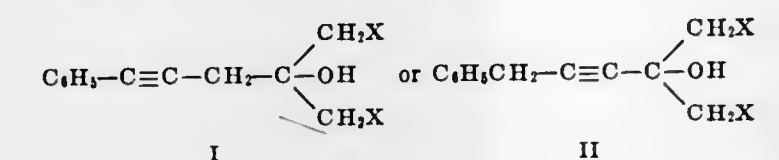
No Drawing. Filed Oct. 31, 1969, Ser. No. 875,603

Int. Cl. C07d 5/20

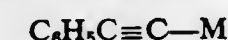
U.S. Cl. 260—240 D

12 Claims

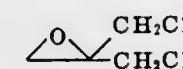
5-benzyl-3-furanmethanol, a useful intermediate for producing insecticides of low mammalian toxicity, is prepared by heating at about 100° C. and in the presence of a hydrolyzing agent an acetylene compound of the formulae:



wherein X is —OH or a group hydrolyzable to —OH. Where X is chlorine, I is derived by reacting



with



while II is derived from C₆H₅CH₂C≡CM and CO(CHX) where M represents an alkali metal or Mg halide.

3,655,656

CRYSTALLINE CEPHALEXIN MONOHYDRATE
Earle M. Van Heyningen, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 818,138, Apr. 21, 1969. This application June 4, 1970, Ser. No. 43,597

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

2 Claims

Cephalexin monohydrate is obtained as dense, large crystals, useful in formulations of the antibiotic, by precipitating cephalexin from an aqueous solution of its salt at a temperature above about 60° C. or by spraying anhydrous cephalexin with excess water and drying to constant weight.

3,655,657

2,1,4-BENZOTHIADIAZINE-3-CARBAMIC ACID ESTERS

John B. Adams, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 14,212, Feb. 24, 1970. This application Oct. 20, 1970, Ser. No. 82,529

Int. Cl. C07d 93/30

U.S. Cl. 260—243 R

8 Claims

A group of substituted 1H-2,1,4-benzothiadiazine-3-carbamic acid esters are useful for controlling fungi and mites. These compounds can be prepared by the reaction of an o-nitroaniline with an alkoxycarbonyl isothiocya-

nate followed by the alkaline hydrosulfite reduction of the intermediate formed.

A compound exemplary of the group is 1H-2,1,4-benzothiadiazine-3-carbamic acid, methyl ester.

3,655,658

7(α-AMINO-α-PHENYLACETAMIDO)-CEPHALOSPORANATE ESTERS

Wagn Ole Godtfredsen, Vaerlose, Denmark, assignor to Lovens Kemiske Fabrik Produktionsaktieselskab, Ballerup, Denmark

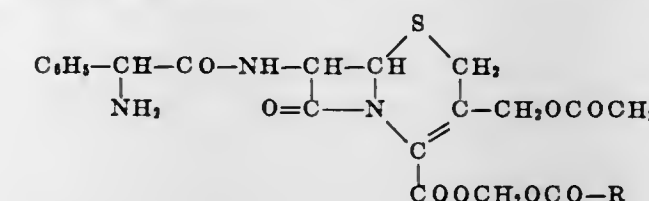
No Drawing. Filed Jan. 28, 1969, Ser. No. 794,751
Claims priority, application Great Britain, Jan. 30, 1968, 4,821/68

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

6 Claims

The invention relates to new cephalosporanic acid esters of the formula



and their salts with non-toxic, pharmaceutically acceptable acids, R is said formula representing hydrogen, an alkyl group, a cycloalkyl group, a cycloalkyl-alkyl group, or an aralkyl group, to methods of producing the said compounds, and to pharmaceutical preparations containing the said compounds as active ingredients.

3,655,659

3-THIADIAZOLYL-TETRAHYDRO-1,3,5-OXADIAZIN-4-ONES

Patrick R. Driscoll, Spotswood, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,916
Int. Cl. C07d 91/62

U.S. Cl. 260—244 R

6 Claims

3-thiadiazolyltetrahydro-1,3,5-oxadiazin-4-ones form a new class of herbicides. They are effective as both pre-emergence and post-emergence herbicides. They are highly effective against crabgrass, Johnson grass, barnyard grass, pigweed, and turnip (representative of weedy mustards).

3,655,660

PROCESS FOR PREPARING PHTHALAZONE

Pierre Raoul, Epinay-sur-Orge, France, assignor to Pechiney-Saint Gobain, Neuilly-sur-Seine, France

No Drawing. Filed Sept. 21, 1970, Ser. No. 74,221
Int. Cl. C07d 51/06

U.S. Cl. 260—250 A

7 Claims

A process for preparation of phthalazone by reaction of 3-acetoxy-phthalide with hydrazine hydrate in aqueous solution.

3,655,661

BENZOTHIADIAZOLE COMPOUNDS

Burton K. Wasson, Valois, Quebec, Canada, assignor to Charles E. Frosst and Co.

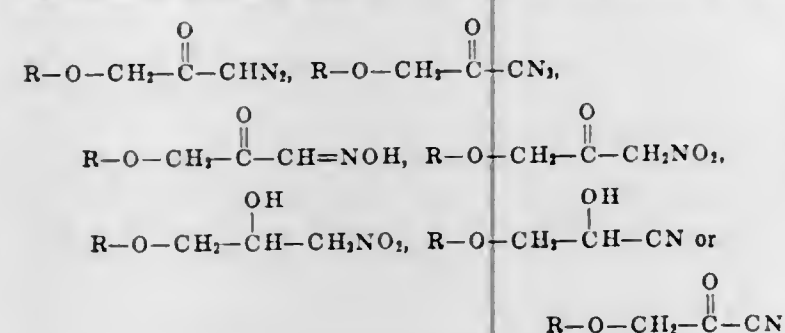
No Drawing. Filed May 22, 1968, Ser. No. 731,334
Int. Cl. C07d 91/68

U.S. Cl. 260—247.1

5 Claims

5-[3-(substituted amino)-2-hydroxypropoxy]-2,1,3-benzothiadiazole compounds which exhibit β -adrenergic blocking properties and thus are useful in the management of angina pectoris are described. The products are prepared by one of two principal methods (1) reaction of a 5-hydroxy-2,1,3-benzothiadiazole with epihalohydrin

to provide 5-(3-halo-2-hydroxypropoxy)-2,1,3-benzothiadiazole which, upon treatment with alkali, forms the epoxide which is then reacted with an amine to provide the desired product; and (2) reductive alkylation of an



wherein R is the 2,1,3-benzothiadiazol-5-yl group.

3,655,662

PROCESS FOR THE MANUFACTURE OF DIHALO- GENTRIAZINE DERIVATIVES

Karl Seltz, Oberwil, Basel-Land, Guenter Klahre, Reinach, Basel-Land, and Henri Rlat, Arlesheim, Switzerland, assignors to Ciba Limited, Basel, Switzerland
No Drawing. Filed Aug. 20, 1969, Ser. No. 851,732
Claims priority, application Switzerland, Sept. 10, 1968, 13,510/68

Int. Cl. C07d 55/48

U.S. Cl. 260—248 CS

7 Claims

Process for the manufacture of dihalogentriazine derivatives by condensation of cyanuric halides with alcohols in the presence of inorganic phosphates.

3,655,663

4-(3-SECONDARY AMINO-2-HYDROXY-PROXY)- 1,2,5-THIADIAZOLES

Burton K. Wasson, 103 Broadview Ave.,
Valois, Quebec, Canada

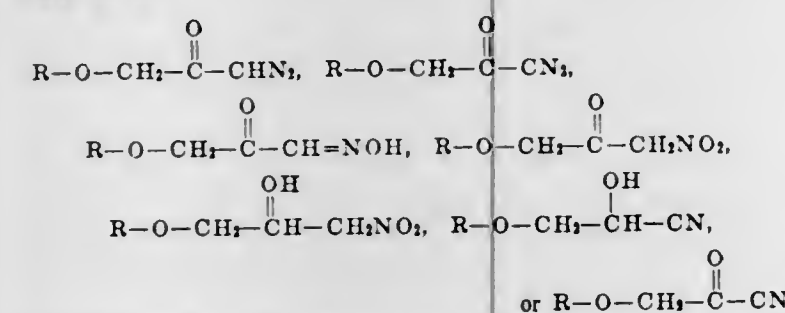
No Drawing. Continuation-in-part of application Ser. No. 731,333, May 22, 1968. This application Apr. 21, 1969, Ser. No. 818,090

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

26 Claims

4-[3-(substituted amino)-2-hydroxypropoxy]-1,2,5-thiadiazole compounds, optionally substituted in the 3-position of the thiadiazole nucleus which exhibit β -adrenergic blocking properties and thus are useful in the management of angina pectoris are described. The products are prepared by one of four principal methods (1) reaction of a 4-hydroxy-1,2,5-thiadiazole with epihalohydrin to provide 4-(3-halo-2-hydroxypropoxy)-1,2,5-thiadiazole which, upon treatment with alkali, forms the epoxide which is then reacted with an amine to provide the desired product; (2) reaction of a 3-chloro(or bromo)-4-(3-substituted amino-2-hydroxypropoxy)-1,2,5-thiadiazole with an amine or an N-containing heterocycle that replaces the 3-chloro group; (3) reaction of 3-carboxy-4-allyloxy-1,2,5-thiadiazole with N-bromosuccinimide followed by esterification to give the alkyl ester of 3-carboxy-4-(3-bromo-2-hydroxypropoxy)-1,2,5-thiadiazole which upon treatment with an amine forms a 3-carbamoyl-4-(3-substituted amino-2-hydroxypropoxy)-1,2,5-thiadiazole and (4) reductive alkylation of an



wherein R is the 1,2,5-thiadiazole-4-yl group.

3,655,664
2-ARYL-4(3H)-QUINAZOLINONES
Richard Pater, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Dec. 12, 1968, Ser. No. 783,401
Int. Cl. C07d 51/48

U.S. Cl. 260—251 QA

8 Claims

Process for preparing 2-phenyl-4(3H)-quinazolinone and derivatives thereof by heating a benzamide with an isatoic anhydride, which quinazolinones are useful as fluorescent agents, ultraviolet screens and the like.

3,655,665

PROCESS FOR THE PRODUCTION OF 5-CYANO-URACILS

Hubert Meindl and Hans Ackermann, Riehen, and Fred von Kaenel, Arlesheim, Switzerland, assignors to Ciba-Gelby AG, Basel, Switzerland
No Drawing. Original application Apr. 4, 1966, Ser. No. 539,630, now Patent No. 3,496,214, dated Feb. 17, 1970. Divided and this application Nov. 20, 1968, Ser. No. 791,831

Claims priority, application Switzerland, Apr. 8, 1965, 4,960/65

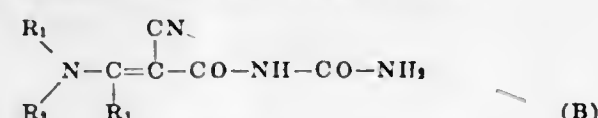
Int. Cl. C07d 51/30

U.S. Cl. 260—260

4 Claims

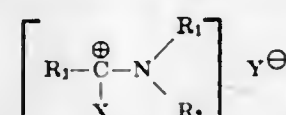
A process for the production of 5-cyano-uracils is described comprising

(a) ring closing a compound of the formula



in the presence of an alkaline condensing agent at a temperature of from about 30 to 150° C., or

(b) reacting a complex of the formula



with cyanacetyl urea, thereby obtaining the compound of the above Formula B and ring closing said compound with an alkaline condensing agent.

The 5-cyano-uracils obtained are valuable intermediates in the synthesis of dyestuffs.

3,655,666

2,4-DI-(4-ARYLPYPERAZINO)-3-PENTANONES FOR TREATING SCHISTOSOMIASIS

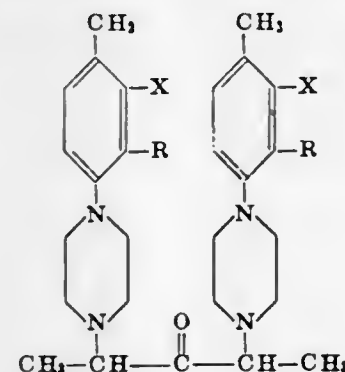
Herschel D. Porter, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Original application Nov. 24, 1969, Ser. No. 879,631. Divided and this application Mar. 5, 1971, Ser. No. 121,543

Int. Cl. C07d 51/70

U.S. Cl. 260—268 PH

1 Claim

2,4-di-(4-arylpiperazino)-3-pentanones represented by the formula



wherein X is halo, and R is hydrogen or methyl. The compounds of this invention are useful for the treatment of schistosomiasis.

1-(2-BENZOYL-CYCLOPROPYLMETHYL)-4- PHENYLPYPERAZINES

Carl Kaiser, Haddon Heights, N.J., and Charles L. Zirkle, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.
No Drawing. Original application Apr. 4, 1968, Ser. No. 718,915, now Patent No. 3,553,226, dated Jan. 5, 1971. Divided and this application Aug. 12, 1970, Ser. No. 63,267

Int. Cl. C07d 51/70

U.S. Cl. 260—268 PH

4 Claims

1-(2-benzoylcyclopropylmethyl)-4-phenyl-1,2,5,6-tetrahydropyridines and related 4-phenylpiperazines in which the benzoyl group and/or the phenyl moiety may be substituted by chloro, bromo, fluoro, trifluoromethyl, methyl or methoxy, as well as the ethylene ketals thereof, have tranquilizing activity. The compounds are generally prepared from a 2-benzoylcyclopropanecarboxylic acid via reaction of the triethylamine salt with ethyl chloroformate to give the mixed anhydride which is condensed with a 4-phenyl-4-piperidinol or 1-phenylpiperazine to give a corresponding amide. The ethylene ketal of the amide is reduced to the cyclopropylmethyl derivative which is hydrolyzed with acid to the free ketone product.

3,655,668

1,1'-METHYLENEBIS[4-(3-CHLOROPHENYL)- PIPERAZINE]

Frederick J. McCarty, Dresher, Pa., assignor to Richardson-Merrell Inc., New York, N.Y.

No Drawing. Filed June 25, 1969, Ser. No. 836,615

Int. Cl. C07d 51/70

U.S. Cl. 260—268 PH

1 Claim

The new compound, 1,1'-methylenebis[4-(3-chlorophenyl)piperazine], has useful analgesic, anti-inflammatory, and antipyretic properties and may be administered orally and parenterally. It is made by the reaction of Formalin on 3-chlorophenylpiperazine in an alcoholic solution.

3,655,669

3-CYCLIC IMIDES OF 3-AMINO-2,4,6- TRIODOHYDROCINNAMIC ACIDS

James H. Ackerman, Bethlehem, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Original application Mar. 25, 1968, Ser. No. 715,584. Divided and this application May 26, 1969, Ser. No. 827,954

Int. Cl. C07d 31/32

U.S. Cl. 260—281

4 Claims

3-amino-2,4,6-triiodohydrocinnamic acid and α -alkyl or α -phenyl derivatives thereof react with dibasic acid anhydrides to give the corresponding 3-cyclic imides (A), which can be hydrolyzed to the corresponding anilic acids (B). The latter can be further alkylated on the nitrogen atom. Compounds A and B are useful as cholecystographic agents.

3,655,670

3-HYDROXY-4-SULFONE QUINOPHTHALONE DYESTUFFS AND PROCESS FOR MAKING THEM

Ernst Spietschka, Oberauroff, and Friedrich Ische, Kelheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed May 19, 1969, Ser. No. 825,970
Claims priority, application Germany, May 24, 1968, P 17 69 436.9

Int. Cl. C07d 33/38

U.S. Cl. 260—283 S

6 Claims

3-hydroxy-quinophthalone dyestuffs substituted in the 4-position by a sulfone group, and a process for preparing them. Said dyestuffs yield on synthetic fibrous materials, especially those from polyethylene terephthalates,

yellow dyeings having good fastness to light, wet processing and solvents and a remarkably good fastness to thermofixation and ironing.

3,655,671

1,2-DISUBSTITUTED BENZO[b]QUINOLIZINES
John T. Suh, Mequon, and Richard A. Schnettler, Milwaukee, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed Sept. 8, 1969, Ser. No. 856,168

Int. Cl. C07d 39/00

U.S. Cl. 260—288 R

8 Claims

The compounds are 1,2-disubstituted benzo[b]quinolizines which are useful as antihypertensive agents and central nervous system depressants. The compounds are also useful as intermediates in the preparation of pickling agents, wood preservatives and mothproofing agents. Representative of the compounds disclosed are 1-hydroxy-2-N-methylamino-1,3,4,6,11,11a-hexahydro-2H-benzo[b]quinolizine, and 1-hydroxy-2-N-(3,4-dimethoxybenzyl)-N-methylamino-1,3,4,6,11,11a-hexahydro-2H-benzo[b]quinolizine.

3,655,672

QUINOPHTHALONE DYESTUFFS AND PROCESS FOR PREPARING THEM

Ernst Spietschka, Oberauroff, and Friedrich Ische, Kelheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 19, 1969, Ser. No. 825,971

Claims priority, application Germany, May 24, 1968, P 17 69 437.0

Int. Cl. C07d 33/38

U.S. Cl. 260—289 QP

5 Claims

3-hydroxy-quinophthalone dyestuffs substituted in the 4-position by an ether or thioether group, and a process for preparing them. Said dyestuffs yield on synthetic fibrous materials, especially those from polyethylene terephthalates, yellow dyeings having good fastness to light, wet processing and solvents and a remarkably good fastness to thermofixation and ironing.

3,655,673

PROCESS FOR THE PREPARATION OF OXAZOLIDINONE DERIVATIVES

Jacques Georges Maillard, Paris, France, assignor to Laboratoires Jacques Logeais, Issy-les-Moulineaux, France

Filed Mar. 23, 1970, Ser. No. 21,646

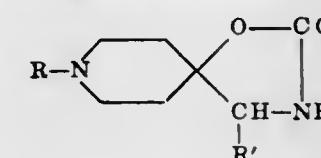
Claims priority, application France, Mar. 25, 1969, 6908663

Int. Cl. C07d 29/30

U.S. Cl. 260—293.66

13 Claims

This process for the preparation of 5-(piperidine-4-spiro)-oxazolidin-2-ones of formula:



in which

R is a hydrocarbon group, in particular alkyl or aralkyl, and

R' is hydrogen or a hydrocarbon group, in particular alkyl or aryl, comprises condensing a piperidone N-substituted with the R group with a nitrile of formula $\text{CH}_2\text{R}'\text{-CN}$, converting the resulting hydroxynitrile to the corresponding amide by a reaction, at least completed in alkaline medium, with hydrogen peroxide, followed by reduction of the resulting N-oxide, and effecting the ring closure of the amide into the desired oxazolidinone derivative.

3,655,674

3-[2-(4-CYCLOHEXANECARBOXAMIDO-1-PIPERIDYL)ETHYL]INDOLE

John Leheup Archibald, Windsor, England, assignor to John Wyeth & Brother Limited, Maidenhead, England
No Drawing. Filed July 23, 1969, Ser. No. 844,188
Claims priority, application Great Britain, July 24, 1968, 35,231/68

Int. Cl. C07d 29/30

U.S. Cl. 260—293.61

1 Claim

The invention relates to the field of substituted indoles, in particular to indol-3-yl-lower alkylpiperidines substituted in the piperidine ring by a cycloalkanoylamino residue, their acid addition and quaternary ammonium salts, and to intermediates and processes for the preparation thereof. The compounds of the invention are pharmacologically efficacious as hypotensive and anti-histamine agents.

3,655,675

N-(N-HETERYL)-ACYLANILIDES

Philip M. Carabateas, Schodack, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,924

Int. Cl. C07d 29/30

U.S. Cl. 260—293.74

4 Claims

An N-[1-Z-4 (or 3)-piperidyl]acylanilide, having anti-diarrheal utility, is prepared by reacting an N-[4-(or 3)-piperidyl]acylanilide with a Z-halide or by reacting a 4 (or 3)-(Q-anilino)-1-Z-piperidine with an acyl halide or anhydride, where Z is lower-alkyl, 3-cyano-3,3-diphenyl-propyl or 2-cyanoethyl, acyl is propionyl, lactyl, dichloro-acetyl or carbethoxy, and Q is hydrogen or (halo)_n where halo is fluoro or chloro and n is 1 or 2. Also included are corresponding N-[4 (or 3)-pyridyl]-, N-(3-quinuclidin-yl)-, and N-(8-Z-3-nortropanyl)-acylanilides.

3,655,676

4-HYDROXY-3-HYDROXYMETHYLPHENYL-2-PIPERIDINYLCARBINOLS

Carl Kaiser, Haddon Heights, N.J., and Stephen T. Ross, Berwyn, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Nov. 19, 1970, Ser. No. 91,222

Int. Cl. C07c 29/16

U.S. Cl. 260—293.84

3 Claims

4-hydroxy-3-hydroxymethylphenyl-2-piperidinyl-carbinols prepared by the condensation of an appropriately substituted ether derivative of a methylbenzaldehyde with 2-pyridyl lithium followed by oxidation of the methyl group, removal of the ether group, and reduction of the carboxy pyridine have β -adrenergic stimulant activity. Erythro and thero diastereoisomers may be conveniently separated.

3,655,677

N,N-DI-SUBSTITUTED AMIDES OF POLYFLUORO-ALKOXY-CARBOXYLIC ACIDS

Louis G. Anello, Orchard Park, and Richard F. Sweeney, Elma, N.Y., and Morton H. Litt, Cleveland, Ohio, assignors to Allied Chemical Corporation, New York, N.Y.

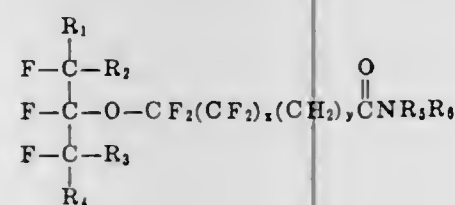
No Drawing. Continuation-in-part of application Ser. No. 633,359, Apr. 25, 1967. This application May 25, 1970, Ser. No. 40,433

Int. Cl. C07d 31/44

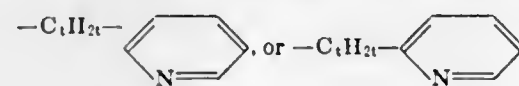
U.S. Cl. 260—295 AM

14 Claims

Compounds of the formula



wherein (a) R_1-R_4 are each independently selected from the group consisting of F, Cl and perfluoroalkyl, and together can form a perfluorocycloalkylene group, with the proviso that R_1-R_4 may not contain more than two chlorine atoms, (b) x is an integer of from 0-80, (c) y is in integer of from 0-81, (d) R_5 and R_6 are independently selected from the group consisting of $-C_qH_{2q+1}$, $-C_tH_{2t}OH$, $-C_tH_{2t}Cl$ and, when taken together, may be



wherein q is an integer from 1-24 and t is an integer from 1-6; are useful as lubricants, surface active agents, and as intermediates in the synthesis of other surface active agents. The compounds described wherein R_5 and R_6 are $-C_qH_{2q+1}$ are additionally useful as insulator and condenser fluids, hydraulic fluids, and heat transfer media.

3,655,678

SUBSTITUTED-2-(1H)PYRIDONES

Chun-Shan Wang, Midland, and James P. Easterly, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich.

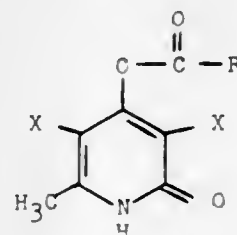
No Drawing. Filed June 15, 1970, Ser. No. 46,474

Int. Cl. C07d 31/36

U.S. Cl. 260—295 R

5 Claims

Disclosed are compounds of the formula



wherein X represents hydrogen or chlorine and R represents methyl, ethyl, phenyl, p-nitrophenyl or benzyl and the method of preparation and the use of these compounds as fungicides.

3,655,679

CERTAIN ARYL PYRIDINE CARBOXYLIC ACID DERIVATIVES

Tsung-Ying Shen, Westfield, William V. Ruyle, Scotch Plains, and Gordon L. Walford and Bruce E. Witzel, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 25, 1969, Ser. No. 836,621

Int. Cl. C07d 31/36

U.S. Cl. 260—295 R

13 Claims

Aryl pyridine carboxylic acids and their derivatives are described and the processes for preparing the same are disclosed. These compounds exhibit anti-inflammatory properties and also possess an effective degree of antipyretic and analgesic activity.

3,655,680

METHOD FOR THE PRODUCTION OF THE (+)-OPTICAL ISOMER OF α -RACEMATE 2-(2-ETHYL-2-PHENYL-1,3-DIOXOLAN-4-YL)-PIPERIDINE

Robert E. Allen and Charles R. Thompson, Walnut Creek, and John Hidalgo, Oakland, Calif., assignors to Cutter Laboratories, Inc.

No Drawing. Filed Feb. 18, 1969, Ser. No. 800,282

Int. Cl. C07d 29/18

U.S. Cl. 260—293.67

3 Claims

The (+) optical isomer of the α racemate of 2-(2-ethyl-2-phenyl-1,3-dioxolan-4-yl)-piperidine, is prepared by

the acid catalyzed condensation of the (—) optical isomer of the α racemate of 2-piperidyl-1,2-ethanediol hydrochloride with propiophenone dipropyl acetal, and acts as a muscle relaxant and induces general anesthesia in primates when administered parenterally.

3,655,681

CERTAIN 2-AMINO-3,6-BIS LOWER-ALKOXY CARBONYL - 4,5,6,7 - TETRAHYDRO THIENO[2,3-c]PYRIDINES

Michio Nakanishi and Tetsuya Tahara, Nakatsu, Oita, Hiroshi Imamura, Ichikawa, Chiba, and Yutaka Maruyama, Tokyo, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

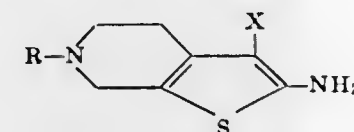
No Drawing. Original application Nov. 29, 1968, Ser. No. 780,218, now Patent No. 3,563,997, dated Feb. 16, 1971. Divided and this application Oct. 28, 1970, Ser. No. 84,876

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 C

3 Claims

Thienopyridine derivatives of the formula



wherein R is H, acetyl, allyl, 2-propynyl, 3-chloro-2-hydroxypropyl, carboxymethyl, alkyl of 1 to 8 carbon atoms, alkoxy carbonyl wherein the alkoxy moiety contains from 1 to 4 carbon atoms, hydroxyalkyl wherein the alkyl moiety contains from 1 to 4 carbon atoms, alkoxy carbonylalkyl wherein the alkoxy and alkyl moieties each independently contains from 1 to 4 carbon atoms, phenethyl, benzyl, mono-, di- or tri-substituted benzyl or benzoyl in which the substituents are Cl, methyl or methoxy, and X is cyano, carbamoyl or alkoxy carbonyl wherein the alkoxy moiety contains from 1 to 4 carbon atoms, are analgesic and anti-inflammatory agents.

3,655,682

2-AMINO-6-LOWER ALKYL OR ARALKYL-3-CYANO-4,5,6,7-TETRAHYDRO THIENO-[2,3-c]PYRIDINE

Michio Nakanishi and Tetsuya Tahara, Nakatsu, Oita, Hiroshi Imamura, Ichikawa, Chiba, and Yutaka Maruyama, Tokyo, Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

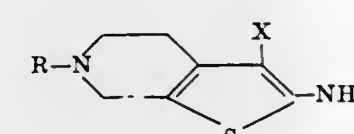
No Drawing. Original application Nov. 29, 1968, Ser. No. 780,218, now Patent No. 3,563,997, dated Feb. 16, 1971. Divided and this application Oct. 28, 1970, Ser. No. 84,877

Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 C

2 Claims

Thienopyridine derivatives of the formula



wherein R is H, acetyl, allyl, 2-propynyl, 3-chloro-2-hydroxypropyl, carboxymethyl, alkyl of 1 to 8 carbon atoms, alkoxy carbonyl wherein the alkoxy moiety contains from 1 to 4 carbon atoms, hydroxyalkyl wherein the alkyl moiety contains from 1 to 4 carbon atoms, alkoxy carbonylalkyl wherein the alkoxy and alkyl moieties each independently contains from 1 to 4 carbon atoms, phenethyl, benzyl, mono-, di- or tri-substituted benzyl or benzoyl in which the substituents are Cl, methyl

3,655,683

ORGANOLEAD NITROGEN COMPOUNDS

Louis C. Willemsens, Croesestraat 79, Utrecht, Netherlands

No Drawing. Continuation-in-part of abandoned application Ser. No. 601,310, Dec. 13, 1966. This application Sept. 7, 1967, Ser. No. 665,979

Int. Cl. C07f 7/24

U.S. Cl. 260—299

24 Claims

Organolead compounds in which the lead is tetravalent and is attached directly to carbon and nitrogen. Such compounds are described generally on pages 2 and 3 of the specification and are useful as anti-wear additives for lubricants. In many instances such utility is enhanced by incorporating certain anti-oxidants. A method of preparation is also described wherein the trialkyllead hydroxide is reacted with the desired heterocyclic compound in an organic solvent with formation of the desired compound and water.

3,655,684

NOVEL SUBSTITUTED-OXADIAZOLES AND A PROCESS FOR THE MANUFACTURE THEREOF

John Mervyn Osbond, Hatfield, and Peter George Philpott, Welwyn Garden City, England, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,510
Claims priority, application Great Britain, Sept. 19, 1968, 44,525/68

Int. Cl. C07d 85/52

U.S. Cl. 260—307 G

8 Claims

3-[2-(R-CO-N)-ethyl]-5-(phenyl)-1,2,4-oxadiazoles and processes. Such compounds are useful as anti-convulsant agents.

3,655,685

2-(IMIDAZOLID INYLIDENCE-(2)-AMINO)-5-NITRO-THIAZOLES AND SALTS THEREOF

Wolfgang Reuter and Eberhard Kutter, Biberach (Riss), Robert Sauter, Laupheim, and Hans Machleidt and Alexander Wildfeuer, Biberach (Riss), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

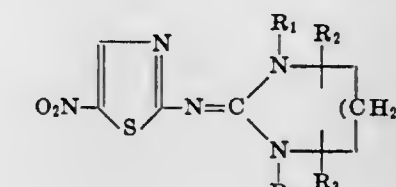
No Drawing. Filed Apr. 9, 1970, Ser. No. 27,189
Claims priority, application Germany, Apr. 9, 1969, P 19 18 070.2

Int. Cl. C07d 99/06

U.S. Cl. 260—306.8 R

8 Claims

2-[imidazolidinylidene-(2)-amino]-5-nitro-thiazoles of the formula



wherein

R_1 is hydrogen or alkyl of 1 to 3 carbon atoms, R_2 is hydrogen or methyl, R_3 is hydrogen or methyl, R_4 is alkyl of 1 to 3 carbon atoms, and n is 0 or 1,

and non-toxic, pharmacologically acceptable acid addition salts thereof, useful as trichomonadicides in warm-blooded animals.

3,655,686

PRODUCTION OF 3-CHLORO-1,2-BENZOISOTHIAZOLES

Friedrich Becke, 4 Scheffelstrasse, 6900 Heidelberg, Germany, and Helmuth Hagen, 7 An der Froschlache, 6700 Ludwigshafen, Germany
No Drawing. Filed July 10, 1969, Ser. No. 840,830
Claims priority, application Germany, July 11, 1968, P 17 70 853.1

Int. Cl. C07d 91/12

U.S. Cl. 260—304

10 Claims

Production of 3-chloro-1,2-benzisothiazoles by reaction of 1,2-benzisothiazoles with elementary chlorine, and the new 1,2-benzisothiazoles themselves which are chemosterilizing agents for insects and intermediates for the production of dyes and pesticides.

3,655,687

DERIVATIVES OF 5-HYDROXYMETHYL-3-SUBSTITUTED-2-OXAZOLIDINONES, PROCESS OF PREPARATION THEREOF AND THERAPEUTIC APPLICATION

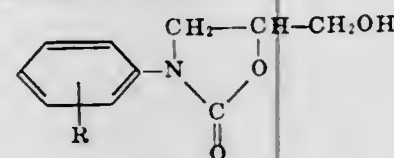
Claude P. Fauran and Guy M. Raynaud, Paris, Rene A. Oliver, Vincennes, Val de Marne, and Colette A. Douzon, Paris, France, assignors to Delalande S.A., Courbevoie, Hauts-de-Seine, France
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,020
Claims priority, application Great Britain, Mar. 18, 1969, 14,260/69

Int. Cl. C07d 85/28

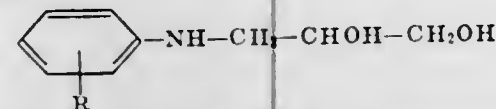
U.S. Cl. 260—307 C

2 Claims

Compounds of the formula



in which R is H, Cl, F, CH₃ or CF₃. The compounds are prepared by cyclizing with ethyl carbonate, a compound of the formula



The compounds have anti-depressive, myorelaxing, tranquilizing, sedative, analgesic, anti-convulsive, anti-pyretic, anti-inflammatory and uricosuric activities.

3,655,688

N-ALKOXY-2-BENZIMIDAZOLE CARBOXIMIDOYL CHLORIDES

George Holan, Brighton, Victoria, and Eva Lea Samuel, Bentleigh, Victoria, Australia, assignors to Monsanto Chemicals (Australia) Limited, West Footscray, Victoria, Australia
No Drawing. Original application Sept. 18, 1967, Ser. No. 668,679, now Patent No. 3,560,195, dated Feb. 2, 1971. Divided and this application May 21, 1970, Ser. No. 48,600

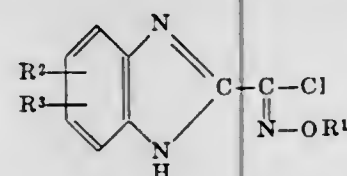
Claims priority, application Australia, Sept. 19, 1966, 11,199/66

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

5 Claims

N-alkoxy-2-benzimidazole carboximidoyl chlorides of the formula:



wherein R¹ is alkyl of not more than six carbon atoms; and R² and R³ are independently selected from the group consisting of hydrogen, chlorine, bromine, nitro, alkyl of not more than four carbon atoms and alkoxy of not more than four carbon atoms, exhibit herbicidal activity.

IMIDAZOLIDINEDIONE HERBICIDES

Malcolm Scott Singer, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.
No Drawing. Continuation-in-part of application Ser. No. 745,417, July 17, 1968. This application Aug. 22, 1969, Ser. No. 852,509

Int. Cl. C07d 49/32

U.S. Cl. 260—309.5

4 Claims

5-imino-imidazolidinediones and 4-thio-5-imino-imidazolidinediones in which the nitrogen in the 1 position of the imidazolidinedione nucleus is substituted with an aryl radical of 6 to 15 carbon atoms, the nitrogen in the 3 position is substituted with an aliphatic or cycloaliphatic radical and the imino group is optionally substituted with a carbamoyl or N-chloroacetylcarbamoyl radical. These imidazolidinediones are pre- and post-emergence herbicides.

3,655,690

1,2,3,5-TETRAMETHYL PYRAZOLIUM CHLORIDE AND METHOD FOR PREPARATION

Charles F. Hobbs, Des Peres, and James Dennis Wilson, University City, Mo., assignors to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 8, 1968, Ser. No. 774,501

Int. Cl. C07d 49/18

U.S. Cl. 260—310 R

2 Claims

The invention relates to the preparation of various amide type compounds including amides, amidinium salts, vinyl-ogous amidinium salts and endiamines. The compounds are prepared from carboxyl compounds by a reaction with an amine in the presence of a metal halide. The compounds of the invention have utility in the production of various nitrogen compounds and as biologically active materials, as antioxidants and acid scavengers.

3,655,691

N,N'-DISUBSTITUTED CYCLOPENTANE-1,2,3,4-TETRACARBOXIMIDES

Donald F. Page, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.
No Drawing. Original application Nov. 15, 1967, Ser. No. 683,109, now Patent No. 3,551,447, dated Dec. 29, 1970. Divided and this application Mar. 30, 1970, Ser. No. 24,033

Int. Cl. C07d 27/30

U.S. Cl. 260—326.3

2 Claims

Perhydrocyclopenta[1,2-c:3,4-c']dipyrroles and N,N'-disubstituted derivatives thereof are prepared by reacting cyclopentane-1,2,3,4-tetracarboxylic acid anhydride with a primary amine and reducing the resulting cyclopentane-1,2,3,4-tetracarboximide or N,N'-disubstituted derivative thereof with lithium aluminum hydride. The compounds are insecticides, and also affect the central nervous and cardiovascular system of mammalian species.

3,655,692

3-AMINO-TETRAHYDROTHIOPHENE-3-CARBOXYLIC ACIDS

Tsung-Ying Shen and Gordon L. Walford, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Original application Sept. 11, 1967, Ser. No. 666,922, now Patent No. 3,547,948, dated Dec. 15, 1970. Divided and this application Apr. 7, 1970, Ser. No. 23,103

Int. Cl. C07d 63/04

U.S. Cl. 260—332.2 C

2 Claims

Processes for the preparation of novel amino acids. The compounds are 5-membered heterocyclic amino acid derivatives of tetramethylene sulfide and trimethylene-1,2-disulfide. The sulfide derivatives are prepared by converting a keto tetramethylene sulfide to its corresponding amino nitrile, with subsequent hydrolysis to the amino

acid. The 1,2-disulfide derivatives are prepared via reaction of an alkyl ketone with an aralkyl mercaptan with ultimate elimination of the sulfur protecting group and oxidation to the disulfide. The novel amino acids are useful as anti-inflammatory agents.

3,655,693

ANTI-INFLAMMATORY SALICYCLIC ACID DERIVATIVES

Tsung-Ying Shen, Bruce E. Witzel, and Gordon L. Walford, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 25, 1969, Ser. No. 836,582

Int. Cl. A61k 27/00; C07d 63/12, 63/14

U.S. Cl. 260—332.2 A

6 Claims

Salicylic acid derivatives and their non-toxic pharmaceutically acceptable salts, esters and amides are claimed. Also encompassed is the treatment of inflammation with said derivatives.

3,655,694

NOVEL α-PYRONES

Kyu Tai Lee and Joel G. Whitney, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Mar. 4, 1968, Ser. No. 709,908. Divided and this application Feb. 11, 1971, Ser. No. 114,683

Int. Cl. C07d 7/18

U.S. Cl. 260—343.2 R

3 Claims

Certain novel α-pyrones are useful intermediates in the preparation of ethanoctahydrophenanthrene derivatives, which are effective antifertility agents. The novel pyrones are made from appropriately substituted α-tetralones by reaction with ethyl ethoxymethylenecyanoacetate in glyme in the presence of sodium ethoxide under a nitrogen atmosphere.

3,655,695

6-ALKYL-SUBSTITUTED TETRAHYDROPYRAN-2-OLS AND PROCESS FOR THEIR PRODUCTION

David Andrews, 24 Hillside Ave., Nutley, N.J. 07110, and Gabriel Saucy, 125 Fells Road, Essex Fells, N.J. 07021

No Drawing. Continuation-in-part of application Ser. No. 633,693, Apr. 26, 1967. This application May 21, 1969, Ser. No. 826,669

Int. Cl. C07d 13/04

U.S. Cl. 260—340.5

24 Claims

6-substituted tetrahydropyran-2-ols are prepared by reaction of Grignard reagents with lower alkyl-glutaraldehyde or glutaraldehyde. The products are useful intermediates in the total synthesis of steroids.

3,655,696

2,3-DIHYDRO-3,3-DIMETHYL-5-BENZOFURANYL METHYLCARBAMATE

Kenneth R. Wilson, Tonawanda, and Robert M. Kennedy, Medina, N.Y., assignors to FMC Corporation, New York, N.Y.

No Drawing. Filed Feb. 6, 1970, Ser. No. 9,406

Int. Cl. C07d 5/36

U.S. Cl. 260—346.2

1 Claim

The new pesticide 2,3-dihydro-3,3-dimethyl-5-benzofuranyl methylcarbamate is described, together with its

3,655,697

ORTHO-HYDROXYDIBENZOFURAN CARBOXYLIC ACID AND ACID DERIVATIVES SUBSTITUTED BY A HALOGEN ATOM

Tsung-Ying Shen, Bruce E. Witzel, and Gordon L. Walford, Westfield, and William V. Ruyle, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 25, 1969, Ser. No. 836,603

Int. Cl. C07d 5/49

U.S. Cl. 260—346.2

3 Claims

This invention relates to new tricyclic carboxylic acid and ester derivatives and processes for their preparation. These compounds have anti-inflammatory, anti-pyretic and analgesic activity. Also included are claims for methods of treating inflammation using the carboxylic acid compounds of this invention.

3,655,698

EPOXIDATION OF SOYBEAN OIL

Lee H. Dierdorff, Jr., Princeton, N.J., and Joseph H. Kosciolk, Manlius, N.Y., assignors to FMC Corporation, New York, N.Y.

Continuation of application Ser. No. 328,809, Dec. 9, 1963. This application Aug. 15, 1967, Ser. No. 667,312

Int. Cl. C07d 1/10

U.S. Cl. 260—348.5 V

1 Claim

This application discloses a method of increasing the oxygen content of oxidizable organic materials by contacting the oxidizable organic material with a vaporous effluent containing 5%, by weight, of peracetic acid coming directly from a peracetic acid generator. The method is useful in epoxidizing ethylenically unsaturated organic compounds and in bleaching liquids, textiles and wood pulp.

3,655,699

ANALOGUES OF LAPACHOL AS ANTITUMOR AGENTS

Herman Rutner, Hackensack, N.J., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,849

Int. Cl. C07c 49/66

U.S. Cl. 260—396 K

3 Claims

The preparation of certain novel analogues of lapachol and the activity of these compounds against Walker 256 carcinosarcoma in rats is disclosed.

3,655,700

OXYGENATED UNSATURATED ALIPHATIC CARBOXYLIC ACIDS AND ESTERS

John B. Siddall, Palo Alto, Calif., assignor to Zeecon Corporation, Palo Alto, Calif.

No Drawing. Filed Feb. 2, 1970, Ser. No. 7,988

Int. Cl. C07c 69/66, 69/52; A01n 9/24

U.S. Cl. 260—405

7 Claims

Preparation of polyolefins involving photooxygenation of an isolated double bond of a polyolefin to allylic hydroperoxide which is reduced to the allylic alcohol, the allylic alcohol is converted to the allylic acylate which is alkylated using organolithium cuprate.

3,655,701

PRODUCTION OF CARBOXYLIC ACID ESTERS BY REACTION OF SODIUM CARBOXYLATES WITH ALKYL HALIDES USING CERTAIN GLYCOLS AND ETHERS AS DILUENTS

Bernard J. Darre, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Filed Apr. 9, 1969, Ser. No. 814,796

Int. Cl. C07c 67/00, 67/02

U.S. Cl. 260—410.9 R

17 Claims

A process is disclosed for producing esters in good yield and at low cost from inexpensive reactants. The process is characterized by the absence of deliberately added catalyst materials. It has been discovered that certain diluents will permit a reaction between certain inexpensive organic reactant materials without requiring the presence of a deliberately added specific catalyst material.

3,655,702

CONTINUOUS RENDERING PROCESS

Ditlev P. Madsen, Palos Park, and John H. Pikel, Oak Lawn, Ill., assignors to Chemetron Corporation, Chicago, Ill.

Filed Dec. 16, 1968, Ser. No. 784,100

Int. Cl. C11b 1/12

U.S. Cl. 260—412.6

7 Claims

There is provided an improved method and apparatus for the continuous rendering of fatty material, wherein the material to be rendered is first passed through a known type of rendering evaporator for separating fat and cracklings from the raw material. The material is fed into a substantially airfree state. A controlled pressure is maintained in the rendering evaporator to aid in the removal of moisture. The treated material is discharged in a continuous process from the rendering evaporator through a suitable discharge outlet. An airlock is provided with the discharge outlet for preventing the entry of air into the rendering evaporator through the discharge outlet.

3,655,703

ORGANOTIN MERCAPTOACID ESTER STABILIZERS FOR VINYL HALIDE RESIN COMPOSITIONS AND COMPOSITIONS STABILIZED THEREWITH

Samuel Hoch, Brooklyn, N.Y., assignor to Tenneco Chemicals, Inc.

No Drawing. Filed Jan. 5, 1970, Ser. No. 807

Int. Cl. C07f 7/22; C08f 45/56

U.S. Cl. 260—429.7

16 Claims

A stabilizer for vinyl halide resin compositions comprises an organotin compound, such as dibutyltin bis-(isooctyl thioglycolate), and a small amount of an alkyl acid phosphate. These stabilizers, unlike the untreated organotin compounds, are stable for long periods at room temperature. Their use results in vinyl halide resin compositions that have improved color and heat stability.

3,655,704

PROCESS FOR THE PREPARATION OF ZINC ALKYL ORTHOPHOSPHATES

Paul David Sherman, Calumet City, and Frank J. Chloupek, South Holland, Ill., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Jan. 28, 1970, Ser. No. 6,601

Int. Cl. C07f 3/06

U.S. Cl. 260—429.9

10 Claims

An improved process for the manufacture of zinc alkyl orthophosphates is disclosed. Phosphorus pentoxide is reacted with an aliphatic alcohol containing from about 10

to 14 carbon atoms, such as tridecyl alcohol, in the presence of an aromatic solvent and the resulting orthophosphate ester is neutralized using a solid zinc salt such as zinc carbonate or zinc acetate, in amounts of at least about 50%, up to about 85%, preferably 70% to 80%, of the zinc required to fully neutralize the esters. The zinc alkyl orthophosphates are useful as additives in gasolines.

3,655,705

ORGANOPHOSPHATO-STANNANES

Guenther Fritz Lengnick, Manitou Beach, Mich., assignor to Stauffer-Wacker Silicone Corporation

No Drawing. Original application Feb. 27, 1968, Ser. No. 708,501, now Patent No. 3,527,778. Divided and this application Apr. 23, 1970, Ser. No. 43,305

Int. Cl. C07f 7/22

U.S. Cl. 260—429.7

6 Claims

Organophosphatostannanes and curable organopolysiloxanes containing organophosphatostannane catalysts.

3,655,706

SYNTHESIS OF TETRAMETHYLLEAD

Robert G. Briody and Edward G. Newyear, Corpus Christi, Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Nov. 20, 1969, Ser. No. 878,551

Int. Cl. C07f 7/24

U.S. Cl. 260—437 R

4 Claims

A process is described for the preparation of tetramethyllead which involves reacting methyl chloride and sodium-lead alloy together in the presence of magnesium-aluminum alloy as catalyst. The alloy is described as containing at least 20 percent by weight magnesium and the temperatures of operation are described as between 100° C. and 150° C.

3,655,707

PREPARATION OF ORGANOMERCURY COMPOUNDS

Roy R. Josephson, West Marlborough Township, Chester County, Pa., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Oct. 10, 1969, Ser. No. 865,491

Int. Cl. C07f 3/12

U.S. Cl. 260—433

9 Claims

Organomercury compounds are prepared by contacting a mercurating agent with an electronegatively-substituted aromatic organic compound in liquid hydrogen fluoride as the solvent. Representative of the compounds which are mercurated is nitrobenzene, which otherwise is difficult to mercurate. The reaction may be carried out at room temperature.

3,655,708

NICKEL SALTS OF MIXED ORGANIC ANIONS

Saul Gobstein, University Heights, Ohio, assignor to Ferro Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 736,003, June 11, 1968. This application Feb. 9, 1970, Ser. No. 9,982

Int. Cl. C07f 15/02, 45/62

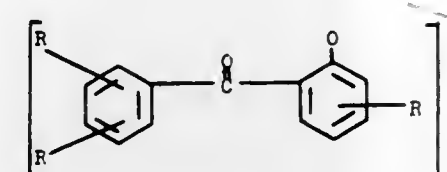
U.S. Cl. 260—439 R

11 Claims

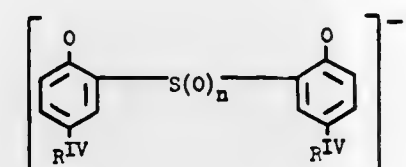
This invention relates to certain novel compositions of matter, and more particularly to nickel salts of mixed phenoxide anions, having particular utility as stabilizers in polyolefin polymers. The novel compositions of the present invention correspond to the general formula:



x is a monovalent benzophenoxo anion within the scope of the formula:



wherein the respective R groups may be the same or different, and each is a member selected from the group consisting of hydrogen atoms, hydroxyl radicals, alkyl radicals having less than about 15 carbon atoms, and alkoxy radicals having less than about 15 carbon atoms; y is a bivalent bisphenol anion within the scope of the formula:



wherein R^{IV} is alkyl or alkoxy, both of less than 15 carbon atoms, and n is an integer having a value of 1 or 2; and z is a member selected from the group consisting of a hydrogen atom and the radical [Ni—x], x being defined as above.

3,655,709

PROCESS FOR THE MANUFACTURE OF ARYL-CHLOROSILANES IN ACCORDANCE WITH THE ROCHOW SYNTHESIS

Ludwig Fries, Odenthal-Hahnenberg, Rudolf Mundil, Leverkusen, and Herbert Wiechers, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sept. 14, 1970, Ser. No. 72,065

Claims priority, application Germany, Oct. 11, 1969, P 19 51 410.4

Int. Cl. C07f 7/16

U.S. Cl. 260—448.2 T

6 Claims

In the manufacture of arylchlorosilanes in accordance with the Rochow synthesis by reaction of aryl halides with silicon, the reaction products leaving the reaction vessel are completely condensed, and the condensate, containing solids, is separated by means of a decanter into a liquid phase free of solids and a solid largely free of liquid, with the liquid phase being worked-up in accordance with processes which are in themselves known.

3,655,710

PROCESS FOR THE PREPARATION OF ARYLDIMETHYLCHLOROSILANES

Andre Bazouin, Luzinay, and Marcel Lefort, Caluire, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 11, 1970, Ser. No. 18,770

Claims priority, application France, Mar. 13, 1969, 6907120

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 P

8 Claims

Aryldimethylchlorosilanes are prepared in good yield when a diaryldichlorosilane and trimethylchlorosilane are heated together in the liquid phase in the presence of aluminum chloride as a catalyst.

3,655,711

PREPARATION OF CYCLIC NITROGEN-CONTAINING ORGANOSILICON COMPOUNDS

Richard Paul Bush, Penarth, Glamorgan, and Bryan Thomas, Thomastown, Glamorgan, Wales, assignors to Midland Silicones Limited, Reading, Berkshire, England

No Drawing. Filed Jan. 13, 1971, Ser. No. 106,268

Claims priority, application Great Britain, Jan. 13, 1970, 1,611/70; May 8, 1970, 22,429/70

Int. Cl. C07f 7/10

U.S. Cl. 260—448.2 N

6 Claims

Process for the production of N-substituted cyclotrisilazanes which comprises reacting, preferably at a temperature below 50° C., chlorodimethylsilane and a cyclotrisilazane of the general formula (R₂SiNH)_n in which R is a monovalent hydrocarbon radical having less than 7 carbon atoms and n is 3 or 4.

The N,N'-bis(dimethylsilyl)cyclotrisilazanes which can be prepared by the process are claimed as novel compounds.

3,655,712

EQUILIBRATED ORGANO-POLYSILOXANE MIXTURES WITH TERMINAL SULFURIC ACID GROUPS AND PROCESS FOR THEIR PREPARATION

Gerd Rossmay, Essen-Werden, Germany, assignor to Th. Goldschmidt A.G., Essen, Germany

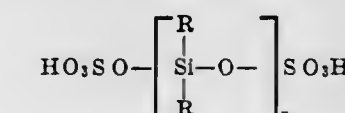
No Drawing. Filed Jan. 28, 1970, Ser. No. 6,547

Int. Cl. C07f 7/02

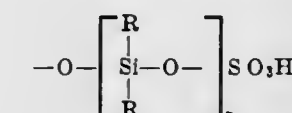
U.S. Cl. 260—448.2 N

60 Claims

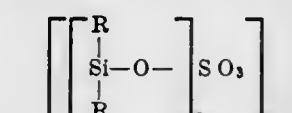
A linear equilibrated organo-polysiloxane mixture having terminal sulfuric acid groups of the general formula



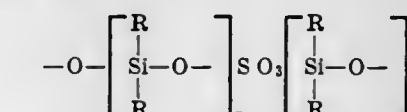
wherein n=2 to 20 and R is hydrocarbon which may be substituted by a group inert in respect to sulfuric acid. A portion of the hydrocarbon groups R may be replaced by the group



The application also discloses a process for the preparation of such equilibrated organo-polysiloxane mixtures which are in equilibrium with sulfuric acid and cyclic compounds of the general formula



wherein R and n have the above meaning, m being 1-10. If a portion of the R groups of Formula I is replaced by groups of Formula V, then two of the Formula V groups may form the group

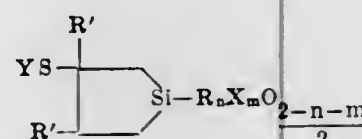


on that side of the equilibrium which contains the Formula II compounds and the free sulfuric acid. The novel mixtures are useful as equilibration catalysts for organo-polysiloxanes. They may also successfully be employed as impregnation agents for imparting various materials such as glass, textiles, and the like with water repellent characteristics.

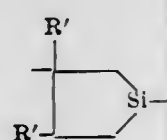
3,655,713

SILACYCLOPENTANE THIOLS AND THIOLATES

Gary E. Le Grow, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

No Drawing. Filed July 13, 1970, Ser. No. 54,582
Int. Cl. C07f 7/10, 7/18U.S. Cl. 260—448.2 N 10 Claims
Silacyclopentane mercaptans and thiolates of the formula

in which Y is hydrogen or an acyl group, n is 0 or 1, m is 0 to 2, are prepared by the addition of H_2S or acyl-SH to the corresponding silacyclopentene in the presence of free radical generators such as peroxides, azobis-nitriles or ultraviolet light. Specific compounds where Z is



are $HSZ(CH_3)Cl$, $\{CH_3COSZ(CH_3)\}_2O$ and $(HSZO)_n$. The novel compounds are useful as lubricants, lubricant additives, and chemical intermediates.

3,655,714

PROCESS FOR PREPARING FLUORINE COMPOUNDS FROM ORGANOSILICON COMPOUNDS BY MEANS OF FLUORIDES OF THE FIRST TO THIRD MAIN GROUPS OF THE PERIODIC SYSTEM

Christian Dathe, Radebeul, Germany, assignor to Institut für Silikon- und Fluorkarbonchemie, Radebeul, Germany

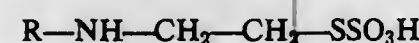
No Drawing. Filed May 20, 1969, Ser. No. 826,259
Int. Cl. C07f 7/12, 7/18

U.S. Cl. 260—448.2 E 11 Claims
A process for preparing fluorine compounds from organosilicon compounds having atoms or atom groups exchangeable with fluorine, which comprises reacting said compounds with at least a molar quantity of a difficultly soluble metal fluoride of the first to third main groups of the Periodic System of Elements at about normal temperature in the presence of an inorganic diluted acid which is stronger than hydrofluoric acid, heating the mixture to water-bath temperature, and collecting the fluorine compound escaping from the reaction mixture by condensation. The process has the advantage of dispensing with HF as fluorinating agent, thereby eliminating the use of special acid-resistant equipment and particular safety measures mandatory in operation with HF.

3,655,715

SYNTHESIS OF N-SUBSTITUTED 2-AMINO-ETHANETHIOSULFURIC ACIDSDaniel L. Klayman, Chevy Chase, Md., and W. Franklin Gilmore, Oxford, Miss., assignors to the United States of America as represented by the Secretary of the Army
No Drawing. Application June 17, 1968, Ser. No. 737,358, now Patent No. 3,595,899, dated July 27, 1971, which is a continuation-in-part of application Ser. No. 506,291, Nov. 3, 1965. Divided and this application July 15, 1969, Ser. No. 870,883

Int. Cl. C07c 141/00

U.S. Cl. 260—453 R 1 Claim
A process for the synthesis of N-substituted 2-amino-ethanethiosulfuric acids of the formula:

wherein R represents alkyl or phenyl alkyl by reacting ammonium thiosulfate with a 1-substituted aziridine. The compounds made by this process are effective antiradiation agents for animals.

3,655,716

CYANO CONTAINING HYDRAZONES AND METHYL SULFATE SALTS THEREOF

Willy Leimgruber, Montclair, and Manfred Weigle, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Apr. 9, 1968, Ser. No. 719,834, now Patent No. 3,542,848, dated Nov. 24, 1970. Divided and this application June 1, 1970, Ser. No. 42,528

Int. Cl. C07c 121/42

U.S. Cl. 260—459 3 Claims

This invention is directed to a process for the preparation of aminomethylene malononitrile from dialkyl aminoacrylonitrile including intermediates therein. Aminomethylene malononitrile is a known compound which is a valuable intermediate in the synthesis of thiamine.

3,655,717

NOVEL O-(2-ALKYL-4,6-DINITRO-PHENYL)-O'-(α-CARBALKOXY-ALKYL)-CARBONATES

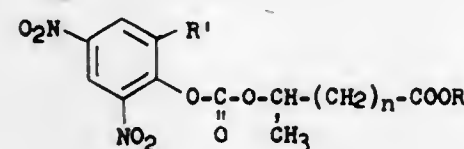
Heinz-Manfred Becher, Bingen (Rhine) and Richard Sehring, Ingelheim (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany

No Drawing. Filed June 9, 1970, Ser. No. 45,274
Claims priority, application Germany, June 16, 1969, P 19 30 593.2; Dec. 5, 1969, P 19 61 210.3

Int. Cl. C07c 69/68, 69/00; A01n 9/26

U.S. Cl. 260—463 4 Claims

Compounds of the formula



wherein

R is straight or branched alkyl of 1 to 12 carbon atoms, R' is straight or branched alkyl of 1 to 8 carbon atoms or cyclohexyl, and n is 0 or 1;

the compounds are useful as phyto-compatible acaricides.

3,655,718

POLYCARBONATE STABILIZER COMPOSITIONS

Henry G. Schutze and Herschel C. Williams, Baytown, Tex., Norman P. Neureiter, Bethesda, Md., and Delos E. Bown, White Plains, N.Y., assignors to Esso Research and Engineering Company

No Drawing. Division of application Ser. No. 611,785, Nov. 14, 1966, now Patent No. 3,510,507, which is a division of application Ser. No. 248,876, Jan. 2, 1963. Divided and this application Jan. 7, 1970, Ser. No. 1,294

Int. Cl. C07c 69/00, 149/32; C08f 45/58

U.S. Cl. 260—463 3 Claims

Polyphosphorous condensation products, polyborate condensation products, polycarbonate condensation products and polysilicate condensation products of 4,4'-bisphenols are especially effective stabilizers for polyolefins.

3,655,719

AMINO CARBONATE ADDUCTS AND METHOD OF MAKING SAME

John E. Anderson and Clyde E. Parish, Houston, Tex., and George H. Ross, Phoenix, Ariz., assignors to Signal Chemical Company

No Drawing. Application Nov. 8, 1966, Ser. No. 592,749, now Patent No. 3,502,706, dated Mar. 24, 1970, which is a continuation-in-part of application Ser. No. 372,409, June 3, 1964. Divided and this application Oct. 22, 1969, Ser. No. 888,192

Int. Cl. C07c 87/00; A611 13/00

U.S. Cl. 260—463 6 Claims

Carbonate adducts are prepared by reacting a tertiary amine, a lower alkanol and mixtures thereof, and carbon dioxide at a temperature below that at which decomposition of the adduct occurs.

3,655,720

ISOPHORONE DERIVATIVES HAVING A NITRILE-CONTAINING SUBSTITUENT IN THE 4-POSITION

John Charles Leffingwell, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

No Drawing. Filed Feb. 3, 1969, Ser. No. 796,191

Int. Cl. C07c 121/48

U.S. Cl. 260—464 1 Claim

Substituents are introduced into the 4-position of isophorone by reacting isopropenylacetate with isophorone to form isophorone enol acetate, then reacting with an isophorone enol acetate a dienophile to form bicyclic adducts which upon hydrolysis afford isophorone derivatives substituted in the 4-position.

3,655,721

PROCESS FOR THE PRODUCTION OF MALONIC ACID DINITRILE AND PURIFICATION THEREOF

Urs Arni, Brig, and Adriano Faccini and August Stocker, Visp, Switzerland, assignors to Lonza Ltd., Gampel, Valais, Switzerland

No Drawing. Filed May 7, 1969, Ser. No. 822,724
Claims priority, application Switzerland, May 9, 1968, 6,964/68; June 18, 1968, 9,059/68; June 24, 1968, 9,383/68

Int. Cl. C07c 121/22

U.S. Cl. 260—465.8 2 Claims

Malonic acid dinitrile is prepared by reacting acetonitrile and cyanogen chloride in the gaseous phase at temperatures from 740 to 780° C. Temperatures from 750° to 760° C. with molar ratios of 1:1 to 1:5 of cyanogen chloride to acetonitrile are preferred. The crude mixture containing malonic acid dinitrile may be purified by conversion of the principal impurities to easily separable compounds by a Diels-Alder or selective hydrogenation reaction.

3,655,722

7-METHYL-OCTADIENITRILESPeter W. D. Mitchell, Atlantic Highlands, and Jack Herbert Blumenthal, Oakhurst, N.J., assignors to International Flavors & Fragrances, Inc., New York, N.Y.
No Drawing. Original application Feb. 2, 1967, Ser. No. 613,445, now Patent No. 3,553,110, dated Jan. 5, 1971. Divided and this application Jan. 26, 1970, Ser. No. 12,022

Int. Cl. C07c 121/30

U.S. Cl. 260—465.9 3 Claims

This disclosure describes methods for the preparation and isolation of a variety of 7-methyl-2,6-octadienenitriles by condensation of cyanoacetic acid with 2-methylhept-2-ene-6-one in the presence of an amine or an acid addition salt of an amine at a temperature of from

about 40° C. to 180° C. A mixture of nitriles is produced in the condensation reaction. The relative proportion of each nitrile in the mixture can be controlled by control of the alkalinity of the reaction medium. The compounds and mixtures are useful as olfactory agents.

3,655,723

HYDROCYANATION OF OLEFINS

William Charles Drinkard, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Oct. 31, 1969, Ser. No. 873,063
Int. Cl. C07c 121/04

U.S. Cl. 260—465.3 10 Claims

An improved process for hydrocyanating an unsaturated organic compound having at least one aliphatic carbon-carbon double bond in the presence of a complex of a metal such as nickel, cobalt, palladium, iron, tungsten, or molybdenum wherein a cyanohydrin is employed as the source of hydrogen cyanide.

3,655,724

PROCESS OF DIMERIZING ACRYLONITRILE

William Joseph Linn and Alvin Barber Stiles, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application July 19, 1967, Ser. No. 654,329, now Patent No. 3,562,181, dated Feb. 9, 1971. Divided and this application Aug. 27, 1969, Ser. No. 853,514

Int. Cl. C07c 121/26, 121/30

U.S. Cl. 260—465.8 6 Claims

Acrylonitrile can be efficiently dimerized by hydrogen in the presence of a catalyst formed by the reaction of soluble ruthenium compounds with salts of weak acids and adsorbed on charcoal or γ alumina. The selected supports enhance the yield obtained.

3,655,725

AMINOCYCLOPENTANECARBOXYLIC ACID DERIVATIVES

Harvey E. Alburn, West Chester, and William Dvornch, Radnor, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 753,879, Aug. 20, 1968. This application Oct. 16, 1970, Ser. No. 81,588

Int. Cl. C07c 101/36

U.S. Cl. 260—468 R 4 Claims

The phenyl, menthyl, and choline halide ester of 1-aminocyclopentanecarboxylic acid are pharmacologically active, showing the ability to block the immune response in warm-blooded animals.

3,655,726

2,3-DIHALOALKYL COMPOUNDS

James C. Wygant, Creve Coeur, Richard M. Anderson, St. Louis, and Erhard J. Prill, Des Peres, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Application Mar. 4, 1965, Ser. No. 437,258, now Patent No. 3,317,568, which is a continuation-in-part of applications Ser. No. 248,853, Jan. 2, 1963, and Ser. No. 267,783, Mar. 25, 1963. Divided and this application July 15, 1966, Ser. No. 620,190

Int. Cl. C07c 69/74

U.S. Cl. 260—468 R 1 Claim

As new compounds, the 2,3-dibromopropyl esters of cycloalkane carboxylic acids or of bromine-substituted cycloalkane carboxylic acids having from 3 to 6 carbon atoms in the ring and from 2 to 4 carboxylic groups.

3,655,727

CURING SYSTEMS FOR VINYLIDENE FLUORIDE ELASTOMERS

Kalyanji U. Patel, St. Paul, and John E. Maier, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 831,295, June 9, 1969, which is a continuation-in-part of application Ser. No. 802,917, Feb. 27, 1969, which in turn is a continuation-in-part of application Ser. No. 753,618, Aug. 19, 1968. This application Jan. 16, 1970, Ser. No. 3,396

Int. Cl. C08f 27/08

U.S. Cl. 260—470 P

19 Claims

A curable aromatic copolymer composition comprising vinylidene fluoride copolymer, at least one quaternary phosphonium or ammonium compound, and at least one elastomeric hydroxy or amino compound having an oxidation potential not more than 1.5 volts with respect to a standard calomel electrode and process for the curing thereof in the presence of an inorganic acid acceptor capable of generating water upon reacting with hydrogen fluoride.

3,655,728

N-(2-DIALKYLAMINOALKYLENE)-ESTERS OF FLUOROALKOXY-SUBSTITUTED ARYL CARBOXYLIC ACID AND SALTS THEREOF

Arthur Mendel, Vadnais Heights, Minn., assignor to Riker Laboratories, Inc., Northridge, Calif.

No Drawing. Filed July 22, 1970, Ser. No. 57,351

Int. Cl. C07c 69/76

U.S. Cl. 260—473 R

9 Claims

N-(2-dialkylaminoalkylene)carboxylic esters of polyfluoroalkoxy-substituted aromatic acids. Also included are pharmaceutically acceptable salts of these compounds. These compounds have valuable local anesthetic activity.

3,655,729

PROCESS FOR PREPARING ESTERS OF TEREPHTHALIC ACID

Verne R. Rinehart, Akron, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

No Drawing. Filed July 18, 1968, Ser. No. 745,677

Int. Cl. C07c 69/82

U.S. Cl. 260—475 P

2 Claims

The invention relates to the preparation of polyesters from terephthalic acid and glycol using a fluid mixture of glycol and terephthalic acid as starting material. The fluid mixtures contain glycol to terephthalic acid in molar ratios of from about 0.9:1 to 1.3:1, the terephthalic acid being a mixture of particles of different sizes.

3,655,730

CARBAMATES AND PESTICIDAL PREPARATIONS CONTAINING THEM

Erwin Nikles, Liestal, Switzerland, assignor to Ciba Limited, Basel, Switzerland

No Drawing. Filed Sept. 9, 1968, Ser. No. 758,618
Claims priority, application Switzerland, Sept. 14, 1967, 12,862/67

Int. Cl. C07c 125/06

U.S. Cl. 260—479 C

10 Claims

The invention comprises new alkenylaminophenylcarbamates and their use in preparations for combating pests, preferably insects and acarides.

3,655,731

DIALKYLAMINO-BENZHYDRYL DICARBOXYLATES

Sidney B. Richter and David P. Mayer, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

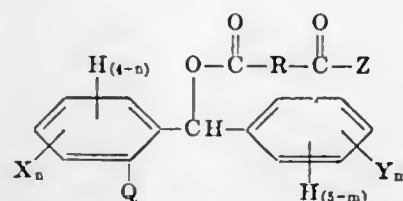
No Drawing. Filed Oct. 20, 1969, Ser. No. 867,891

Int. Cl. C07c 69/34, 69/44

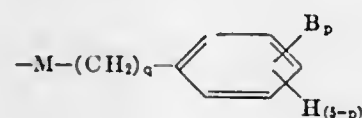
U.S. Cl. 260—485 H

5 Claims

This invention discloses new compounds of the formula



wherein X and Y are independently selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, cyano, nitro and haloalkyl; Q is dialkylamino; R is an alkylene or alkenylene group of up to eight carbon atoms; m and n are each integers from 0 to 3; and Z is selected from the group consisting of hydroxy, alkoxy, haloalkoxy, amino, alkylamino, dialkylamino and



wherein M is selected from the group consisting of oxygen and —NH—; B is selected from the group consisting of alkyl, alkenyl, alkoxy, alkylthio, halogen, cyano, nitro and haloalkyl; and q and p are integers from 0 to 5. The compounds of the above description are useful as insecticides and acaricides.

3,655,732

FLUORINATED ACRYLIC MONOMERS CONTAINING HETERO ATOMS AND THEIR POLYMERS

Christian Sriver Rondestvedt, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

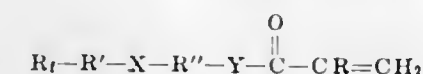
No Drawing. Filed May 16, 1967, Ser. No. 638,721

Int. Cl. C07c 69/54

U.S. Cl. 260—486 H

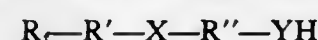
3 Claims

Perfluoroalkyl acrylic monomers of the formula



wherein R₁ is perfluoroalkyl; R' and R'' are each alkylene; X is sulfur or —NR'''—; Y is oxygen, sulfur or —NR'''—; R''' is hydrogen or lower alkyl; and R is hydrogen or methyl. Homopolymers of the above monomers and copolymers of the monomers with copolymerizable vinylidene monomers free of nonvinyllic fluorine; both prepared by emulsion polymerization techniques with a free radical catalyst. Mixtures of the above polymers with a polymer derived from a polymerizable vinylidene monomer free of nonvinyllic fluorine. Textile fabrics treated with the above polymers and mixtures of polymers to impart oil- and water-repellent properties to the fabric.

The preparation of the monomers from



intermediates.

3,655,733

PREPARATION OF POLYFUNCTIONAL ACRYLATES

F. Peter Guilmette, Mount Pleasant, and Norman L. Madison, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 19, 1968, Ser. No. 722,570

Int. Cl. C07c 69/54

U.S. Cl. 260—486 R

5 Claims

Methylene bisacrylate or methylene bismethacrylate is prepared by reacting methylene bromide, methylene iodide or a methylene bis (aromatic sulfonate) with an alkali metal acrylate or methacrylate. Reaction conditions are mild. The polyfunctional monomer is useful as a crosslinking agent in polymerization recipes.

3,655,734

BENZHYDRYLALKANOATES

Sidney B. Richter and David P. Mayer, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

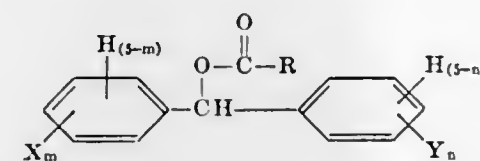
No Drawing. Filed Aug. 9, 1968, Ser. No. 751,359

Int. Cl. C07c 69/62

U.S. Cl. 260—487

6 Claims

This invention discloses new 2-dialkylaminobenzhydryl esters of aliphatic acids having the general formula



wherein Z is dialkylamino; X and Y are independently selected from the group consisting of alkyl, alkenyl, halogen, nitro, alkoxy, dialkylamino and alkylthio; m is an integer from 0 to 4; n is an integer from 0 to 5; R is selected from the group consisting of alkyl, alkenyl, haloalkyl, haloalkenyl, alkoxyalkyl, alkylthioalkyl, cyanoalkyl, thiocyanalkyl, dialkylaminoalkyl, cycloalkyl and cycloalkenyl. The compounds of the above description are useful as pesticides, particularly acaricides, insecticides and fungicides.

3,655,735

PRODUCTION OF 3-METHYLBUT-2-EN-1-OL OR 3-METHYLBUT-2-EN-1-YL ACETATE

Horst Pommer, Ludwigshafen, Herbert Mueller, Frankfurt, Dietrich Mangold, Neckargemuend, and Hermann Overwien, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 9, 1968, Ser. No. 782,420

Claims priority, application Germany, Mar. 22, 1968, P 77 68 023.8

Int. Cl. C07c 29/00, 67/00

U.S. Cl. 260—491

2 Claims

Production of 3-methylbut-2-en-1-ol and 3-methylbut-2-en-1-yl acetate by isomerizing 3-methyl-3-buten-1-ol or 3-methyl-3-buten-1-yl acetate with a catalytic amount of a carbonyl compound of a metal of subgroups 6 to 8 of the Periodic System.

3,655,736

PREPARATION OF ENOL ESTERS FROM ALLENES

Charles J. Norton, Denver, and Byron C. Diehl, Allenspark, Colo., assignors to Marathon Oil Company, Findlay, Ohio

No Drawing. Filed May 1, 1968, Ser. No. 725,926

Int. Cl. C07c 67/04

U.S. Cl. 260—497 R

21 Claims

Enol esters are prepared by reacting allene and its derivatives and carboxylic acids in the presence of a catalyst wherein from about 0.01 to about 100 moles of allene or

allene derivatives are present per mole of carboxylic acid at a temperature of from about 25 to about 500° C. at the desired pressure.

3,655,737

1-(3-HYDROXY-4-METHYL-PHENYL)-PROPYLAMINE (-2) AND THE SALTS THEREOF

Per Arvid Emil Carlsson, Goteborg, Hans Rudolf Corrodi, Askim, Sven Göran Hallhagen, Molndal, and Ulf Kristersson, Goteborg, Sweden, assignors to Aktiebolaget Hassle, Goteborg, Sweden

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,662

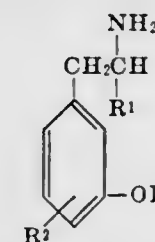
Claims priority, application Sweden, Apr. 1, 1968, 4,332/68

Int. Cl. C07c 87/28

U.S. Cl. 260—501.17

2 Claims

Compounds represented by the formula



wherein R¹ is a member of the group consisting of CH₃, C₂H₅ and C₃H₇, and R² in position 2, 4, 5 or 6 on the benzene nucleus is a member of the group consisting of F, Cl, Br, CH₃, C₂H₅ and C₃H₇, pharmaceutical compositions containing these compounds, and the use thereof for therapeutic purposes.

3,655,738

PREPARATION OF DIPERPHTHALIC ACIDS

Donald R. Nielsen, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 655,994, July 26, 1967. This application Oct. 31, 1969, Ser. No. 873,058

Int. Cl. C07c 73/10

U.S. Cl. 260—502 R

8 Claims

Diperphthalic acids are prepared from hydrogen peroxide and the phthalic acid in an alkanesulfonic acid reaction medium by using finely subdivided phthalic acid with a particle dimension below 0.1 millimeter, more notably in the range of from 0.001 to 0.1 millimeter. A unique crystal form of diperisophthalic acid is obtained, for example, by reaction of isophthalic acid of less than 0.044 millimeter (less than 325 mesh).

3,655,739

PROCESS FOR THE PRODUCTION OF NAPHTHALENESULFONIC ACID IN A PACKED REACTOR

Hermann Clasen, Falkenstein, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

Filed Mar. 18, 1968, Ser. No. 713,771

Claims priority, application Germany, Mar. 17, 1967, F 51,847

Int. Cl. C07c 143/24

U.S. Cl. 260—500 C

1 Claim

The exchange of material between liquid and gaseous phases is carried out in countercurrent flow in a column which is filled with packings so as to avoid vertical remixing of the downward flowing liquid under the action of the ascending gaseous phase. For carrying out the processes a column is used, the length of which is great in relation to its diameter, and which is fitted out with

a filling or with installations for inhibiting the remixing of the descending liquid.

The process is especially suitable for separating 1-naphthalene-sulfonic acid from a sulfonation mixture of naphthalene-sulfonic acids by hydrolysis with superheated steam.

3,655,740

METHOD FOR PRODUCING AMINO-NAPHTHALENE SULPHONIC ACIDS

Horst Nickel and Fritz Suckfüll, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

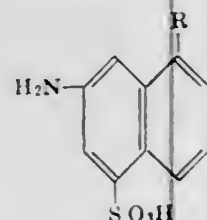
No Drawing. Filed July 22, 1968, Ser. No. 746,251
Claims priority, application Germany, July 31, 1967, F 53,106

Int. Cl. C07c 143/64, 143/56

U.S. Cl. 260—509

2 Claims

Compounds of the formula



in which R is —OH or —NH₂ are prepared by nitrating 1-nitronaphthalene-5-sulfonic acid in oleum to give 1,7-dinitronaphthalene-5-sulfonic acid, reducing the latter to 1,7-diaminonaphthalene-5-sulfonic acid and optionally exchanging in known manner the 1-positioned amino group for a hydroxy group. These compounds are useful as intermediates in the preparation of azomethine dyestuffs, e.g. by condensation with aromatic aldehydes.

3,655,741

PRODUCTION OF o-BENZOYL BENZOIC ACID

Hans Juergen Sturm and Herbert Armbrust, Gruenstadt, and Hans Nienburg and Wolfgang Eisfeld, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 23, 1970, Ser. No. 49,165
Claims priority, application Germany, July 4, 1969, P 19 34 055.7

Int. Cl. C07c 65/20

U.S. Cl. 260—517

11 Claims

Production of o-benzoylbenzoic acid by oxidation of an indan with oxygen in the presence of a catalyst in the liquid phase. The product is a starting material for many syntheses (see for example Ullmanns Encyklopädie der Technischen Chemie, volume 3, pages 660 et seq.). It is of particular importance as a starting material for the manufacture of anthraquinone.

3,655,742

PROCESS FOR PRODUCING MAGNESIUM PROBENECID TETRAHYDRATE

David J. Morgans, North Wales, Joseph F. Bavitz, Willow Grove, and Robert A. Castello, Doylestown, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 722,821, Apr. 17, 1968. This application Feb. 10, 1969, Ser. No. 798,109

Int. Cl. C07c 101/42

U.S. Cl. 260—518 R

2 Claims

Magnesium probenecid tetrahydrate, an antigout therapeutic agent, is produced in high yield by a controlled reaction of probenecid acid and magnesium carbonate or equivalent magnesium salt.

3,655,743 SUBSTITUTED 4 - BIPHENYL-4-HYDROXY CROTONIC ACIDS AND SALTS THEREOF

Josef Nickl and Wolfhard Engel, Biberach (Riss), Albrecht Eckenfels, Warthausen-Oberhofen, and Ernst Seeger and Gunther Engelhardt, Biberach (Riss), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

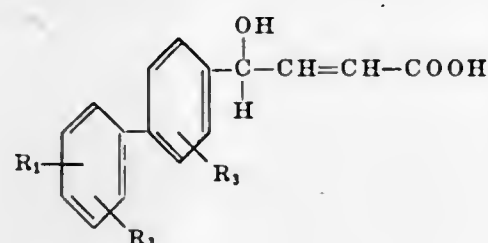
No Drawing. Filed Nov. 12, 1970, Ser. No. 88,983
Claims priority, application Germany, Nov. 17, 1969, P 19 57 750.5; Sept. 29, 1970, P 20 47 804.0, P 20 47 805.1, P 20 47 802.8, P 20 47 803.9

Int. Cl. C07d 87/36; C07c 65/14

U.S. Cl. 260—247.2 R

7 Claims

Compounds of the formula



wherein, of the three substituents R₁, R₂ and R₃,

one is hydrogen, and

two are selected from the group consisting of hydrogen, lower alkyl, halogen, hydroxy-lower alkyl, nitro, amino, acetyl amino, cyano, aminocarbonyl, dimethylaminocarbonyl, carbethoxy, hydroxyl, methoxy, methylthio, methylsulfinyl and methylsulfonyl,

and non-toxic, pharmacologically acceptable salts thereof; the compounds as well as their salts are useful as anticoagulants, antiphlogistics, analgesics and antitussives.

3,655,744

CARBOXYLATION OF METAL ARYLOXIDES

Yutaka Yasuhara, Tatsuo Nogii, and Ikuzo Takahashi, Shizuoka-ken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 658,654, Aug. 7, 1967. This application Feb. 2, 1971, Ser. No. 112,087

Int. Cl. C07c 65/04

U.S. Cl. 260—521 R

5 Claims

A process for preparing a metal salt of an aromatic hydroxycarboxylic acid and a free acid thereof which comprises reacting by heating an aromatic compound selected from a metal phenoxide or derivative thereof and/or metal salt beta-naphthol with carbon monoxide and a carboxylating reagent consisting of a Na, K, Li, Cs, Rb, Ca or Ba salt of carbonic acid and thereafter separating the metal salt of an aromatic hydroxycarboxylic acid.

3,655,745

PREPARATION OF METHACRYLIC ACID

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

No Drawing. Filed Sept. 6, 1968, Ser. No. 758,146
Int. Cl. C07c 57/04, 57/08

U.S. Cl. 260—526 N

7 Claims

Allyl compounds are reacted with carbon monoxide in the presence of a platinum group metal catalyst and a modifier which is a low molecular weight alkanolic acid and/or a hydrohalic acid to prepare alpha, beta-unsaturated carboxylic acids having a high content of desired methacrylic acid and minor amounts of crotonic acid as the major by-products. The contacting is effected at mild conditions with temperatures from 25° to 350° C. and pressures from 1 to about 1000 atmospheres and can be

performed under vapor phase of liquid phase conditions, the latter being preferred. In a typical embodiment, allyl chloride is carbonylated by contacting the compound with carbon monoxide and an aqueous or anhydrous solution of acetic acid containing palladium at a temperature of about 150° C. to produce methacrylic and crotonic acids or anhydrides thereof.

3,655,746

PROCESS FOR PRODUCING MONOSODIUM GLUTAMATE

Tetsuya Shiraiishi, Kakogawa, Jun Utsugi, Takasago, Koji Tanaka, Kakogawa, and Yasunori Tokuda, Takasago, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 23, 1970, Ser. No. 31,394
Claims priority, application Japan, Apr. 23, 1969, 44/31,917

Int. Cl. C07c 99/12

U.S. Cl. 260—527 N

2 Claims

Process for producing monosodium glutamate, which comprises contacting a glutamic acid fermentation broth at a pH between about 5 and about 9 with an amount of 1 litre by wet volume of a strongly basic anion exchange resin relative to about 0.2 to 0.6 molecular equivalent at the anionic impurities contained in said broth; adding to the effluent from the resin a stoichiometric amount of sodium hydroxide relative to the glutamic acid contained therein; and recovering the crystals of monosodium glutamate thus obtained.

3,655,747

PROCESS FOR THE MANUFACTURE OF CARBOXYLIC ACIDS

Kurt Sennewald and Wilhelm Vogt, Knapsack, near Cologne, Heinz Erpenbach, Surth, near Cologne, and Hermann Glaser, Knapsack, near Cologne, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

No Drawing. Filed Mar. 22, 1968, Ser. No. 715,146
Claims priority, application Germany, Apr. 1, 1967, K 61,875

Int. Cl. C07c 51/26

U.S. Cl. 260—530 R

12 Claims

Carboxylic acids are produced by oxidation of aliphatic aldehydes with oxygen or an oxygen-containing gas mixture in the gas phase in contact with a catalyst by oxidizing an aliphatic aldehyde containing from 2 to 6 carbon atoms at elevated temperatures in the presence of a carrier catalyst containing metallic palladium and/or palladium oxide and/or a palladium salt and at least one further substance comprising platinum, rhodium, ruthenium, iridium, copper, silver, gold, zinc, cadmium, tin, lead, bismuth, chromium, molybdenum, tungsten, manganese, iron, cobalt, nickel or tellurium in metallic form or in oxide or salt form, and/or an alkali metal or alkaline earth metal compound as an activator.

3,655,748

SYNTHESIS OF ε-AMINOCAPROIC ACID FROM ε-CAPROLACTAM

Milan Tandara, Sarajevo, Yugoslavia, assignor to Bosnalijek, Sarajevo, Yugoslavia
Filed Apr. 29, 1969, Ser. No. 820,069

Claims priority, application Yugoslavia, Dec. 26, 1968, P 3,106

Int. Cl. C07c 101/04, 99/06

U.S. Cl. 260—534 R

10 Claims

ε-Aminocaproic acid is produced by the hydrolytic decomposition of ε-caprolactam wherein a mixture of the lactam and Ba(OH)₂·8H₂O is dissolved in a mixed sol-

vent consisting of water and dimethylsulfoxide (DMSO). The barium salt of the acid which is formed is then converted to the free acid by adding gaseous carbon dioxide which forms insoluble BaCO₃.

3,655,749

CONVERSION OF PROPYLENE AND ISOBUTENE TO THE CORRESPONDING UNSATURATED ALDEHYDES AND ACIDS

John A. Ondrey, Springdale, and Harold E. Swift, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed June 2, 1969, Ser. No. 829,701
Int. Cl. C07c 57/04

U.S. Cl. 260—530 N

10 Claims

A method of oxidizing propylene and isobutene to the corresponding unsaturated aldehydes and acids and for oxidizing the unsaturated aldehydes of propylene and isobutene to the corresponding unsaturated acids by the vapor phase reaction with molecular oxygen in the presence of a catalyst of cobalt molybdate promoted with a composition of vanadium, tellurium and oxygen. Propylene is converted to acrolein and acrylic acid and acrolein is converted to acrylic acid.

3,655,750

METHOD FOR PRODUCING UNSATURATED ALDEHYDES AND ACIDS

John A. Ondrey, Springdale, and Harold E. Swift, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed June 2, 1969, Ser. No. 829,721
Int. Cl. C07c 57/04

U.S. Cl. 260—530 N

10 Claims

A method of oxidizing propylene and isobutene to the corresponding unsaturated aldehydes and acids and for oxidizing the unsaturated aldehydes of propylene and isobutene to the corresponding unsaturated acids by the vapor phase reaction with molecular oxygen in the presence of a catalyst of cobalt molybdate promoted with a composition of tungsten, tellurium and oxygen. Propylene is converted to acrolein and acrylic acid and acrolein is converted to acrylic acid.

3,655,751

N,O-DICARBAMOYL-N-PHENYLHYDROXYLAMINES

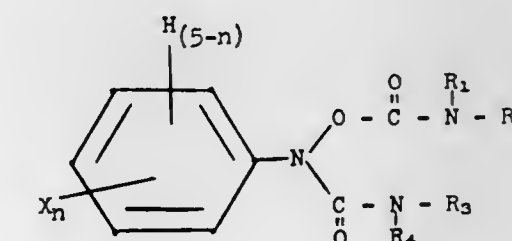
John Krenzer, Oak Park, and Sidney B. Richter, Chicago, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill.

No Drawing. Filed Jan. 3, 1968, Ser. No. 695,362
Int. Cl. C07c 127/16, 127/18, 127/20

U.S. Cl. 260—545 R

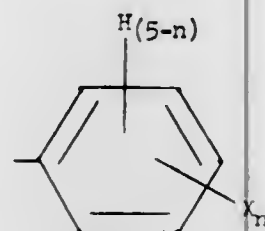
7 Claims

New compounds of the formula:



wherein each X is independently selected from the group consisting of halogen, alkyl, alkenyl, haloalkyl, nitro, alkoxy, alkylthio, alkylsulfoxide, alkylsulfone and dialkyl-

amino; n is an integer from 0 to 4; R_1 is selected from the group consisting of alkyl, alkenyl, haloalkyl, and



wherein X and n are as heretofore described; and R_2 , R_3 and R_4 are each independently selected from the group consisting of hydrogen, alkyl, alkenyl and haloalkyl. A herbicidal and fungicidal composition comprising an inert carrier and as an essential active ingredient, in a quantity toxic to weeds or fungi, a compound of the above description. A method for the control of weeds and fungi which comprises applying to said weeds or fungi a herbicidal and fungicidal composition comprising an inert carrier and, as an essential active ingredient, in a quantity toxic to weeds or fungi, a compound heretofore described.

3,655,752

ISOMERS OF 2,4,6-TRIALO-N,N,N',N'-TETRAALKYLISOPHTHALAMIDES

James H. Ackerman, Bethlehem, and George M. Laidlaw, East Greenbush, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed June 20, 1969, Ser. No. 835,233

Int. Cl. C07c 103/34

U.S. Cl. 260—558 A

4 Claims

Geometrical isomers of 5-amino-2,4,6-trihalo-N,N,N',N'-tetraalkylisophthalamides are prepared by separation of the isomer mixtures formed either from halogenation of 5-amino-N,N,N',N'-tetraalkylisophthalamides or by amidation of the corresponding 5-amino-2,4,6-trihaloisophthalic acids. Deamination via diazotization leads to the corresponding compounds lacking the 5-amino group. The products are useful as intermediates for radiopaques and as tranquilizing and fungistatic agents.

3,655,753

RECOVERY OF COLOR-FORMING COUPLERS

Austin C. Cooley, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Oct. 2, 1969, Ser. No. 863,324

Int. Cl. C07c 103/26

U.S. Cl. 260—559 R

9 Claims

The separation of 2,4-bis(benzenesulfonamido)phenol balancing developing agent from N-(o-acetamido phenethyl)-1-hydroxy-2-naphthamide color-forming coupler is accomplished by techniques employing an oxidizing agent, advantageously supplied by aeration, in strongly alkaline solutions containing the coupler and balancing developing agent, separating resulting solids from the solution, and lowering the solution pH to precipitate the coupler.

3,655,754

PROCESS FOR PREPARING NITRILOTRIACETIC ACID TRIAMIDE

Joseph D. Moyer, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y.

No Drawing. Original application Sept. 20, 1967, Ser. No. 673,245, now Patent No. 3,558,630, dated Jan. 26, 1971. Divided and this application July 9, 1970, Ser. No. 53,662

Int. Cl. C07c 103/00

U.S. Cl. 260—561 A

5 Claims

Nitrilotriacetic acid is reacted with an amide to form 3,5-dioxo-1-piperazineacetamide which is reacted with am-

monia or ammonium hydroxide to form nitrilotriacetic acid triamide.

3,655,755

N-FORMYL- α -HALO-ACETANILIDES

John F. Olin, Manchester, Mo., assignor to Monsanto Company, St. Louis, Mo.

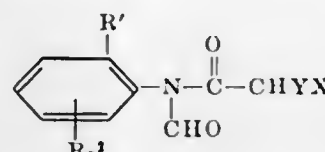
No Drawing. Continuation-in-part of application Ser. No. 624,110, Jan. 27, 1967, which is a division of application Ser. No. 348,862, Mar. 2, 1964. This application May 20, 1970, Ser. No. 39,176

Int. Cl. C07c 103/32

U.S. Cl. 260—562 B

12 Claims

Compounds of the formula



wherein R' is alkyl; R^2 is halogen, alkyl or alkoxy; n is an integer 0 to 4, X is chlorine, bromine and iodine and Y is hydrogen or halogen.

These compounds have herbicidal activity.

3,655,756

BENZENESULFONYL UREAS HAVING HYPOGLYCEMIC ACTIVITY

Helmut Weber and Rudi Weyer, Frankfurt am Main, Walter Aumuller and Karl Muth, Kelkheim, Taunus, and Kurt Stach, Mannheim, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of applications Ser. No. 511,990, Dec. 6, 1965, and Ser. No. 636,290, May 5, 1967. This application Feb. 14, 1969, Ser. No. 799,534

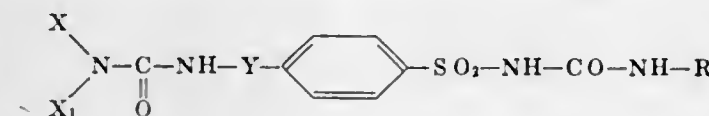
F 44,630

Int. Cl. C07c 127/00

U.S. Cl. 260—553 D

16 Claims

Benzenesulfonyl urea compounds that are effective as oral antidiabetic agents are disclosed to have the formula



wherein

R is

- alkyl or alkenyl of 3–6 carbon atoms,
- endoalkylene-cyclohexyl, endoalkylene-cyclohexenyl, endoalkylene-cyclohexylmethyl or endoalkylene-cyclohexenylmethyl of 1–2 endoalkylene carbon atoms,
- benzyl, phenylethyl,
- cyclohexyl methyl,
- lower alkyl cyclohexyl or dialkyl cyclohexyl methyl cyclopentyl,
- cycloalkyl of 5–8 carbon atoms in the ring
- cyclohexenyl, cyclohexenyl-methyl, methylcyclohexenyl, or
- nortricyclyl,

X is

- phenyl, trifluoromethyl phenyl, phenyl substituted by one to two substituents selected from the group consisting of halogen, lower alkyl and lower alkoxy, or
- benzyl,

X_1 is alkyl of 1 to 3 carbon atoms, and

Y is a saturated hydrocarbon of 1 to 3 carbon atoms.

3,655,757

1- β -HYDROXY- β -PHENYLETHYLGUANIDINE

Roy Fielden, Welwyn Garden City, England, Albert Lawrence Green, Glasgow, Scotland, and Derek William Hills, Welwyn Garden City, England, assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Original application Mar. 29, 1966, Ser. No. 538,227, now Patent No. 3,377,245, dated Apr. 9, 1968. Divided and this application Jan. 16, 1968, Ser. No. 698,137

Int. Cl. C07c 129/00

U.S. Cl. 260—564 A

4 Claims

The laevo- β -hydroxy- β -phenylethylguanidine isomer is disclosed along with its hypotensive properties which distinguish it from its dextro isomer or racemic mixture.

3,655,758

IMINOCARBONYL DERIVATIVES

George A. Kurhajec, North Oaks, and Erwin W. Neuvar, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

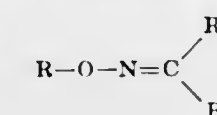
No Drawing. Filed Oct. 10, 1966, Ser. No. 587,369

Int. Cl. C07c 131/00

U.S. Cl. 260—566 AE

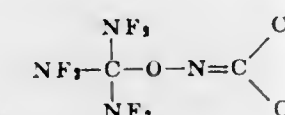
6 Claims

1. A compound of the formula



wherein R is alkyl, haloalkyl containing from 1 to 4 chlorine or bromine atoms, fluoroalkyl or fluoramino-substituted polyfluoroalkyl, said alkyl or substituted alkyl radicals having from 1 to 12 carbon atoms in a straight or branched chain; and R' is chlorine, bromine, fluorine, $-\text{NF}_2$, $-\text{NH}_2$, $-\text{NHR}''$, $-\text{N(R'')}_2$ or $-\text{OR}''$, wherein R'' is a lower alkyl radical.

2. O-tris(difluoramino)methoxyiminocarbonyl chloride according to claim 1, having the formula



3,655,759

PROCESS FOR THE PREPARATION OF CYCLOHEXANONE OXIME

Walter Krönig and Johann Grollig, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Continuation of application Ser. No. 622,064, Mar. 10, 1967. This application Nov. 13, 1969, Ser. No. 871,587

Claims priority, application Germany, Mar. 19, 1966, F 48,711

Int. Cl. C07c 131/04

U.S. Cl. 260—566 A

8 Claims

Production of optionally alkyl-substituted cyclohexanone oxime by reacting the corresponding cyclohexanone with ammonia and hydrogen peroxide in aqueous phase in the presence of a tungsten catalyst at a temperature between about -20 to $+50^\circ\text{C}$., with both the starting cyclohexanone compound and the ammonia being used in molar excess with respect to the amount of hydrogen peroxide used.

3,655,760

CYCLIC PROCESS FOR THE PREPARATION OF AN OXIME FROM A HYDROXYLAMMONIUM SALT SOLUTION

Abraham H. de Rooij, Gellen, and Jan Elemndorp, Brunssum, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

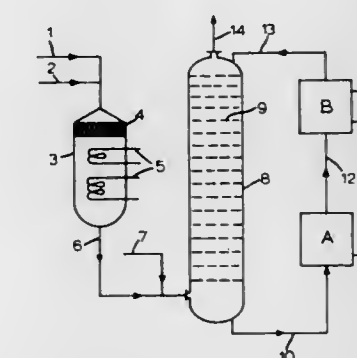
Filed Nov. 12, 1969, Ser. No. 875,724

Claims priority, application Netherlands, Nov. 12, 1968, 6816074

Int. Cl. C07c 131/00; C01c 1/28; C01b 21/40

U.S. Cl. 260—566 A

3 Claims



A cyclic process for the preparation of an oxime from a ketone and a hydroxylammonium salt is disclosed in which an aqueous acid reaction medium is circulated between a hydroxylammonium salt synthesis zone wherein nitrate ions are catalytically reduced to form a hydroxylammonium salt in the aqueous acid reaction medium, and an oxime synthesis zone wherein the hydroxylammonium salt is reacted with ketone to form an oxime. The nitrate ions reduced in the hydroxylammonium salt synthesis zone are replenished by the absorption of nitrous gases in the aqueous acid reaction medium resulting in formation of nitric acid.

3,655,761

CERTAIN OXIME ESTERS

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

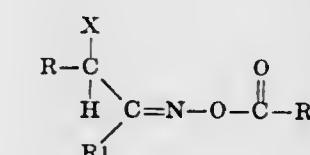
No Drawing. Continuation-in-part of application Ser. No. 649,024, June 26, 1967. This application Dec. 4, 1969, Ser. No. 882,299

Int. Cl. C07c 131/00

U.S. Cl. 260—566 AE

4 Claims

Compounds having the formula

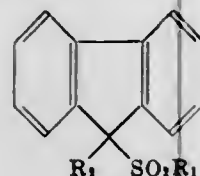


in which X is chlorine or bromine; R is hydrogen or alkyl having from 1 to 6 carbon atoms; R^1 is alkyl having 1 to 4 carbon atoms or haloalkyl having from 1 to 4 carbon atoms, phenyl or nuclear substituted derivatives thereof in which the substituents are halogen, nitro or lower alkyl; R^2 is alkenyl having from 2 to 4 carbon atoms. The compounds are useful in controlling weeds and for inhibiting the growth of bacteria and fungi.

3,655,762 9-AMINOALKYL-9-ALKYL- OR ARYL- SULPHONYL-FLUORENES

Jean A. Gautier, Marcel Y. Miocque, Henri Moskowitz, and Janine L. Blanc-Guenee, Paris, Guy M. Raynaud, Meudon la Foret, and Nicole A. M. Dorme, Paris, France, assignors to Delalande S.A., Courbevoie, Hauts-de-Seine, France
No Drawing. Filed July 23, 1969, Ser. No. 844,209
Int. Cl. C07c 87/28

U.S. Cl. 260—570.8 TC
A compound of the formula



in which R₁ is a straight or branched chain aliphatic radical having 1 to 6 carbon atoms, or a phenyl or p-tolyl radical, and R₂ is a saturated or unsaturated, straight or branched chain aliphatic radical having 1 to 5 carbon atoms, which radical may carry a tertiary amino radical, such as a dialkylamino, morpholino or piperidino. The compound is obtained by reacting the corresponding fluorene with sodium amide and then reacting the resulting sodium derivative with a halogenide of the formula X—R₂, wherein X is a halogen. The compounds possess diuretic and analgesic properties.

3,655,763 PREPARATION OF N,N'-DIARYL-1,4-DIAMINO- NAPHTHALENE COMPOUND

Donald M. Fenton, Anaheim, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Filed July 17, 1968, Ser. No. 745,350
Int. Cl. C07c 87/66

U.S. Cl. 260—576

The title compounds are prepared from naphthalene using the process of this invention which comprises reacting a 1,4-naphthadiol bearing a substituent on the number 2 ring position with an alkali metal bisulfite to obtain a derivative having an alkali metal sulfonate in the 3 position and thereafter contacting the resultant sulfonate with an aryl amine hydrohalide to add the amino groups in the 1 and 4 positions and to simultaneously desulfonate the naphthalene nucleus. The sulfonation step is performed at mild conditions from 25° to 200° C. and the addition of the aryl amine hydrohalide is performed at a temperature of from 100° to 350° C. The subject compounds produced by this process are useful as antioxidants and in particular are useful as antioxidants in rubber compositions by incorporation in rubber in amounts from about 0.01 to about 5.0 weight percent in the conventional manner for the use of antioxidants.

3,655,764 CONTINUOUS PROCESS FOR MAKING HYDROXYLAMINES

Henry Bader, Newton Center, and Alexander Boag, Arlington, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 24, 1969, Ser. No. 801,550
Int. Cl. C07c 83/02, 83/04

U.S. Cl. 260—584 C

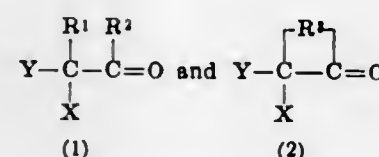
N,N-disubstituted hydroxylamines are prepared in improved yields by continuously and progressively reacting the corresponding secondary amine with an inorganic peroxide at elevated temperatures and continuously quenching the reaction as the peroxide becomes consumed by rapidly cooling the reaction mixture to below about 25° C.

3,655,765 HALOGEN CONTAINING KETONES, ACID HALIDES AND PROCESSES

Samuel Gelfand, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 306,278, Sept. 3, 1963, which is a continuation-in-part of application Ser. No. 157,007, Dec. 4, 1961. This application Feb. 15, 1968, Ser. No. 705,615
Int. Cl. C07c 49/28, 49/00

U.S. Cl. 260—586 R

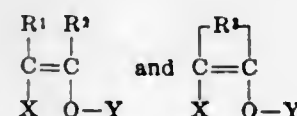
There are provided novel halogenated ketones of the formulae



wherein

X is selected from the group consisting of chlorine bromine, fluorine and hydrogen;
R¹ is selected from the group consisting of hydrogen, chlorine, bromine, fluorine and halo alkyl;
R² is halo alkyl;
R³ is halo alkylene of from three to four carbon atoms; and
Y is allyl;

said R¹, R² and R³ substituents containing a maximum of two hydrogen atoms. These ketones are useful as pesticides. There is also provided a process for preparing these ketones comprising heating a compound of the formulae



until the desired compound is produced. The ketones of this invention are useful as chemical intermediates for example, in the making of Diels-Alder adducts with hexahalo-cyclopentadiene, to produce pesticidal compounds active against insects, fungi, bacteria and nematodes. They are also useful as olefinic monomers which may be polymerized to moldable plastics which exhibit flame retardant characteristics.

3,655,766 PHOSPHORANYLIDENE SUBSTITUTED CYCLIC COMPOUNDS

Gail H. Birum, Kirkwood, and Clifford N. Matthews, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Continuation-in-part of application Ser. No. 567,066, July 22, 1966. This application June 7, 1968, Ser. No. 735,190
Int. Cl. C07c 49/27

U.S. Cl. 260—586 R

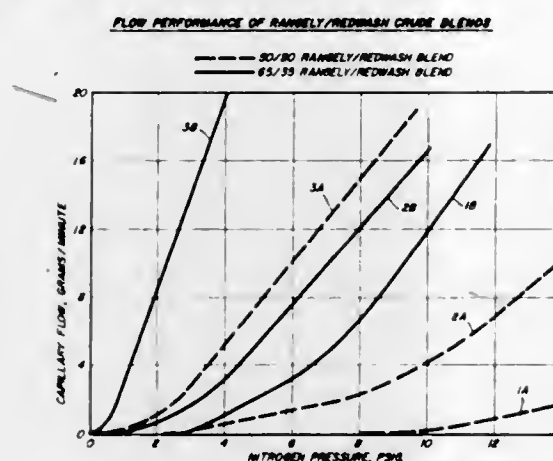
Stable, ylide-substituted 1,3-cyclobutanediones are synthesized from triorganophosphoranylidene ketene and aldehydes or active ketones. Analogous adducts are formed from triorganophosphoranylidene ketene and ketenes in a one-step reaction. In contrast to the above reactions yielding substituted 1,3-cyclobutanediones, reaction of aryl isocyanates with triorganophosphoranylidene ketene results in 2:1 adducts having six-membered ring structures. The new compounds are useful as fire retardants, biological toxicants, plasticizers, textile treating agents and lubricant additives.

3,655,767 FLOW CHARACTERISTICS OF WAXY PETROLEUM RESIDUUM

Roy John Ott, Riverdale, N.Y., and Harold Nelson Miller, Millington, N.J., assignors to Esso Research and Engineering Company
Original application Sept. 20, 1965, Ser. No. 488,707. Divided and this application Apr. 25, 1968, Ser. No. 724,245
Int. Cl. C07c 49/76

U.S. Cl. 260—592

3 Claims



A process for preparing blending agents for improving the flow characteristics of high wax-containing oils by adding a C₁₈-C₂₄ carboxylic acid halide-Friedel-Crafts catalyst complex to styrene dissolved in a solvent and simultaneously polymerizing and acylating said styrene monomer.

3,655,768 PRODUCTION OF ALK-1-EN-6-ONES

Horst Pommer, Ludwigshafen, Herbert Mueller, Frankfurt, and Hermann Overwien, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Nov. 13, 1968, Ser. No. 775,518
Int. Cl. C07c 49/20, 49/45, 49/76

U.S. Cl. 260—593 R

Production of alk-1-en-6-ones by reaction of an alk-1-en-4-ol at from 100° to 400° C. with a ketone bearing at least one hydrogen atom on a carbon atom in vicinal position to the carbonyl group.

3,655,769 OXIDATION OF n-PARAFFINS

Matthew A. McMahon, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Sept. 25, 1967, Ser. No. 670,374
Int. Cl. C07c 45/02, 31/00

U.S. Cl. 260—597

A method of oxidizing n-paraffins of between about 6 and 20 carbons having an ultraviolet light absorbancy of at least about 1 at 260-280 mμ to produce oxidates rich in secondary alkanols comprising contacting said n-paraffin with oxygen in the presence of between about .001 and 5 wt. percent of a peroxide selected from the group consisting of t-butyl hydroperoxide and di-t-butyl peroxide and between about 1 and 15 wt. percent of a boron compound selected from the group consisting of boric oxide, boric acid and alkyl metaborate of between about 3 and 15 carbons, said wt. percent based on said n-paraffin.

3,655,770 PROCESS OF PRODUCING SALICYLALDEHYDE

Frank Cyril Buckley, Healdgreen, England, assignor to Ciba-Geigy AG, Basel, Switzerland
No Drawing. Filed May 5, 1969, Ser. No. 821,965
Int. Cl. C07c 45/00

U.S. Cl. 260—600

A process for the preparation of salicylaldehyde, comprising the acid hydrolysis of tri-(o-dichloromethyl phen-

yl)phosphate to salicylaldehyde is described. The sodium salt of a condensation product of naphthalene sulfonic acid and formaldehyde is added during the hydrolysis, whereby contamination of the reaction vessel by a hard, red by-product resin is avoided.

3,655,771 PROCESS FOR PRODUCING FORMALDEHYDE

Hachiro Tadenuma, Akita-shi, Torajiro Murakami, Tokyo, and Hirotsugu Mitsushima, Akita-shi, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
No Drawing. Continuation-in-part of application Ser. No. 379,030, June 29, 1964. This application Sept. 4, 1968, Ser. No. 776,293
Int. Cl. C07c 45/16

U.S. Cl. 260—603 HF

Formaldehyde is prepared by oxidizing dimethyl ether or a mixture of dimethyl ether and methanol with air in the presence of a tungsten oxide catalyst.

3,655,772 NAPHTHYL AND ANTHRACENYL BUTENYL SULFONES

Charles H. Chang, Piscataway, N.J., and David I. Randall, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 605,622, Dec. 29, 1966. This application Dec. 24, 1969, Ser. No. 888,062
Int. Cl. C07c 147/08

U.S. Cl. 260—607 A

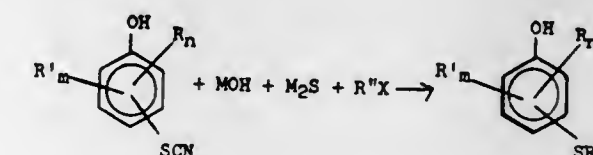
The reaction of 1,3-butadiene with polycyclic sulfonyl halides, and resulting products containing a nuclearily substituted —SO₂CH₂CH=CHCH₂X group, X being halo, useful as herbicides, pesticides, and intermediates for dyes and the like.

3,655,773 METHOD FOR MAKING THIOETHERS

Walter Reifschneider, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Mar. 2, 1970, Ser. No. 15,846
Int. Cl. C07c 149/32

U.S. Cl. 260—609 F

Phenolic thioethers are prepared by reacting a thio-cyanophenol with an alkylating agent in the presence of a base and an alkali metal or ammonium sulfide according to the following representative equation wherein reactants and the phenolic thioether product are set forth:



wherein R is a fluoro, chloro, bromo, iodo, lower alkyl or lower alkoxy group; R' is an R or a lower alkenyl, lower alkynyl, 3 to 6 carbon cycloalkyl, 6 to 10 carbon aryl, substituted phenyl, 7 to 8 carbon phenalkyl, phenoxy, cyano, amido, amino, lower alkylamino, lower alkylthio, hydroxy, or lower acyloxy group; n is an integer from 0 to 4; m is an integer from 0 to 2; the sum of m+n is an integer from 0 to 4; M is alkali metal or ammonium; R'' is a 1 to 12 carbon alkyl, (cyano-lower alkyl), lower alkenyl, lower alkynyl, 3 to 6 carbon cycloalkyl, or 7 to 8 carbon phenalkyl group; and X is a halide, sulfonate, sulfate or other similar anion group.

3,655,774

METHOD FOR PRODUCING LOW MOLECULAR WEIGHT THIOETHERS

Yves Labat, Pau, France, assignor to Societe Nationale des Petroles d'Aquitaine tour Aquitaine, Courbevoie, France

No Drawing. Filed Apr. 28, 1969, Ser. No. 819,943

Claims priority, application France, Apr. 30, 1968, 150,081, 150,082

Int. Cl. C07c 149/06, 149/10

U.S. Cl. 260—609 A 10 Claims
A method is described, which permits of easily and economically preparing mixtures of thioethers

substantially OH free having an enhanced content of methane-dithiol HSCH_2SH and monothioether dithiol $\text{HSCH}_2\text{SCH}_2\text{SH}$; the average value of n of the mixtures is about 1.2 to 2.6. The method consists in reacting monothioether diol $\text{HOCH}_2\text{SCH}_2\text{OH}$ or formaldehyde HCHO , or a mixture of these two compounds, preferably in aqueous solution, with at least 2.5 moles H_2S per mole of the compound or compounds between 20° and 90° C.; the pH of the reaction medium is adjusted to a value comprised between 8 and a minimum which is a linear function of temperature, and is defined by the extreme limits: 6.8 at 20° C. and 3.3 at 90° C. The thioethers formed are then separated by conventional means from the reaction medium, after excess H_2S has been degassed.

3,655,775

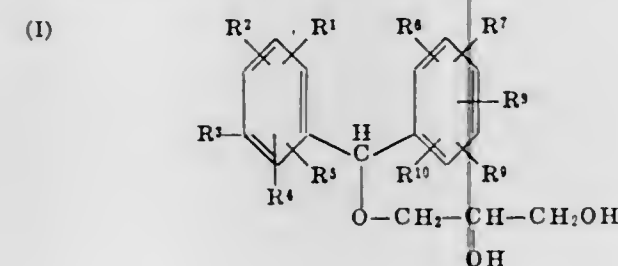
GLYCERYL ETHERS

Wijbe Thomas Nauta, Nieuw Loosdrecht, Netherlands, assignors to N.V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia, Amsterdam, Netherlands

No Drawing. Filed Sept. 13, 1967, Ser. No. 667,378

Claims priority, application Great Britain, Sept. 16, 1966, 41,540/66

Int. Cl. C07c 43/20

U.S. Cl. 260—611 A 2 Claims
The invention disclosed herein relates to glyceryl ethers having the general Formula I

The compounds of this invention have been found to have activity as muscle relaxants, anti-convulsives and sedatives.

3,655,776

PHLOROGLUCINOL DERIVATIVES

Victor Lafon, Paris, France, assignor to Societe Anonyme dite: Orsymonde, Paris, France

No Drawing. Filed Sept. 4, 1969, Ser. No. 855,371

Claims priority, application Great Britain, Sept. 9, 1968, 42,870/68

Int. Cl. C07c 43/22

U.S. Cl. 260—613 D 3 Claims
This invention is concerned with new phloroglucinol derivatives obtained by condensing a molecule of 1,3,5-trihydroxy-benzene with one or two molecules of glycol chlorhydrin.

(2-chloroethoxy) - 3,5 - dihydroxy-benzene has antispasmodic properties and 3,5-di(2-chloroethoxy)-phenol shows tranquilizing activities.

3,655,777

HYDROGENATION OF UNSATURATED ALDEHYDES TO UNSATURATED ALCOHOLS

Paul N. Rylander and Duane R. Steele, Newark, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Newark, N.J.

No Drawing. Filed Nov. 12, 1968, Ser. No. 775,156

Int. Cl. C07c 33/00, 33/06; C11b 9/00

U.S. Cl. 260—618 H 3 Claims
Alpha,beta-olefinically unsaturated aldehydes are hydrogenated to the corresponding unsaturated alcohols using osmium as the catalyst.

3,655,778

METHOD FOR ISOMERIZING PHENYLPHENOLS

Gustave K. Kohn, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Dec. 27, 1968, Ser. No. 787,627

Int. Cl. C07c 39/12

U.S. Cl. 260—619 R 5 Claims
Method for isomerizing monoarylphenols and mono-arylmonoalkyl phenols to corresponding isomers in which the position of the aryl group is changed by heating the monoarylphenol or monoaryl monoalkylphenol to about 160 – 250° C. in the presence of an acid-activated montmorillonite clay.

3,655,779

COLOR STABILIZATION OF ORTHO-BENZYL PARACHLOROPHENOL

Frederic J. Shelton, Tacoma, Wash., assignor to Reichhold Chemicals, Inc., White Plains, N.Y.

Filed Oct. 29, 1968, Ser. No. 771,594

Int. Cl. C07c 37/22

U.S. Cl. 260—619 R 1 Claim
This invention discloses a composition, comprising ortho-benzyl parachlorophenol and a color stabilizer therefor. This color stabilizer includes from about 0.01% to about 0.5% thiourea and from about 0.025% to about 0.75% of an organic phosphite by weight, based upon ortho-benzyl parachlorophenol.

3,655,780

ISOMERIZATION PROCESS

Gustave K. Kohn and Lawrence E. Stevick, Berkeley, Calif., assignors to Chevron Research Company, San Francisco, Calif.

No Drawing. Continuation-in-part of application Ser. No. 547,145, May 3, 1966. This application Sept. 3, 1968, Ser. No. 757,129

Int. Cl. C07c 39/06

U.S. Cl. 260—624 E 10 Claims
Process for isomerizing o- and p-alkylphenols in which the alkyl contains at least 5 carbon atoms to their corresponding m-alkylphenols involving heating the o- and p-species in the presence of an acid-activated alumina-silicate clay having (1) a general crystal lattice comprising a sheet of alumina-octahedra between 2 sheets of silica-tetrahedra, (2) a (001) lattice spacing of 10 to 20 Å., (3) less than 1.4 weight percent bound iron, (4) a cationic base exchange capacity of 80 to 120 meq. and (5) base-exchange positions occupied predominantly by Group II metal ions.

3,655,781

CRYSTALLIZATION OF 2-NITRO-2-METHYL-1-PROPANOL

Wallace F. Runge and Robert E. Laine, Terre Haute, Ind., assignors to Commercial Solvents Corporation, New York, N.Y.

No Drawing. Filed July 22, 1969, Ser. No. 843,792

Int. Cl. C07c 79/18

U.S. Cl. 260—643 A 7 Claims
A process for the purification and crystallization of 2-nitro-2-methyl-1-propanol (NMP) by treating a solu-

tion thereof with dilute hydrogen peroxide to remove free formaldehyde, concentrating the solution to obtain a melt and slowly introducing the melt into a chilled non-solvent liquid and recovering the crystallized NMP thereby obtained.

3,655,782

DIALKYLATION OF HALOAdamANTANES

Robert E. Moore, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed Aug. 30, 1968, Ser. No. 756,431

Int. Cl. C07c 1/26, 17/00, 23/38

U.S. Cl. 260—648 R 19 Claims
Dialkylated adamantane hydrocarbons can be prepared in high yields with an AlBr_3 or AlCl_3 catalyst and ethylene in a highly branched hydrocarbon solvent. The use of a solvent containing tertiary hydrogen atoms is contraindicated by the prior art because of the possibility of the solvent competing in the alkylations.

3,655,783

SELECTIVE EXTRACTION OF META-CHLOROTOLUENE

John D. Bacha, Monroeville, and Charles M. Selwitz, Pittsairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Filed Dec. 3, 1969, Ser. No. 881,849

Int. Cl. C07c 25/04

U.S. Cl. 260—650 R 13 Claims
Meta-chlorotoluene is separated from a mixture containing the three isomers thereof by contacting the mixture with hydrogen fluoride, boron trifluoride and a light hydrocarbon, such as hexane, at a temperature below about 60° C.

3,655,784

CHLORINATED BENZENE PRODUCTION

Simon Pierce Burns, Austin, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex.

Filed Nov. 3, 1969, Ser. No. 873,588

Int. Cl. C07c 25/12

U.S. Cl. 260—650 R 2 Claims
Hexachlorobenzene is produced from benzene and chlorine by a vapor-phase process wherein a diluted mixture of benzene and chlorine are heated to a temperature of at least 400° C. to initiate a noncatalytic vapor-phase reaction.

3,655,785

METHOD OF MAKING PERFLUOROSTYRENE

Leo A. Wall, McLean, Va., and Joseph M. Antonucci, Hyattsville, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Original application Aug. 12, 1963, Ser. No. 301,681, now Patent No. 3,513,206. Divided and this application Nov. 6, 1969, Ser. No. 874,671

Int. Cl. C07c 25/04

U.S. Cl. 260—651 F 2 Claims
A method of making perfluorostyrene in which (2-chloro 1,2,1-trifluoroethyl)perfluorobenzene is brought into contact with molten potassium hydroxide which may be on carbon pellets.

3,655,786

PROCESS FOR PREPARING FLUOROISOBUTYLENES AND NOVEL PRODUCT

Everett E. Gilbert and Robert E. A. Dear, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 10, 1968, Ser. No. 758,689

Int. Cl. C07c 21/18

U.S. Cl. 260—653.3 6 Claims
Process for preparing fluoroisobutylenes by reaction of a fluoro tertiary butyl alcohol with sulfur tetrafluoride and a new fluoroisobutylene product. Copolymers of

fluoroisobutylenes with other ethylenically unsaturated compounds are useful in the production of elastomeric and resinous compositions.

3,655,787

QUENCHING VINYL CHLORIDE CONTAINING GAS STREAMS

Daniel E. Wiley, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 488,358, Sept. 20, 1965. This application Nov. 15, 1968, Ser. No. 776,207

Int. Cl. C07c 21/06

U.S. Cl. 260—656 R 15 Claims
An improved method of operating a system for producing vinyl chloride from a 1,2-dichloroethane pyrolytic decomposition operation is described. The gas stream produced by the pyrolytic decomposition of 1,2-dichloroethane contains vinyl chloride, HCl , unreacted 1,2-dichloroethane, tars and carbonaceous solids. This gas stream is passed below the surface of a liquid body of hydrocarbon chlorides upon issuing from the cracking furnace and as it emerges from the liquid body, the gas then passes through a conventional gas-liquid contact zone for cooling. Passage of the gas through the liquid body removes tars and solids entrained in the gas stream and in this manner prevents fouling in the gas-liquid contact zone, stills and other auxiliary equipment. 1,2-dichloroethane is the liquid disclosed as the preferred hydrocarbon chloride for the liquid body. Passage of the gas through the liquid body is at a point at least 8 inches below the surface of the liquid body.

3,655,788

PHOSGENE AS A NOVEL CATALYST FOR THE ABNORMAL ADDITION OF HBr TO ALPHA-OLEFINS

Robert M. Thomas and Fred R. Gerns, West Lafayette, Ind., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.

No Drawing. Filed July 3, 1969, Ser. No. 839,064

Int. Cl. C07c 17/08

U.S. Cl. 260—663 9 Claims
Long chain alpha-olefins of at least six carbon atoms undergo anti-Markownikoff addition when treated with hydrogen bromide in the presence of phosgene to produce primary alkyl bromides.

This invention relates to the preparation of alkyl bromides by anti-Markownikoff, or free radical addition of hydrogen bromide to alpha-olefinic hydrocarbons. More particularly, the invention relates to a novel catalyst for effecting this addition.

3,655,789

PROCESS FOR THE MANUFACTURE OF CARBON TETRACHLORIDE

Francisco Martinez-Alvarez, Ricardo Garcia Ruiz, Jaime Molinae de Porras, and Jose Luis Merina del Rio, Flix, Spain, and Walter Bertsch, Heimchen, Germany, assignors to Electro-Quimica de Flix S.A., Barcelona, Spain

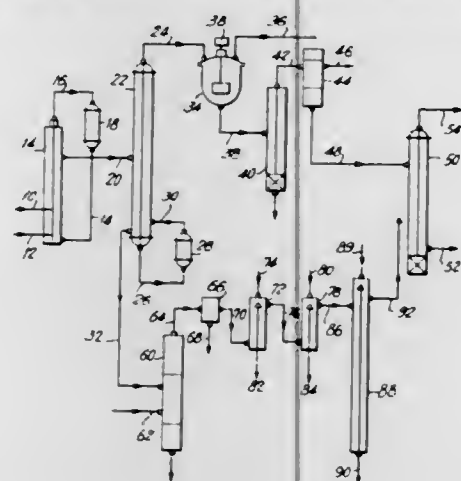
Filed Sept. 4, 1968, Ser. No. 757,230

Claims priority, application Spain, Sept. 11, 1967, 344,937

Int. Cl. C07c 19/06

U.S. Cl. 260—664 3 Claims
A process for the production of carbon tetrachloride by the synthesis of carbon disulfide and chlorine is shown. The reaction takes place in the liquid phase in a medium of reaction product at a temperature between 105° C. and 130° C. and the heat of reaction is removed by vapors generated in the reaction zone. Crude carbon tetrachloride is first distilled to remove sulfur monochloride by-product, then contacted with an aqueous alkaline solution to decompose sulfur chlorides and then subjected to two stages of distillation, to remove inorganic and or-

ganic impurities. Also shown is a process for recovering sulfur and hydrogen chloride from by-product sulfur monochloride. A vapor stream of sulfur monochloride is reduced at 350° to 500° C. with hydrogen. Crude hydrogen chloride vapor is first freed of residual sulfur monochloride and then absorbed in an aqueous medium. Sulfur



is maintained at a temperature of 250° C. or more to prevent contamination with sulfur monochloride before removal to storage. In a preferred embodiment a vapor stream of sulfur monochloride from crude carbon tetrachloride distillation, is directly transferred to the reduction reactor.

3,655,790

STABLE COMPLEXES OF ORGANOMAGNESIUMS WITH ALKALI METAL HYDRIDES

Eugene C. Ashby, 2516 Flair Knoll Drive NE., Atlanta, Ga. 30329

No Drawing. Filed Feb. 9, 1970, Ser. No. 9,998

Int. Cl. C07f 1/02, 1/04, 3/02

U.S. Cl. 260—665 R 23 Claims

Stable complexes of organomagnesiums, such as diisobutylmagnesium, with alkali metal hydrides, such as potassium hydride. They are useful for a variety of purposes, such as reducing agents for organic compounds and as metalating agents for aromatic compounds.

3,655,791

DIMERIZATION OF DIOLEFINIC COMPOUNDS

Edwin L. De Young, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Oct. 7, 1970, Ser. No. 78,952

Int. Cl. C07c 3/10

U.S. Cl. 260—666 B 6 Claims

Diolefinic compounds are dimerized in the presence of certain organo metallic halide catalysts at dimerization conditions to produce novel compositions of matter which are useful as aroma chemicals.

3,655,792

METHOD FOR CARRYING OUT REACTIONS OF UNSATURATED HYDROCARBONS AT LOW TEMPERATURES

Maurice M. Mitchell, Jr., Wallingford, Pa., Harold M. Fisher, Charlotte, N.C., and Edward S. Tomezsko, Media, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Original application Feb. 20, 1969, Ser. No. 801,205. Divided and this application Nov. 6, 1970, Ser. No. 87,619

Int. Cl. C07c 5/24

U.S. Cl. 260—666 P 3 Claims

Method for carrying out alkylation, polymerization or hydrogenation reactions of unsaturated hydrocarbons by contacting the unsaturated hydrocarbon such as an olefin or aromatic or combination thereof with tungsten hexafluoride at temperatures between 0° C. to 50° C.

3,655,793

DIMERIZATION OF CONJUGATED DIENES

Charles L. Myers, Parkersburg, W. Va., assignor to Phillips Petroleum Company

No Drawing. Continuation-in-part of application Ser. No. 889,748, Dec. 31, 1969. This application Dec. 10, 1970, Ser. No. 97,016

Int. Cl. C07c 3/60

U.S. Cl. 260—666 B 16 Claims

Conjugated dienes, such as butadiene, are dimerized to substituted cyclohexenes, such as 4-vinylcyclohexene, by contacting the diene with a catalyst formed from (I) a dinitrosyliron halide and (II) an organoaluminum halide such as diethylaluminum chloride, an alkali metal hydride, or complex hydrides of alkali metals and boron or aluminum.

3,655,794

RECOVERY OF CRUDE CIS,TRANS,TRANS-CYCLODODECATRIENE - 1,5,9 HAVING A LOW CHLORINE CONTENT

Hanns Strache and Rolf Dammernann, Marl, Germany, assignors to Chemische Werke Huels A.G., Marl, Germany

No Drawing. Filed Mar. 21, 1969, Ser. No. 809,420

Claims priority, application Germany, Mar. 28, 1968, P 17 68 067.0

Int. Cl. C07c 1/00

U.S. Cl. 260—666 B 13 Claims

To lower the content of chlorine-containing by-products in the crude cis,trans,trans-cyclododecatene-1,5,9 obtained from the trimerization of 1,3-butadiene in the presence of titanium halogenides and alkyl aluminum halides in an inert solvent, after the trimerization is completed, there is added ammonia which suppresses the formation of chlorine-containing compounds, and thereafter water which results in the catalyst residue precipitating in large granules, facilitating a decanting or filtration step.

3,655,795

TRIMERIZATION OF BUTADIENE

David Lee Sullivan, Victoria, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 11, 1971, Ser. No. 105,647

Int. Cl. C07c 3/18

U.S. Cl. 260—666 B 7 Claims

This invention relates to an improved process for the trimerization of butadiene to cyclododecatene-(1,5,9) using a catalyst comprising an organoaluminum sesquichloride and a titanium compound wherein increased yield of the desired product and improved operability of the process are realized by recycling into the reaction zone at least a portion of the by-product 1,5-cyclooctadiene and 4-vinylcyclohexene from the trimerization reaction.

3,655,796

CYCLOALKENYL TRICYCLOALKENES USED TO PRODUCE ELASTOMERS BY COPOLYMERIZATION WITH OLEFINS

Yves Amiard, Pau, and Jean-Paul Bellissent, Billere, France, assignors to Societe Anonyme dite: Societe Nationale des Petroles d'Aquitaine, Courbevoie, France

No Drawing. Filed June 16, 1969, Ser. No. 833,696

Claims priority, application France, June 17, 1968, 155,189

Int. Cl. C07c 13/28, 13/54, 13/62

U.S. Cl. 260—666 PY 12 Claims

Cycloalkenyl tricycloalkenes are novel polycyclic compounds which may include substituents such as methyl, ethyl or others. They can be prepared by reacting a substituted or unsubstituted cyclic 1,3-diene with a 2,2'-bicycloalkenyl compound. The cycloalkenyl tricycloalkenes can be used to produce elastomers by copolymerization with non-conjugated polyenes and/or olefins.

3,655,797

ALKYLATION PROCESS

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Sept. 24, 1970, Ser. No. 75,030

Int. Cl. C07c 3/56

U.S. Cl. 260—671 12 Claims

Improved yields of alkylated aromatic hydrocarbons are obtained when an aromatic hydrocarbon is reacted with a saturated hydrocarbon in the presence of a catalyst comprising a Friedel-Crafts metal halide mixed with a higher valence halide of a metal which forms at least two metal halides and in the presence of an excess amount of an oxygen-containing gas.

3,655,798

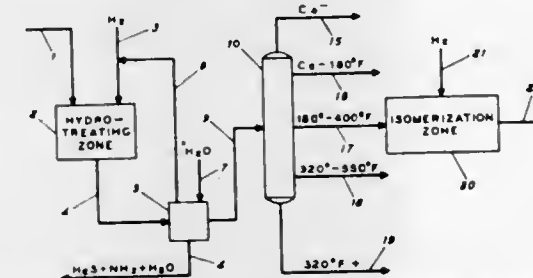
CATALYTIC ISOMERIZATION PROCESS

Sigmund M. Csicsery, Lafayette, and Bernard F. Mulaskey, Fairfax, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Mar. 19, 1970, Ser. No. 21,152

Int. Cl. C07c 5/24, 15/02

U.S. Cl. 260—668 A 10 Claims



A catalytic isomerization process which comprises contacting a hydrocarbon feedstock at catalytic isomerization conditions with a catalyst comprising a synthetic interstratified smectite-illite clay-type aluminosilicate component and at least one additional component comprising a metal.

3,655,799

PROCESS FOR HYDROGENATING UNSATURATED ORGANIC COMPOUNDS

Christian Lassau, Paris, and Lucien Sajus, Crolsy, Seine, France, assignors to Institut Francais du Pétrole, des Carburants et Lubrifiants, Ruell Malmaison, Hauts-de-Seine, France

No Drawing. Filed June 26, 1970, Ser. No. 50,324

Claims priority, application France, July 2, 1969, 6922455

Int. Cl. C07c 5/00

U.S. Cl. 260—666 P 12 Claims

This invention relates to a two-step process for hydrogenating unsaturated organic compounds, the first step being conducted in homogeneous phase and the second step in heterogeneous phase.

3,655,800

METHOD FOR CARRYING OUT REACTIONS OF UNSATURATED HYDROCARBONS AT LOW TEMPERATURES

Maurice M. Mitchell, Jr., Wallingford, Pa., Harold M. Fisher, Charlotte, N.C., and Edward S. Tomezsko, Media, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Original application Feb. 20, 1969, Ser. No. 801,205. Divided and this application Nov. 6, 1970, Ser. No. 87,620

Int. Cl. C07c 3/56

U.S. Cl. 260—671 5 Claims

Method for carrying out alkylation, polymerization or hydrogenation reactions of unsaturated hydrocarbons by contacting the unsaturated hydrocarbon such as an olefin or aromatic or combination thereof with tungsten hexafluoride at temperatures between 0° C. and 50° C.

3,655,801

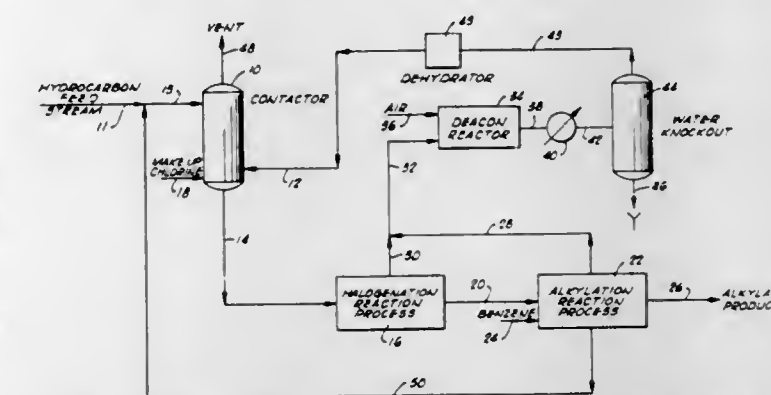
PROCESS FOR PRODUCING FREE HALOGEN FROM HYDROGEN HALIDE AND UTILIZING THE FREE HALOGEN IN HALOGENATION REACTIONS

Lyndon D. Boyer, Ponca City, Okla., Arnold L. Coldiron, Ridgefield, Conn., and Soon Y. Wong, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.

Filed Aug. 11, 1969, Ser. No. 848,809

Int. Cl. C07c 3/54

U.S. Cl. 260—671 B 24 Claims



The present invention relates to an improved process for producing free halogen from hydrogen halide and utilizing the free halogen produced in halogenation reactions. The hydrogen halide produced in reactions wherein a hydrocarbon feed stream is halogenated, or reactions wherein a hydrocarbon feed stream is halogenated and then used to alkylate a cyclic organic compound, is oxidized to form an effluent gas stream containing free halogen, water and other gases. In one aspect of the present invention the effluent gas stream is intimately contacted with the hydrocarbon feed stream so that the free halogen is selectively absorbed in the hydrocarbon feed stream, and the remaining effluent gas stream is vented from the process. Another aspect of the invention relates to utilizing the effluent gas stream directly for effecting the halogenation reaction, separating the hydrogen halide produced from the other gases by absorbing the hydrogen halide in water and venting the other gases.

3,655,802

PROCESS FOR OBTAINING CRUDE ANTHRACENE FROM MIXTURES CONTAINING PHENANTHRENE, ANTHRACENE AND THEIR HOMOLOGS

Herbert Buffleb, Castrop-Rauxel, Heinz Gerhard Franck, and Rudolf Oberkubusch, Duisburg-Meiderich, Johannes Turowski, Castrop-Rauxel, Gerd Collin, Duisburg-Meiderich, and Maximilian Zander, Castrop-Rauxel, Germany, assignors to Rutgerswerke Aktiengesellschaft, Frankfurt am Main, Germany

No Drawing. Filed Jan. 28, 1970, Ser. No. 6,574

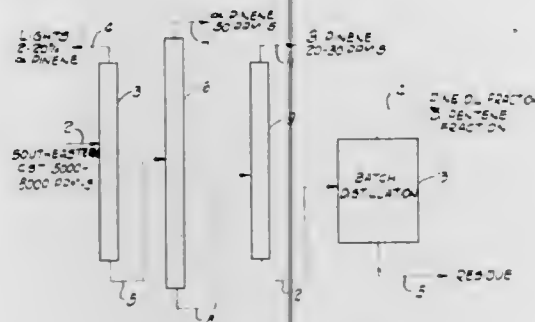
Claims priority, application Germany, Feb. 12, 1969, P 19 06 807.6

Int. Cl. C07c 3/58

U.S. Cl. 260—672 7 Claims

Increased yields of crude anthracene are obtained from a mixture containing phenanthrene, anthracene, and their homologs, e.g., from a fraction having a boiling range of 338–355° C., obtained preferably from a residual oil from benzene pyrolysis to ethylene rich in aromatic substances, by reacting said fraction at temperatures between 700 and 850° C., preferably between 750 and 800° C., with a time of stay of 1 to 10 seconds, with a tenfold to twenty-fold molecular excess of hydrogen and separating the anthracene from the reaction product in conventional manner. From the reaction product a crude anthracene of 55% and a yield of 60% based on the weight of anthracene present in the reaction product, can be obtained by fractional distillation.

3,655,803
PROCESS FOR PRODUCING ALPHA-PINENE OF LOW SULFUR CONTENT FROM CRUDE SULFATE TURPENTINE
 Frank L. Miller, P.O. Box 389, Jacksonville, Fla. 32201
 Filed Sept. 28, 1970, Ser. No. 76,003
 Int. Cl. C07c 13/00; C09f 3/02
 U.S. Cl. 260—675.5 6 Claims



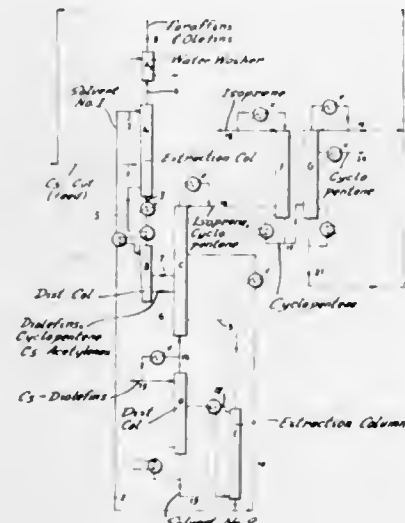
α -Pinene product of low sulfur content is produced by continuously fractionally distilling crude sulfate turpentine at a pressure not substantially above atmospheric into a sulfur-rich overhead distillate fraction having α -pinene content between 2 and 20 weight percent and a bottoms fraction of higher boiling materials, and fractionally distilling said bottoms fraction to recover said product as an α -pinene distillate fraction.

3,655,804
ALKYNE CONVERSION
 Filippo Pennella, Bartlesville, Okla., assignor to Phillips Petroleum Company
 No Drawing, Filed Aug. 12, 1968, Ser. No. 751,756
 Int. Cl. C07c 11/28, 5/26
 U.S. Cl. 260—678 15 Claims
 One or more alkynes are converted to other alkynes by contact with a catalyst active for the disproportionation of propylene to ethylene and butene.

3,655,805
DEHYDROGENATION PROCESS
 Louis J. Croce, Seabrook, Tex., and Laimonis Bajars, Princeton, and Maigonis Gablks, Highland Park, N.J., assignors to Petro-Tex Chemical Corporation, Houston, Tex.
 No Drawing. Continuation-in-part of application Ser. No. 459,878, May 28, 1965. This application Nov. 29, 1968, Ser. No. 780,271
 Int. Cl. C07c 5/18
 U.S. Cl. 260—680 E 10 Claims
 Oxidative dehydrogenation of organic compounds in presence of composition comprising crystalline composition of iron, Group III-B metals and oxygen, preferably ferrites.

3,655,806
C₅-HYDROCARBON MIXTURES SUBJECTED TO LIQUID-LIQUID EXTRACTIONS AND EXTRACTIVE DISTILLATION USING PLURAL SOLVENT SYSTEMS
 Hans-Walter Brandt, Cologne-Flittard, Bruno Engelhard, Cologne-Stammheim, Heinrich Steude, Leverkusen, Helmut Scherb, Sinnersdorf, and Bernhard Schleppinghoff and Gunther Schnuchel, Dormagen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, and Erdölchemie Gesellschaft mit Beschränkter Haftung, Cologne, Germany
 Filed Aug. 20, 1969, Ser. No. 851,587
 Claims priority, application Germany, Aug. 24, 1968, P 17 93 273.9
 Int. Cl. B01d 3/34
 U.S. Cl. 260—681.5 8 Claims
 Process of separating C₅-hydrocarbon mixtures containing C₅ paraffins and C₅ diolefins. The mixture is sub-

jected to a first liquid-liquid extraction with a solvent selective for the diolefins. The resulting solvent laden with diolefins is subjected to an extractive distillation in which some of the diolefins are removed leaving an extractive distillation liquid effluent laden with some of the diolefins. The last mentioned liquid effluent is subjected to a second



liquid-liquid extraction in which a second solvent extracts therefrom the diolefins, yielding the first solvent in condition for recycling to the first liquid-liquid extraction. Diolefins are then distilled from the second solvent. Thus, the first solvent need not be subjected to extensive distillation, so that the first solvent need not be highly resistant to heating.

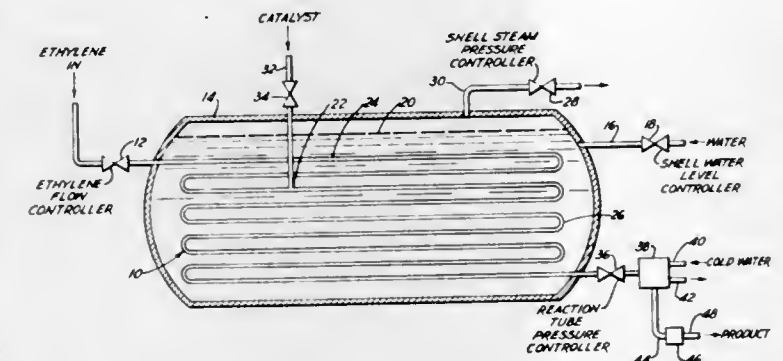
3,655,807
DODECYLBENZENESULFONIC ACID ADDITION IN SULFURIC ACID ALKYLATION
 Marvin S. Rakow, East Brunswick, and William H. Lockwood, Jr., Hightstown, N.J., assignors to Cities Service Oil Company, Tulsa, Okla.
 No Drawing, Filed Oct. 30, 1970, Ser. No. 85,743
 Int. Cl. C07c 3/54
 U.S. Cl. 260—683.63 3 Claims

An improvement for a conventional alkylation process is disclosed in which a low molecular weight olefin and an isoparaffin are mixed in contact with an acid catalyst at controlled temperatures. The improvement comprises the addition of small concentrations of dodecylbenzenesulfonic acid to improve the quality and yield of the desired branched chain paraffinic isomers or alkylate produced in the gasoline boiling range.

3,655,808
PREPARATION OF OILS FROM ISOBUTENE
 Gary L. Driscoll, Boothwyn, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
 No Drawing, Filed July 6, 1970, Ser. No. 52,772
 Int. Cl. C07c 3/10
 U.S. Cl. 260—683.15 D 12 Claims

Polymerization of isobutene to form a polyisobutene oil having a viscosity index of from 90–130, in the presence of a lower alkylhalide such as 2-chloro-2-methylpropane using a catalyst selected from the class consisting of ethyl aluminum sesquichloride, ethyl aluminum dichloride and diisobutyl aluminum chloride and a solvent selected from the class consisting of nitromethane and nitrobenzene at from –30 to 100° C. and preferably from 0° C. to 50° C. Optionally a metal halide such as cobalt chloride may be used as a promoter for the catalyst.

3,655,809
CONVERSION OF ETHYLENE TO ALPHA OLEFINS IN THE PRESENCE OF A DIISOBUTYLENE SOLVENT
 Herbert B. Fernald and William Gall, Glenshaw, Bernard H. Gwynn, Gibsonia, and John V. Ward, Oakmont, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.
 Filed Mar. 17, 1970, Ser. No. 20,355
 Int. Cl. C07c 3/10
 U.S. Cl. 260—683.15 D 5 Claims



Alpha olefins are produced from ethylene in the presence of an organometallic catalyst, such as triethylaluminum, dissolved in diisobutylene. Diisobutylene is easily separated from the desired alpha olefin products and its presence increases catalyst and reactor efficiencies.

3,655,810
PROCESS FOR DIMERIZING AND CODIMERIZING OLEFINS
 Yves Chauvin, Orsay, Gilles Lefebvre, La Celle-St-Cloud, and Masahiro Uchino, Rueil-Malmaison, France, assignors to Institut Francais du Pétrole des Carburants et Lubrifiants, Rueil-Malmaison, France
 No Drawing, Filed Nov. 14, 1967, Ser. No. 683,020
 Claims priority, application France, Nov. 15, 1966, 83,739, 83,740; Mar. 21, 1967, 99,721
 Int. Cl. C07c 3/10
 U.S. Cl. 260—683.15 D 30 Claims

A process for dimerizing and codimerizing monoolefins wherein at least one of said monoolefins is contacted with a catalyst to effect reaction thereof, said catalyst containing a monohalogenodihydrocarbylaluminum and nickel or a nickel compound, and said process being characterized in that the reaction is conducted in the presence of water in an amount sufficient to increase significantly the activity of said catalyst.

3,655,811
OLEFIN POLYMERIZATION PROCESS
 Jin Sun Yoo, Riverdale, Ill., assignor to Atlantic Richfield Company
 No Drawing, Filed July 15, 1968, Ser. No. 744,665
 Int. Cl. C07c 3/10
 U.S. Cl. 260—683.15 D 19 Claims

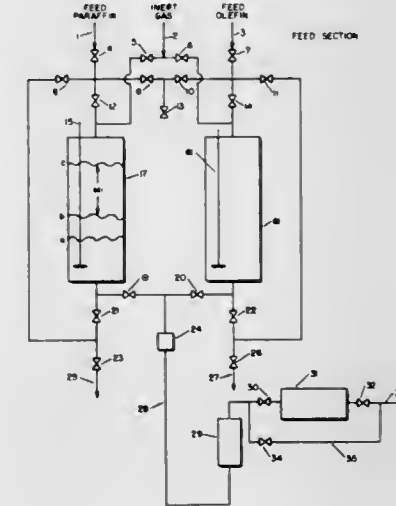
A catalyst composition consisting essentially of:
 (A) An actinide series metal compound, e.g., thorium nitrate tetrahydrate,
 (B) A reducing agent, e.g., ethylaluminum sesquichloride,
 (C) A non-protonic Lewis acid, e.g., ethylaluminum sesquichloride, and, as optional, preferred ingredients,
 (D) A trihydrocarbylphosphine, e.g., triphenylphosphine, and
 (E) An inert, organic solvent, e.g., chlorobenzene, is disclosed as being useful for catalyzing the polymerization of olefins or phenyl-substituted olefins to normally

liquid polymers or oligomers, e.g., for catalyzing the dimerization of propylene.

3,655,812
PROCESS FOR PRODUCING LINEAR ALPHA OLEFINS
 Arthur W. Langer, Jr., Watchung, N.J., assignor to Esso Research and Engineering Company
 No Drawing, Filed Mar. 3, 1969, Ser. No. 804,007
 Int. Cl. C07c 3/10
 U.S. Cl. 260—683.15 D 11 Claims

An improved process for catalytic polymerization, or oligomerization, of ethylene to obtain a reaction product mixture consisting essentially of C₄ to C₂₀₀ olefins, including especially linear alpha olefins. The oligomerization reaction is conducted by adding ethylene to a diluent at pressures to maintain an ethylene concentration in the liquid phase sufficient to suppress copolymerization reactions involving the product olefins. It is found that higher catalyst activity and stability can be maintained if the transition metal halide and organo aluminum halide catalytic mixture is modified, prior to initiation of the reaction, with a strong Lewis acid added in small but effective critical concentrations. Modification of the catalytic mixture also permits operation at temperatures ranging, e.g., about 20 to 60 centigrade degrees higher than permitted by use of an unmodified catalyst and hence refrigeration needs are reduced, or eliminated.

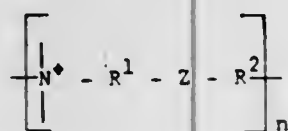
3,655,813
CONTINUOUS ALKYLATION PROCESS
 Francis W. Kirsch, Wayne, John D. Potts, Springfield, and David S. Barmby, Media, Pa., assignors to Sun Oil Company, Philadelphia, Pa.
 Continuation-in-part of application Ser. No. 716,190, Mar. 26, 1968, which is a continuation-in-part of application Ser. No. 581,129, Aug. 25, 1966. This application June 5, 1969, Ser. No. 830,687
 Int. Cl. C07c 3/52
 U.S. Cl. 260—683.43 11 Claims



Olefin-paraffin alkylate is continuously produced by contacting in the liquid phase a C₃–C₉ monoolefin with a C₄–C₈ isoparaffin in the presence of a substantially anhydrous crystalline aluminosilicate zeolite, continuously feeding monoolefin and isoparaffin and withdrawing reaction product at the same rate, while allowing said catalyst to remain intact within the system for a period less than about 60 hours before continuously feeding active catalyst and withdrawing aged catalyst from the system at the same rate. The aged catalyst is then regenerated by subjecting it to a regenerant selected from the group consisting of air, an inert gas, inert sorbate, or mixtures thereof, and is ultimately reactivated.

3,655,814
VISCOELASTIC CATIONIC POLYMERS CONTAINING THE URETHANE LINKAGE
 Alan Rembaum, Altadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.
 Filed May 19, 1969, Ser. No. 825,489
 Int. Cl. C08g 22/04

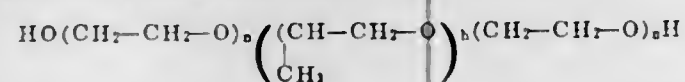
U.S. Cl. 260—77.5 Q 11 Claims
 A viscoelastic cationic polymer having a repeating unit of the formula:



where Z is a linking condensation residue, preferably urethane and n is an integer prepared by linking reactions between monomeric starting materials including quaternary nitrogen forming coreactants and condensation residue forming coreactants.

3,655,815
THROMBORESISTANT ARTICLES CONTAINING EPOXY RESINS AND POLYETHYLENEOXIDE-POLYPROPYLENE OXIDE BLOCK COPOLYMERS
 Ival O. Salyer, Dayton, and Albert J. Bordinelli, Kettering, Ohio, assignors to the United States of America as represented by the Secretary, Department of Health, Education, and Welfare
 No Drawing. Filed May 20, 1970, Ser. No. 39,858
 Int. Cl. C08g 45/00

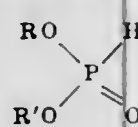
U.S. Cl. 260—830 R 6 Claims
 Articles (includes containers, conduits, devices or materials) for handling (includes containing, transporting or contacting) blood and reducing clotting comprising a mixture of an epoxy resin; with from about 0.5 to 20% by weight based on said resin of a thromboresistant polymer additive which is a polyethylene glycol, a polypropylene glycol or a block copolymer of the structure



wherein a , b and c are each at least 1 and represent the number of moles of these groups, and the molecular weight of the polymer additive is in the range of about 500 to 15,000; and, an epoxy resin curing agent, said mixture having been cured and formed to make said articles. The articles described in the previous sentence have improved nonthrombogenic (thromboresistant) properties as compared to those made from conventional epoxy resins.

3,655,816
PHOSPHORUS ACID-DIESTERS AND EPOXY RESIN SYSTEMS CONTAINING THE SAME
 Hans Joachim Lorenz, Bensheim-Auerbach, and Hans-Jürgen Sander, Lorsch, Hessen, Germany, assignors to Deutsche Advance Produktion GmbH
 No Drawing. Filed Dec. 24, 1969, Ser. No. 888,034
 Int. Cl. C08g 45/06, 30/14

U.S. Cl. 260—830 R 4 Claims
 An epoxy resin system of conventional composition with hardening agents and possibly further customary additives, containing also as hardening accelerator from 0.1 to 150, and preferably from 5 to 20, parts by weight of a phosphorous acid-diester of the general formula:



in which R and R' can be the same or different and signify straight chain alkyl containing from 1 to 14 carbon atoms, branched alkyl containing from 3 to 14 carbon

atoms, straight chain alkoxyalkyl having 2 to 14 carbon atoms, branched alkoxyalkyl having 3 to 14 carbon atoms, alkenyl and substituted alkenyl, aryl, and aralkyl and alkaryl wherein the alkyl portions contain from 1 to 9 carbon atoms, and at least one of the substituents R and R' contains at least one chlorine and/or bromine atom, per 100 parts by weight of epoxy resin, and a phosphorous acid-diester of the same general formula wherein R and R' are different.

3,655,817
ADDUCTS, CONTAINING EPOXIDE GROUPS, FROM POLYEPOXIDE COMPOUNDS AND ACID, SLIGHTLY BRANCHED POLYESTER DICARBOXYLIC ACIDS
 Friedrich Lohse, Allschwil, Rolf Schmid, Reinach, Basel-Land, Willy Fisch, Binningen, and Hans Batzer, Arlesheim, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 23, 1970, Ser. No. 57,774
 Claims priority, application Switzerland, July 30, 1969, 11,607/69
 Int. Cl. C08g 45/14

U.S. Cl. 260—835 18 Claims
 New adducts, containing epoxide groups, of polyepoxide compounds and polyesters of succinic acid and 1,4-butanediol which are slightly branched, possess terminal carboxyl groups and have an average molecular weight of about 1200 to 20,000, manufactured by reaction of, for example, 11 mols of succinic anhydride with 10 mols of 1,4-butanediol, with 0.1 to at most 0.65 carboxyl group equivalent of the acid polyester being employed for the (so-called) "advancement" per 1 equivalent of epoxide groups of the polyepoxide compound. By curing with customary curing agents for epoxide resins, the adducts containing epoxide groups can be converted into elastomeric moulded materials which possess a significantly greater hardness and toughness and a surprisingly high crystallization transition point of 70–100° C.

3,655,818
PARTICULATE ADHESIVE CONTAINING POLYEPOXIDES, CARBOXYLATED BUTADIENE-ACRYLONITRILE COPOLYMER, AND A UREA DERIVATIVE AS A CURING AGENT
 Alan G. McKown, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
 Filed Oct. 18, 1968, Ser. No. 768,675
 Int. Cl. C08g 45/04

U.S. Cl. 260—837 14 Claims
 A curable structural adhesive in flowable, particulate form comprising an epoxy resin modified with a nitrile rubber preferably containing free carboxyl groups, and an epoxy curing system which preferably will provide a cure at a temperature not exceeding about 250° F. Upon subjection to about 150° F., the adhesive converts to a state in which it will readily adhere to various substrates including metals. Also provided are a process for applying the adhesive as well as the substrates containing the adhesive both in the fused, non-cured state and the cured state.

3,655,819
POLYAMIDE FILAMENTS CONTAINING POLYALKYLENE ETHERS AND PHENOLIC ANTI-OXIDANTS
 Lamberto Crescentini, Chester, Va., assignor to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Dec. 9, 1968, Ser. No. 782,432
 Int. Cl. C08g 41/04

U.S. Cl. 260—857 PE 19 Claims
 A filament, having improved resistance to light, of a polyamide having incorporated therethrough about 0.3 to 7 weight percent, based on the weight of the polyamide,

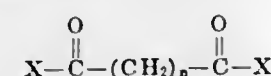
of a poly(alkylene ether) having a molecular weight from about 600 to 3,000,000, and about 0.05 to 2 weight percent, based on the weight of the polyamide, of a sterically hindered phenolic compound.

3,655,820
PROCESS FOR THE MANUFACTURE OF POLYESTER RESINS
 Josef Kaupp, Wiesbaden, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Continuation-in-part of application Ser. No. 745,121, July 16, 1968. This application Sept. 1, 1970, Ser. No. 68,777
 Claims priority, application Germany, Aug. 3, 1967, C 43,029
 Int. Cl. C08f 21/00, 21/02

U.S. Cl. 260—861 9 Claims
 The invention provides a process for the manufacture of polyester resins having a high flexural strength and impact strength. This is achieved by using high molecular weight polycarboxylic acid esters produced as by-product residues in the oxidation and esterification of p-xylene to give terephthalic acid esters and the recovery of the terephthalic acid esters from the reaction mixture. The high molecular weight polycarboxylic acid esters are distilled from the residues, transesterified with polyhydric alcohols, esterified with maleic acid and cured with olefinically unsaturated compounds such as styrene, acrylic and methacrylic esters and diallylphthalate to produce the polyester resin.

3,655,821
POLYAMIDE FILAMENTS CONTAINING ANTISTATIC POLYETHER PREPARED FROM A POLYALKYLENE AND AN ALIPHATIC DICARBOXYLIC ACID
 Robert A. Lofquist, Richmond, Va., and Brendan T. Hayes, deceased, late of Chester, Va., by Barbara E. Hayes, administratrix, Chester, Va., assignors to Allied Chemical Corporation, New York, N.Y.
 No Drawing. Filed Sept. 3, 1969, Ser. No. 855,469
 Int. Cl. C08g 41/04

U.S. Cl. 260—857 PEO 4 Claims
 A filament, having antistatic properties, comprised of a hydrophobic synthetic polymer having mixed therethrough about 1 to 10 weight percent, based on the weight of the hydrophobic synthetic polymer, of the reaction product of a polyglycol which can be polyethylene glycol or a block copolymer of ethylene oxide and propylene oxide containing up to about 30 mole percent propylene oxide, said polyglycol having a molecular weight from about 100 to 15,000 and a compound which has the general formula:



wherein X is hydroxyl, —OR wherein R is lower alkyl, or halogen and n is an integer from 2 to about 20.

3,655,822
THERMOPLASTIC POLYMER ALLOY
 James E. McGrath, Somerville, and Markus Matzner, Edison, N.J., assignors to Union Carbide Corporation, New York, N.Y.
 No Drawing. Filed Oct. 12, 1970, Ser. No. 80,222
 Int. Cl. C08g 41/04, 22/00

U.S. Cl. 260—857 TW 11 Claims
 An alloy of thermoplastic polymer is provided by a blend of (a) a polylactam-polyarylene polyether block copolymer and (b) polylactams and/or polyarylene polyethers.

3,655,823
NOVEL MIXTURES OF ACRYLIC MONOMERS AND POLYESTER RESINS
 Earl E. Parker, Allison Park, and Roger M. Christenson and Rostyslaw Dowbenko, Gibsonia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.
 No Drawing. Filed Nov. 6, 1969, Ser. No. 874,720
 Int. Cl. C08f 21/00, 21/02

U.S. Cl. 260—872 7 Claims
 Novel mixtures of acryloxypivalyl acryloxypivalate and analogous compounds with polyesters are copolymerized by actinic light, free-radical catalysis or radiation curing. The resulting copolymer is a hard, mar-resistant, and relatively flexible material.

3,655,824
RUBBERY ACRYLIC RESIN COMPOSITION CONTAINING A RESINOUS 4,4'-DIOXY DIARYL-ALKANE POLYCARBONATE
 Tetsuji Kato, Mikio Izumi, Yuji Hayashibara, and Kazuo Suenaga, Hiroshima, Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan
 No Drawing. Filed July 21, 1970, Ser. No. 56,943
 Claims priority, application Japan, July 31, 1969, 44/59,964
 Int. Cl. C08g 39/10

U.S. Cl. 260—873 13 Claims
 A resinous composition which comprises the admixture of: 5 to 95%, by weight of a resinous composition selected from the group consisting of a resinous polymer prepared by graft polymerizing 40–100% by weight of at least one monomeric vinyl aromatic hydrocarbon and 60–0%, by weight of an ethylenic comonomer, with a rubbery polymer formed from 50–100%, by weight of at least one monomer selected from the group consisting of alkyl acrylate and alkyl methacrylate, each containing between 1–18 carbon atoms in the alkyl group, and 50–0%, by weight, of an ethylenic comonomer, and a resinous polymeric mixture prepared by admixing a polymer formed by polymerizing from 40–100% by weight of at least one monomeric vinyl aromatic hydrocarbon and 60–0%, by weight of an ethylenic comonomer with a graft polymer prepared by graft polymerizing 40–100%, by weight of said monomeric vinyl aromatic hydrocarbons and 60–0%, by weight, of said ethylenic comonomer with a rubbery polymer formed from 50–100%, by weight of at least one monomer selected from the group consisting of alkyl acrylate and alkyl methacrylate, each containing between 1–18 carbon atoms in the alkyl group, and 50–0%, by weight of an ethylenic monomer, and 95–5%, by weight of a 4,4'-dioxy diarylalkane polycarbonate resin.

3,655,825
ACRYLIC IMPACT RESISTANT MODIFIERS FOR POLYVINYL CHLORIDE
 Louis C. Souder, Levittown, Bjorn E. Larsson, Rushland, and Charles F. Ryan, Warminster, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
 No Drawing. Continuation of application Ser. No. 394,071, Sept. 2, 1964. This application Mar. 24, 1969, Ser. No. 810,016
 Int. Cl. C08f 37/18, 15/18

U.S. Cl. 260—876 R 10 Claims
 This invention relates to solid, thermoplastic, polymeric products resulting from the polymerization of lower alkyl esters of acrylic and methacrylic acid. It also relates to high impact-resistant materials which result from blends of such products with other polymeric materials, particularly polymers and copolymers of vinyl chloride. The copolymers which are used in such blends typically comprise at least 80% by weight of a polyvinyl halide with up to 20% by weight of another monovinylidene compound copolymerizable therewith, such as vinyl acetate, methyl methacrylate, styrene, or the like.

3,655,826

ACRYLIC ELASTOMER IMPACT MODIFIER

Robert Paul Fellmann, Wrightstown, and Robert Clarke Fettes, Feasterville, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 734,541, June 5, 1968. This application May 8, 1969, Ser. No. 823,147

Int. Cl. C08f 29/24, 29/50, 33/08

U.S. Cl. 260—876 R

14 Claims

Three-stage acrylic elastomer impact modifiers are provided. The polymers comprise a first stage of crosslinked polyacrylate rubber followed by a rigid styrene-type stage, followed in turn by a stage of rigid polymer chosen for compatibility in the polymer to be modified. The modifier is particularly useful as an impact strength improver, processing aid and/or heat distortion temperature improver in vinyl chloride polymers.

3,655,827

POLYCHLOROPRENE SOL-GEL BLENDS

Joseph B. Finlay and John F. Hagman, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 28, 1969, Ser. No. 803,470

Int. Cl. C08d 9/16

U.S. Cl. 260—890

6 Claims

Novel polychloroprene sol-gel elastomer blends, curable to elastomeric vulcanizates having improved tensile strength, are intimate mixtures of (a) a dialkyl xanthogen disulfide-modified, benzene-soluble polymer of chloroprene, the amount of dialkyl xanthogen disulfide being equivalent to about from 0.15 to 1 part of diethyl xantho-

and one of lower fluidity degree at a temperature above the temperature of fluidization of the former but below the temperature of fluidization of the latter. Preferred polymers include polymethylmethacrylate, ABS type resins, and various copolymers of methylmethacrylate or of styrene.

3,655,830

COMPATIBLE MIXTURES OF METHYL METHACRYLATE POLYMER AND HIGH MOLECULAR WEIGHT ETHYLENE OXIDE POLYMER

Terry Edward Smith, Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Nov. 18, 1969, Ser. No. 877,876

Int. Cl. C08f 29/50, 37/18

U.S. Cl. 260—901

4 Claims

Compositions of matter comprising polymers of methyl methacrylate having blended therewith from about 10% to about 30%, by weight, based on the total weight of the mixture, of a polymer of ethylene oxide having a molecular weight of at least about 50,000, are disclosed.

3,655,831

PENTAERYTHRITOL DIPHOSPHITES

Lester Friedman, Beachwood, Ohio, assignor to Weston Chemical Corporation, New York, N.Y.

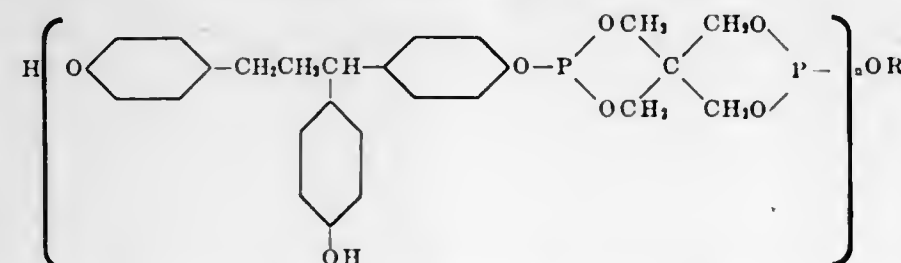
No Drawing. Original application July 22, 1968, Ser. No. 746,239, now Patent No. 3,516,963, dated June 23, 1970. Divided and this application Sept. 11, 1969, Ser. No. 870,810

Int. Cl. C07d 105/04; C08f 45/58

U.S. Cl. 260—927 R

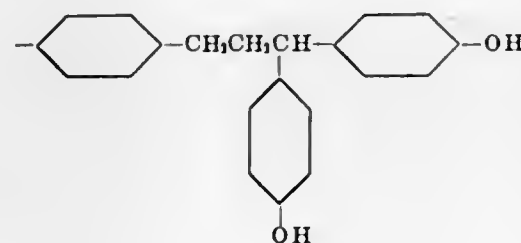
12 Claims

Compounds are prepared having the formula



gen disulfide per 100 parts of chloroprene monomer and the alkyl group having from 1 to 8 carbon atoms, and (b) a benzene-insoluble polymer of chloroprene, the proportion by weight of (a) to (b) being in the range from 20:1 to 1:1.

where R is alkyl, alkenyl, aryl, aralkyl, haloaryl, haloalkyl or



and n is an integer of at least 1 and can be 100 or more. The compounds are useful as stabilizers.

3,655,832

POLYCARBOCYCLIC PHENOLIC PHOSPHITES

Otto S. Kauder, Jamaica, William E. Leistner, Brooklyn, and Arthur C. Hecker, Forest Hills, N.Y., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 160,237, Dec. 18, 1961, and Ser. No. 240,754, Nov. 28, 1962, and a division of application Ser. No. 569,115, Aug. 1, 1966, now Patent No. 3,476,699. This application Feb. 18, 1969, Ser. No. 871,178

Int. Cl. C07d 105/04; C07f 9/12

U.S. Cl. 260—930

15 Claims

Organic phosphites are provided having in the molecule at least one polycarbocyclic phenolic group for each phosphite group, such polycarbocyclic phenolic group

3,655,829

MANUFACTURED ARTICLES OF BLENDS OF THERMOPLASTIC POLYMERS HAVING DIFFERENT FLUIDITY DEGREES

Isidoro Ronzoni, Camerlata, and Mario Catoni and Pier Lodovico Chini, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed Jan. 13, 1965, Ser. No. 425,320

Claims priority, application Italy, Jan. 14, 1964, 888/64

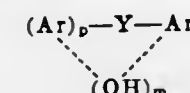
Int. Cl. C08f 29/24

U.S. Cl. 260—899

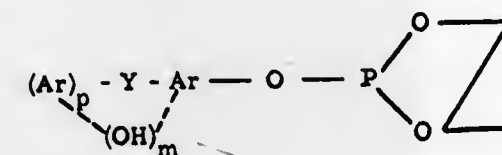
14 Claims

Stippled surface thermoplastic articles are produced by extruding a mixture of a polymer of higher fluidity degree

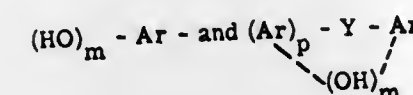
having from one to about thirty carbon atoms per phenolic group, and having the formula:



and the phosphite having at least one aliphatic and/or cycloaliphatic group and having the formula:



wherein Ar is a carbocyclic aromatic nucleus and at least one Ar nucleus has a phenolic hydroxyl group, m has a value from one to about five; p has a value from two to four; and Z is taken in sufficient number to satisfy the valences of the two phosphite oxygen atoms, includes at least one aliphatic or cycloaliphatic group; and is selected from the group consisting of hydrogen; monovalent and bivalent aliphatic, aromatic, and cycloaliphatic hydrocarbon radicals having from about one to about thirty carbon atoms; and monovalent and bivalent phenolic groups having from one to about thirty carbon atoms per phenolic hydroxyl group, and selected from the group consisting of



which in polymeric phosphites are linked to additional phosphite groups, such phosphites containing at least one aliphatic or cycloaliphatic group for each one to ten phosphite groups; and Y is a linking nucleus selected from the group consisting of trivalent, tetravalent and pentavalent aliphatic, cycloaliphatic, and aromatic hydrocarbon groups, attached to each Ar group through a carbon atom not a member of an aromatic ring, and such aliphatic radicals including carboxylic acid ester groups, and having from one to about thirty-three carbon atoms.

3,655,833

REACTION PRODUCTS OF PHENOL DERIVATIVES WITH PHOSPHOROUS COMPOUNDS

Heinz Eggensperger, Bensheim, Volker Franzen, Heidelberg, and Hans Stephan, Bensheim, Bergstrasse, Germany, assignors to Deutsche Advance Produktion G.m.b.H., Lautern, Odenwald, Germany

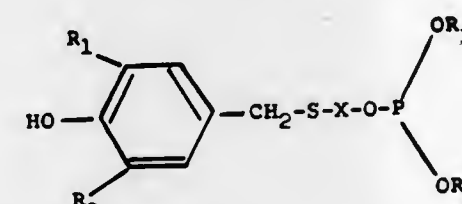
No Drawing. Filed July 30, 1968, Ser. No. 748,619
Claims priority, application Germany, Aug. 12, 1967, P 16 43 880.5

Int. Cl. C07f 9/08

U.S. Cl. 260—948

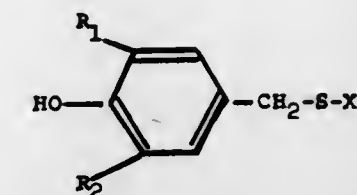
8 Claims

Novel compounds having the formula:



wherein R₁ is selected from the group consisting of hydrogen and alkyl radicals having 1 to 6 carbon atoms, R₂ is an alkyl radical having 1 to 6 carbon atoms, X is selected from the group consisting of alkylene radicals having 1 to 6 carbon atoms and carboxyl substituted alkyl radicals having 1 to 6 carbon atoms, and R₃ and

R₄ are selected from the group consisting of alkyl, aryl, alkaryl, arylalkyl and



wherein R₁, R₂ and X are as defined above are useful as stabilizers for polymeric compositions.

3,655,834

LOWERING THE MOLECULAR WEIGHT OF HIGH MOLECULAR WEIGHT POLYETHYLENE IN THE POWDER PHASE

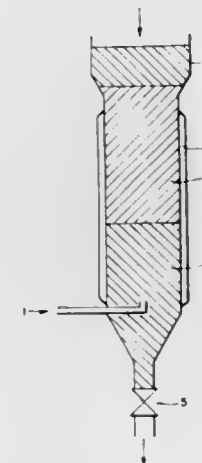
Karl Wisseroth, Ludwigshafen, and Richard Scholl, Nordring, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Nov. 13, 1969, Ser. No. 876,332

Int. Cl. C08f 3/06, 27/22, 27/26

U.S. Cl. 260—94.9 GC

5 Claims



Lowering the molecular weight of high molecular weight polyethylene by swelling particles of polyethylene with an organic solvent and heating the particles in an oxygen atmosphere at elevated temperature. Polyethylene thus obtained is more easily processed in extruders.

3,655,835

PROCESS FOR THE PREPARATION OF DIMETHYLTHIOPHOSPHITE OR OF ORGANO-THIOPHOSPHONOUS ACID O-MONOMETHYL ESTER

Reinhard Schliebs, Cologne, Flittard, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed May 5, 1969, Ser. No. 821,995
Claims priority, application Germany, May 20, 1968, P 17 68 503.9

Int. Cl. C07f 9/16

U.S. Cl. 260—983

15 Claims

Reacting trimethylphosphite or organo-phosphonous acid O,O-dimethyl ester with hydrogen sulfide in the presence of a weak organic base (the pK_a of which in aqueous solution is about 0.5–8) at a temperature of substantially between about 0–70° C. and a starting pressure of substantially between about 1–65 atmospheres absolute, to form in high yield and purity the corresponding known dimethylthiophosphite or organo-thiophosphonous acid-O-mono methyl ester, which are known intermediates useable for the synthesis of known biocidal, especially insecticidal, phosphoric acid esters.

3,655,836

PROCESS FOR PREPARATION OF MOLDED PROPELLANT CHARGES FROM SMOKELESS POWDER AND NONVOLATILE BINDERS

Henry C. Dehm, Salt Lake City, Utah, and Dale F. Mellow, Sugar Grove, Va., assignors to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed June 26, 1968, Ser. No. 740,074
Int. Cl. C06b 21/02

U.S. Cl. 264—3

14 Claims

A method for preparing propellant charges from smokeless powder and nonvolatile binders boiling above about 200° C. is provided. The smokeless powder granules and nonvolatile binders are consolidated into the propellant charge by molding. The consolidated propellant charge is dimensionally stable and burns as a granular charge.

3,655,837

PROCESS FOR PRODUCING METAL POWDER

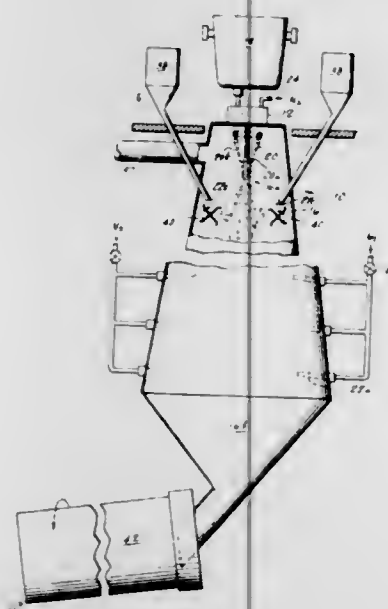
William A. Reed, West Richfield, William K. Kinzer, Northfield Center, John J. Swanson, Lakewood, and Robert E. Kusner, Brecksville, Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Filed June 18, 1969, Ser. No. 834,368

Int. Cl. B22f 9/00

U.S. Cl. 264—6

16 Claims



Process for producing metal particles having irregular shapes involving atomizing a flowing stream of molten metal to produce particles, and injecting particles of metal of the same material as the molten metal into the zone of atomization or prior to or subsequent to atomization, or injecting an inert gas substantially against the flow of particles downstream from the zone of atomization.

3,655,838

METHOD OF PELLETIZING ANALYTICAL OR IMMUNOLOGICAL REAGENTS

Richard Thompson Price, Verona, and Stuart Michael Bauer, Parsippany, N.J., John Brownlee, West Seneca, N.Y., and Bastiaan Cornelis Goverde, Oss, Netherlands, assignors to Organon, Inc., West Orange, N.J.

Filed Mar. 20, 1969, Ser. No. 808,803

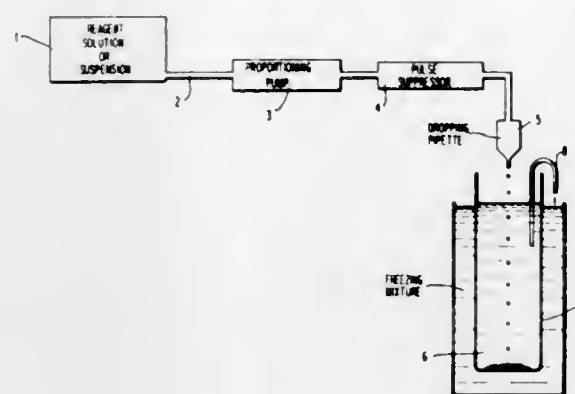
Int. Cl. B01j 2/06

U.S. Cl. 264—13

7 Claims

Pelletized analytical and immunological reagents are prepared in a stable accurate form containing predetermined and pretested measured amounts of substances capable of participating in analytical and immunological reactions, such as pregnancy tests, by forming these reagents into frozen and freeze-dried beads or spheres; a

set of these pellets comprising an antiserum and an antigen is placed in a test vessel and moistened with the liquid to



be tested and then allowed to stand until agglutination or precipitin reaction does or does not occur.

3,655,839

MANUFACTURE OF DRAWN THERMOPLASTIC FIBRILLARY PRODUCTS

Hendrinus Sempel and Hendrik Potman, Arnhem, Netherlands, assignors to Akzona Incorporated, Asheville, N.C.

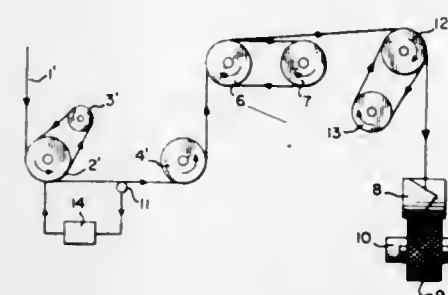
Filed Oct. 2, 1969, Ser. No. 863,180

Claims priority, application Netherlands, Oct. 8, 1968, 6814352

Int. Cl. B29c 17/02

U.S. Cl. 264—40

2 Claims



A process for drawing a thermoplastic fibrillary product which comprises the steps of feeding the fibrillary product to a drawing zone; drawing the product in the drawing zone, there being a maximum change in the denier of the product at the drawing point in the drawing zone; passing the fibrillary product in slipping contact over at least one friction member after the drawing point and in the drawing zone; and thereafter discharging the product from the drawing zone. Also apparatus for carrying out the process and the drawn product are disclosed.

3,655,840

PROCESS FOR THE MANUFACTURE OF FOAM-PLASTIC ARTICLES COVERED WITH A PROTECTIVE FILM

Hans-Dietrich Krug, Heidelberg, Germany, assignor to Carl Freudenberg, Weinheim, Germany

Filed Apr. 28, 1969, Ser. No. 819,855

Claims priority, application Germany, May 28, 1968, P 17 78 717.6

Int. Cl. B29d 9/00, 9/08

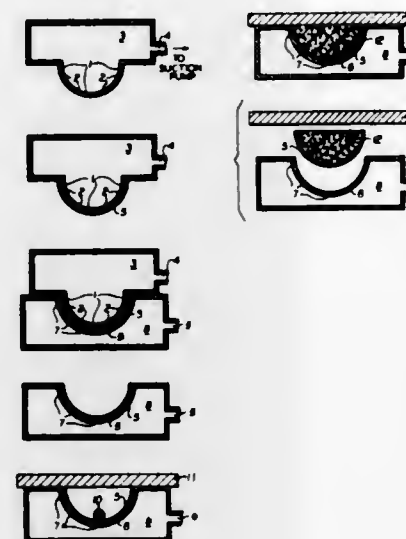
U.S. Cl. 264—45

5 Claims

The improvements in the production of foam-form articles having a film-form member on at least one surface thereof by placing the film-form member in a suitable female mold and permitting foamable material to foam on the film-form member within the mold, whereby

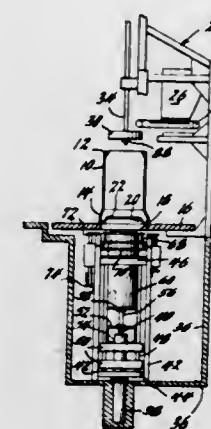
filling out the mold and adhering to the film-form material; wherein the film-form material is initially disposed on a male mold form corresponding to the female mold

embodiment, a novel core is inserted and vibrated simultaneously with formation of the cementitious pipe. Vibration



form and is transferred from the male mold form to the female mold form in the desired mold shape, and thereafter the foamable material is permitted to foam on the film-form member within the female mold form.

tion may continue for a short period after pipe formation in order to insure complete compaction of material and elimination of voids.



3,655,841

HEAT TREATING SINTERED MANGANESE-ZINC FERRITES TO IMPROVE PROPERTIES

Tsuneo Akashi, Izuru Sugano, Taneaki Okuda, Yoshihiro Onodo, and Toshiro Tsuji, Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

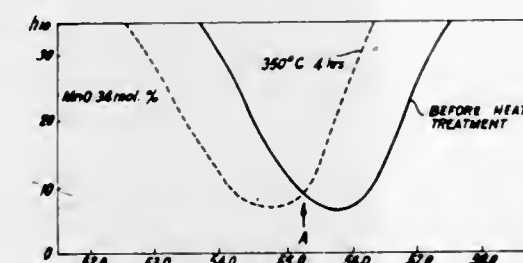
Continuation-in-part of application Ser. No. 762,403, Sept. 25, 1968. This application Oct. 7, 1970, Ser. No. 78,808

Claims priority, application Japan, Sept. 26, 1967, 42/62,961

Int. Cl. C04b 35/26, 35/36, 35/38

U.S. Cl. 264—66

6 Claims



The properties of manganese-zinc ferrites are improved by subjecting previously sintered ferrites to a low-temperature heat treatment at temperatures ranging up to about 400° C. The actual temperatures used are determined by the iron oxide content of the ferrite.

3,655,842

METHOD OF VIBRATING CORE IN CONCRETE PIPE MAKING MACHINE

Ferdinand A. Trautner, Newton Upper Falls, Mass., assignor to Viropac, Inc., Sioux City, Iowa

Original application May 27, 1967, Ser. No. 638,010. Divided and this application Oct. 17, 1969, Ser. No. 3,264

Int. Cl. B28b 1/46, 7/00, 21/00

U.S. Cl. 264—72

9 Claims

The invention comprises a novel method of vibrating a core in a concrete pipe making machine. In a preferred

3,655,843

MANUFACTURE OF DISPOSABLE CERAMIC DISHES FROM HIGH ALKALI PYROPHYLLITE

Fred G. Simmen, East Liverpool, Ohio, assignor to Hall China Company, East Liverpool, Ohio

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,896

Int. Cl. C04b 33/24, 33/28, 33/34

U.S. Cl. 264—59

7 Claims

Thin walled ceramic articles for single-use, or throw-away type, that are tough, strong and capable of rapid heating in high temperature ovens are made by applying to a heat-consumable substrate a thin layer of a low density, high viscosity aqueous slip consisting essentially of white ware grade pyrophyllite that is resistant to wetting and undergoes zero, or substantially zero, shrinkage on drying, drying the deposited slip layer on the substrate, applying glaze to the upper dried surface, and firing to mature the article and glaze and ash or otherwise consume the substrate.

3,655,844

PROCESS FOR THE MANUFACTURE OF SHAPED STRUCTURES WITH IMPROVED DYE AFFINITY

Hans Hoyer, Frankfurt am Main, Gunter Kell, Lorsbach, Taunus, and Wilhelm Happe, Schwalbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of application Ser. No. 619,183, Mar. 28, 1967. This application Nov. 18, 1969, Ser. No. 877,816

Claims priority, application Germany, Mar. 16, 1966, F 48,665

Int. Cl. B29c 25/00; C08g 17/00; D06m 5/06

U.S. Cl. 264—78

5 Claims

In the manufacture of copolyesters from terephthalic acid or the low molecular weight alkyl esters thereof and ethylene glycol, definite mercaptals and/or thioketals are incorporated into the macromolecule by ester linkage. The polyesters are shaped from the melt and sulfonic acid groups are produced in the shaped structures by an oxidative after-treatment. The structures have a high affinity for cationic substances.

3,655,845

HEATING A SINTERED ALUMINA ARTICLE IN ATMOSPHERE CONTAINING SODIUM OR POTASSIUM IONS

Takewo Chiku, Toyota-shi, Japan, assignor to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Aichi-ken, Japan

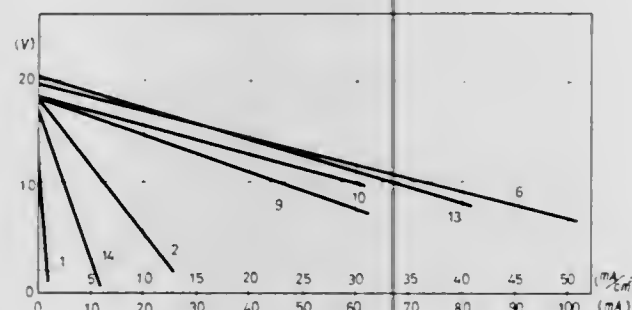
Filed July 29, 1969, Ser. No. 845,694

Claims priority, application Japan, Aug. 10, 1968, 43/56,831

Int. Cl. C04b 35/10, 35/64, 41/02

U.S. Cl. 264—82

10 Claims



A method for producing a permeable product of the beta-alumina type capable of passing sodium and/or potassium ions and primarily useful as the separator in a battery cell, comprising the steps of forming an alpha-alumina sintered member into a desired shape, placing said sintered member in an alkali metal atmosphere, e.g., sodium potassium, or oxides thereof at an elevated temperature, and diffusing the alkali metal or its oxide into said alpha-alumina member, whereby to form an ion permeable separator having a dense structure and sufficient strength for its intended use.

3,655,846

METHOD AND APPARATUS FOR MAKING TUBULAR FILM

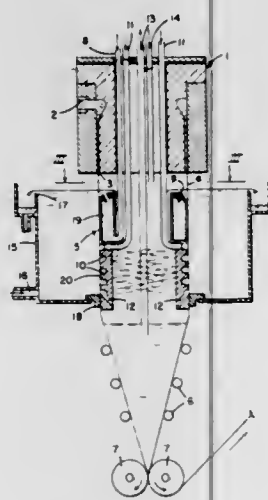
Teruchika Kanoh and Ryota Notomi, Shizuoka-ken, Japan, assignors to Kohjin Company, Limited, Tokyo, Japan

Filed Apr. 28, 1969, Ser. No. 819,928

Int. Cl. B29d 23/04

U.S. Cl. 264—89

7 Claims



Manufacture of continuous tubular films of thermoplastic materials in which a molten tubular film of thermoplastic material is rapidly cooled with liquids concomitantly along its inside and outside surfaces.

METHOD FOR FORMING CONCRETE PANELS UNDER COMPRESSION

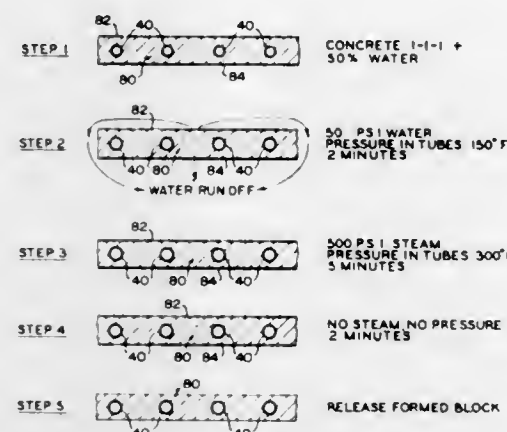
Burton D. Morgan, 302 Aurora St., Hudson, Ohio 44236

Filed Feb. 19, 1969, Ser. No. 800,418

Int. Cl. B29b 7/32, 23/00

U.S. Cl. 264—94

2 Claims



The invention relates to a method particularly adapted for forming concrete panels under pressure which essentially comprises positioning an expandable tube within the concrete to be formed and heating and pressurizing the tube into expansion while retaining or maintaining a uniform cavity size during the forming operation whereby internal pressure is thus exerted onto the formed concrete by the pressurization of the expandable tube to increase density and structural strength while lowering curing time of the concrete panels so formed.

3,655,848

SURFACE TREATMENT OF INTERIOR OF PARISON PREFORM

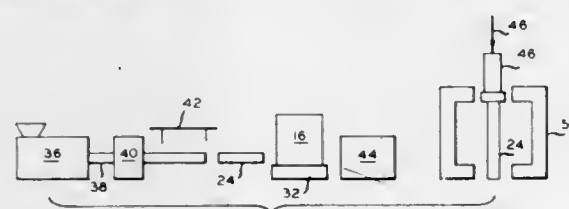
Richard K. Young and Calvin D. Dockery, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Aug. 18, 1969, Ser. No. 850,783

Int. Cl. B29c 17/07, 17/14

U.S. Cl. 264—98

7 Claims



Method for treating the interior of a parison preform and forming a biaxially oriented hollow article therefrom. Parison preforms are formed by extruding olefin polymer in tube form and cutting the tube into individual preforms. The interior of each preform is heat treated to melt the interior surface thereof to a depth of 0.1 to 15 mils and is then quenched. The treated parison is then reheated to the orientation temperature, stretched longitudinally, placed in a mold and blown to the shape of the mold.

3,655,849

MANUFACTURING OF SUN VISORS OR GLARE SHIELDS FOR MOTOR VEHICLES

Isao Hayashi, Nagoya, Japan, assignor to Hayashi Telempu Co., Ltd., Nagoya, Japan

Filed Nov. 12, 1969, Ser. No. 876,149

Claims priority, application Japan, Nov. 15, 1968, 43/83,645

Int. Cl. B29c 17/07

U.S. Cl. 264—98

5 Claims

The present invention relates to a new method of manufacturing of sun visors or glare shields to be fitted inside

3,655,851

METHOD FOR BALING PARTICULATE SYNTHETIC ELASTOMER

Marcus H. Shelton, Baytown, and Ralph James, Jr., Channelview, Tex., assignors to Esso Research and Engineering Company

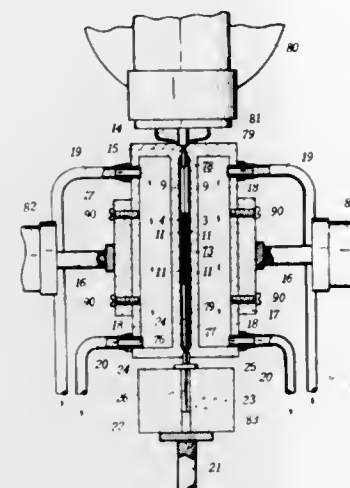
Continuation-in-part of application Ser. No. 692,436, Dec. 21, 1967. This application Mar. 19, 1970, Ser. No. 21,005

The portion of the term of the patent subsequent to Sept. 1, 1987, has been disclaimed

Int. Cl. B27h 3/00, 31/00

U.S. Cl. 264—102

7 Claims



motor vehicles, forming a hollow shell construction with synthetic resin, disposing simultaneously a bearing member therein which is to engage with a supporting rod and

to be locked in eyelet shape to the concave portions formed at a desired interior portions of the shell as parts thereof.

3,655,850

METHOD FOR THE CONTINUOUS PRODUCTION OF GLASS FIBER REINFORCED THERMOPLASTICS

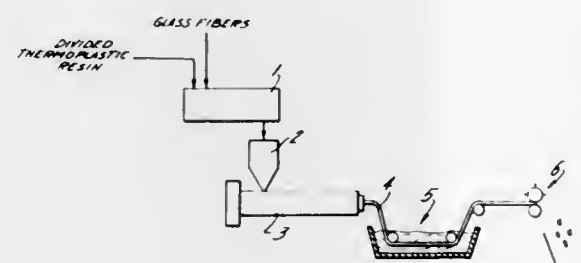
George W. Woodham, Evansville, and James L. Stuart, Boonville, Ind., assignors to Dart Industries, Inc., Los Angeles, Calif.

Filed Oct. 30, 1969, Ser. No. 872,683

Int. Cl. B01j 2/20

U.S. Cl. 264—118

10 Claims



A process disclosed for continuously producing glass fiber reinforced thermoplastic compositions by extrusion techniques whereby surging is minimized or substantially eliminated and products having good appearance and uniformity may be obtained. A blended mixture of glass fibers and thermoplastic resin in divided form are fed and processed through an extruder equipped with a multi-flight screw which provides for two stages, each stage including a feed zone, transition zone and metering zone and wherein the compression ratio in the first stage is in the range of about 3:1 to 5:1, the compression ratio in the second stage is in the range of about 1.5:1 to about 3.5:1, and the ratio between the flight depth of the screw in the second stage feed zone and the flight depth of the screw in the first stage feed zone is in the range of about 1:1.25 to about 1:2.5. The mixture is continuously extruded under the above conditions, cooled to solidification, and subdivided into the desired size. The resulting compositions are particularly suitable for molding operations.

3,655,852

METHOD OF FORMING A STABLE VITAMIN E-C GRANULATION

Arnold Koff, West Orange, and Louis Magid, Clifton, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,921

Int. Cl. B01j 2/20

U.S. Cl. 264—115

2 Claims

A method of forming a granulation of vitamins E and C which can be formed into multivitamin tablets by direct compression is described. Multivitamin tablets containing a high potency of vitamin E in the form of the granulations produced by the method of the invention are stable against oil bleeding and cracking.

3,655,853

PROCESS FOR PRODUCING POLYTETRAFLUOROETHYLENE FILAMENTS

Arthur R. Gallup, Bon Air, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 10, 1970, Ser. No. 62,627

Int. Cl. B27j 5/00

U.S. Cl. 264—127

4 Claims

Polytetrafluoroethylene filaments of improved strength are produced by extruding a mixture of viscose and PTFE aqueous dispersion having an average particle size of from 0.1 to 0.17 micron into an acidic coagulating and regenerating bath.

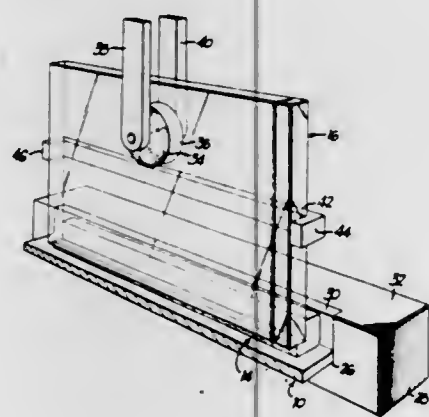
3,655,854
METHOD FOR BEDDING PANELS INTO FRAMES
 Robert J. Deisenroth, Elkhart, Ind., assignor to
 Excel Corporation, Elkhart, Ind.

Continuation-in-part of application Ser. No. 789,714, Jan. 8, 1969, which is a continuation-in-part of application Ser. No. 531,242, Mar. 2, 1966. This application Sept. 8, 1970, Ser. No. 70,570

Int. Cl. B32b 31/12, 31/26

U.S. Cl. 264—134

1 Claim



The invention provides a method for bedding a panel into a frame member having an interior surface forming a recess to receive a marginal edge of the panel. In accordance with the invention, the panel may be a glass member and the frame a metal channel, the two elements forming the window sash for an automobile. The method includes the step of forming a solid, rigid body of thermoplastic resinous bedding material having an interior surface forming a recess. The body is dimensioned to fit into the frame member and to receive the marginal edge of the panel in the recess of the body. A heat curable thermosetting resinous material is coated over the entire surface of the solid body and the thus coated body is placed in the recess of the frame member. A marginal edge of the panel is then placed within the recess of the solid body and in contact with the curable resinous material. The solid body is then heated to cure the uncured resinous thermosetting material and make plastic the solid body to wet the members and provide good adherence of the solid body to both the panel and the frame member. The assembly is then cooled to a solid condition.

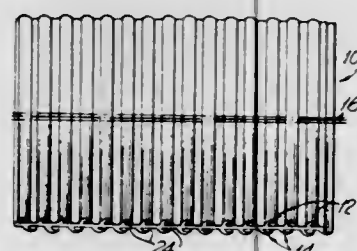
3,655,855
METHOD OF PRODUCING A SELF-GRIPPING FASTENING FILAMENT
 George C. Brumlik, 154 Upper Mountain Ave.,
 Montclair, N.J. 07042

Original application Mar. 6, 1968, Ser. No. 710,972, now Patent No. 3,522,637, dated Aug. 4, 1970. Divided and this application May 8, 1970, Ser. No. 35,817

Int. Cl. B29h 7/18

U.S. Cl. 264—147

5 Claims



A method is provided to produce a self-gripping fastener device which device is integrally made as part of a thread or filament. A sheet of plastic is extruded having the profile of a series of hooks extending therefrom spatially staggered along the length of the sheet. The sheet is then cut into thin sections to form threads or filaments. The

device is then employed either as a filament or as a yarn to form a fabric, felted surface or the like, the latter being releasably self-adhering by the application of pressure therein.

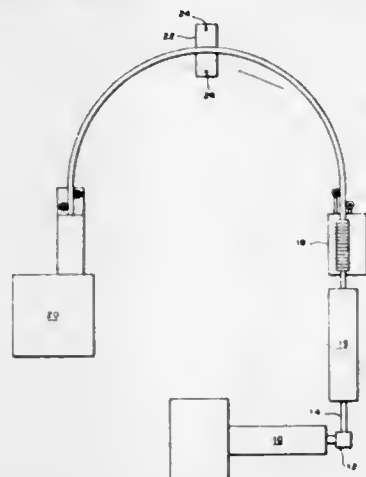
3,655,856
METHOD OF INTERMITTENTLY SEVERING CONTINUOUSLY FORMED EXTRUDATE
 Paul L. Spivy, Republic, Mo., assignor to
 Phillips Petroleum Company

Filed Mar. 12, 1970, Ser. No. 18,959

Int. Cl. B26d 3/16; B29c 17/14

U.S. Cl. 264—150

7 Claims



A continuous extrudate is bent through an arc prior to entry into a cutter unit. As the tubing in the cutter unit is held in a fixed position, the continuing extrusion of the extrudate results in increasing the size of the arc. Two limit switches are provided, one positioned so that as the size of the arc is increased to a preset amount, the tubing will touch same and thereby cause the cutting mechanism to advance the tubing, thus decreasing the size of the arc until it contacts the second limit switch which stops the movement of the material into the cutter. Thereafter, the portion of the extrudate advanced into the cutter is held in a stationary position and cut while the extrusion continues.

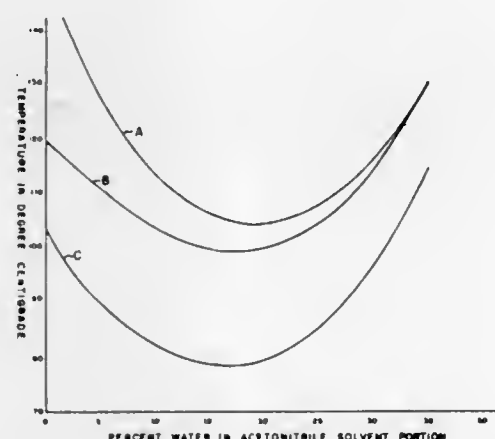
3,655,857
PROCESS FOR PREPARING ACRYLONITRILE POLYMER SOLUTION
 Thomas C. Bohrer, Summit, N.J., and Antony E. Champ,
 Charlotte, N.C., assignors to Celanese Corporation,
 New York, N.Y.

Filed Oct. 2, 1968, Ser. No. 764,380

Int. Cl. D01f 7/00

U.S. Cl. 264—206

11 Claims



A method for forming shaped articles, such as fibers, films, fibrillated films, molded products and the like, is described utilizing a solution of an acrylonitrile polymer in a low boiling solvent maintained under superatmospheric

pressures. The products produced thereby are unique and, when in fiber form, the fibers possess particularly desirable properties. The process is directed to the extruding of acrylonitrile polymers at least about 85 percent acrylonitrile using acetonitrile as the solvent. The process is effected by maintaining the fiber-forming material in a liquid state under superatmospheric pressure and elevated temperatures and releasing the pressure and/or cooling on extruding through a shaped orifice. The process conditions are readily varied so that melt spun, dry spun or wet spun type results are obtained.

3,655,858
PROCESS FOR SHAPING FABRIC ARTICLES
 Robert C. Winckhofer and Gene C. Weedon, Richmond,
 Va., assignors to Allied Chemical Corporation, New
 York, N.Y.

No Drawing. Filed Feb. 24, 1969, Ser. No. 801,836

Int. Cl. B29c 13/00

U.S. Cl. 264—230

8 Claims

A process for making specially shaped textile material or fabric articles such as garments, comprising the step of adapting a fabric composed at least in part of a novel fiber forming material containing at least two polymeric ingredients of differing melting points, and heating the fabric to shrink fit on said mold.

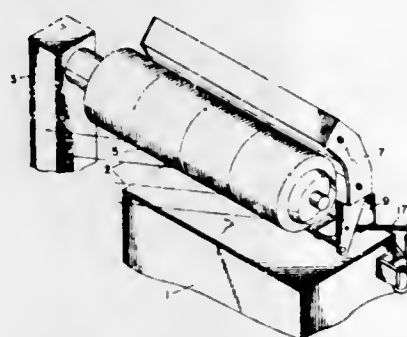
3,655,859
PROCESS FOR PREPARING CONJUGATE FILAMENTS
 Jack M. Buchanan, Parkwood, N.C., assignor to Hercules
 Incorporated, Wilmington, Del.

Filed July 8, 1970, Ser. No. 53,048

Int. Cl. B29c 25/00; D01d 5/22

U.S. Cl. 264—234

1 Claim



Conjugate filaments of polypropylene are heat treated prior to drawing to develop maximum crimping potential in a reduced time. The heat treatment is carried out by focusing radiant heaters on the undrawn yarn package as it is being wound. The heaters are maintained at a constant distance from the yarn package and a temperature of 120 to 200° C. is maintained in the space between the heaters and the yarn package.

3,655,860
METHOD FOR CONSTRUCTING HANDLE OF THERMOPLASTIC MATERIAL
 Leigh D. Leiter, Philadelphia, Pa., and Frank R. Linda,
 Bridgeport, Conn., assignors to International Paper
 Company, New York, N.Y.

Division of application Ser. No. 712,993, Mar. 14, 1968, now Patent No. 3,481,528, and a continuation-in-part of applications Ser. No. 521,362, Jan. 18, 1966, now Patent No. 3,373,924, and Ser. No. 565,045, July 6, 1966. Divided and this application June 23, 1969, Ser. No. 858,218

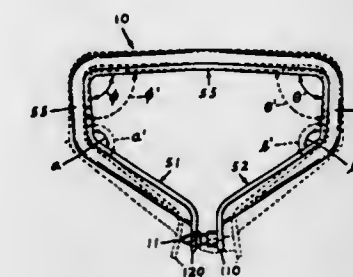
Int. Cl. B29f 3/08; B29c 25/00

U.S. Cl. 264—237

3 Claims

A method for constructing a handle of thermoplastic material by forming the material at an elevated temperature into an open loop having a plurality of co-planar

sides and a cross-section in the shape of an inverted "T," and by cooling the loop essentially free of restraint on the movement of the sides of the loop so that as the loop cools the sides of the loop will tend to bow concavely



relative to the interior of the loop, and the corner angles between contiguous sides of the loop will tend to become more acute, thereby bringing closer together the ends of the loop.

3,655,861
METHOD FOR THE MANUFACTURE OF MOLDED SOLID PLASTICS ARTICLES
 Arthur H. Roberts, 12 Lynwood Drive,
 Westbury, N.Y. 11590

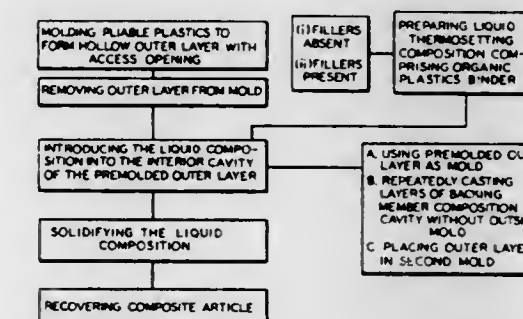
Continuation-in-part of application Ser. No. 475,989, July 30, 1965. This application Nov. 29, 1968, Ser. No. 779,837

The portion of the term of the patent subsequent to Oct. 7, 1985, has been disclaimed

Int. Cl. B29c 13/04

U.S. Cl. 264—250

18 Claims



This invention relates to the preparation of composite articles of manufacture and to the articles so produced. The articles are impact-resistant, three-dimensional and rigid. The articles are comprised of two essential elements: (1) A pliable, hollow premolded outer plastics layer and (2) an essentially rigid non-cellular organic plastics structural backing member solidified in the hollow interior of the plastics skin, and essentially solidly filling said hollow interior. The hollow outer layer is prepared in a manner to have an access opening to its hollow interior. A liquid plastics composition is next prepared in a separate step that comprises an organic binder which solidifies at room temperature, in most cases by converting to a thermoset stage. This liquid composition is then introduced through the access opening into the cavity of the premolded outer layer. The liquid composition is then solidified in a manner to fill essentially voidlessly and fully the cavity of the outer layer, thus producing a dense tough integral article of manufacture having the shape of the premolded outer layer. Illustrative for the outer layer materials are plasticized polyvinylchloride compositions, polyethylene and rubbers. Illustrative for the interior component are epoxy resins, polyester resins,

room temperature curing phenolics and filler containing polysulfide rubber, repolymerized depolymerized rubber and polyurethanes. Fillers may be present in the liquid compositions. By the favored method decorative and utilitarian articles with complicated undercuts can be prepared in a simple and economic manner.

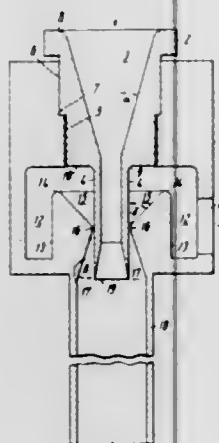
3,655,862

ASPIRATOR JET FOR DRAWING-OFF FILAMENTS
Oskar Dorschner, Bad Homburg, Franz Josef Carduck, Bergen-Enkheim, Nordring, Christoph Storkebaum, Egelsbach, and Claus Rother, Petterweil, Germany, assignors to Metallgesellschaft AG, Frankfurt am Main, Germany

Filed Aug. 15, 1969, Ser. No. 850,500
Claims priority, application Germany, Aug. 17, 1968, P 17 85 158.0
Int. Cl. B29c 17/02

U.S. Cl. 264—290

11 Claims



In an aspirator jet for drawing-off thermoplastic filaments having a nozzle and a throat, the primary aspirating air is smoothly expanded to supersonic velocities through a throat into an outwardly diverging expansion chamber which is preferably dome-shaped. A guide tube for the filaments and secondary air extends centrally through the throat and through the expansion chamber to the draw-off tube, which has a constant diameter.

The design is such that the aspirating air flows parallel to the filaments issuing from the guide tube and does not impinge thereon as is the case with the jet designs of the prior art.

This design permits draw-off of filaments at high speeds, in excess of 2,000 meters/min., with good separation and substantially complete parallelism between the filaments and without intermingling or twisting and interlocking of the filaments.

3,655,863

METHOD OF MAKING A CONTOURED COMPOSITE PRODUCT

Harry M. Andersen, Ballwin, David C. Morris, St. Louis, and Tommy L. Tolbert, Chesterfield, Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of application Ser. No. 677,629, Oct. 24, 1967. This application Jan. 9, 1970, Ser. No. 3,574

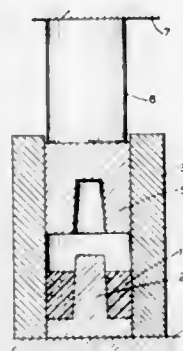
Int. Cl. B29c 3/00; B29d 3/02

U.S. Cl. 264—294

4 Claims

A method of producing a compression molded, contoured composite structure with an epoxide resin matrix having dispersed therein a plurality of discontinuous, reinforcing, inorganic fibers substantially in parallel arrangement with respect to each other. A contoured mold surface is covered with an elongated, formed body of B staged epoxide resin having said fibers included

therein, lengthwise and in parallel, along the length of the body. The body is positioned on said surface so as



to obtain maximum parallel disposition of the fibers, with respect to each other, throughout the area, and the assembly is compression molded.

3,655,864

GLYCERYL TRISTERATE AND HIGHER FATTY ACID MIXTURE FOR IMPROVING DIGESTIVE ABSORPTION

George M. Grass, Jr., Phoenixville, and Raymond R. Unangst, Havertown, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Sept. 21, 1970, Ser. No. 74,138

Int. Cl. A61k 27/00

U.S. Cl. 424—38

7 Claims

Veterinary compositions permitting passage of biologically active feed additives through the rumen substantially unchanged resulting in release and absorption posttruminally. The compositions are embedded in or coated by an intimate mixture of glyceryl tristearate with a liquid unsaturated higher fatty acid. A preferred composition is the feed additive in association with glyceryl tristearate and oleic acid.

3,655,865

HOMOGENEOUS WATER-BASED AEROSOL SYSTEMS

Lawrence J. Murphy, East Brunswick, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 527,516, Feb. 15, 1966. This application June 8, 1970, Ser. No. 44,627

Int. Cl. A61k 7/06

U.S. Cl. 424—45

5 Claims

Homogeneous water-based aerosol systems containing minor amounts of siloxane-polyoxyalkylene copolymer, surfactant, and propellant and major amount of water. This combination results in clear aerosol compositions which have sufficient propellant for satisfactory exhaustion from an aerosol container. The propellants do not layer out and are not emulsified but are completely dissolved by the aqueous concentrate forming a homogeneous system.

3,655,866

SUGARLESS GUM CONTAINING DICALCIUM PHOSPHATE DIHYDRATE

Anthony G. Bilotti, Queens Village, N.Y., assignor to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,967

Int. Cl. A61k 27/00

U.S. Cl. 424—48

4 Claims

A sugarless gum containing a freely releasable form of dicalcium phosphate dihydrate is prepared by coating or agglomerating dicalcium phosphate dihydrate powder with a water-soluble polyol or combination of polyols, such as mannitol, sorbitol, xylitol, or arabitol, prior to

incorporation into the gum composition. About 0.5 to 18 parts by weight of the polyol ingredient is mixed with 1 part by weight of dicalcium phosphate dihydrate powder and a small amount of water is added; the agglomerate formed is dried, pulverized and incorporated into a sugarless gum composition prepared from gum base, sorbitol solution, sorbitol, mannitol, artificial sweeteners, and flavoring agents. This chewing gum product provides a method for reducing the incidence of dental caries since therapeutically beneficial quantities of dicalcium phosphate dihydrate are freely released into the oral cavity and brought into contact with the dental enamel upon chewing of the gum.

3,655,867

DENTAL PREPARATIONS

Ludwig Schoernig, Frankfurt am Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of application Ser. No. 601,312, Dec. 13, 1966. This application May 1, 1970, Ser. No. 33,916

Int. Cl. A61k 7/16

U.S. Cl. 424—52

1 Claim

Dental preparation containing a fluoride and a polishing abrasive agent, a mixture of magnesium ammonium phosphate and calcium hydrogen phosphate.

3,655,868

ORAL DEODORANT

Harold N. Vagenius, Berwyn, Ill.; Helen M. Vagenius, administrator with the will annexed of the estate of said Harold N. Vagenius, deceased

No Drawing. Original application May 13, 1968, Ser. No. 728,817. Divided and this application Nov. 30, 1970, Ser. No. 93,895

Int. Cl. A61k 7/16

U.S. Cl. 424—54

2 Claims

The present invention is an oral deodorant comprising ferrous gluconate and a water soluble reaction product of copper gluconate and glycine.

3,655,869

TREATMENT OF DIARRHEA EMPLOYING CERTAIN BASIC POLYELECTROLYTE POLYMERS

Ferdinand D. Wharton, St. Louis, John H. Johnson, Kirkwood, Joseph E. Fields, Ballwin, and Lawrence J. Machlin, Olivette, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 2, 1969, Ser. No. 789,080

Int. Cl. A61k 27/00

U.S. Cl. 424—78

6 Claims

The treatment or prevention of gastro-enteritis diarrheal syndrome (diarrhea) in a living animal body is accomplished by orally administering to said animal body a therapeutically effective amount of a basic polyelectrolyte polymer, which is (A) a polymerized unsaturated carboxylic acid or anhydride and a derivative of a polymerized unsaturated carboxylic acid or anhydride, (B) a derivative of a polymerized unsaturated carboxylic acid or anhydride or (C) a copolymer of (1) an unsaturated monomer having 2 to 18 carbon atoms and (2) a monomer selected from the group consisting of (a) an unsaturated carboxylic acid or anhydride and a derivative of an unsaturated carboxylic acid or anhydride and (b) a derivative of an unsaturated carboxylic acid or anhydride, as exemplified by N,N-dimethylaminopropylimide of ethylene/maleic anhydride copolymer. The basic polymer is polycationic or polyampholytic in nature. Typical dosage is 0.05 to 5.0% of the total diet.

3,655,870

PROCESS FOR THE MANUFACTURE OF A GRANULAR MATERIAL CONTAINING OILY OR LIQUID THERAPEUTICALLY USABLE FURANOSIDES

Guenther Mueller, Arlesheim, Switzerland, assignor to Ciba Corporation, Summit, N.J.

No Drawing. Original application July 25, 1969, Ser. No. 845,038, now Patent No. 3,594,474, dated July 20, 1971. Divided and this application Sept. 18, 1970, Ser. No. 73,606

Claims priority, application Switzerland, Aug. 5, 1968, 11,704/68

Int. Cl. A61j 3/06; A61k 9/00, 27/00

U.S. Cl. 424—80

16 Claims

The invention provides a process of manufacture of a free-flowing, solid, granular material, wherein an oily or liquid, therapeutically usable furanoside, such as ethyl-3,5,6-tri-O-benzyl-D-glucofuranoside or ethyl-3-O-propyl-5,6-di-O-para-chlorobenzyl-D-glucofuranoside, is mixed with a film-forming agent and a lower alkanol, the mixture is worked up with magnesium trisilicate to form a plastic mass and the latter granulated while drying it.

3,655,871

INACTIVATION OF INFLUENZA VIRUSES WITH LOWER ALKYL ESTERS OF ACETIC ACID

Georges Werner, Sceaux, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Nov. 20, 1967, Ser. No. 684,540

Claims priority, application France, Nov. 21, 1966, 84,337

Int. Cl. A61r 27/00

U.S. Cl. 424—89

5 Claims

Vaccines are prepared from monovalent or polyvalent inactivated viral suspensions of human, equine, porcine, or fowl influenza viruses, said suspensions being prepared by cultivating in the allantoic cavity of the embryonated chicken egg a said virus, separating the allantoic liquid containing the virus, purifying the viral suspension so obtained by centrifugation, and treating a purified suspension of the virus with diethyl ether or ethyl acetate to inactivate the virus, using conditions which maintain the neuraminidase activity of the virus.

3,655,872

HIGHLY ATTENUATED RUBELLA VIRUS VACCINE AND PRODUCTION THEREOF

Reisaku Kono, Tokyo, Shigeo Yamamoto, Yamaguchi, and Hideaki Yaoi, Nara, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Apr. 1, 1969, Ser. No. 812,385

Int. Cl. C12k 5/00

U.S. Cl. 424—89

2 Claims

A novel, highly attenuated live rubella vaccine is prepared by subjecting a specific rubella virus strain to at least 10 passages of cultivation in tissue containing living cells of a warm blooded animal at 28° C. to 36° C. until the desired degree of attenuation is attained.

3,655,873

METHOD AND PREPARATION FOR TREATMENT OF CARCINOMA

Francis M. Duffy, 211 W. Maple, Enid, Okla. 73701

No Drawing. Filed July 24, 1970, Ser. No. 58,204

Int. Cl. C12k 7/00

U.S. Cl. 424—93

7 Claims

A bacteria lysing solution is presented prepared by incubating blood cultures of *Staphylococcus albus* cultured from carcinoma tissue in a multiple electrolyte including 10 percent invert sugar, and insulin at between 98°–100° F. for approximately eight weeks. The solution is useful in treating metastatic carcinoma. Patients suffering with

cidiosis or toxoplasmosis by the use of 3-sulfanilamido-isoxazole and pharmaceutically acceptable salts thereof, preferably in a novel combination with certain anti-coccidial pyrimidine derivative salts.

3,655,888

ANTICOCCIDIAL COMPOSITIONS

Edward C. McManus, Plainfield, and Edward F. Rogers, Middletown, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 775,506, Nov. 13, 1968. This application Oct. 13, 1969, Ser. No. 866,043

Int. Cl. A61k 27/00

U.S. Cl. 424-229

11 Claims

Novel anticoccidial compositions contain as an active ingredient 2-loweralkylaminoethanols where the alkyl group has at least two carbon atoms, alone or in combination with certain sulfa drugs, or sulfa drugs and 2,4-diamino-5-aryl-6-alkylpyrimidines. Of particular interest is 2-t-butylaminoethanol alone, quinoxaline or 3-allyloxy-4-sulfanilamido-1,2,5-thiadiazole and 2,4-diamino-5-(p-chlorophenyl)-6-ethylpyrimidine.

3,655,889

QUINESTROL AS A RODENT CONTROL AGENT
Robert L. Kroc, Santa Ynez, Calif., and Terrence W. Mischler, Long Valley, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

No Drawing. Filed Dec. 9, 1969, Ser. No. 883,633

Int. Cl. A01n 9/24

U.S. Cl. 424-238

1 Claim

The present invention discloses a novel method for the control of rodents by the administration of quinestrol.

3,655,890

COMPOSITIONS CONTAINING 3,6-DISUBSTITUTED SYMMETRICAL TETRAZINES, SALTS THEREOF AND METHOD OF USE THEREOF

Gordon Arthur Kemp, Princeton, Howard John Bachmann, Spring Lake, Gerald Berkelhammer, Princeton, and Goro Asato, Titusville, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 684,619, Nov. 21, 1967. This application Aug. 17, 1970, Ser. No. 64,597

Int. Cl. A61k 27/00

U.S. Cl. 424-244

10 Claims

This invention relates to compounds, compositions and a method for controlling the growth of pathogenic microorganisms in warm-blooded animals by administering to said hosts an effective amount of a substituted symmetrical tetrazine compound.

3,655,891

2-BENZYL-as-TRIAZINE-3,5-(2H,4H) DIONES FOR THE CONTROL OF COCCIDIOSIS

Harold L. Howes, Jr., East Lyme, and Richard C. Koch, Niantic, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Original application Oct. 16, 1968, Ser. No. 768,192, now Patent No. 3,560,496, dated Feb. 2, 1971. Divided and this application Sept. 18, 1970, Ser. No. 73,662

Int. Cl. A61k 27/00

U.S. Cl. 424-249

11 Claims

2-benzyl-as-triazine-3,5-(2H,4H) diones and novel 2-substituted - benzyl - as-triazine-3,5-(2H,4H) diones and their use as agents for the control of coccidiosis are described.

3,655,892 PHARMACEUTICAL PREPARATIONS AND METHODS OF USING SAME

Charles D. Bossinger, Olympia Fields, and Takashi Enkoji, Part Forest, Ill., assignors to Armour Pharmaceutical Company, Chicago, Ill.

No Drawing. Filed Nov. 3, 1969, Ser. No. 873,652

The portion of the term of the patent subsequent to Dec. 21, 1988, has been disclaimed

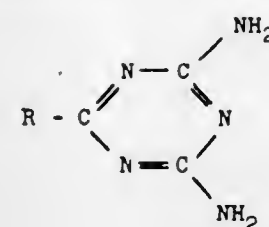
Int. Cl. A61k 27/00

U.S. Cl. 424-249

18 Claims

Preparations containing 2,4-diamino-6-substituted-s-triazines and methods of using same whereby a host, including man, to whom such preparations are administered, is provided with anti-inflammatory relief while avoiding the unwanted side effects of steroid therapy.

The triazine compounds of this invention have the structure



wherein R is selected from the group consisting of primary alkyl, secondary alkyl, tertiary alkyl, said alkyls having from one to 15 carbon atoms, and $R'(CH)_n$ wherein R' is selected from the group consisting of phenyl, diphenyl, chlorophenyl or methoxyphenyl, and "n" is a cardinal number having a value of from 1 to 4.

3,655,893 CHLORONITROPHENYL ETHERS AS NEMATOCIDES

Delta W. Gier, Laurinburg, N.C., and Daniel M. Wasleski, Kansas City, Mo., assignors to Chemagro Corporation, New York, N.Y.

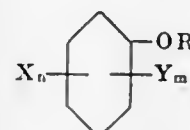
No Drawing. Filed Oct. 16, 1967, Ser. No. 675,331

Int. Cl. A01n 9/00

U.S. Cl. 424-250

2 Claims

Compounds of the formula



where R is alkyl, cycloalkyl, dihalo triazinyl, quinoxaliny, alkyl quinoxaliny, acetonyl, arylketoalkyl, epoxyalkyl, aminoarylalketoalkyl, haloarylalketoalkyl, X is halogen, Y is nitro, n is an integer of 1 to 3 and m is an integer of 1 to 2 have been found useful as nematocides, herbicides, fungicides and desiccants.

3,655,894 COMPOSITIONS FOR INHIBITING GASTRIC ACID SECRETION

William A. Bolhofer, Frederick, and John J. Baldwin, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Dec. 28, 1966, Ser. No. 605,206, now Patent No. 3,510,487, dated May 5, 1970. Divided and this application Aug. 28, 1969, Ser. No. 853,946

Int. Cl. A61k 27/00

U.S. Cl. 424-250

5 Claims

This application is concerned with novel 2,3-dichloro-quinoxalines which may be substituted in the 5, 6, and 7-positions, the 5 or 6-position having a substituted car-

bamoyl group and the 7-position having as substituents hydrogen, halo, loweralkyl, or loweralkoxy. These novel quinoxalines, useful as gastric acid inhibitors, may be prepared by intimately contacting 5(6)-chlorocarbonyl-2,3-dichloroquinoxaline or the appropriately 7-substituted-6-chlorocarbonyl-2,3-dichloroquinoxaline with an amine having at least one replaceable hydrogen atom.

3,655,895

METHODS OF TREATMENT USING 2-ACYLIMINO-1,3-DIAZACYCLOALKANES

Robert Armistead Lucas, Mendham, and Herbert Morton Blatter, Summit, N.J., assignors to Ciba Corporation, Summit, N.J.

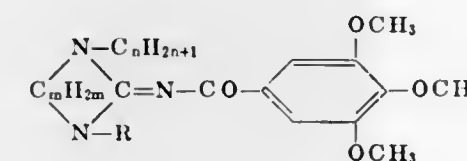
No Drawing. Filed July 7, 1969, Ser. No. 839,704

Int. Cl. A61k 27/00

U.S. Cl. 424-251

2 Claims

1-alkyl - 2 - (3,4,5-trimethoxybenzoylimino)-1,3-diazacycloalkanes, e.g. those of the formula



R=H, alkyl or 3,4,5-trimethoxybenzoyl
m=2 or 3,
n=1-4

and salts thereof exhibit sedative effects.

3,655,896

PHARMACEUTICAL COMPOSITIONS CONTAINING A SYMPATHOMIMETIC AMINE AND A TRI-AZOLO-PYRIMIDINE DERIVATIVE AND METHODS OF PREVENTING BRONCHOSPASMS

George Edward Davies, Michael Dukes, and Thomas Paterson Johnston, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 22, 1969, Ser. No. 852,506

Claims priority, application Great Britain, Feb. 28, 1969, 10,901/69

Int. Cl. A61k 27/00

U.S. Cl. 424-251

7 Claims

A method of preventing bronchospasm by administering in conjunction a sympathomimetic amine and a 2-amino (or substituted amino)-4-alkyl-5-oxo-6-alkyl-4,5-dihydro-s-triazolo[1,5-a]pyrimidine derivative, and also pharmaceutical compositions containing the above two components. The triazolo-pyrimidine derivatives were not previously known to possess bronchospasm inhibiting properties, and in addition the combined effect of both components is much greater than the sum of the individual effects.

3,655,897

ANTI-INFLAMMATORY AGENTS

Bruce E. Witzel, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 879,925, Nov. 25, 1969. This application Jan. 25, 1971, Ser. No. 109,707

Int. Cl. A61k 27/00

U.S. Cl. 424-263

30 Claims

The treatment of inflammation, pain and fever utilizing compositions containing alkyl substituted pyridones, thio-pyridones and pyridines.

3,655,898 USE OF PYRIDYLTHIURONIUM SALTS AS FUNGICIDES

Patrick R. Driscoll, Spotswood, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed June 30, 1969, Ser. No. 837,948

Int. Cl. A01n 9/00

U.S. Cl. 424-263

6 Claims

Certain pyridylthiuronium halide salts substituted in the 2- or 4-position with the thiuronium halide substituent form a new class of fungicides. They are highly effective as spore fungicides against *Monilinia fructicola* and *Stemphylium sarcinaeforme*. They also are highly effective as soil fungicides against *Fusarium oxysporium*, *Pythium debaryanum*, *Rhizoctonia solani*, and *Sclerotium rolfsii*.

3,655,899

N-TRITYL-IMIDAZOLES FOR TREATING FUNGAL INFECTIONS

Karl H. Buchel, Leverkusen, Erik Regel, Wuppertal-Cronenberg, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application May 11, 1970, Ser. No. 36,425

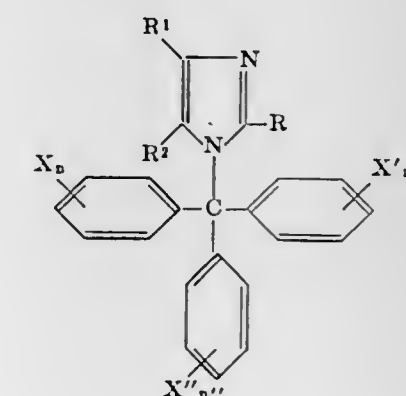
Claims priority, application Germany, Sept. 15, 1967, F 53,504

Int. Cl. A61k 27/00

U.S. Cl. 424-273

4 Claims

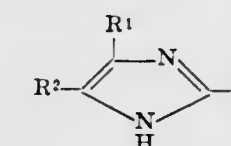
N-trityl-imidazoles and salts thereof of the formula:



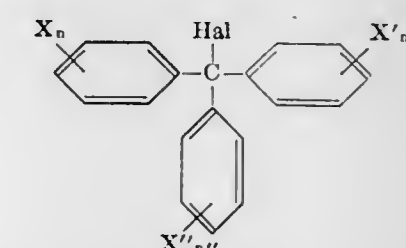
wherein

R, R¹ and R² are hydrogen, lower alkyl or phenyl, or R¹ and R² together form an annellated benzene ring, X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and n, n' and n'' are an integer from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,655,900 N-TRITYL-IMIDAZOLES FOR TREATING FUNGAL INFECTIONS

Karl H. Buchel, Leverkusen, Erik Regel, Wuppertal-Cronenberg, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application May 11, 1970, Ser. No. 36,426

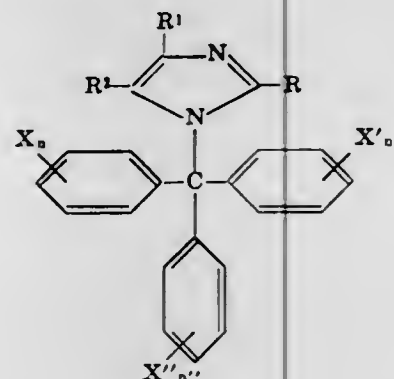
Claims priority, application Germany, Sept. 15, 1967, F 53,504

Int. Cl. A61k 27/00

U.S. Cl. 424-273

14 Claims

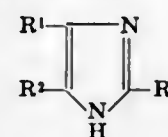
N-trityl-imidazoles and salts thereof of the formula:



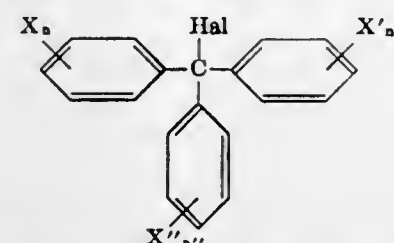
wherein

R, R¹ and R² are hydrogen, lower alkyl or phenyl, or R¹ and R² together form an annellated benzene ring.
X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and
n, n' and n'' are an integer from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,655,901 METHOD OF INHIBITING THE FORMATION OF PHENYLETHANAMINE-N-METHYL TRANS- FERASE WITH 2-AMINOBENZIMIDAZOLES

Norman P. Jensen, Watchung, and Tsung-Ying Shen and Thomas B. Windholz, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 8,002, Feb. 2, 1970. This application July 30, 1970, Ser. No. 59,697

Int. Cl. A61k 27/00

U.S. Cl. 424-273

1 Claim

New 2-aminobenzimidazoles useful in the inhibition of phenylethanolamine-N-methyl transferase.

ELECTRICAL

3,655,902 HEATING SYSTEM FOR ELECTRON BEAM FURNACE

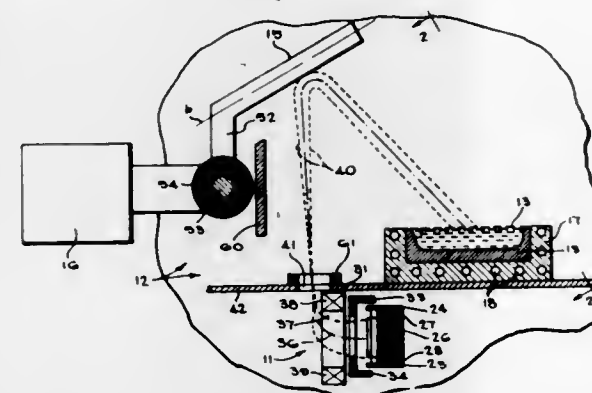
Alexander H. Flrestone, El Sobrante; Robert W. Fisk, Sunnyvale, and Kurt D. Kennedy, Berkeley, all of Calif., assignors to Air Reduction Company, Incorporated, New York, N.Y.

Filed Oct. 19, 1970, Ser. No. 81,720

Int. Cl. H05b 7/00

U.S. Cl. 13-31

9 Claims



An electron beam furnace heating system is described wherein an electron beam produced by an electron gun is directed to a target by a transverse magnetic field in the path of the beam. The field is established by a pair of bar-shaped pole pieces having their longitudinal axes in a common plane and the field of sufficient strength that the beam is deflected to emerge from the same side of the magnetic field as the side from which it enters.

3,655,903 ANNULAR ELECTRON GUN

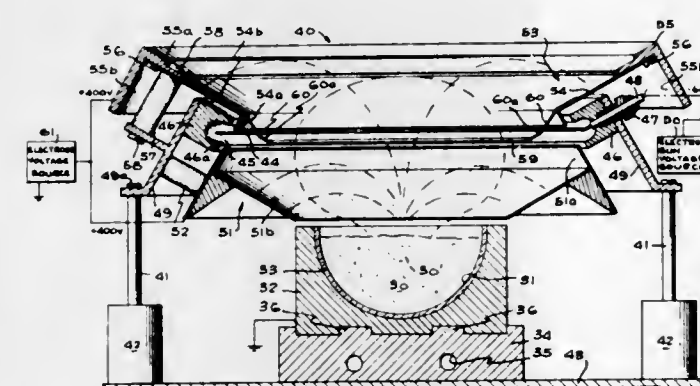
Leonard F. Roman, 11018 Moorpark, North Hollywood, Calif., and George H. Elliott, 16501 Knollwood Drive, Granada Hills, Calif.

Filed Apr. 1, 1969, Ser. No. 812,263

Int. Cl. H05b 7/00

U.S. Cl. 13-31

10 Claims



An annular electron gun adapted to produce a conical electron beam capable of vaporizing a source material situated at the apex of the beam. The gun comprises an annular filament, a truncated conical electrode disposed coaxially just below the beam, and an annular wire ring electrode suspended just above the beam in coaxial spaced relation with the conical electrode. The filament is maintained at a high negative potential, the electrodes at the same positive potential. Vaporized atoms of source material are ionized by the annular electrodes, and accumulate into an ion cloud within the cone of, but separated from, the electron beam.

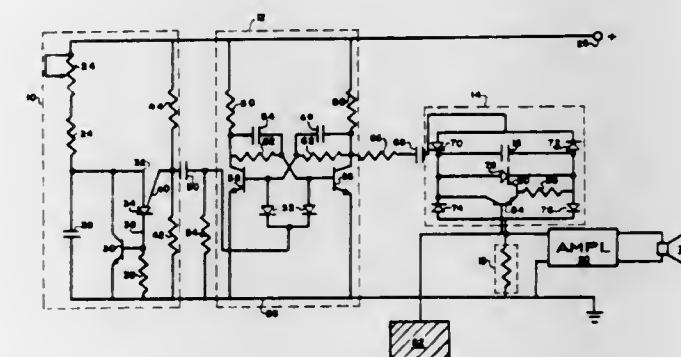
3,655,904 ELECTRIC VARIABLE TONE PERCUSSION INSTRUMENT

Herbert Cohen, 180 West End Avenue, New York, N.Y.
Filed Dec. 14, 1970, Ser. No. 97,493

Int. Cl. G10h 1/00

U.S. Cl. 84-1.01

11 Claims



An electric variable tone percussion instrument comprises a source of periodic signals, storage means coupled to the source of periodic signals, output means coupled to the storage means and switching means coupled to the storage means, the switching means normally being in a non-conducting state, the storage means being charged to a maximum storage voltage and the output means producing an minimum output voltage while the switching means is in the non-conducting state, the storage means discharging and the output means producing a maximum output voltage when the switching means is in a conducting state, the switching means immediately returning to the non-conducting state causing the storage means to charge towards the maximum storage voltage while the output means produces an exponentially decaying output voltage signal.

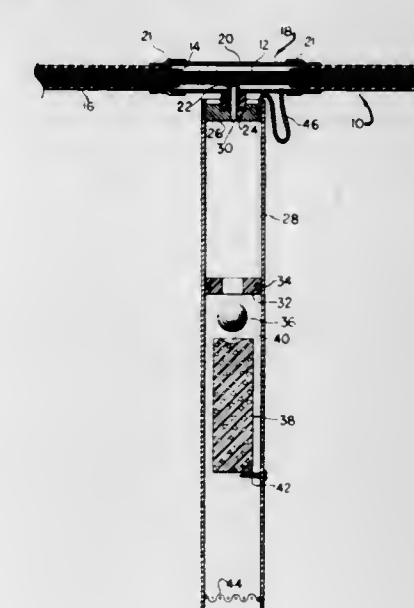
3,655,905 METHOD AND MEANS FOR KEEPING CABLES DRY

Jimmy C. Ray, Route 2, P.O. Box 33, Denison, Tex.
Filed Jan. 4, 1971, Ser. No. 103,443

Int. Cl. H02g 9/00, 15/00

U.S. Cl. 174-11 R

13 Claims



The sheath around underground communication cables is opened at low points at frequent intervals. A sleeve is placed around the opening in the sheath and a tap in the sleeve drains fluid to a metallic cylinder. The cylinder contains a

float valve so that water can drain from the cable into the cylinder and the cylinder is open at the bottom so the water may drain into the soil. The float valve prevents ground water from flowing into the cable. The cylinder may be electrically bonded to the sheath in which instance it acts as an anode for electrolytic corrosion protection.

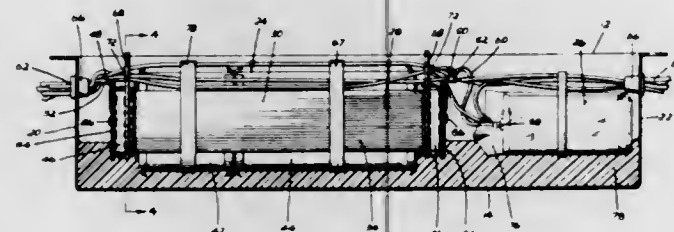
3,655,906

LAMP BALLAST AND METHOD OF PRODUCING SAME
Robert E. Robb, Danville, Ill., assignor to General Electric Company

Filed Oct. 19, 1970, Ser. No. 81,759
Int. Cl. H05k 5/06

U.S. Cl. 174—52 PE

4 Claims



A lamp ballast wherein a magnetic core and coil assembly is encased within a housing and is spaced from the housing with a suitable filler material filling the space between the magnetic core and coil assembly and the housing. The magnetic core and coil assembly is suspended within the housing having an open top, being spaced from the sides and bottom thereof by suspension means. The housing or casing is then partially filled with the suitable filler material in liquid form, to a level wherein at least a portion of the magnetic core and coil assembly is immersed in the filler material. After the filler material has hardened to an extent that it will support the core and coil assembly, portions of the suspension means are removed such that when the housing is completely filled with the filler material the core and coil assembly will be completely surrounded by the filler material and the suspension means will not extend from the core and coil assembly to the casing. Thus, the suspension means does not provide a surface joining the casing and the core and coil assembly along which moisture entering the casing may reach the core and coil assembly.

3,655,907

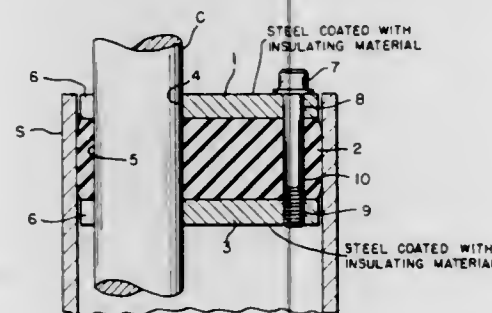
CONDUIT CABLE SEAL

Robert A. Philibert, Rockville Centre, and Frank L. Browne, Wantagh, L. I., both of N.Y., assignors to O.Z. Electrical Manufacturing Company, Inc., New York, N.Y.

Filed Oct. 16, 1970, Ser. No. 81,230
Int. Cl. H02g 15/04

U.S. Cl. 174—77 R

3 Claims



There has been provided a conduit cable seal comprising a clamping means having at least two relatively thin, spaced steel plates having axial holes therethrough for passing a cable and a radial slot extending from an outer end of each of the cable holes to the outer edge of the plates. A fastening

means draws one plate close to the other and a resilient sealing member disposed between the plates seals the conduit beyond the cable seal when the fasteners urge the plates toward each other.

3,655,908

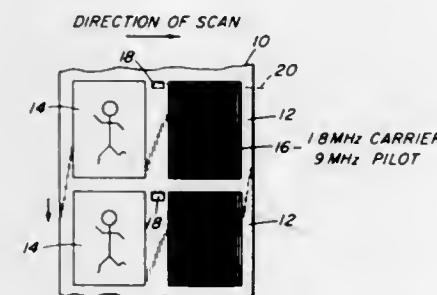
APPARATUS FOR REPRODUCING COLOR PICTURE INFORMATION

Abraham A. Goldberg, Stamford, and Renville H. McMann, Jr., New Canaan, both of Conn., assignors to Columbia Broadcasting System, Inc.

Filed June 19, 1970, Ser. No. 47,740
Int. Cl. H04n 9/12

U.S. Cl. 178—5.4 CD

8 Claims



Apparatus for reproducing color picture information that has been recorded on a record medium in a succession of information-bearing areas including areas carrying luminance picture information and different areas carrying color picture information in the form of superimposed records of two color difference signals, suppressed carrier modulated in quadrature phase to each other and a pilot carrier signal at a different frequency. The system comprises means including a flying spot scanner for scanning the record medium without line tracking and a pair of photomultipliers for respectively detecting the luminance and color picture information. The color information signal, containing the color difference signals and the pilot signal are separated into its individual components, and the color signals are directly translated to NTSC frequency, or other frequency standard, by frequency conversion for combination with the luminance picture information signal for presentation on a television receiver.

3,655,909

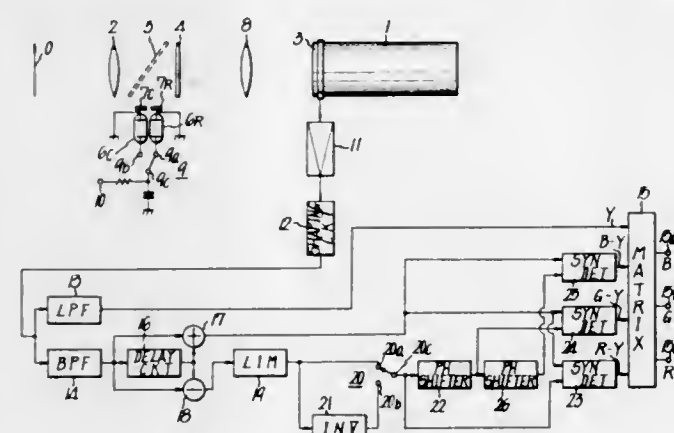
COLOR TELEVISION CAMERA

Yasuharu Kubota, Kanagawa-ken, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 20, 1970, Ser. No. 82,460
Claims priority, application Japan, Oct. 21, 1969, 44/84102
Int. Cl. H04n 9/06

U.S. Cl. 178—5.4 ST

6 Claims



A color television camera includes an image pickup tube having a scanning surface to convert an image of an object projected thereon through a color filter into a signal and two

light sources projecting a red light and a cyan light alternatively on the scanning surface through the color filter to provide an index signal of alternately changing phase in the composite signal constituting the output of the tube.

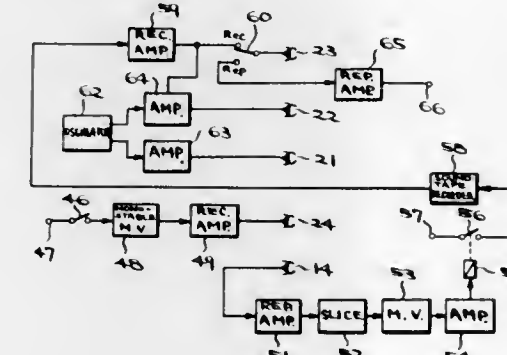
3,655,910

A MAGNETIC RECORDING, REPRODUCING, AND EDITING APPARATUS

Yoshiyo Wada, and Katsuya Yasutake, both of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed Aug. 12, 1969, Ser. No. 849,318
Claims priority, application Japan, Aug. 13, 1968, 43/57115
Int. Cl. G11b 27/02; H04n 5/78
U.S. Cl. 178—6.6 A

4 Claims



A magnetic recording and reproducing apparatus in which a cue signal or other detection pulse signal is recorded on a magnetic tape. The cue signal marks a timing point for editing signals recorded on the magnetic tape, while the movement of the magnetic tape is temporarily stopped. A recorded detection pulse signal is reproduced at a relative speed, with respect to the tape speed, in editing the signals while the magnetic tape is moving. Thus, the editing point can be detected positively and easily.

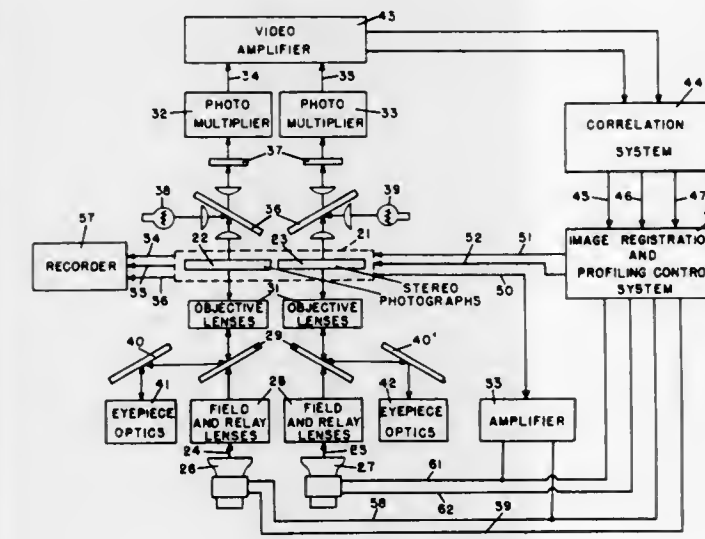
3,655,911

AUTOMATIC STEREO PLOTTING SYSTEM

Howard Ronald Johnston, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Dec. 22, 1969, Ser. No. 887,157
Int. Cl. H04n 7/02
U.S. Cl. 178—6.8

21 Claims



Disclosed in an automatic stereoplotting system utilizing a registration error signal responsive servomechanism to correct parallax and indicate elevation of actual terrain imaged at certain points in a pair of stereo photographs. The in-

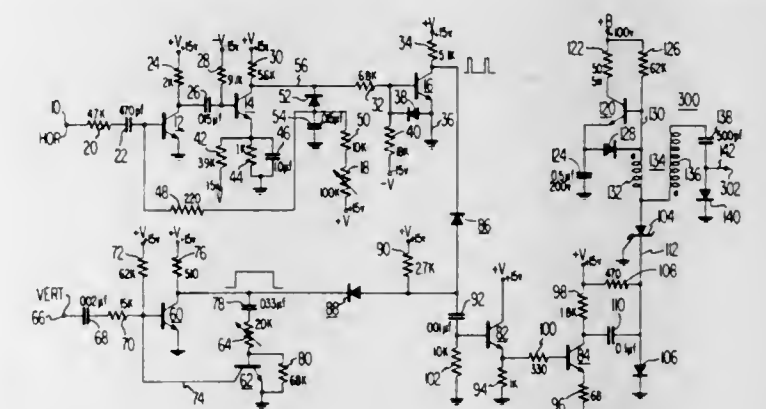
3,655,912

CORONA GENERATING CIRCUITS FOR ELECTROPHOTOGRAPHIC PRINTERS COOPERATIVELY OPERATING WITH TELEVISION RECEIVERS

Ross William Bruce, Jr., Willingboro, N.J., assignor to RCA Corporation

Filed Sept. 24, 1970, Ser. No. 75,011
Int. Cl. G03g 5/02, 13/04; H04n 1/30
U.S. Cl. 178—6.6 A

7 Claims



Corona generating pulses applied to an electrophotographic charging structure are generated in substantial time synchronism with a horizontal flyback pulse available in the television receiver and from which they are derived. The repetition rate and number of corona pulses which are applied can be selectively controlled to provide an optimum visible image on the electrophotographic recording medium. Such image is characterized by the relative absence of toner particles in the reproduced background.

3,655,913

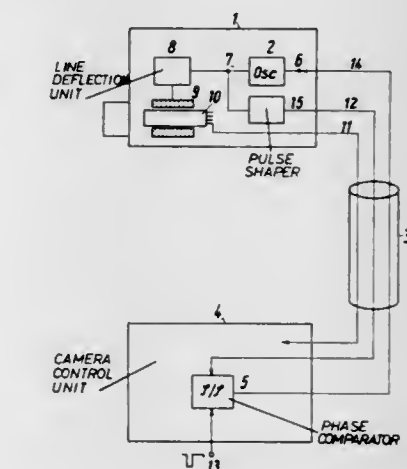
ARRANGEMENT FOR SYNCHRONIZING TELEVISION CAMERAS

Hans-Dieter Schneider, Gross-Gerau, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed Apr. 21, 1970, Ser. No. 30,428
Claims priority, application Germany, Apr. 25, 1969, P 19 21 104.2

U.S. Cl. 178—69.5 DC

6 Claims



A circuit used to synchronize a television camera interconnected to a camera control unit through a cable having a plu-

rality of conductive leads. An oscillator within the camera generates a rectangular-shaped pulse signal at line frequency, and applies this signal to a phase comparator in the control unit. The signal is transmitted from the oscillator through the cable. The phase comparator compares the rectangular-shaped pulse signal with a reference signal, and provides a control voltage which, in turn, is applied to the oscillator through a conductor within the cable. The signal derived from the oscillator may be in the form of closely spaced pulses of opposite polarity and short duration. The signal can also be in the form of a pair of pulse trains of opposite polarity and transmitted through the cable by a twisted pair of conductors.

3,655,914

FACSIMILE SYSTEM

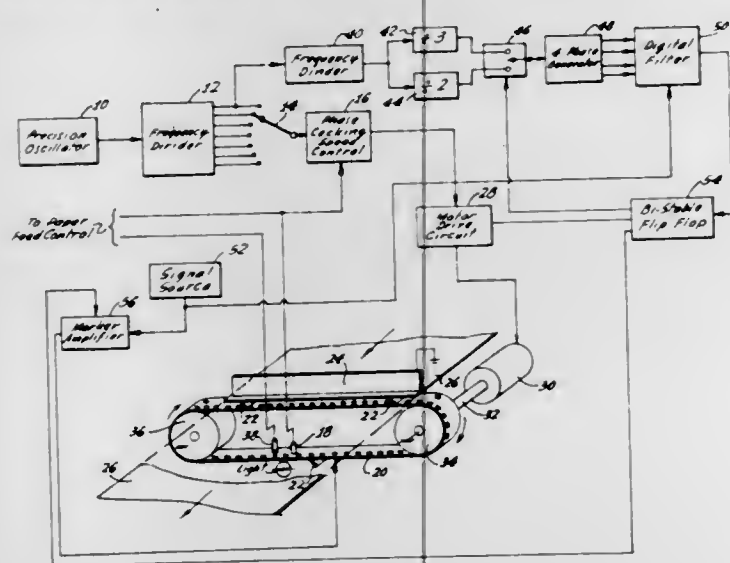
Thomas H. Giff, Anaheim, and Francis E. Adams, Corona, both of Calif., assignors to T. H. Giff Co., Inc., Anaheim, Calif.

Filed June 30, 1969, Ser. No. 837,546

Int. Cl. H04n 1/36

U.S. Cl. 178—69.5 F

13 Claims



The present invention is directed to a facsimile system incorporating a digital filter, which digital filter is used to detect the presence of a start signal and a stop signal in an input signal, which start and stop signals control the starting and stopping of the facsimile system. The digital filter used in the facsimile system of the present invention includes an electronic switch which is switched under the control of a reference signal. An input signal is also applied to the digital filter and the digital filter provides for an output signal when there is a frequency correlation between the reference signal and the input signal. The digital filter provides a very sharp response and does not use impedance elements to determine the tuning of the filter. The impedance elements used in the digital filter only control the time constant of the filter.

3,655,915

CLOSED LOOP TEST METHOD AND APPARATUS FOR DUPLEX DATA TRANSMISSION MODEM

Richard Allen Liberman, Stratford, and Steven Jay Davis, Ridgefield, both of Conn., assignors to General Datacomm Industries, Norwalk, Conn.

Filed May 7, 1970, Ser. No. 35,454

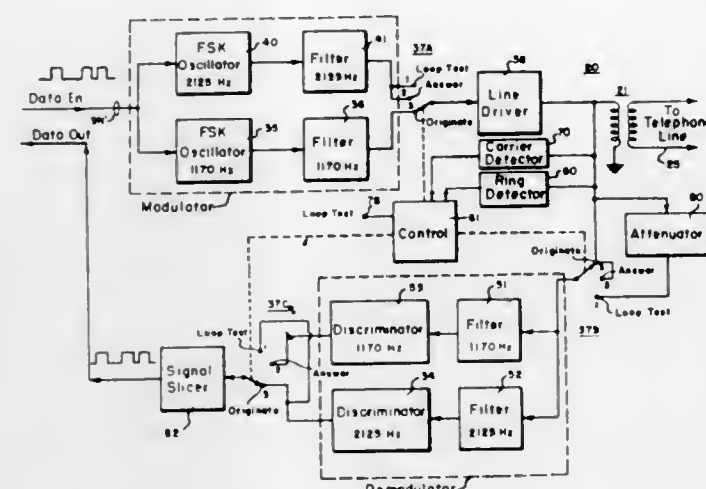
Int. Cl. H04m 1/106

U.S. Cl. 179—2 DP

2 Claims

A duplex data transmission modem is provided having facilities for transmitting data on either a call originate frequency F1 or a call answer frequency F2 while simultaneously receiving data on a call originate frequency F2 and a call answer frequency F1. Control apparatus is provided in the modem for closed loop testing wherein the modem

receiver is forced to receive the normal outgoing data modulated carrier signal and return the data signal back to the in-



coming line and thereby provide loopback on the analog or tone side of the telephone line interface.

3,655,916

GAMMA CORRECTING PHOTOELECTRIC TRANSDUCER CIRCUITRY

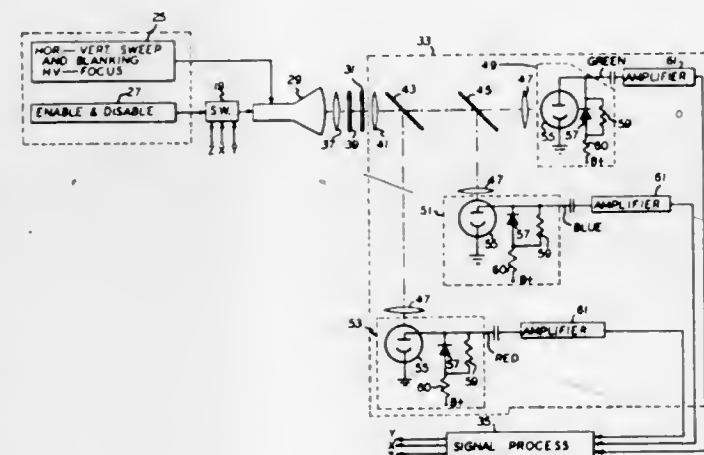
Robert Charles Wheeler, Elba, N.Y., assignor to Sylvania Electric Products Inc.

Filed Jan. 15, 1970, Ser. No. 3,030

Int. Cl. H04n 9/53, 9/08, 5/20

U.S. Cl. 178—5.4 R

13 Claims



In a combined optical to electrical and electrical to optical signal transducer system employing a cathode ray tube and a periodically blanked-out light source, a gamma correcting photoelectric transducer circuit includes a light-responsive electrical device light-coupled to the light source and a non-linear electrical device coupling the light-responsive electrical device to a DC potential source.

3,655,917

FREQUENCY DIVISION MULTIPLEX SYSTEM USING THE SPECTRUM OF A PERIODIC SYNCHRONIZING PULSE FOR PHASE CORRECTION

Richard C. Levine, Plainfield, N.J., assignor to Diecomp Inc., Washington, D.C.

Filed May 1, 1970, Ser. No. 33,655

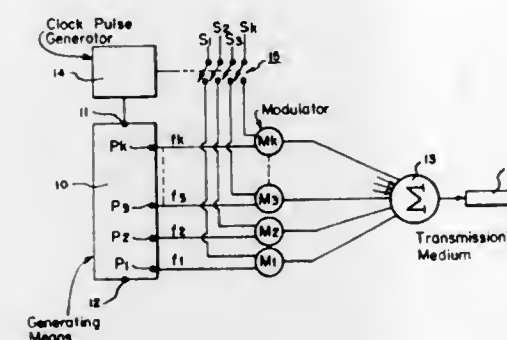
Int. Cl. H04j 1/20

U.S. Cl. 179—15 BS

16 Claims

A transmission system for transmitting data at optimum speeds through non-optimum transmission media utilizes a plurality of subcarriers having different frequencies and a special time synchronizing pulse wave having the subcarrier

frequencies as its principal frequency components. In addition to providing time synchronization, the pulse wave provides phase and frequency reference information for correcting the phase and frequency of locally generated reference signals used in the demodulation of the data-carrying signal. This demodulation can be any type of demodulation which is



expeditiously carried out using a local signal of known phase such as, for example, phase-sensitive demodulation, product demodulation, square-law demodulation, or frequency demodulation. In a preferred embodiment, a transmitting apparatus is so arranged that its components subsystems can be conveniently modified to operate as a receiver.

3,655,918

TRUNK ALLOTTER

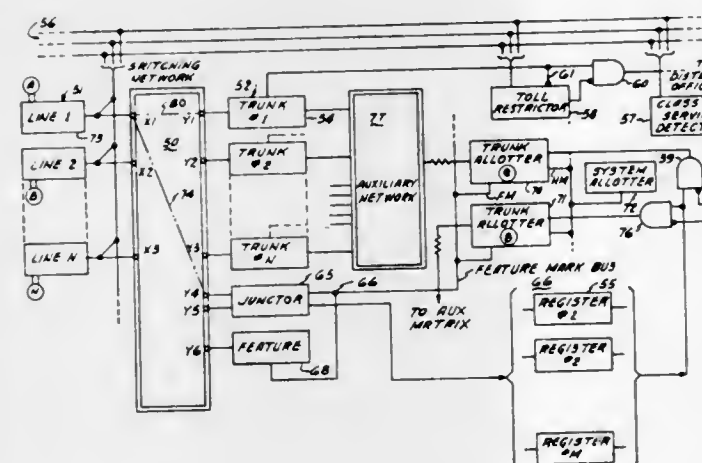
Benjamin R. Marbury, Oak Lawn; Alfred M. Hestad, Chicago, and Jose Reines, Glen Ellyn, all of Ill., assignors to International Telephone and Telegraph Corporation

Filed Apr. 17, 1970, Ser. No. 29,600

Int. Cl. H04q 3/42

U.S. Cl. 179—18 GF

16 Claims



A trunk allotter controls a number of parallel switches connected between the allotter and a number of circuits which are segregated into groups. When a switch is to be operated, there is a large supply of current which is sufficient to insure operation of at least one—and probably several—parallel switches. By its operation, the switch pre-selects an idle circuit. Then, the current is reduced to a level which is sufficient to hold only one of the parallel switches and to turn off the remainder of the switches. After the allotter operates, a counter steps on to enable the allotter to allot one of a second group of equivalent circuits.

3,655,919

BILATERAL ELECTRICAL COMMUNICATION SWITCHING NETWORK

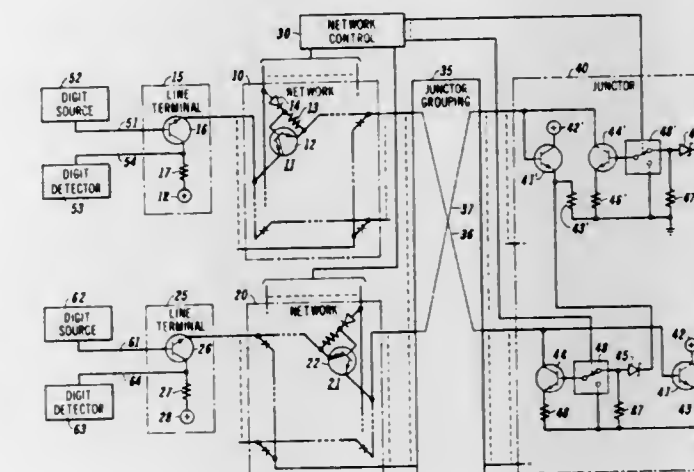
Rein Raymond Laane, Wheaton, Ill., assignor to Bell Telephone Laboratories Incorporated, Berkeley Heights, N.J.

Filed Nov. 16, 1970, Ser. No. 89,598

Int. Cl. H04q 3/50

U.S. Cl. 179—18 GF

18 Claims



A communication switching network through which digital signals may be simultaneously transmitted in opposite directions during the same time slot on a single conducting path. The impedances at opposite ends of the path are deliberately mismatched with the result that digital information is transmitted from the low impedance to the high impedance end of the network as voltage changes while the same information may be simultaneously transmitted from the high impedance end to the low impedance end of the network as current changes.

3,655,920

ELECTRICAL COMMUNICATION SWITCHING NETWORK

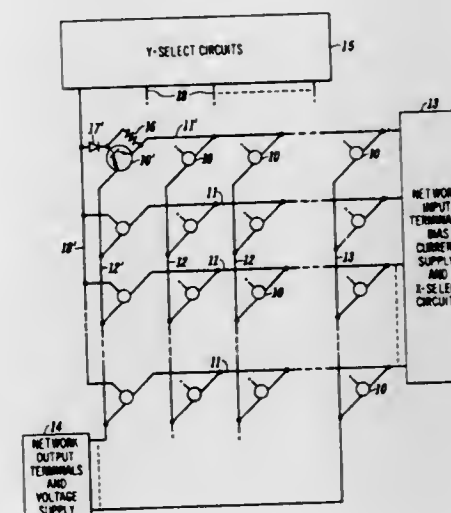
Rein Raymond Laane, Wheaton, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Nov. 16, 1970, Ser. No. 89,599

Int. Cl. H04q 3/50

U.S. Cl. 179—18 GF

17 Claims



A communication switching network having semiconductor crosspoint elements defining unbalanced transmission paths therethrough wherein the effects of loss variations and crosstalk are substantially reduced by deliberately mismatching the impedances at opposite ends of each crosspoint path as seen from the crosspoint so that signal transmis-

3,655,928

DEVICE FOR DETECTING AND SIGNALING A CHANGE OF MORE THAN A PRESCRIBED AMOUNT IN THE RATE OF MOVEMENT OF AN OBJECT

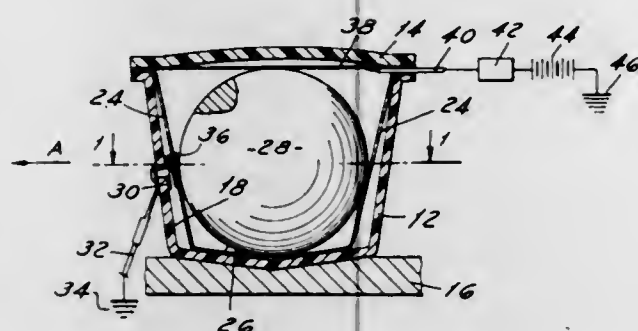
Elton D. Engel, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 23, 1970, Ser. No. 83,559

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45

6 Claims



The device detects and signals a change of more than a prescribed amount in the rate of movement of an object. The major elements forming the device include the following. A housing is secured to the object. This housing has a first contact area formed on the surface area in the interior thereof. A sphere is movably contained by a resiliently deformable confinement within the interior of the housing. The confinement is interposed between the sphere and the surface area forming the interior of the housing. The confinement is deformable toward the interior surface when the sphere moves within the confinement in response to a change in the rate of movement of the object. A second contact area is formed on the surface of the confinement in juxtaposition to the first contact area on the interior of the housing. When the sphere deforms the confinement sufficiently, in response to a change in the rate of movement of the object of more than a predetermined amount, the first and the second contact areas are brought together to complete a circuit therethrough. Upon closing of the contacts, appropriate circuits indicate that the change of more than a prescribed amount has taken place in the rate of movement of the object.

3,655,929

DEVICE FOR DETECTING AND SIGNALLING A CHANGE OF MORE THAN A PRESCRIBED AMOUNT IN THE RATE OF MOVEMENT OF AN OBJECT

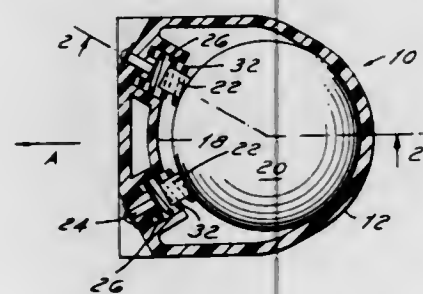
Elton D. Engel, Livonia, and Richard H. Miller, Wayne, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Oct. 23, 1970, Ser. No. 83,550

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

5 Claims



The device detects and signals a change of more than a prescribed amount in the rate of movement of an object. The major elements forming the device include the following. A housing is secured to the object. This housing encloses a

movable element. Contacts are, in part, associated with the interior surface of the housing and, in part, associated with the movable element for completing a circuit therethrough when closed. Resilient elements are employed for acting between the interior of the housing and the movable element. The resilient elements normally separate the contacts of the housing and the movable element so that no circuit is completed. The resilient devices are yieldable during the time when the object has its rate of movement changed to permit relative movement of the housing and the movable element so that the contacts move generally toward a closed position. A circuit is also provided for signalling that the device has detected a change of more than a prescribed amount in the rate of movement of the object. This signal occurs when the contact associated with the housing and the contact associated with the movable element are closed.

3,655,930

MULTIPLE VACUUM SWITCH APPARATUS HAVING LONGITUDINAL ACTUATOR

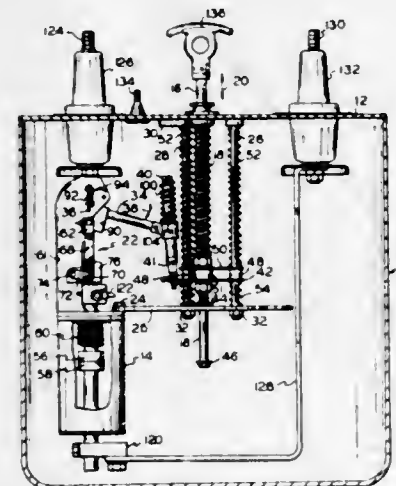
Albert M. Frey, Portland, Oreg., assignor to Powerdyne Inc., Tualatin, Oreg.

Filed May 7, 1970, Ser. No. 35,483

Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

14 Claims



A high voltage switch apparatus is described employing a plurality of vacuum switches mounted in radially spaced positions about a common actuator rod whose movable contacts are operated by longitudinal movement of the actuator rod. Each of the switches has a toggle operating mechanism for quick opening and closing of the switch contacts substantially parallel to the movement of the actuator rod. The operating levers of such toggle mechanisms are each connected through a lost motion coupling to a common actuator plate for rotation of such levers by longitudinal movement of such plate by the actuator rod. A closing spring provided on the lost motion coupling is preloaded by movement of such coupling relative to the operating lever until the opposing force applied to such lever by a toggle latching spring is overcome, and then such closing spring causes rapid closure of the switch contacts.

3,655,931

SYNCHRONOUSLY OPERATING CIRCUIT BREAKER WITH IMPROVED CIRCUIT BREAKER OPERATING MECHANISM

Robert Ray Circle, Woodbridge, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 19, 1970, Ser. No. 12,713

Int. Cl. H01h 33/90, 35/38

U.S. Cl. 200—148 J

16 Claims

A circuit breaker has normally closed main contacts and normally open secondary or synchronous contacts. For low current interruption, the main contacts open the circuit.

3,655,933

ELECTRICAL SWITCHES

Peter Watson Leighton, Burnley, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed July 15, 1970, Ser. No. 55,024

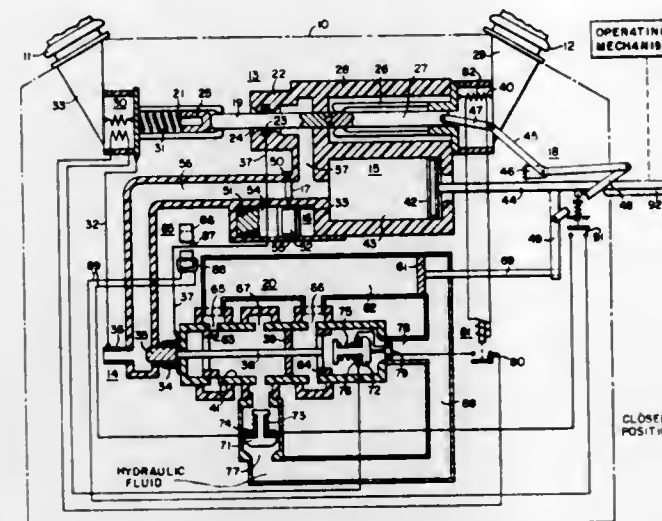
Claims priority, application Great Britain, Aug. 11, 1969,

40,008/69

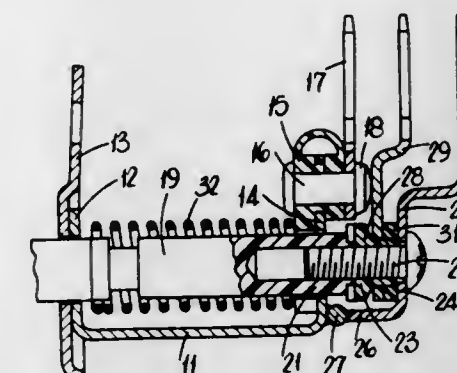
Int. Cl. H01h 3/12

U.S. Cl. 200—159 R

4 Claims



valves in the hydraulic means cooperate to control the operation of the driven piston, which operates the moving secondary synchronous contact. The energization of the repulsion coils is controlled by current-responsive means and a synchronous control device. A synchronous operator controls a valve to direct the flow of gas from the puffer to either the main or the secondary contacts.



An electrical switch includes a pair of fixed contacts, an operating member movable relative to the fixed contacts, and a pair of movable contacts carried by the operating member and engageable with the fixed contacts respectively in an operative position of the switch, one of said four contacts being capable of movement when engaged by its respective mating contact and being arranged to be engaged by its respective mating contact fractionally before the remaining pair of contacts mate, so that both movable contacts can be engaged with their respective fixed contacts in the operative position of the switch.

3,655,932

SWITCHING DEVICE WITH CAMS PIVOTAL ABOUT AN AXIS PARALLEL TO THE PLANE OF MOVEMENT OF SWITCH PLUNGERS

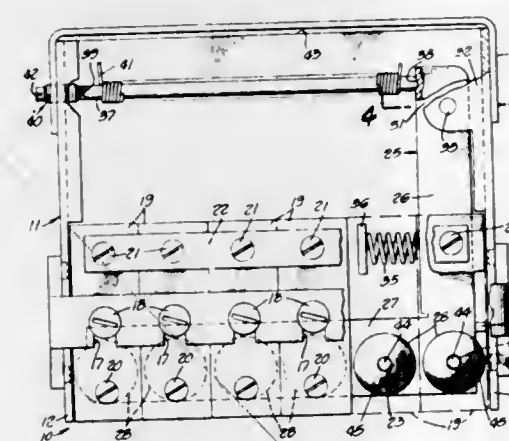
Gilbert Tabares, Panorama City, and Joseph Clifford, Corona, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 16, 1970, Ser. No. 55,451

Int. Cl. H01h 3/42, 37/48

U.S. Cl. 200—153 LA

3 Claims



A mechanism to operate a plurality of pairs of plunger actuable switch contacts in sequence wherein the plungers are pins axially slidable for switch actuation. A plurality of shafts are threaded through a pivoted lever. Each shaft carries a frusto-conical cam to engage one end of a corresponding pin. All the pin, shaft and cam axes are parallel, the lever being movable on a frame in a direction perpendicular to the said axes. Threaded engagement of the shafts with the lever makes possible individual adjustment for calibration. It is thus possible to determine when each switch is actuated without complete disassembly.

3,655,934

MOVABLE CONTACT STRUCTURE FOR AN ELECTRIC SWITCH

Merlin Y. Turnbull, Brookfield, Wis., assignor to Square D Company, Park Ridge, Ill.

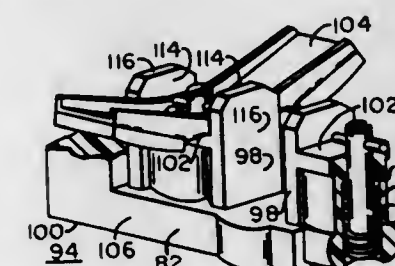
Original application July 23, 1969, Ser. No. 844,151, now Patent No. 3,597,562. Divided and this application Nov. 9,

1970, Ser. No. 88,046

Int. Cl. H01h 1/02

U.S. Cl. 200—166 C

4 Claims



A movable contact structure having a movable contact member carried on a movable contact carrier by a spring biased rotatable plunger. The contact member has a channel-like cross section and is formed of at least two laminated metals each having different deflection and conductive characteristics so that the weight of the contact member may be reduced and provide a maximum conductive ability commensurate with its resistance to bending. An end of the plunger extends through a notched opening in the contact member so that when the plunger is rotated to one position the contact member may be separated from the carrier and when the plunger is rotated to a second position, a pin on the end of the plunger engages the material of the contact member to maintain the contact member on the end of the plunger. The plunger also includes a portion that acts as a

piston in a bore of the contact carrier to reduce the bounce which occurs when the movable contact surfaces on the contact member initially engage the stationary contacts.

3,655,935

GAS PRESSURE DAMPER MEANS FOR A CIRCUIT BREAKER MECHANISM

Jan P. Houben, Aldenhof, Netherlands, assignor to N.V. COQ, Utrecht, Netherlands

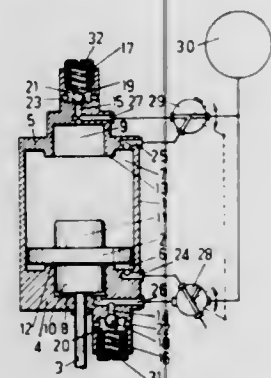
Filed Mar. 10, 1970, Ser. No. 18,084

Claims priority, application Netherlands, Mar. 14, 1969, 69.03953

Int. Cl. H01h 1/50

U.S. Cl. 200-166 H

8 Claims



A piston operating in a cylinder is driven by gas pressure to one or the other of two end positions corresponding respectively to open and closed conditions of a circuit breaker. Oppositely projecting reduced area portions of the piston project into recesses at either end of the stroke to trap gas ahead of these portions to retard and substantially to stop the piston at each end of its stroke as it reaches stops delineating such ends of the strokes. A check valve is associated with each recess to allow the stop motion and prevent rebound and the relief pressure of each valve is varied in accord with pressure fluctuations in the driving gas supply so that the retarding and stop motion effects are adjusted to the piston speed as affected by the driving gas pressure.

3,655,936

APPARATUS FOR ELECTROEROSIVELY ETCHING A WORKPIECE

Nagao Saito; Kazuhiko Kobayashi, both of Nagoya, and Susumu Niwa, Komaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

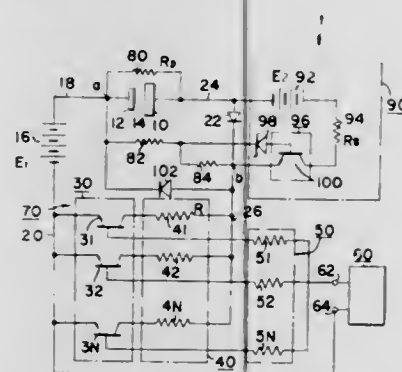
Filed Jan. 25, 1971, Ser. No. 109,306

Claims priority, application Japan, Feb. 6, 1970, 45/10536

Int. Cl. B23p 1/08

U.S. Cl. 219-69 C

8 Claims



A circuit for an electroerosive etching apparatus is disclosed which includes first and second direct current sources controlled by first and second switching circuits, respectively. The first switching circuit includes a plurality of switching elements, all of which are connected in parallel to facilitate

the delivery of large currents and a pulse source for controlling the switching elements. The second switching circuit may include only one switching element, and is designed to supply only small currents. In operation, the first and second switching circuits initially cooperate to apply a potential nearly equal to the combined potentials of the two direct current sources across a working gap. Once a discharge is achieved using this high potential, the second switching circuit is automatically cut off, leaving the first switching circuit operative to supply the large current needed in the etching operation. A protective circuit is also included to prevent damage of the first switching circuit due to overloading.

3,655,937

ARRANGEMENT OF AT LEAST TWO NON-STORAGE PULSE GENERATORS FOR ELECTRO-EROSION MACHINING

Werner Ullmann, Locarno-Muralto; Costantino Tadini, Locarno, and Ehsan Salim, Locarno-Muralto, all of Switzerland, assignors to AG fur industrielle Elektronik AGIE, Losone bei Locarno, Losone, Switzerland

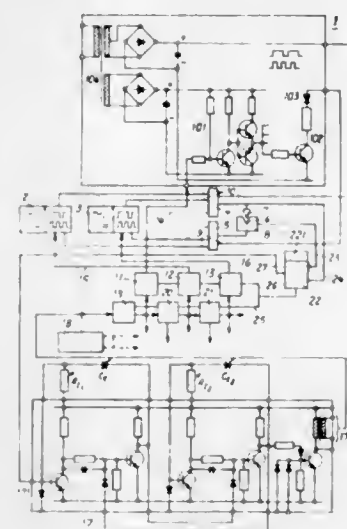
Filed July 13, 1970, Ser. No. 54,383

Claims priority, application Switzerland, Aug. 26, 1969, 12924/69

Int. Cl. B23p 1/08

U.S. Cl. 219-69 P

5 Claims



A circuit arrangement for electro-erosion machining operations, comprising at least two non-storing pulse generator means for the electro-erosion machining operations. A controlled timing generator means serves to generate control pulses for all of said pulse generators. There are also provided current circuit means for the time-control of the control pulses delivered by the controlled timing generator means, one such current circuit means being arranged at the input for the control pulses of each of said pulse generator means. There also are provided electro-erosion current circuits, with pulse generators being electrically arranged in said electro-erosion current circuits and being provided with electronic power switches controlled by said control pulses, said electro-erosion current circuits being coupled in such a number in parallel to the work gap as there are required working pulses of different amplitudes for producing a working spark.

3,655,938

DYNAMIC SPOT WELDER

Robert J. Roberts, 9833 Moyers, Houston, Tex.

Filed Apr. 22, 1970, Ser. No. 30,874

Int. Cl. B23k 1/10

U.S. Cl. 219-87

9 Claims

Dynamic electrical resistance spot welding apparatus according to the present invention comprises a support that

3,655,940

HEATED DIE CARRIER

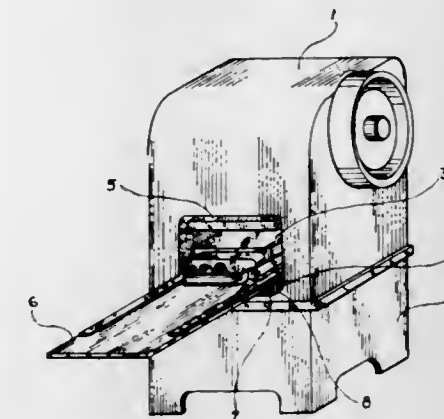
Donald F. Robinson, Rustic Lane, Plaistow, N.H.

Filed Sept. 4, 1970, Ser. No. 69,545

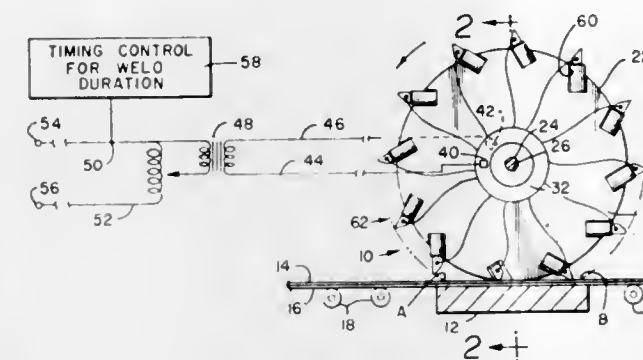
Int. Cl. H05b 1/00

U.S. Cl. 219-243

9 Claims



may be of linear or circular configuration and defines an elongated work station. Strip material to be spot welded moves continuously through the work station and may be wound about a circular mandrel that may form the support. A rotatable welding element which may be a wheel is disposed with its periphery adjacent the work station and is provided with a plurality of recesses formed about the periphery thereof. Each recess retains a welding head in movable relation therein that is biased outwardly away from the recess so that the welding head may move against the bias upon contacting the material to be welded. Each welding head is provided with a pair of electrodes that are connected electrically to a source of electrical potential through a pair



of brushes carried by the welding element. The electrical circuitry is completed upon engagement between the electrodes and the material and welding is accomplished by heat developed by the electrical current passing through the resistance defined by the material. The welding heads engage the material in such manner that mechanical pressure is varied throughout movement of the material through the work station to achieve heating, fusion, and solidification of the material under mechanical pressure as it moves through the work station. Additionally, the electrical circuitry may be provided with a timing control to achieve heating and cooling of the material as it moves through the work station if desired.

3,655,939

SAFETY DEVICE FOR MULTI-PANE GLASS REFRIGERATOR DOORS

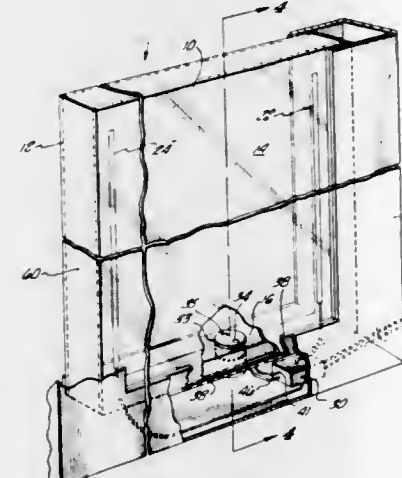
Michael E. Stromquist, Studio City, Calif., assignor to Anthony's Manufacturing Company, Inc.

Filed Nov. 16, 1970, Ser. No. 89,882

Int. Cl. H05b 1/00

U.S. Cl. 219-218

9 Claims



A safety device for a multi-pane electrically heated glass refrigerator door. The glass unit forms a pressurized chamber. A pressure sensor and associated circuit breaking means removes electrical power from the door when damage to the unit causes the pressure within the chamber to vary.

3,655,941

DENTAL CERAMIC FIRING OVENS

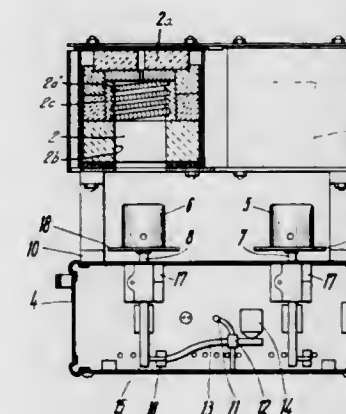
Wolfgang Eugen Schaun, Buchschlag, Germany, assignor to Dentsply International Inc., York, Pa.

Filed Dec. 22, 1970, Ser. No. 100,560

Int. Cl. F27b 5/14

U.S. Cl. 219-390

3 Claims



A dental firing oven of a compound type having two firing chambers in an upper housing and respectively provided for (1) firing porcelain dental products into fused condition and for (2) effecting preliminary burning of expendable materials, such as binders for the porcelain particles. The firing chambers open downwardly to receive products supported on product carriers movable toward and from a lower housing in which control and actuating mechanism is mounted for actuating said product carriers.

3,655,942

OVEN WITH CLOSURE MECHANISM

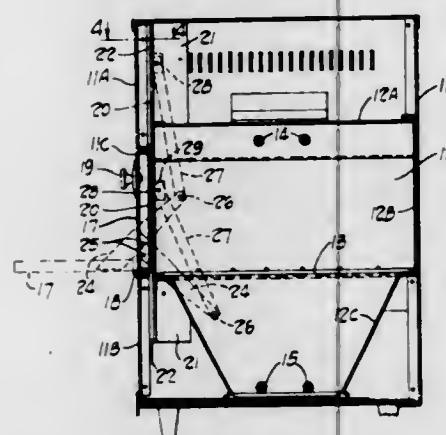
Raymond F. Tomsic, Willoughby, Ohio, assignor to Spectrum Infrared, Inc., Cleveland, Ohio

Filed Mar. 12, 1971, Ser. No. 123,780

Int. Cl. F27d 11/02

U.S. Cl. 219-405

15 Claims



An oven provided with inner and outer doors arranged so that when both doors are registered with the oven opening to cover the opening the inner door is disposed inwardly of the oven from the outer door to reflect oven heat from the outer door, and the two doors being so connected that movement of the outer door to and from a position covering the opening automatically and concurrently causes the inner door to correspondingly move to and from a position covering the opening.

3,655,943

SINGLE POLARITY OVEN CONTROL

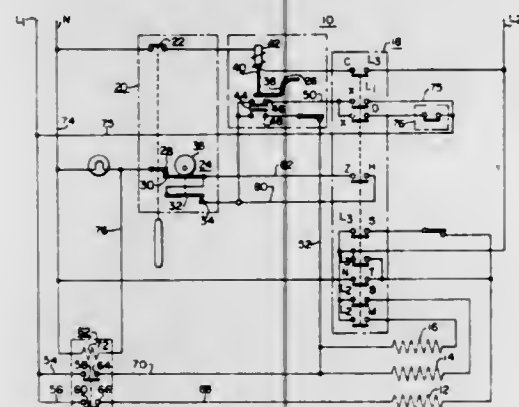
Calvin J. Holtkamp, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 15, 1970, Ser. No. 28,677

Int. Cl. H05b 1/02

U.S. Cl. 219-491

4 Claims



An oven system having a heat clean cycle is disclosed that utilizes a single peak circuit having a single polarity thermal power relay. An oven thermostat is used to provide the required dialed in temperature for heat cleaning and this thermostat includes a cam arrangement actuating a movable contact which is closed for normal cooking temperatures and which is open for oven cleaning purposes. The contact is shunted in latch and clean modes to insure that the multi-terminal selector switch is set for proper oven circuitry whenever the thermostat is set for an upper temperature limit. The single polarity thermal relay is connected in series circuit relationship to the oven heaters for broil, fast broil and bake and opens upon attainment of the temperature peak utilized for cleaning purposes.

3,655,944

PRICE COMPUTER

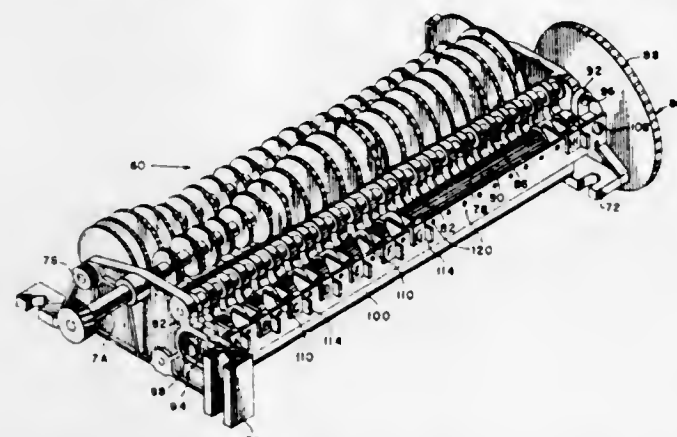
Dana W. Nelson, Dexter, Ohio, assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jan. 13, 1971, Ser. No. 106,218

Int. Cl. B67d 5/22

U.S. Cl. 235-61 M

8 Claims



An improved price increment computer is disclosed that is used in a price computer for gasoline or fuel dispensing pumps wherein a blend of gasolines is dispensed. The improved price increment computer includes an input shaft that rotates in response to the total volume of blended fluid being dispensed and an output shaft that rotates at speeds proportional to the speed of the input shaft. An idler mechanism is provided that selectively and operably connects portions of the input and output shafts to provide the desired ratio of rotation therebetween. A selector mechanism that is rotated by the operator of the dispenser includes a plurality of cams, each of which engages a preselected portion of the idler mechanism to provide the desired output rotation depending on the price of the blend selected. The improved price increment computer is constructed so that the selector mechanism can be quickly and easily removed from the price increment computer to provide for the insertion, removal or repositioning of the cams whereby price changes and variations can be quickly and easily accomplished.

3,655,945

ITEM SCHEDULING SYSTEM AND APPARATUS THEREFOR

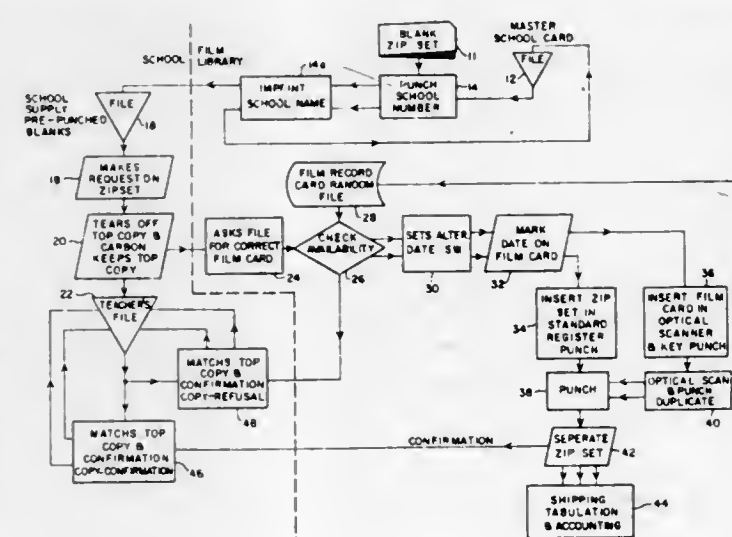
Howard Bowen, Wilmette; David L. Henderson, Mundelein, and Richard R. Wallace, Wilmette, all of Ill., assignors to The Harward Company, Inc., Evanston, Ill.

Filed Mar. 24, 1969, Ser. No. 809,915

Int. Cl. G06k 1/04, 7/14; H02k 17/58

U.S. Cl. 235-61.1

20 Claims



A film scheduling or booking system is provided in which pre-punched zip sets are employed for film selection and are

compared with a master film card to determine whether the requested date is available. The requested date is then marked on the film card in an area arranged as a 365-day calendar. The marked areas on the master film card are optically scanned and both the master film card and the zip set are punched in the marked areas, all in the same operation. The master film card is provided with a reference area ahead of the calendar area and the output of the twelve channels of the optical scanning circuits are all automatically set to a fixed reference level so that thermal drift or saturation of the sensing devices in either the plus or minus direction does not produce improper punching.

3,655,946

SYSTEM FOR DISPOSING OF INVALID CARDS IN A CREDIT CARD SYSTEM OR THE LIKE

Tadao Morita, and Masanori Nagata, both of C/o Omron Toteisi Electronics Co. 20, Igadera Shimokainji, Kyoto, Japan

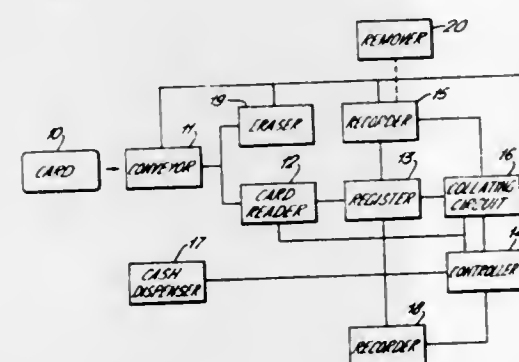
Filed Sept. 2, 1970, Ser. No. 68,840

Claims priority, application Japan, Sept. 11, 1969, 44/72138

Int. Cl. G06r 5/00

U.S. Cl. 235-61.7 B

1 Claim



A system for disposing of invalid cards in a credit card system or the like, wherein the identification numbers of those of the cards issued which have become invalid are recorded in the system, so that if the identification number of a card presented to the system agrees with any one of the recorded invalid card numbers, that card is recognized as invalid and the identification number written on the card is erased therefrom and at the same time the corresponding number is removed from the record in the system.

3,655,947

IDENTIFICATION SYSTEM

Mititaka Yamamoto, and Masanori Nagata, both of Kyoto, Japan, assignors to Omron Toteisi Electronics Co., Kyoto, Japan

Filed Sept. 10, 1969, Ser. No. 856,576

Claims priority, application Japan, Sept. 19, 1968, 43/67902

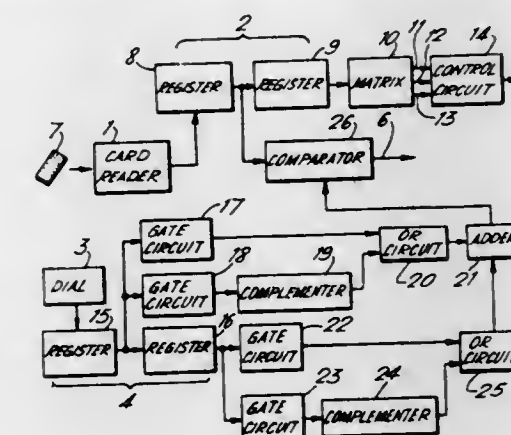
Int. Cl. G06k 5/00

U.S. Cl. 235-61.7 B

5 Claims

A system for identifying the proper user of a credit card or the like in a vending machine or the like. Each card used in the system is given two different code numbers, one of which is written on the card as the card number with the other being known to the proper owner of that card as its secret number. When a card is introduced into the system, the user of the card enters into the system its secret number by means of a dial or the like. There are provided in the system several types of operation, one of which is selected in accordance with the card number of the introduced card and the selected type of operation is conducted on the secret number. The result of the operation is compared with a predetermined

number and when correspondence between the card number and the secret number is recognized on the basis of the result



3,655,948

APPARATUS FOR AUTOMATICALLY EVALUATING RECORDINGS ON A RECORD CARRIER

Siegfried Spauszus, Villingen, Germany, assignor to Kienzle Apparate GmbH, Villingen, Germany

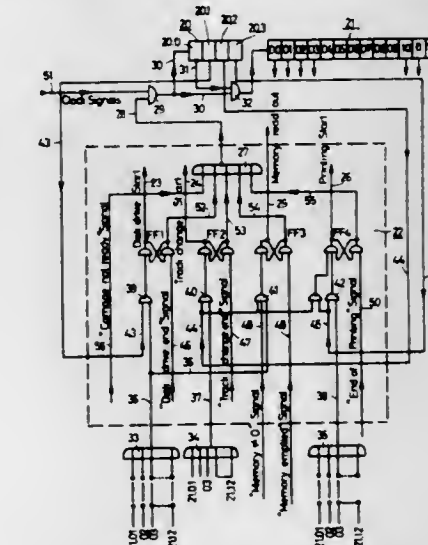
Filed Apr. 16, 1970, Ser. No. 29,018

Claims priority, application Germany, Apr. 26, 1969, P 19 21 456.3

Int. Cl. G06k 3/00; E04g 17/00

U.S. Cl. 235-61.9 R

15 Claims



Circular concentric recordings on circular tracks of a record carrier, are automatically evaluated by an apparatus including sensing means for successively sensing each track, storage means for storing sensed information as numerical values, and printing means for printing the values. Program control means control the successive performance of the sensing, storing, and printing functions of the apparatus.

3,655,949

DATA PROCESSING EQUIPMENT

Jurgen Rinn, Heuchelheim, Germany, assignor to Minox G.m.b.H., Ludwig Rinn Str., Giessen, Germany

Filed June 23, 1969, Ser. No. 835,458

Claims priority, application Germany, Sept. 13, 1968, P 17 74 818.4

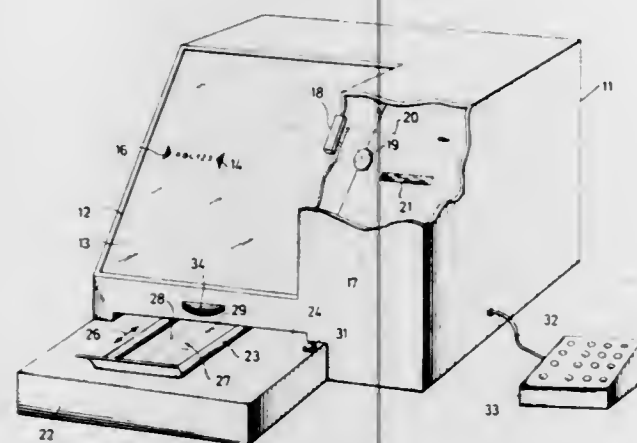
Int. Cl. G06k 7/10

U.S. Cl. 235-61.11 E

2 Claims

A feeding arrangement moves microfilm under an optical reading head. At the same time corresponding information in readable form is projected onto a predetermined position on

a ground glass plate visible to an operator. Means are provided for initiating the reading process and to output it for



further processing. An auxiliary keyboard adds other data to the output.

3,655,950

PERCENTAGE ELONGATION CALIBRATED DIGITAL PULSE DELETER

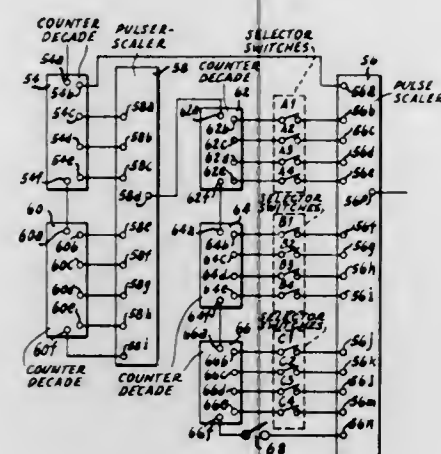
Donald J. Greening, Theinsville; Paul M. Kintner, Bayside, and Sanford M. Strand, West Allis, all of Wis., assignors to Cutter-Hammer, Inc., Milwaukee, Wis.

Filed Oct. 22, 1969, Ser. No. 868,305

Int. Cl. H03k 13/258; B21b 37/00

U.S. Cl. 235-92 PE

7 Claims



A digital pulse deleter for use with digital control systems of electric motors driving work stand rolls in processing lines to afford selective adjustment of motor speeds calibrated in terms of percentages of elongation between successive work stands. The deleter can be adjusted by readily made changes in electrical interconnections to be determinative of what percentage of input pulses will and what percentage of such pulses will not be subject to deletion by selector switches. Operation of the selector switch permits selection of the increments of pulses subject to deletion that will be actually deleted with such increments being calibrated as a percentage or a per unit value of elongation or draw. The percentage of total deleter input pulses not subject to deletion is determinative of the maximum elongation or draw ratio to which the deleter will be so calibrated.

3,655,951 ELECTROIMPULSIVE DECIMAL COUNTER

Miroslav Vach, Brno, Czechoslovakia, assignor to Elitex-Zavody textilního strojírenství, generalni reditelství, Liberec, Czechoslovakia

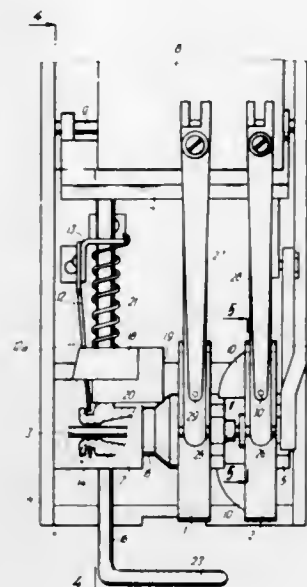
Filed Nov. 17, 1969, Ser. No. 877,139

Claims priority, application Czechoslovakia, Nov. 28, 1968, 8099-68

Int. Cl. G06m 3/02, 1/28

U.S. Cl. 235-92 C

5 Claims



An electrically driven decimal counter adapted to count motions such as revolutions, and to control various operations in a predetermined number of repeating steps. At least two rotatable counting members are mounted for relative movement along their common axis so as selectively to be drivingly connected and disengaged. One of the counting members carries means for controlling a first switch mechanism for transferring impulses to the next stage of the counter, such switch mechanism also receiving zeroing impulses. The other counting member has a means for controlling a second switch mechanism, which is adapted to be interposed in an electric circuit for a machine. The mechanism for disengaging the one counting member from the second constitutes a mechanical controlling member for the second counting member.

3,655,952

LIQUID DISPENSER COUNTING MECHANISM

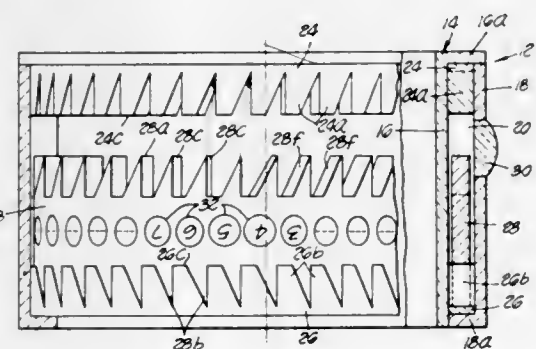
Robert J. Johnson, Culver City, and Walter J. Zipper, Santa Monica, both of Calif., assignors to Portion-Trol Liquor Systems, Inc.

Filed Mar. 15, 1971, Ser. No. 124,235

Int. Cl. G06m 1/00; B67d 5/22

U.S. Cl. 235-94 R

8 Claims



A counting device sensitive to change of position of a body involves two spaced stationary notched rings between which

a ring notched along both of its edges moves. The cooperation between the notches of the spaced stationary rings and the movable ring is such that when the stationary structure is inverted or tilted, the movable member advances a predetermined distance, and it carries the sequence of numbers, one of which is visible, to indicate the number of such inversions or tilts.

3,655,953

CARRY MECHANISMS FOR CALCULATING MACHINES

William S. Gubelmann, deceased, late of Convent, N.J., and Walter S. Gubelman, executor, Oyster Bay, N.Y., assignors to Realty & Industrial Corporation, Morristown, N.J.

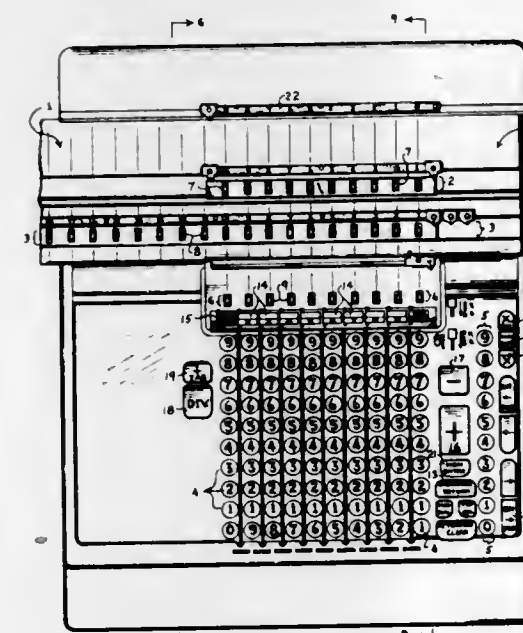
Continuation of application Ser. No. 168,595, Jan. 22, 1962, now abandoned, which is a continuation of application Ser.

No. 69,227, Nov. 14, 1960, now abandoned, which is a division of application Ser. No. 194,273, Nov. 6, 1950, now Patent No. 2,969,177. This application June 4, 1969, Ser. No. 831,823

Int. Cl. G06c 15/26

U.S. Cl. 235-137

53 Claims



Carry transfer mechanism for mechanical registers of calculating machines, including such mechanism capable of performing two primary transfers in a single registration. Two primary transfers may occur, when a units and tens of an integrated partial product are registered in a single order of a register that already indicated a number, for example the units amount (9) of one order may be integrated with a tens amount (8) of the next lower order and in one motion the integrated amount (17) may be entered into one register order that stands at more than 3 (4 for example), and, for the register to indicate (9+8+4), the one register order is rotates twice past primary transfer position and the next higher order of the register unit must be advanced twice in one registration operation. A mechanism cooperating with the above mechanism for completing simultaneously any consecutive transfers that may not normally be complete at the end of a registration operation. Simultaneous transfer mechanism for operating outboard orders of a carriage borne register. Simultaneous transfer mechanism for a counter that may also register quotients and multipliers.

3,655,954

CLOSED LOOP CONTROL SYSTEM WITH AUTOMATIC VARIATION OF ITS REGULATING FEEDBACK AMPLIFICATION

Winfried Speth, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

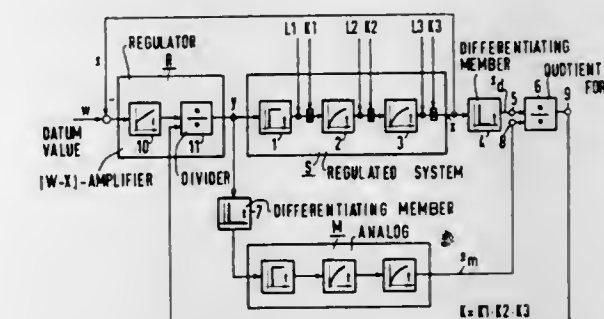
Filed Dec. 17, 1969, Ser. No. 885,691

Claims priority, application Germany, Dec. 20, 1968, P 18 15 964.3

Int. Cl. G05b 17/02; G06g 7/18; G069 7/48

U.S. Cl. 235-150.1

16 Claims



In a closed-loop control system the regulated system portion has a number (n) of integration members. The regulator feedback which is connected between output and input of the regulated system portion comprises regulator control means for automatically adapting the amplification of the regulated system portion during operation of the latter. The regulator control means comprise a first differentiating stage of the (n+1)-th order, an at least partial analog of said regulated system portion, a quotient-forming divider having two inputs of which one is connected through the first differentiating stage to the output of the regulated system portion and the other is connected through the analog to the input of the regulated system portion. A second differentiating stage is connected with the analog and adapted for phase coincidence of the two signals at the respective two inputs of the quotient-forming divider.

3,655,955

RECORDING AND INDICATING SYSTEM PARTICULARLY FOR LOCOMOTIVES AND THE LIKE

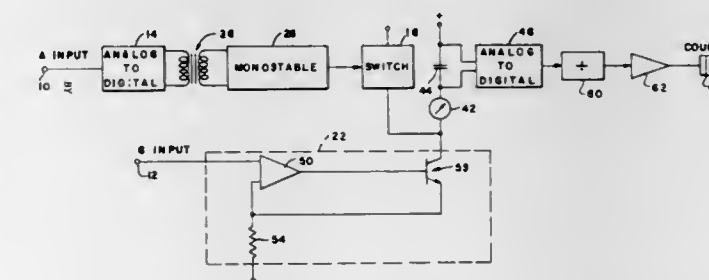
Thomas A. Brendle, Hamburg, N.Y., assignor to Audn Corporation, Hamburg, N.Y.

Filed Feb. 20, 1970, Ser. No. 13,070

Int. Cl. G06g 7/16

U.S. Cl. 235-150.52

12 Claims



A system for providing signals indicative of the instantaneous power output and the time integral of power output in both analog and digital form. The analog signal indicative of the instantaneous power output is obtained by providing a switch-controlling digital signal whose frequency is linearly proportional to the instantaneous amplitude of the voltage applied to the d.c. traction motor and whose pulse durations are of fixed value. The controlled switch is normally closed and is connected in shunt with an averaging circuit so that

the switch normally short circuits the averaging circuit and provides a path for a current source whose output is linearly proportional to the current supplied to the motor. The averaging circuit, which includes a d.c. current meter, sees a digital signal whose frequency is modulated according to the supplied voltage and whose amplitude is modulated according to the instantaneous current. An integrating capacitor in the averaging circuit drive a relaxation oscillator to provide a digital signal whose frequency is linearly proportional to the instantaneous power so that integration of this signal yields an indication of power-hours. An improved amplifier particularly suitable for accurate amplification of small signals is provided also.

3,655,956

DENSITY MEASUREMENTS

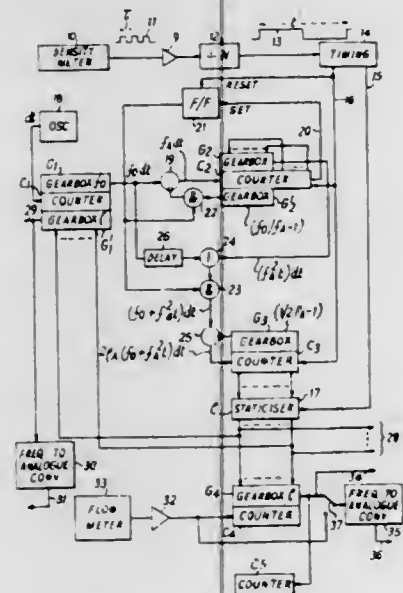
Anthony John Ley, Farnborough, England, assignor to The Solartron Electronic Group Limited, Farnborough, England
Filed July 13, 1970, Ser. No. 54,136

Claims priority, application Great Britain, July 17, 1969, 36,159/69

Int. Cl. G06f 15/56, 15/34

U.S. Cl. 235-151.3

7 Claims



The output of a frequency domain density meter is linearized by feeding clock pulses via a first preset binary rate multiplier to a second binary rate multiplier whose gating logic is set by its own contents, thereby to effect squaring of the contents. Within one period of the density meter output, the output pulses from both binary rate multipliers are accumulated together, commencing when the contents of the second multiplier reach a preset value and until the end of the period. It is shown that the accumulated count can be arranged to represent a linear function of density.

3,655,957

CONTROL SYSTEM FOR A MACHINE TOOL

Michael D. McIntosh, Greencastle, Pa., assignor to Landis Tool Company

Filed Nov. 26, 1969, Ser. No. 880,078

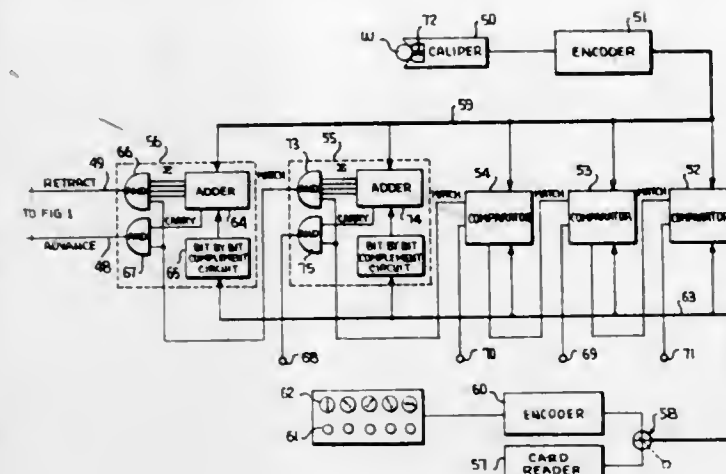
Int. Cl. G05b 1/01; G06f 7/38

U.S. Cl. 235-151.11

10 Claims

A machine tool control system is described which includes an adder arranged to add a first binary number, representative of a sensed dimension of a workpiece, to the bit by ones complement of a second binary number, representative of a desired dimension of the workpiece. Whenever the first binary number is greater than the second binary number, at least one of the sum outputs from the adder represents a zero logic condition, and a one logic condition exists on the carry

output from the adder. Whenever the first and second binary numbers are equal, the sum outputs from the adder results in all ones and the carry output is in a zero logic condition. The sum output connections from the adder are coupled to four inputs of a five-input AND circuit. The fifth input is connected to a lead providing a logical one output upon the match of the next preceding digit as determined by a preceding comparator. The carry output connection from the adder



is coupled to one input of a two-input AND circuit which has its second input connected to a lead providing a match logical one output from the preceding comparator. The output from the five-input AND circuit provides a retract signal for the movement of a machine tool element, such as a grinding wheel, relative to a workpiece. The output from the two-input AND circuit provides a control signal for signalling an advance of the machine tool element relative to a workpiece.

3,655,958

APPARATUS FOR AUTOMATICALLY PERFORMING THE LEAST SQUARES APPROXIMATION TO THE STANDARD ADDITION METHOD OF ANALYSIS

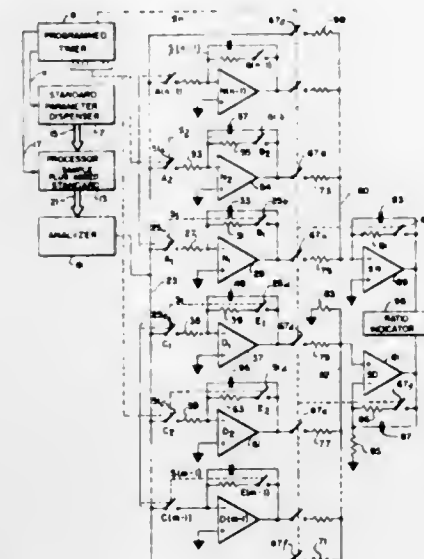
Charles David West, Hacienda Heights, Calif., assignor to Beckman Instruments Inc.

Filed June 25, 1970, Ser. No. 49,671

Int. Cl. G06g 7/58, 7/14

U.S. Cl. 235-151.35

8 Claims



An analyzer is connected to a processor into which a standard parameter is added in equal increments of known value to a process having a sample containing an unknown value of the standard parameter. A programmed timer is connected to a standard parameter dispenser and to the processor to initiate the parameter addition and analysis of the process by the analyzer respectively. In response to each parameter ad-

dition, the analyzer generates an electrical signal. A multiplicity of relay armatures are connected to the analyzer output to apply the signals from the analyzer in a predetermined sequence to each of a multiplicity of operational amplifiers connected as storage devices. Each of the outputs of the amplifiers are in turn connected to another plurality of armatures which connect each of the amplifier outputs in a specified combination to one of two summing amplifiers. The summing amplifiers are connected to a ratio indicator to display the ratio of the two amplifier outputs as the unknown value of the standard parameter contained in the sample.

3,655,959

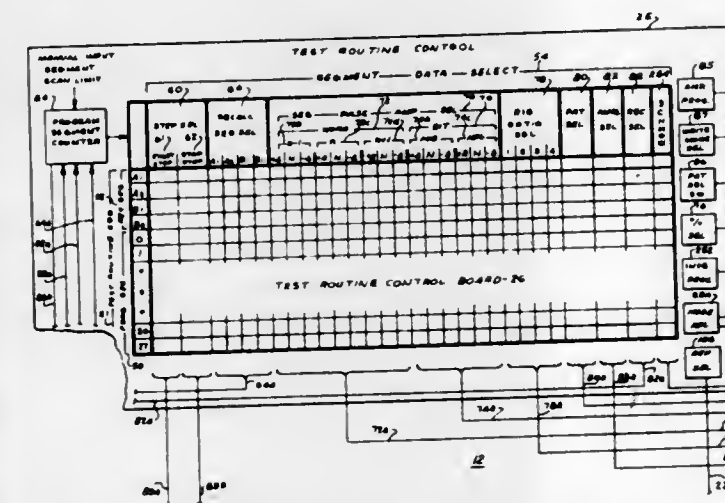
MAGNETIC MEMORY ELEMENT TESTING SYSTEM AND METHOD

Gary Allen Chernow, Swarthmore, Pa., and Hyman Gail, Cherry Hill, N.J., assignors to Computer Test Corporation
Filed Aug. 17, 1970, Ser. No. 64,158

Int. Cl. G11c 29/00

U.S. Cl. 235-153

45 Claims



A method and system for testing a magnetic memory element by applying a sequence of test routines in which each test routine is a programmed sequence to tests and analyses; each routine having programmed segments and each segment having programmed steps. A programmed test control provides test parameter and step selection control signals. A programmed timing control selects steps to be performed in response to the step selection signals and generates timing signals as programmed in each of the selected steps. A test pulse generator produces test signals in response to the test parameter control signals and the timing signals.

3,655,960

INSTRUMENT FOR USE IN THE GRAPHIC ARTS

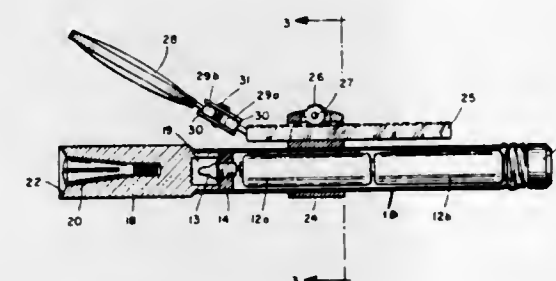
George C. Andree, 528 Willow Street, West Hempstead, N.Y.

Filed July 28, 1969, Ser. No. 845,279

Int. Cl. B43k 29/18; F21v 33/00

U.S. Cl. 240-6.46

2 Claims



An instrument for use in the graphic arts which comprises means for illuminating the work area, provides a magnified image of the work area and supports the tool needed for per-

forming, retouching and silhouetting operations. The instrument can be held in one hand freeing the other hand for manipulation of the work and other tasks.

3,655,961

CEILING STRUCTURE WITH LIGHTS

Borre Hover, Oslo, Norway, assignor to A/S Norsk Viftefabrikk, Oslo, Norway

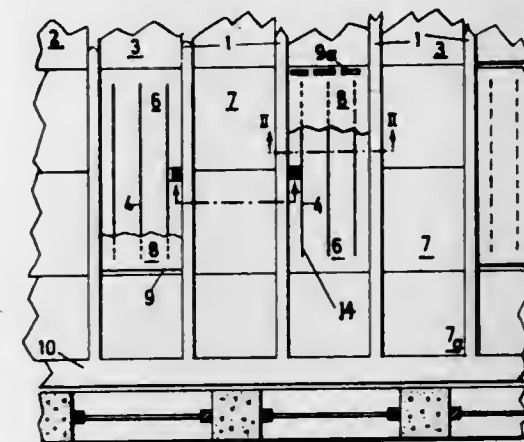
Filed Feb. 9, 1970, Ser. No. 9,922

Claims priority, application Norway, Feb. 12, 1969, 551/69

Int. Cl. F21s 3/14

U.S. Cl. 240-9 A

17 Claims



As a part of a ventilating or air conditioning system a plurality of parallel hollow carrier sections are arranged in spaced relation under a ceiling slab. Said hollow carrier sections are provided with upper and lower support means facing towards the space between said carrier sections. At least some of said upper means support carrier plates provided with lighting fixtures on the underside thereof. At least some of said lower means support transparent or translucent optical panels provided under and spaced from said carrier plates. Other of said lower means support acoustic panels, cover plates or the like. Air flow connection from the underlying room to the space between the carrier plates and the optical panels is ensured. The walls of the parallel hollow sections are provided with apertures being in air flow connection with the spaces between the carrier plates and the optical plates to cause the air flow from the underlying room when the ventilating system is in operation to ventilate the lighting fixtures on its way to the interior of the hollow section. The air flow stream may be reversed.

3,655,962

DIGITAL AUTOMATIC SPEED CONTROL FOR RAILWAY VEHICLES

Bradley R. Koch, Woodbridge, Va., assignor to Melpar, Inc., Falls Church, Va.

Filed Apr. 1, 1969, Ser. No. 811,970

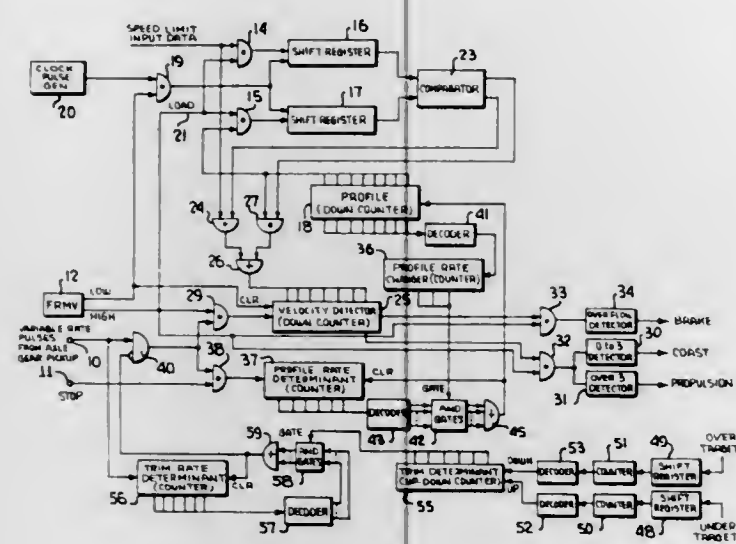
Int. Cl. B611 3/08; G06f 15/48

U.S. Cl. 246-182 C

30 Claims

A speed control and precision stopping system for fully automatic or semi-automatic operation of railway vehicles includes a digital comparator for comparing data representative of maximum speed limit in the particular zone in which the vehicle is located with data representative of a velocity restriction imposed by a synthesized stopping profile mode. The stopping profile mode is based on the distance the vehicle must cover to reach the next scheduled stopping point, and is synthesized in the form of successive rates at which the vehicle velocity is reduced from an initial value corresponding to maximum speed limit. The lesser of the two compared speed restrictions is used as the desired vehicle speed and the actual vehicle speed is compared against this desired value to determine the sense and extent of tractive effort required to be exercised by the train controls to maintain the vehicle at

desired speed. Compensation is provided for successive vehicle stopping at points short of or beyond a preset stopping



target by appropriately varying the apparent speed of the train, and thereby, the tractive effort.

3,655,963

DEVICE FOR CONTROLLING THE SLIT WIDTH OF ADJUSTABLE SLIT ELECTRODES IN MASS SPECTROMETERS

Kurt Brunnee, Bremen-Plattenwerbe, and Feodor Otto Kramer, Bremen, both of Germany, assignors to Varian Mat GmbH, Bremen, Germany

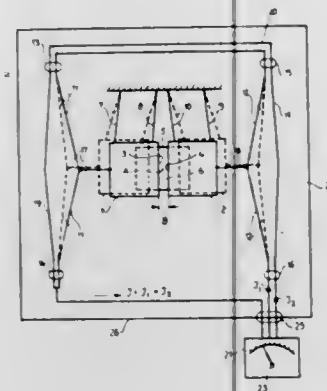
Filed Dec. 1, 1969, Ser. No. 881,191

Claims priority, application Germany, Dec. 4, 1968, P 18 12 625.5

Int. Cl. H01j 39/34

U.S. Cl. 250-41.9 D

5 Claims



The slit width defined by a pair of slit electrodes in a mass spectrometer is controlled by means of a pair of hot wires, one being coupled to each slit electrode. Each wire extends about two spaced supporting elements and a tensile bar is used to couple a midpoint of each hot wire to its respective electrode. A temperature control arrangement is also used and includes a heating wire coupled to all supporting elements to maintain the temperature of the supporting elements constant as the current in the hot wires is changed to vary the slit width. This type of operation is provided by connecting both the hot wires and heating wire to an electrical regulating device that maintains the sum of the currents in these wires at a constant value.

IONIZING RADIATION APPARATUS AND METHOD FOR DISTINGUISHING BETWEEN MATERIALS IN A MIXTURE

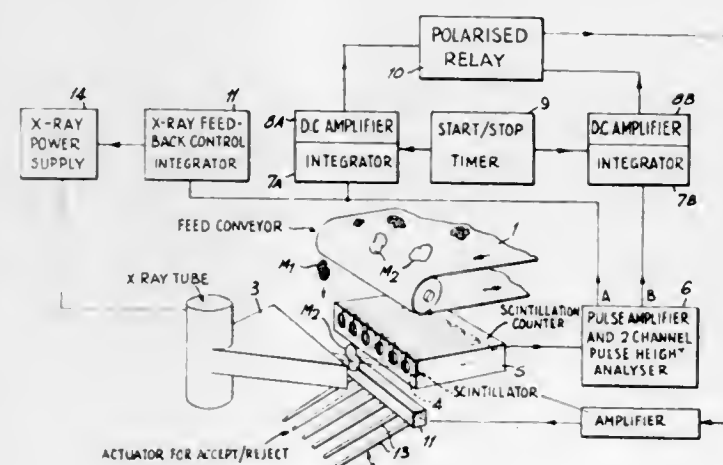
David Laurie Slight, North Mains, Ormiston, East Lothian, Scotland

Continuation-in-part of application Ser. No. 433,705, Feb. 18, 1965, now abandoned. This application May 6, 1968, Ser. No. 726,928

Int. Cl. G01n 23/12

U.S. Cl. 250-43.5 D

8 Claims



Materials in a mixture are distinguished for identification or sorting purposes by subjecting them to ionizing radiation at least two different energy levels and determining the effects, other than solely edge effects, of the materials on the two levels of radiation.

3,655,965

IRRADIATION CELL FOR IRRADIATING A CONTINUOUSLY FLOWING LIQUID WITH AN ELECTRON BEAM

Pierre Icre, Versailles, and Jacques Laizier, Vincennes, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

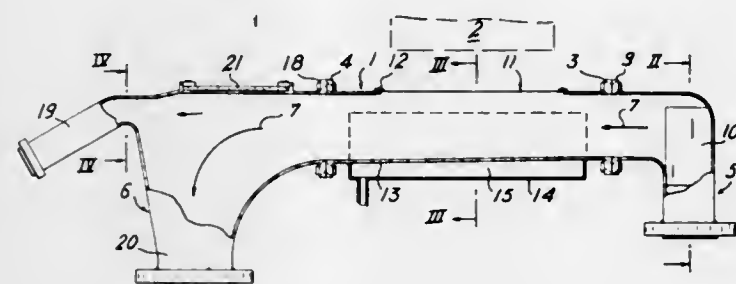
Filed Jan. 20, 1970, Ser. No. 4,341

Claims priority, application France, Feb. 6, 1969, 6902640

Int. Cl. G01n 21/28, 23/14

U.S. Cl. 250-45

4 Claims



A liquid product which is circulated continuously at a variable flow rate and velocity within an elongated tank is irradiated with a beam of accelerated electrons which is directed at right angles to the axis of the tank. One end of the tank is connected to a pipe through which the liquid product to be irradiated is supplied continuously, the pipe being fitted with means for distributing the flow of liquid within the tank. The other end of the tank is connected to a discharge duct having an overflow orifice and a discharge spout fitted with a valve for regulating the depth of liquid within the tank.

3,655,966

ELECTRIC CHARGING DEVICE FOR ELECTROPHOTOGRAPHY

Masaaki Takimoto; Masamichi Sato, and Satoru Honjo, all of Asaka, Japan, assignors to Xerox Corporation, Stamford, Conn.

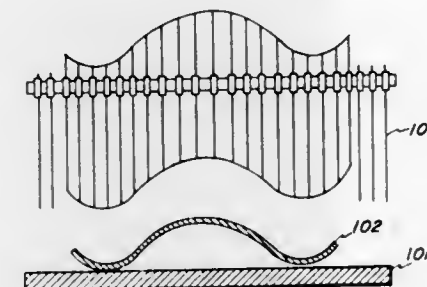
Filed Nov. 3, 1970, Ser. No. 86,493

Claims priority, application Japan, Nov. 8, 1969, 44/89423

Int. Cl. G03g 13/00, 15/00

U.S. Cl. 250-49.5 ZC

13 Claims



Method and apparatus for uniformly charging the surface of a curved insulating member. A carrier member has a plurality of joining members disposed at substantially equal intervals thereon. Each of a plurality of needle electrodes is retained respectively by an associated joining member. When a force of sufficient magnitude is exerted on the needle electrodes, the tips of the electrodes are forced into contact with the member, the tips forming an envelope which conforms to the curved surface of the member. The needle electrodes are subsequently withdrawn to a predetermined position above the surface and an electric discharge potential is applied thereto, whereby a uniform electric charge is deposited on the surface of the insulating member.

3,655,967

X-RAY DIAGNOSTIC DEVICE HAVING A PATIENT CHAIR AND AN X-RAY SOURCE WHOSE RELATIVE ORIENTATION IS CONSTANT

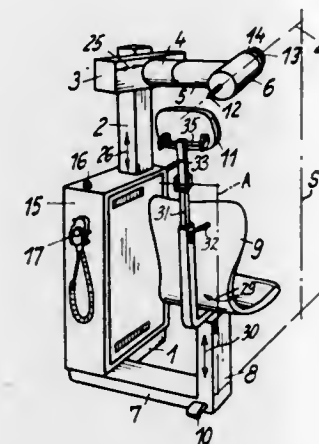
Johann Finkenzeller, 8521 Brucher Str. 32, Tennenlohe, and Artur Schmidt, 8520 Membacher 22, Erlangen, both of Germany

Continuation-in-part of application Ser. No. 666,285, Sept. 8, 1967, now abandoned. This application June 11, 1970, Ser. No. 45,484

Int. Cl. G03b 41/16

U.S. Cl. 250-50

9 Claims



X-ray diagnostic apparatus including a chair for the patient having a vertical plane of symmetry in which lies the central X-ray beam. The chair has a headrest which may be adjusted into a fixed position for the head of the patient and is supported on an arm extending from the base and in the plane of the base and is spaced a fixed distance from a column supporting the X-ray emitter. A horizontal boom arm extends

from the column and is carried by a carrier member extending parallel to the vertical plane of symmetry of the chair. The boom arm is adjustable along said carrier member toward and from the chair. The horizontal boom arm is adjustable about its longitudinal axis. The X-ray emitter is carried in a protective casing extending perpendicular to the boom and is positioned to lie in the vertical plane of symmetry of the chair. The boom and chair are vertically adjustable and the chair is pivotally movable about a vertical axis extending along the vertical plane of symmetry of the chair.

3,655,968

X-RAY EXAMINATION CHAIR

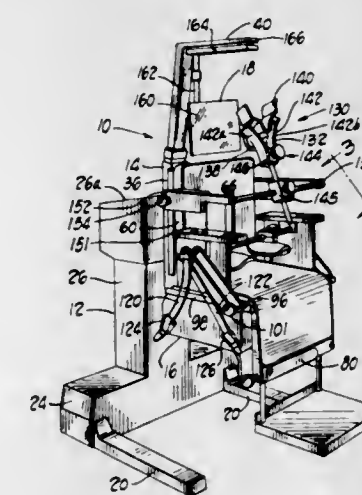
Robert M. Moore; Norman H. Lauterbach, and David P. Armstrong, all of Richmond, Va., assignors to Kermath Manufacturing Corporation, Richmond, Va.

Filed June 29, 1970, Ser. No. 50,869

Int. Cl. H01j 37/20

U.S. Cl. 250-50

13 Claims



An X-ray examination chair is disclosed which is capable of swiveling and tumbling so that a patient restrained in the chair is positionable in various desired orientations for X-ray examination procedures.

The chair includes an adjustable X-ray film cassette holder mounted for swiveling about the chair's swivel axis and relative to the chair. The cassette holder is tumbled with the chair so that the cassette holder is readily positioned for X-ray exposures regardless of the chair orientation.

Restraints against undesired movement of the patient in the chair include a removable arm and thigh restraining means and an adjustable head restraint structure.

A restraining device for a child which positions a child for X-ray exposures adjacent the cassette holder is also disclosed.

3,655,969

CUTTING TOOL

Bernard M. Pollington, 22600 Middlebelt, Farmington, Mich., and Leslie W. Pollington, 19410 Rennesellor, Livonia, Mich.

Continuation-in-part of application Ser. No. 710,259, Mar. 4, 1968, now Patent No. 3,523,349, dated Aug. 11, 1970. This application Aug. 7, 1970, Ser. No. 62,046

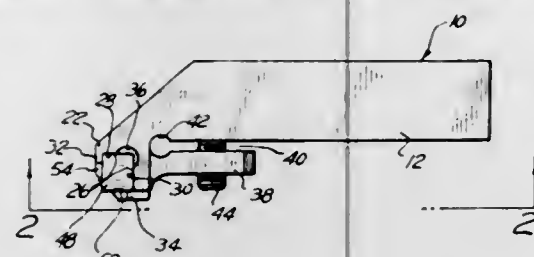
Int. Cl. B26d 1/00

U.S. Cl. 29-96

9 Claims

A cutting tool for shapers, lathes and the like including a holder having a pair of gripping jaws formed at the intersection of two sides of the holder. The holder is provided with a slot disposed with respect to the gripping jaws such that widening of the slot causes the gripping jaws to be moved towards each other to securely clamp an elongated rectangular cutting tool insert therebetween, the insert having its

cutting edge disposed on opposite ends thereof so that when one cutting edge becomes dull the insert can be reversed to present the other cutting edge. A screw engages the lower



end of the insert to provide an adjustment for the insert and a second screw provides the means for widening the slot to lock the insert in position.

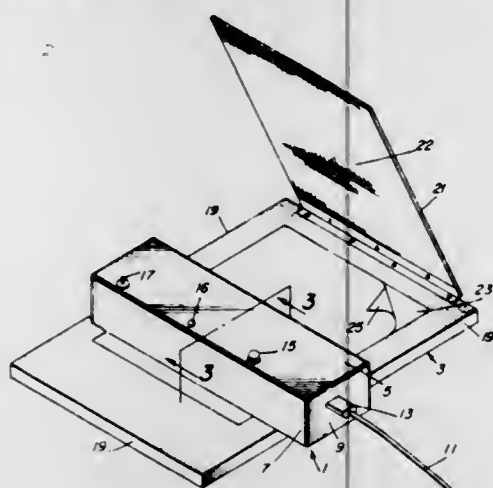
3,655,970

PORTABLE THERMOGRAPHIC DUPLICATOR

Warren F. Betzler, P.O. Box 749, Elmira, N.Y.
Filed June 22, 1970, Ser. No. 48,050
Int. Cl. G01n 21/34

U.S. Cl. 250-65 T

4 Claims



A portable, manually operable, miniaturized copier operable by being manually rolled across the surface of sensitized paper under which the graphic material to be copied is positioned. An electric heat lamp disposed in the copier and movable therewith, control means for said electric heat lamp, including a safety switch, and rotatable means in said copier and combined with said heat lamp exerting a degree of pressure on the work in the operation of the copier or duplicator.

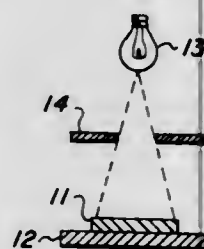
3,655,971

IMAGING SYSTEM

Werner E. L. Haas; James E. Adams, both of Webster; James H. Becker, Penfield, and Joseph J. Wysocki, Webster, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.
Filed Aug. 12, 1969, Ser. No. 849,418
Int. Cl. H01j 37/22

U.S. Cl. 250-65 R

53 Claims

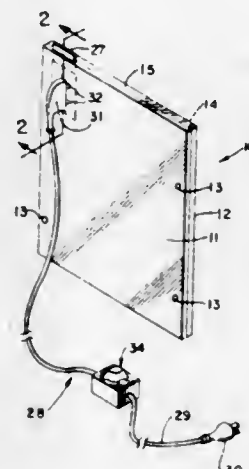


A system wherein a film of liquid crystalline material is exposed to ultraviolet radiation thereby producing a visible image.

3,655,972
CASSETTE
James H. Somerset, 140 Humbert Avenue, Syracuse, N.Y.
Filed Nov. 26, 1969, Ser. No. 880,346
Int. Cl. H05g 1/28

U.S. Cl. 250-67

4 Claims



This invention relates to a cassette for taking and identifying X-ray radiographs comprising means defining an access slot in the cassette, a film identification chamber in a portion of the cassette communicating with said slot, electroluminescent means in said chamber capable of emitting visible light upon electrical excitation, and means to provide electrical connection between the electroluminescent means and means for supplying electrical excitation.

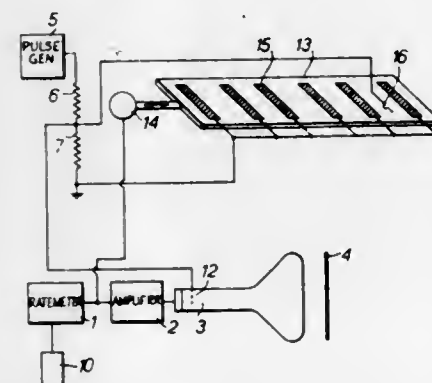
3,655,973

RADIO-ISOTOPE SCANNING MACHINE FOR MORE CLEARLY REPRESENTING CONTOURS OF EQUAL RADIATION INTENSITY

Reginald Sear, London, and Peter Mervyn Dean, Ealing, both of England, assignors to National Research Development Corporation, London, England
Filed June 18, 1969, Ser. No. 834,468
Claims priority, application Great Britain, June 19, 1968, 29,130/68
Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 S

6 Claims

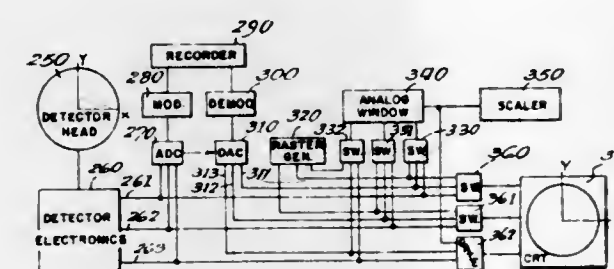


A radio-isotope scanning machine provides a photoscan of a field of interest which contains contour lines representing levels of equal intensity of radiation. Between each contour line the density of the display can vary from zero to a maximum, or alternatively, the photo display can vary from zero to a maximum throughout the full range of measured intensity of radiation and regions of low or zero density can be introduced at predetermined levels.

3,655,974
ANALOG WINDOW APPARATUS FOR SIGNALLING WHETHER A DATA POINT REPRESENTED BY A PAIR OF COORDINATE SIGNALS IS WITHIN A SELECTABLY SHAPED REGION OF TWO-DIMENSIONAL SPACE
Oreste J. Lucchesi, Schaumburg, Ill., assignor to Nuclear-Chicago Corporation, Des Plaines, Ill.
Filed June 23, 1969, Ser. No. 835,534
Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 S

5 Claims



Analog window apparatus for use with Anger-type scintillation camera or the like. Two phase-related sinusoidal waveforms of the same frequency determine an analog window of a shape dependent upon the phase relationship. Two comparison circuits receive coordinate signals and the sinusoidal waveforms and register output indications when the amplitudes of the waveforms exceed the amplitudes of corresponding coordinate signals and a gate and hold circuit registers an output when coincident output indications are received at some instant during a comparison period lasting at least one period of the waveforms.

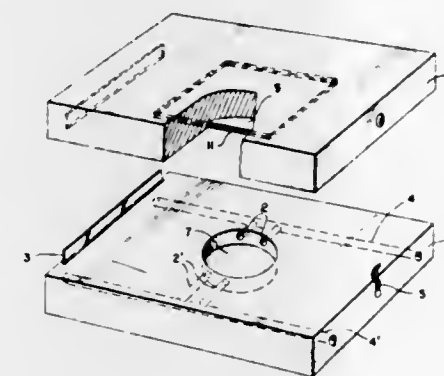
3,655,975

FILM BADGE RADIATION DOSIMETER FOR DETECTING RADON

Robley D. Evans, 15 Hickory Lane, Belmont, Mass.
Filed Apr. 4, 1966, Ser. No. 539,691
Int. Cl. G01t 1/08

U.S. Cl. 250-83

16 Claims



The present invention relates to radiation detecting apparatus, being more particularly concerned with portable radiation indicating devices such as radon and radon daughter product film badges and other similar apparatus.

3,655,976

FREQUENCY STANDARDIZED PENETRATING RADIATION GAUGE

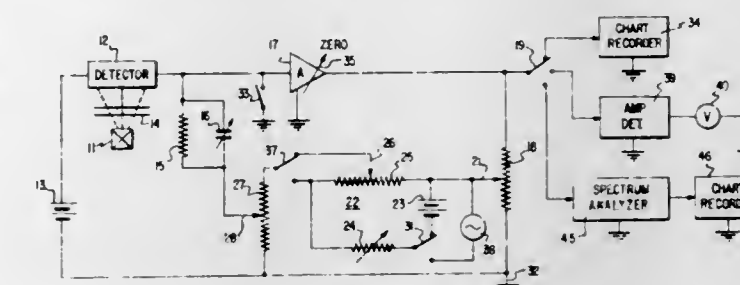
George I. Doering, Columbus, Ohio, assignor to Industrial Nucleonics Corporation
Filed Oct. 11, 1967, Ser. No. 674,434
Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 D

1 Claim

Disclosed are a system for and method of standardizing the frequency response of a plurality of thickness measuring

radiation gauges, having resistance capacitance networks connected to the outputs thereof. Each gauge is source and zero standardized by adjusting a potentiometer in the feedback loop of an amplifier and the zero point of the amplifier, respectively. Thereafter, each gauge is frequency stan-



standardized by adjusting the time constant of frequency determining impedances. The determination of the frequency response of each gauge is made by modulating the gauge characteristics and measuring the reduction in amplitude of the gauge output relative to D.C.

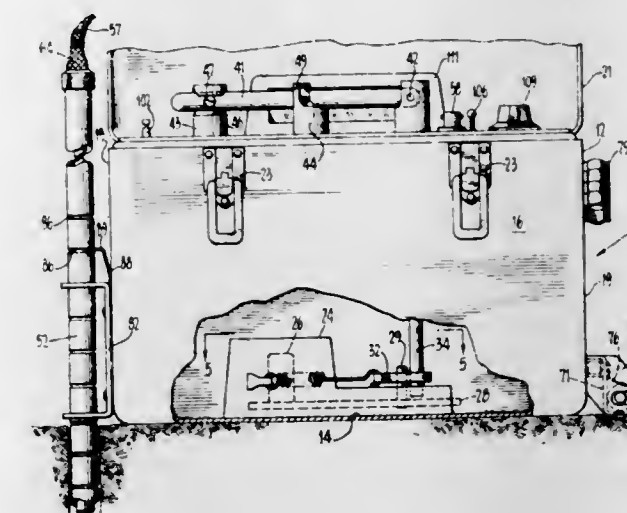
3,655,977

RADIATION EMISSION AND DETECTION APPARATUS FOR DETERMINING DENSITY OF A MATERIAL

Patrick J. Campbell, 124 Brichanan Circle, Pacheco, Calif.
Filed Apr. 2, 1969, Ser. No. 812,619
Int. Cl. G01n 23/06

U.S. Cl. 250-83.6 S

6 Claims



Apparatus is described which is capable of determining characteristics of a volume of material by both measuring (a) the amount of radiation emitted by a radioactive source transmitted a predetermined distance through the material and by measuring (b) the amount of radiation from a source reflected by the material. The apparatus includes an exterior housing having contained therein at a predetermined location adjacent its bottom wall a radiation shielded container for a radioactive source. The container has a radiation transparent opening through which radiation from the radioactive source is emittable in a predetermined direction, and a shutter arrangement is provided for selectively blocking and freeing the opening. A detector of radiation is contained within an end section of an elongated rod which may be releasably secured to the housing at a first location, shielded from the source container opening, at which the detector will detect substantially only radiation which is reflected toward the detector, and at a second location at which the detector depends downwardly below the bottom wall of the housing in direct line-of-sight to the opening for the detection of radiation emitted from the opening and transmitted a predetermined distance through the material located between the opening and the detector.

3,655,978

ZINC CADMIUM SULFIDE CATHODOLUMINESCENT SCREEN

Sixdeniel Faria, and David J. Harrigan, both of Towanda, Pa., assignors to Sylvania Electric Products Inc.

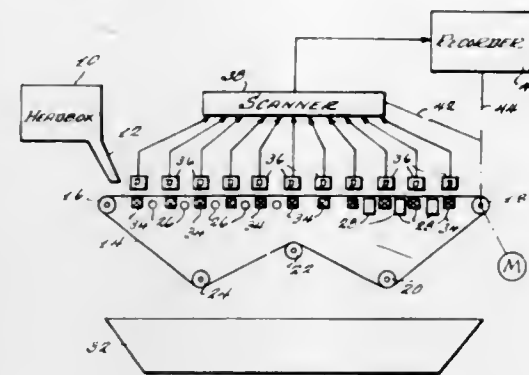
Filed Sept. 4, 1970, Ser. No. 69,843

Int. Cl. H01j 1/62

U.S. Cl. 250-80

9 Claims

An improved viewing screen for use in electron microscopes can be obtained when a phosphor consisting essentially of zinc sulfide and cadmium sulfide, in specific ratios, and a source of an activator material containing specified amounts of an aluminum source and specified amounts of either copper or silver is substrated on a rigid electrically conductive support.



3,655,979

RADIATION GAUGE FOR MONITORING SHEET PROPERTIES EMPLOYING A SCANNED SOURCE

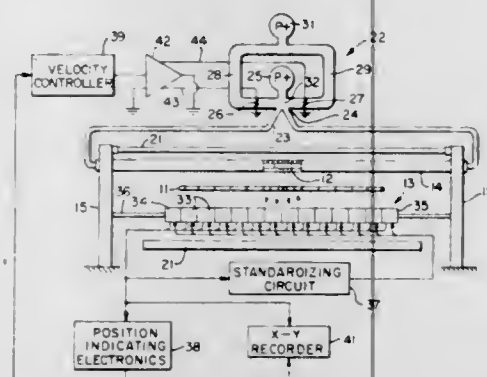
Ernest D. Jernigan, Jr., Columbus, Ohio, assignor to Industrial Nucleonics Corporation

Filed May 10, 1968, Ser. No. 728,195

Int. Cl. G01t 1/17

U.S. Cl. 250-83.3 D

36 Claims



A radiation gauge for monitoring a property of a sheet material includes, in combination with an array of stationary detectors positioned across the sheet width, a source of penetrating radiation scanned across the width of the sheet in response to fluid pressure. The source position is determined in response to signals read out from the several detectors comprising the array. The source pattern is effectively maintained isotropic by a slot and key arrangement or by rotating the source at a relatively high spin velocity. The individual detectors are calibrated for different responses across the sheet width. Source detector standardization is performed by translating the source to an off-sheet position so that the source field impinges on an off-sheet detector. In response to standardizing with the off-sheet detector, each of the other detectors is standardized in a like manner.

3,655,980

MEASURING WATER DRAINAGE RATE FROM WET STOCK FOURDRINIER SCREEN USING RADIATION SOURCE AND DETECTORS

David A. Bossen, Los Altos Hills, Calif., assignor to Industrial Nucleonics Corporation

Filed June 20, 1968, Ser. No. 738,435

Int. Cl. G01t 1/16

U.S. Cl. 250-83.3 D

15 Claims

In a Fourdrinier papermaking machine, the variation in the mass of the slurry along the length of the Fourdrinier travelling forming screen and the rate of water drainage therethrough are determined by a radioactive wire threaded along the length of the screen, or a plurality of radioactive

sources successively disposed therealong, in conjunction with either a single radiation detector moved synchronously with

the screen or a plurality of detectors monitored continuously or scanned synchronously with the screen movement.

3,655,981

CLOSED SYSTEM GENERATION AND CONTAINERIZATION OF RADIOISOTOPES FOR ELUTING A DAUGHTER RADIOISOTOPE FROM A PARENT RADIOISOTOPE

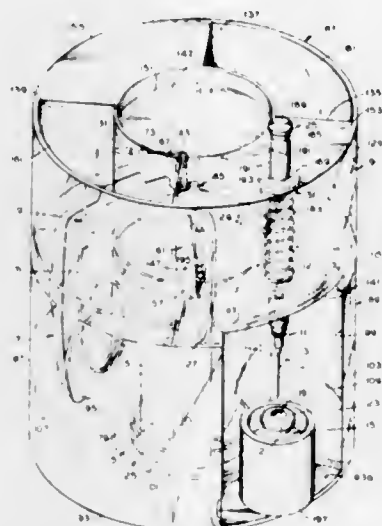
James R. Montgomery, Maplewood, and Lloyd G. Struttman, St. Louis, both of Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

Filed Nov. 29, 1968, Ser. No. 779,793

Int. Cl. G21h 5/00

U.S. Cl. 250-106 T

31 Claims



Apparatus for eluting a sterile daughter radioisotope from a parent radioisotope and containerizing the resultant eluate in an evacuated container having a rubber stopper, providing for delivery of a sterile pyrogen-free eluant from a sealed supply through a sterile charge of the parent radioisotope sealed in a shielded generator and thence to a tubular needle adapted to be pierced through the stopper of the evacuated container for suctioning the eluant from the sealed eluant supply into the generator and for suctioning the resultant eluate into the container. The needle is applied to a fitting on a plunger adapted to be pushed down to pierce the needle through the stopper. Eluate is delivered from the generator to the fitting for flow through the needle via an eluate conduit having a flexible tubing portion permitting movement of the plunger and the fitting, with an arrangement whereby the plunger, when retracted, pinches the flexible tubing portion closed, the flexible tubing portion being automatically released when the plunger is driven downward to open the flexible tubing portion for flow therethrough of the eluate under suction induced by the piercing of the needle through the stopper into the evacuated container.

3,655,982

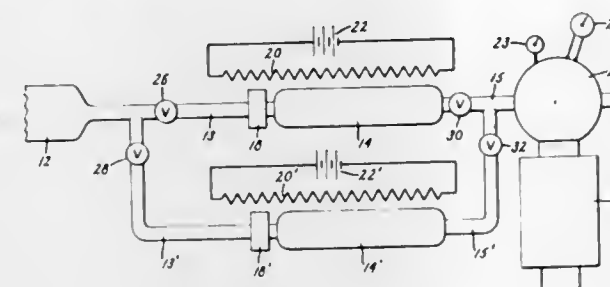
APPARATUS FOR WATER DETECTION USING A RADIOACTIVE TRITIUM LABELLED REACTANT
Vincent L. Gelezunas, Devon, Pa., assignor to General Electric Company

Filed Jan. 29, 1969, Ser. No. 795,111

Int. Cl. G21h 5/02

U.S. Cl. 250-106 T

3 Claims



A method and apparatus for detecting water using an appropriate radioactive labeled alkaline earth hydride as a reactant. Fluid from a gas liquid or solid sample to be tested is passed through a bed of the reactant. The water present in the sample reacts with the reactant forming a radioactive product whose radioactivity is then measured to give a quantitative determination of the amount of water in the sample or a qualitative determination of the presence of water.

3,655,983

APPARATUS FOR STORING AND EXPOSING A RADIOACTIVE SOURCE

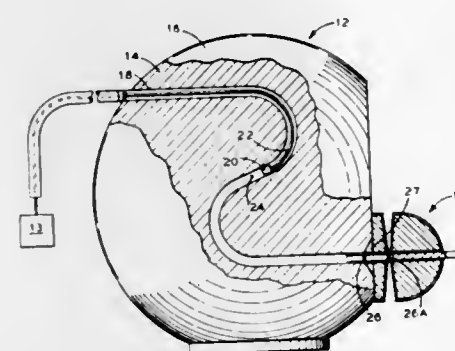
Gilbert R. Forrer, Barberton, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y.

Filed Mar. 24, 1969, Ser. No. 809,657

Int. Cl. G21f 5/02

U.S. Cl. 250-106 S

10 Claims



A source exposing head adapted to be mounted on a container of radiation resistant material which has a passageway within which a movable radioactive source is stored. The head is a mass of radiation resistant material providing a shielded extension of the passageway of the storage container and provides an annularly shaped source exposure aperture externally of the storage container.

3,655,984

NON-SHIFTING RADIATION SOURCE CAPSULE

John R. Dukes, Worthington, Ohio, assignor to Industrial Nucleonics Corporation

Filed Dec. 18, 1969, Ser. No. 886,338

Int. Cl. G21h 5/00

U.S. Cl. 250-106 S

9 Claims

A substantially immobile "non-shifting" relatively low energy radiation source includes a particulate radioisotope bearing material positioned within a chamber formed in a capsule. Movement of the radioactive isotope element or any attenuating mass is prevented by a porous deformable con-

formational barrier member which has pores therein smaller than the smallest particle adjacent to the barrier and which prevents any attenuating producing movement of any particulate material within the capsule. In the case of gas

producing radioisotopes, provision is made to permit escape of gas while preventing movement of attenuating masses or radioactive isotope material. Various radioisotopes and barrier members are described as well as various ways to assemble a "non-shifting" source.

3,655,985

RADIATION-SHIELDING RECEPTACLE FOR A BOTTLE FOR RECEIVING A RADIOACTIVE ELUATE

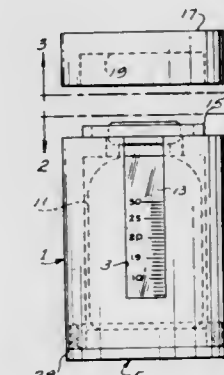
James L. Brown, St. Louis County; Donald T. Himebaugh, Ballwin, and James R. Montgomery, St. Louis County, all of Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

Filed May 20, 1969, Ser. No. 826,224

Int. Cl. G21f 5/00

U.S. Cl. 250-108 R

13 Claims



A radiation-shielding receptacle for holding a glass bottle for receiving the eluate from the elution of a radioactive material is disclosed. The receptacle includes a hollow cylindrical body of nontransparent radiation-shielding material having a window opening in its wall. A first end closure of radiation-shielding material is provided at one end of the body and a second end closure of radiation-shielding material is provided at the other end of the body. The second end closure has a central opening therein smaller than the internal diameter of the body and of a size so that the mouth of a bottle positioned in the body is exposed to receive the eluate. An insert of substantially transparent radiation-shielding material is secured in and fills the window opening so that the eluate in a bottle in the body may be viewed from the outside. The thickness of the body and the thickness of the insert are sufficient to provide a substantial amount of shielding against radioactive emission from the eluate.

3,655,986

LASER DEVICE

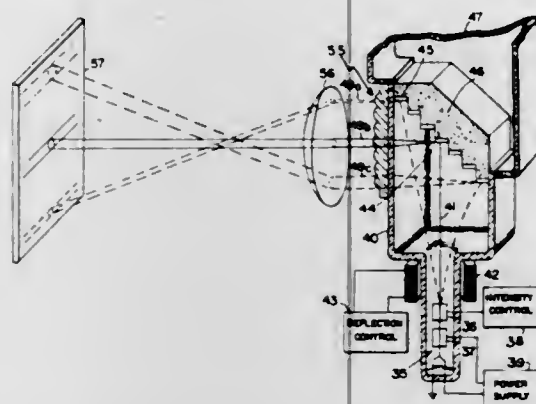
Benjamin Lax, Newton, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Oct. 20, 1964, Ser. No. 405,041

Int. Cl. H04b 9/00

U.S. Cl. 250—199

6 Claims



A moving and/or modulated beam of electromagnetic radiation is produced employing a body of selected semiconductor material with means on one side for launching a beam of high intensity electrons against the material, so as to produce therein a sufficient population of elevated energy states that transitions of the elevated energy states to lower energy states is accompanied by the production of an intense beam of electromagnetic radiation which issues from the semiconductor body.

3,655,987

MEANS FOR NOISE REDUCTION IN OUTPUT OF PHOTOEMISSIVE CELL COMPRISING PERIODICALLY DISCHARGED INTEGRATOR CAPACITOR

David Hinds, York, England, assignor to Vickers Limited, London, England

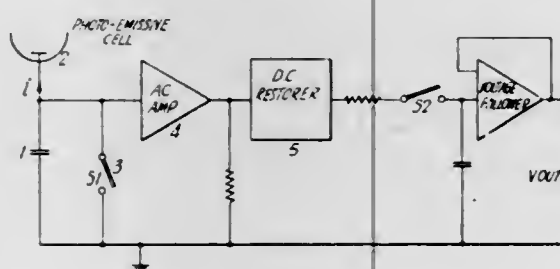
Filed May 26, 1970, Ser. No. 40,581

Claims priority, application Great Britain, July 17, 1969, 36,163/69

Int. Cl. G01j; H01j 39/12

U.S. Cl. 250—206

9 Claims



An electrical circuit including a photoemissive cell and an integrator capacitor which receives current from the cell and which is repeatedly discharged, the output being amplified to produce an amplified representation of the photocurrent of the cell with reduced noise.

3,655,988

NEGATIVE RESISTANCE LIGHT EMITTING SWITCHING DEVICES

Tutomu Nakamura, Akashi-shi; Saburo Matsuda, Nara-shi, and Yoichi Ito, Osaka, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 10, 1969, Ser. No. 883,776

Claims priority, application Japan, Dec. 11, 1968, 43/90657

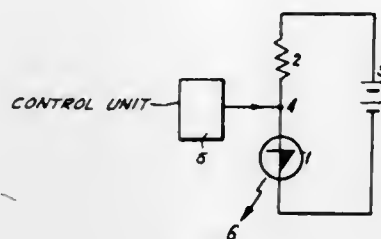
Int. Cl. G01j 5/00; H01j 31/50; H03k 3/42

U.S. Cl. 250—209

10 Claims

A switching device includes a negative resistance light emitting two-terminal switching semiconductor element con-

nected in series with a load and a direct current power source. Control means control the switching of the light emission of the device and photoelectric converter means ob-



tain an output indicative of the condition of the device. The semiconductor element is a four layer device with the center junction normally reverse biased.

3,655,989

RADIATION SENSITIVE STRIP WIDTH MEASURING UNIT AND SPLIT EDGE DETECTOR

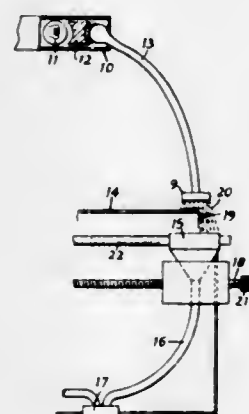
Robert W. Robinson, Bedford, England, assignor to British Steel Corporation, London, England

Filed July 6, 1970, Ser. No. 52,430

Int. Cl. G01b 7/04

U.S. Cl. 250—219 WD

9 Claims



A strip monitoring apparatus and more particularly to apparatus for continuous precision measuring of the width of a strip and for detecting faults, such as splits in the edge of the strip. The apparatus for monitoring a strip comprises a light source, at least one light guide member for conducting light from said light source to a surface in the area of an edge of a strip of material, a corresponding guide member arranged to receive light from said one guide member and means for recording and interpreting light received from said corresponding guide member.

3,655,990

RADIATION SENSITIVE LENGTH MEASURING SYSTEM

Karl Gustav Nordqvist, Nynashamn, Sweden, assignor to Rederiaktiebolaget Nordstjernan, Nynashamn, Sweden

Filed Oct. 30, 1968, Ser. No. 771,909

Claims priority, application Sweden, Nov. 3, 1967, 15083/67

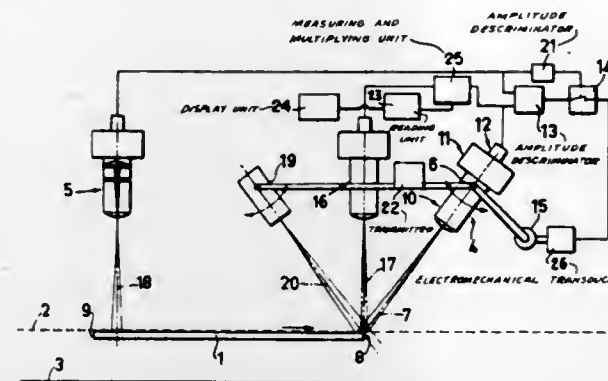
Int. Cl. G01b 7/04

U.S. Cl. 250—219 LG

19 Claims

An optical measuring system for automatically measuring an object of measurement in a measuring plane by automatically tracking and following the position in a measuring plane

of a contour defining the object of measurement, by utilizing a detectable difference in a self-emitted or reflected elec-



tromagnetic radiation between the object of measurement and a background to the same.

3,655,991

POWER OUTPUT UNIT AND METHOD FOR DELIVERING CONSTANT FREQUENCY, CONSTANT VOLTAGE AC POWER

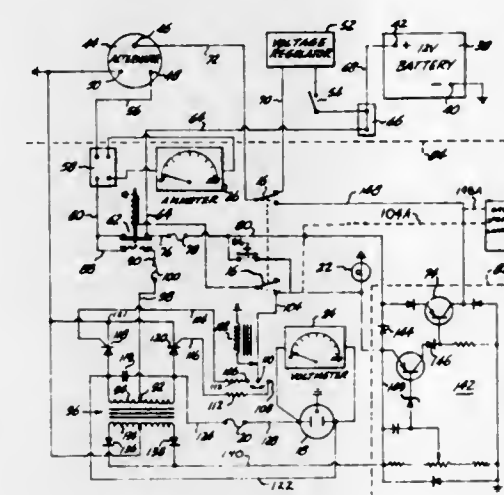
Franklin R. Schnelder, Seattle, Wash., assignor to Modern Industries, Incorporated, Seattle, Wash.

Filed Feb. 8, 1971, Ser. No. 113,332

Int. Cl. H02j 3/00

U.S. Cl. 307—10 R

22 Claims



An accessory unit for use with an engine powered vehicle having a conventional electrical system including a battery, voltage regulator and a dynamo which in normal operation supplies DC power to the vehicle electrical system, including switches adapted to isolate the dynamo from the vehicle electrical system, and means for boosting the DC voltage dynamo output and converting it to a constant frequency AC voltage. An outlet receptacle is provided to accept jacks from power tools, appliances or the like having constant frequency AC voltage power requirements. The outlet receptacle voltage is monitored and the dynamo field current is adjusted in response to variations therein to control the dynamo voltage and amperage input to the unit.

In another embodiment of the invention, a secondary coil is provided on the transformer along with conventional rectifying means to step down and rectify the increased AC output voltage. Voltage regulator means is provided to sense variations in this low voltage DC secondary output and control the dynamo field current in response to variations therein to maintain a desired dynamo output voltage and amperage. Additionally, the vehicle battery may be charged by an output from the rectified low voltage secondary output of the transformer.

3,655,992

ELECTRIC CONTROLLER SYSTEMS WITH MANUAL AND AUTOMATIC MODE

Isamu Ohno, Tokyo; Akio Kobayashi, Tokyo; Akira Ohte, Tokyo; Minoru Tamuki, Kawasaki, and Susumu Ohto, Tokyo, all of Japan, assignors to Yokogawa Electric Works, Ltd., Tokyo, Japan

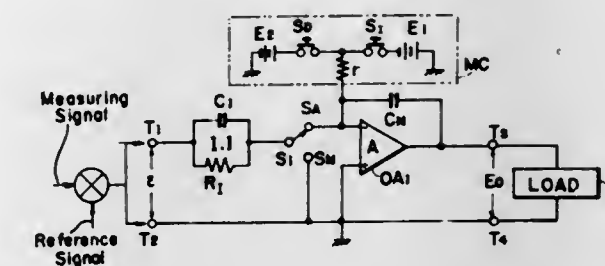
Filed July 27, 1970, Ser. No. 58,477

Claims priority, application Japan, Aug. 6, 1969, 62158/69

Int. Cl. H01h 31/00

U.S. Cl. 307—87

27 Claims



In a controller for effecting bumpless switching between the manual control operation and the automatic control operation there are provided an input impedance connected to receive a measured signal from a processing system, an operational amplifier to provide an output signal to a load, a transfer switch connected between the input impedance circuit and the operation amplifier, a feedback capacitor for the operational amplifier to store a voltage related to the output signal, and a manual setter including means to modify the voltage stored in the feedback capacitor by an external signal. During the automatic adjusting operation the transfer switch is operated to connect the input impedance circuit to the input terminal of the operation amplifier whereas during the control operation by the external signal the transfer switch is operated to disconnect the input impedance circuit from the operational amplifier thus modifying the voltage stored in the feedback capacitor by the signal supplied by the manual controller.

3,655,993

OPTICALLY ROTATORY DIELECTRIC-GUIDED PARAMETRIC OSCILLATORS

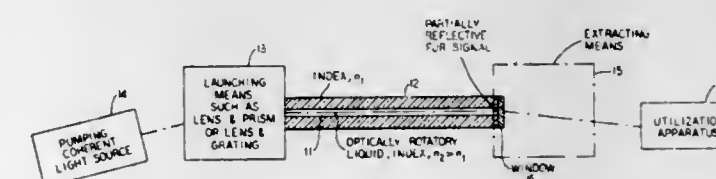
Peter Adalbert Wolff, Berkeley Heights, N.J., assignor to Bell Telephone Laboratories Incorporated, Murray Hill, N.J.

Filed July 10, 1970, Ser. No. 53,839

Int. Cl. H03f 7/00

U.S. Cl. 307—88.3

3 Claims



There is disclosed a parametric oscillator having reduced optical loss and increased interaction pathlength because it employs an optically rotatory liquid in a capillary tube of lower refractive index and of internal diameter of the order of one micrometer. The pumping beam is launched off-axis into the liquid to generate signal and idler beams such that all three beams at any given point propagate in intersecting directions and yet are guided along the capillary tube. Each beam is reflected at the capillary wall with at least a minimum angle Φ from the normal to the glass, such that $\sin \Phi$ is greater than the ratio of the index of refraction of the glass to the index of refraction of the liquid.

3,655,994

ELECTRIC FENCE CHARGER

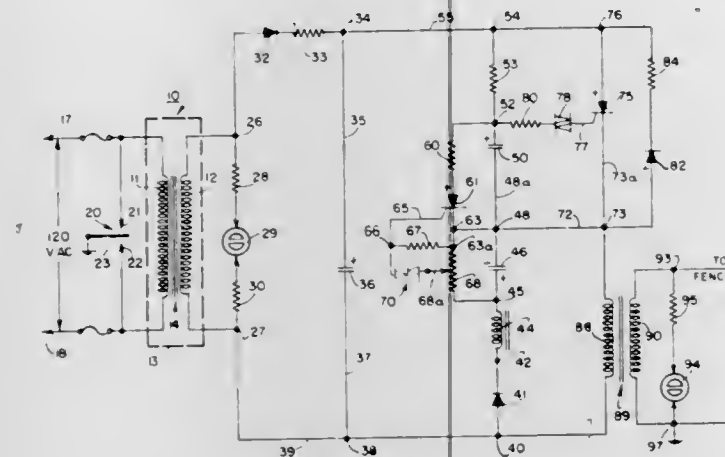
Elmer K. Malme, St. Charles, Ill., assignor to Wire Sales Company, Chicago, Ill.

Filed Feb. 8, 1971, Ser. No. 113,477

Int. Cl. H01h 47/00

U.S. Cl. 307-132 R

8 Claims



A device for periodically applying a high potential on an electric fence has means for applying such potential for very short times at periodic intervals. The time between successive charging intervals depends upon whether the fence is "loaded" (where an animal grounds such fence) or is "unloaded". If the fence is "unloaded", the repetition rate of charging pulses is minimized and if the fence is "loaded", the pulse repetition rate is increased. The change in pulse repetition rate is determined by the fence "loading" reflected into the fence charger system and determines the discharge level of a timing capacitor.

3,655,995

AUTOMATIC ELECTRIC FENCE CHARGING SYSTEM

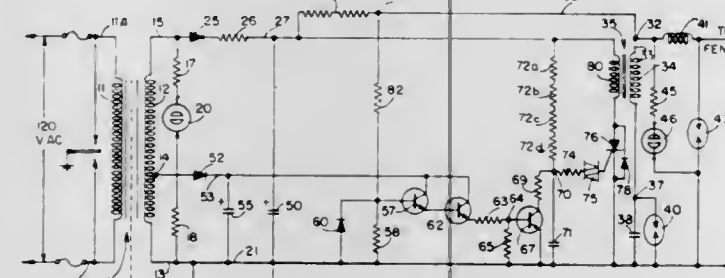
Elmer K. Malme, St. Charles, Ill., assignor to Wire Sales Company, Chicago, Ill.

Filed Feb. 8, 1971, Ser. No. 113,480

Int. Cl. H01h 47/00

U.S. Cl. 307-132 R

3 Claims



A fence charging system includes a sensing circuit connected to a fence to be charged. The sensing circuit applies a harmless low voltage which normally maintains a fence charger below operating level so long as the fence is "unloaded" (has a high resistance in the absence of at least one animal grounding the fence). When the fence becomes "loaded," the current drawn by the fence sensing system changes potential distribution in the fence charging system and permits the charger to operate normally, the fence charging system under such conditions impressing high voltage pulses on the fence at predetermined intervals so long as the fence remains "loaded."

3,655,996

PROTECTIVE CIRCUIT FOR INPUT CIRCUIT OF JUNCTION TYPE FIELD EFFECT TRANSISTOR

Toru Takahashi, Tokyo, Japan, assignor to Iwatsu Electric Company, Limited, Tokyo, Japan

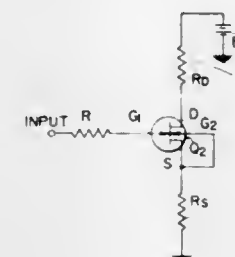
Filed Mar. 9, 1970, Ser. No. 17,489

Claims priority, application Japan, Mar. 13, 1969, 44/19004

Int. Cl. H02h 7/20; H03k 17/60

U.S. Cl. 307-202

5 Claims



In a protective circuit for input circuit of a junction type field effect transistor, a plurality of gate electrodes are provided for the transistor, an input protective resistor is connected between a signal input terminal and an input side gate electrode and the other gate electrode is connected to the source electrode of the field effect transistor. The protective resistor functions to protect the field effect transistor against excessive forward voltage by passing current between the input side gate electrode and the source electrode and against excessive reverse voltage by passing current between the other gate electrode and the input side gate electrode.

3,655,997

COMPLEMENTARY DRIVER CIRCUIT FOR DIODE DIGITAL PHASE SHIFTERS

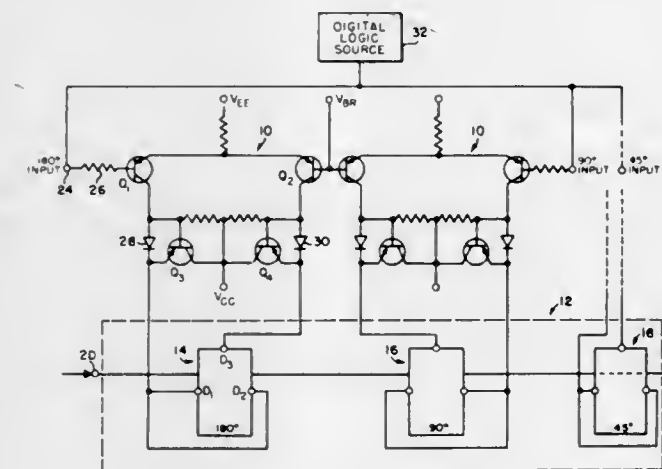
Stephen A. O'Daniel, Murray H. Mott, and Robert W. Jones, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Oct. 23, 1970, Ser. No. 83,556

Int. Cl. H03k 19/12

U.S. Cl. 307-210

1 Claim



A solid state complementary circuit for driving PIN diode digital phase shifters wherein PIN diodes are used to digitally switch in or switch out phase increments or bits. The driver circuit essentially comprises an emitter-coupled PNP transistor pair for each phase bit of the phase shifter. The transistor pairs are operable in response to digital logic control signals to provide complementary outputs which in one state switch in a selectively predetermined phase bit and in the opposite state switch out the phase bit.

3,655,998

LOGICAL GATE SWITCHING CIRCUIT IN ECL-SWITCHING CIRCUIT TECHNIQUE

Wilhelm Wilhelm, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

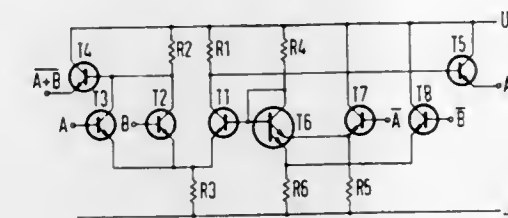
Filed Aug. 21, 1970, Ser. No. 65,777

Claims priority, application Germany, Aug. 25, 1969, P 19 43 205.4

Int. Cl. H03k 19/34, 19/36, 19/22

U.S. Cl. 307-215

8 Claims



A logical gate switching circuit in ECL-switching circuit technique, which is designed as a push-pull circuit for the logical linkage of input signals in both their normal form and their inverted form, preferably having a differential amplifier cooperable therewith employing two emitter-coupled transistors and including a multi-emitter transistor, respective emitters of which are operatively controlled by the input signals in their inverted form.

3,655,999

SHIFT REGISTER

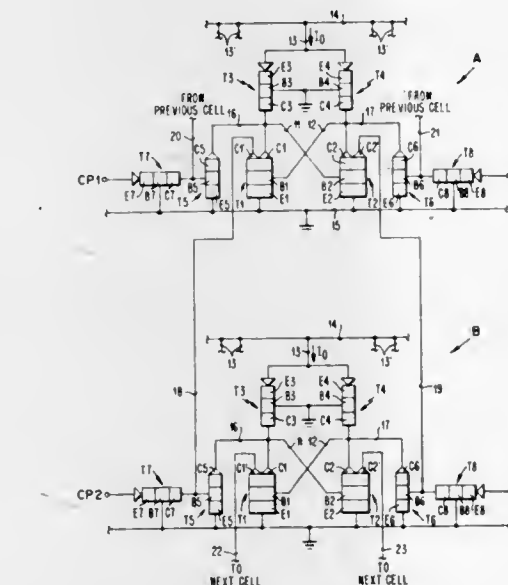
Siegfried K. Wiedmann, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 5, 1971, Ser. No. 131,154

Int. Cl. G11c 19/00; H03k 3/286

U.S. Cl. 307-221 R

10 Claims



A shift register comprises a series of half-cells with means to transfer the information stored in each half-cell to the next half-cell in the series upon the application of a clock-pulse signal. The circuit is made with just two diffusion steps, obviating the need for an isolation diffusion or a subcollector diffusion.

3,656,000

FREQUENCY TO VOLTAGE CONVERTER WITH IMPROVED TEMPERATURE STABILITY

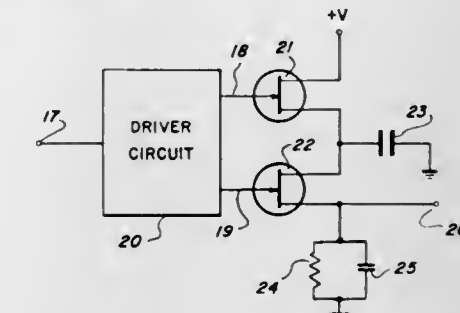
John L. Neathery, Jr., Austin, Tex., assignor to Nuclear-Chicago Corporation, Des Plaines, Ill.

Filed Apr. 1, 1969, Ser. No. 812,196

Int. Cl. H03k 5/20

U.S. Cl. 307-233

3 Claims



A count rate circuit employing a pair of field effect transistors in the charging and discharging paths of a capacitor to provide temperature stable operation.

3,656,001

SECURITY DEVICES

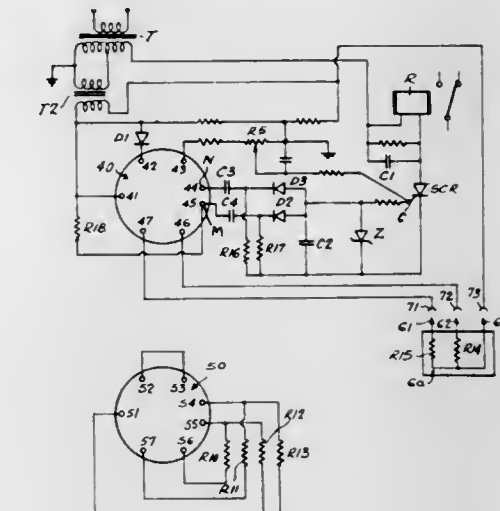
Benno Bensiyan Saul, 5830 St. Luc, Apt. 16, Montreal, Quebec, Canada

Filed June 10, 1970, Ser. No. 45,064

Int. Cl. H03k 5/00; G08b 21/00

U.S. Cl. 307-235

1 Claim



Relay contacts are controlled by obtaining zero output simultaneously from two or more balanced circuits. Such simultaneous balance signifies that a corresponding number of resistance values in a "key" device complement the resistance values in a "combination" device which is formed as a plug for ready changing of the combination by the substitution of a different plug. The number of combinations obtained increases as the power of the number of balanced circuits. The relay contacts can be used to control a lock, burglar alarm or other security device.

3,656,002

SWITCHING CIRCUIT

Russell A. Gilson, Oakhurst; William F. Kiss, West Allenhurst, and Vincent J. Organic, Neptune, all of N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed Nov. 24, 1970, Ser. No. 92,487

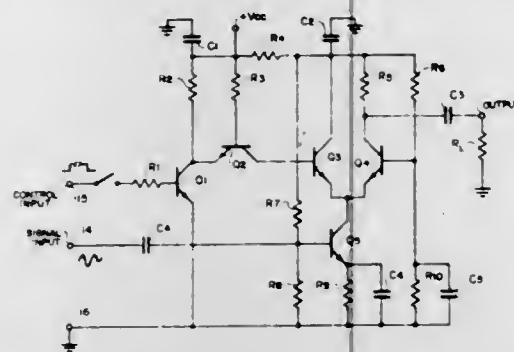
Int. Cl. H03k 17/60

U.S. Cl. 307-235

12 Claims

A switching circuit for providing maximum isolation between a radio frequency source and a load when the cir-

cuit is in a first operating condition and for delivering substantially maximum energy from said source to said load when the circuit is in a second operating condition, while



presenting a substantially constant impedance to the source during both operating conditions, whereby the load is always matched to the source.

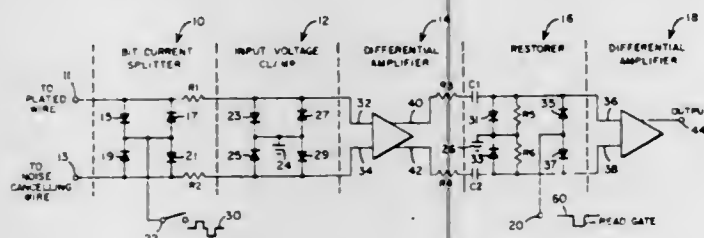
3,656,003

SENSE AMPLIFIER FOR COMPUTER MEMORY OPERATING UNDER HIGH SPEED CYCLE TIMES
Chung-Ho Chen, Plymouth Meeting, Pa., and Roy D. Thomas, Wenonah, N.J., assignors to Sperry Rand Corporation, New York, N.Y.

Filed July 10, 1970, Ser. No. 53,743
Int. Cl. H03k 5/20, 5/08

U.S. Cl. 307—238

10 Claims



This invention relates to a sense amplifier circuit for use with a memory element of a high speed computer which does not become saturated during its write cycle by high frequency transient noises. Low frequency noises generated during the computer write cycle are also rejected during an immediately following read cycle so that memory output is passed through the amplifier. In addition, the sense amplifier arrangement includes circuitry whereby the write (i.e., bit) current driving voltage for recording information into the memory is substantially reduced.

3,656,004

BIPOLAR CAPACITOR DRIVER

Douglas W. Kemerer, Beacon, and Jehoshua N. Pomeranz, Monsey, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 28, 1970, Ser. No. 75,994

Int. Cl. H03k 17/00

U.S. Cl. 307—246

8 Claims

This specification discloses a bipolar driver which will charge a capacitive load to substantially the potential supplied to the driver. The driver includes two transistors that couple the load to a source of potential. One transistor is connected in shunt with the load while the other transistor is connected in series with the load and the source of potential. The shunt-connected transistor is used to discharge the capacitive load while the serially connected transistor is used to charge the capacitive load with charge from the source of potential. To allow the capacitive load to be charged to the full potential of the source, the driver includes circuitry which decouples the base of the serially connected transistor from the source of potential and drives the transistor with

charge accumulated in the base-to-emitter junction of the transistor so that the serially connected transistor will not be



turned off until the potential across the capacitive load reaches the potential of the driving source.

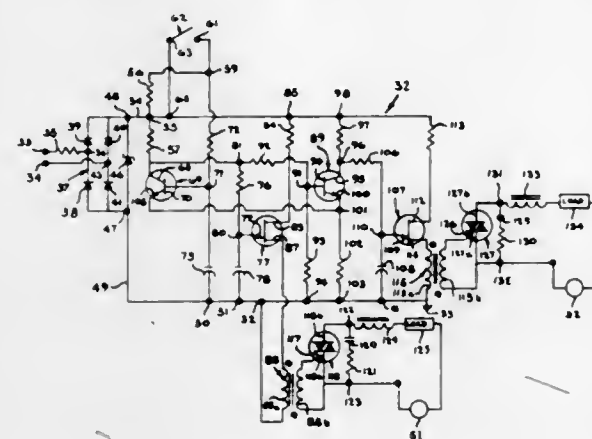
3,656,005

TWO CIRCUIT SOLID STATE LIMIT SWITCH (INO AND INC)

Art Lee, El Paso, Tex., assignor to General Electric Company
Filed July 15, 1970, Ser. No. 55,052

Int. Cl. H03k 3/295, 17/28; H01h 1/66
U.S. Cl. 307—247 A

20 Claims



A firing circuit, preferably for use in limit switches, consisting of two electrically isolated circuits which utilize solid state technology to provide the limit switch with the equivalent of a one normally open (INO) and one normally closed (INC) contact arrangement; the firing circuit consisting of a trigger arrangement comprising two transistors with common emitters and a connection made through a resistor between the collector of one transistor and the base of the other, a resistor and a capacitor being serially connected from the collector of each transistor to ground, the emitters from two unijunction transistors (UJT's) which form parts of two relaxation oscillators being connected to the intermediate point between the corresponding serially connected resistor and capacitor, the bases of the UJT's being connected to the primary windings of two pulse transformers thus providing two electrically isolated outputs for the firing of two isolated Triac circuits connected to the secondary windings of the pulse transformers, the trigger arrangement and the relaxation oscillators being connected across the output of a Zener regulated diode bridge rectifier to which an input voltage is applied, and an actuating switch being provided to control application of voltage to the base of one of the transistors to thereby control its conduction.

3,656,006

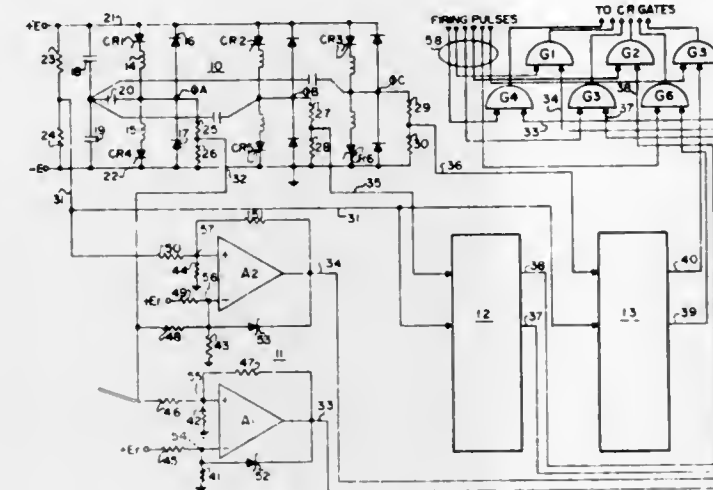
TOLERABLE VOLTAGE CONTROL CIRCUIT

Robert F. Bourke, Oconomowoc, and Jon W. Simons, Cudahy, both of Wis., assignors to The Louis Allis Company
Filed Jan. 16, 1970, Ser. No. 3,368

Int. Cl. H03k 17/00

U.S. Cl. 307—252 M

4 Claims



With capacitive commutation, the controlled rectifiers of an inverter can be subjected to large voltages at the time of firing. To inhibit firing until the voltage across each controlled rectifier has decreased to safe levels, the present invention employs a switchable amplifier for each controlled rectifier which is responsive to the voltage across the controlled rectifier. The amplifier has two thresholds for switching from a firing-inhibit state to a permit-to-fire state. One threshold, established by a reference voltage and resistor divider, is set to the maximum tolerable voltage for the controlled rectifier. The second threshold permits lower level firing and because it is established by the positive amplifier feedback, this threshold is removed when the amplifier switches. Thus, the amplifier contains switching hysteresis enabling firing of the controlled rectifier at a low voltage, but insuring that if the voltage across the controlled rectifier rises above the low threshold it can still be fired within the maximum tolerable level.

3,656,007

VOLTAGE DEPENDENT PHASE SWITCH

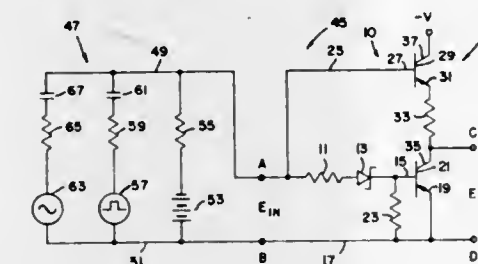
Raymond P. Murray, 28 Sierra Vista Drive, Monterey, Calif.

Filed Sept. 25, 1970, Ser. No. 75,522

Int. Cl. H03k 1/12

U.S. Cl. 307—262

5 Claims



A voltage dependent phase switch comprising a pair of transistors and a zener diode. An input signal is connected in series through the zener diode to drive the base of one of the transistors. The input signal is also connected to the base drive of an emitter follower transistor. When the input signal is negative and less in magnitude than the breakdown voltage of the zener diode then the emitter follower transistor is driven and an output signal is provided therefrom that increases linearly with increase in the input signal. However, when the input signal is negative and greater in magnitude

than zener diode breakdown voltage then the transistor that is connected to the zener diode is driven and the voltage output decreases linearly with the increasing negative input voltage thereby providing a voltage dependent phase switch. In another embodiment of the invention an input signal circuit is provided which includes a DC source, a pulse generator and a sinusoidal signal generator wherein the currents are additive and provide a switching function in conjunction with the voltage dependent phase switch where the output sinusoidal signal is in-phase or 180° out of phase with the sinusoidal signal generator signal depending upon the state of the pulse generator.

3,656,008

GATE CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENTS

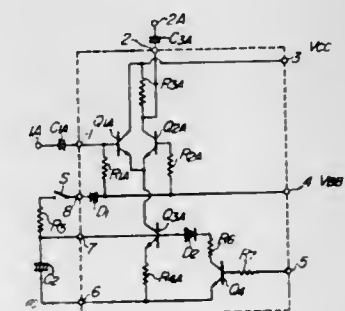
Yoshiyuki Nakagomi, Kodaira-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 26, 1970, Ser. No. 5,851

Claims priority, application Japan, Feb. 5, 1969, 44/8148
Int. Cl. G10h 5/12

U.S. Cl. 307—268

6 Claims



A sustaining gate circuit for musical instruments comprising a differential amplifier stage including a pair of transistors the emitters of which are connected in common and a constant current transistor connected to said commonly connected emitters, a key switch for applying the gating signal to the base of said constant current transistor, and a time-delay circuit connected in the base circuit of said constant current transistor for obtaining sustaining effect in fade-out of the output.

3,656,009

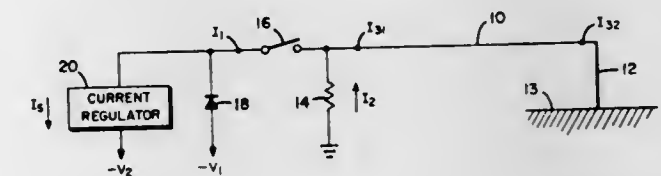
NON-LINEAR TRANSMISSION LINE CURRENT DRIVER
Chung-Ho Chen, Plymouth Meeting, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Sept. 4, 1970, Ser. No. 69,836

Int. Cl. H03k 5/00

U.S. Cl. 307—268

10 Claims



There is disclosed herein an arrangement for developing a fast rise time current pulse in a transmission line. The pulse is produced in the line in steps until the final value of current is reached. By developing the drive current in incremental steps undesirable overshoot is eliminated.

3,656,010

TRANSISTORIZED MASTER SLAVE FLIP-FLOP CIRCUIT

Bernardus Johannes Maria Huyben, Hertogenbosch; Evert Jan van Barneveld, and Louwrens Marinus Van de Steen, both of Nijmegen, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

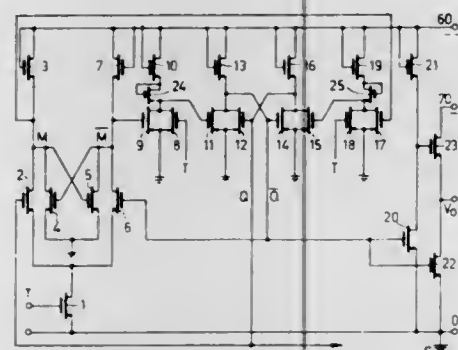
Filed Dec. 9, 1969, Ser. No. 883,419

Claims priority, application Netherlands, Dec. 10, 1968, 6817658; Oct. 5, 1969, 6914950

Int. Cl. H03k 5/00, 3/26

U.S. Cl. 307—279

7 Claims



A master slave flip-flop having lower dissipation and for a reduced number of cross-overs by the use of inverse logic, with a correct choice of the length width ratios of the channels of the field-effect transistors in order to prevent untimely changes of state are prevented.

3,656,011

CHARGE COUPLED DEVICE

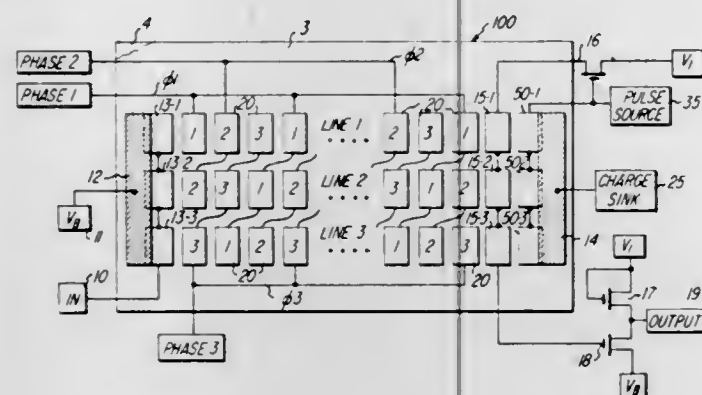
Zeev Abraham Weinberg, Princeton, N.J., assignor to RCA Corporation

Filed Feb. 2, 1971, Ser. No. 111,876

Int. Cl. H011 1/14

U.S. Cl. 307—304

8 Claims



A shift register using charge coupled device techniques wherein three-phase operation is converted to one-phase operation to provide faster operation thereof.

3,656,012

METHOD OF GENERATING UNIPOLAR AND BIPOLAR PULSES

Norman E. Dixon, Pasco, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission

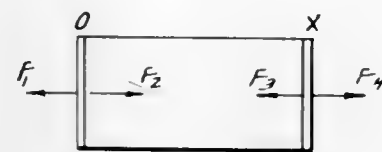
Filed Feb. 2, 1971, Ser. No. 111,957

Int. Cl. H01v 7/00

U.S. Cl. 310—8.1

The method for generating bipolar and unipolar mechani-

cal pulses is described. The unipolar pulses can be in a form



of a single unipolar pulse or pairs of unipolar pulses of opposite polarity.

3,656,013

APPARATUS FOR GENERATING MOTIONAL ELECTRIC FIELD

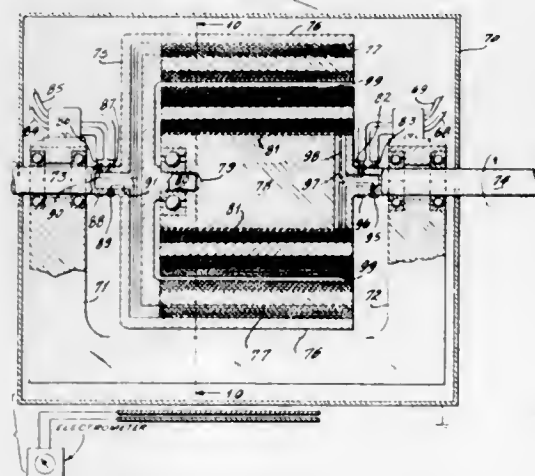
William J. Hooper, Cuyahoga Falls, Ohio, assignor to Electrodynamic Gravity, Inc., County of Sarasota, Fla.

Filed Apr. 19, 1968, Ser. No. 722,587

Int. Cl. H02k 1/00

U.S. Cl. 310—10

6 Claims



Apparatus for producing and demonstrating properties of motional electric fields by means of rotating magnetic flux produced by a plurality of magnets extending parallel with the axis of rotation, said flux of these magnets being put into rotation about a common axis by mechanical or by electro magnetic means.

3,656,014

DAMPING APPARATUS FOR A LINEAR STEP MOTOR HAVING TWO TRANSLATIONAL DEGREES OF FREEDOM

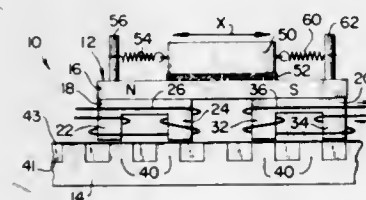
Leonard G. Rich, West Hartford, Conn., assignor to The Gerber Scientific Instrument Company, South Windsor, Conn.

Filed Apr. 8, 1971, Ser. No. 132,344

Int. Cl. H02k 41/02

U.S. Cl. 310—13

6 Claims



A viscoelastic damping apparatus is mounted to a structure which is moved by at least two linear step motor armatures in a step-by-step manner simultaneously or sequentially in each of two coordinate directions. The step motor armatures each include electromagnetic motor poles which are excited in a

3,656,017

ELECTRIC SYNCHRONOUS MACHINE HAVING A COMB-SHAPED POLE TYPE ROTOR

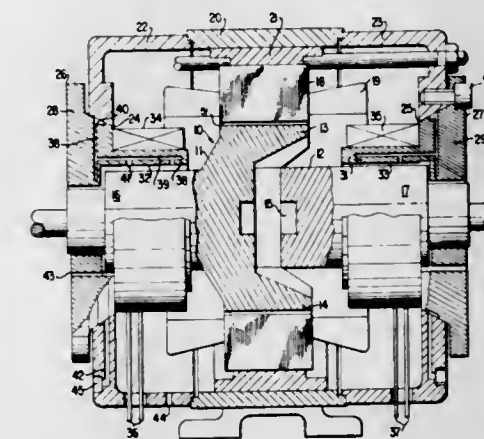
Junpei Inagaki, and Hitoshi Marumo, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Sept. 1, 1970, Ser. No. 68,730

Claims priority, application Japan, Sept. 1, 1969, 44/68952

Int. Cl. H02k 5/16

6 Claims



phased sequence to produce movements of the structure in the two coordinate directions. The damping apparatus is composed of inertial mass and a viscoelastic member which connects the mass to the structure to resiliently damp the stepping movements of the structure.

3,656,015

COMBINED LINEAR MOTOR AND CARRIAGE

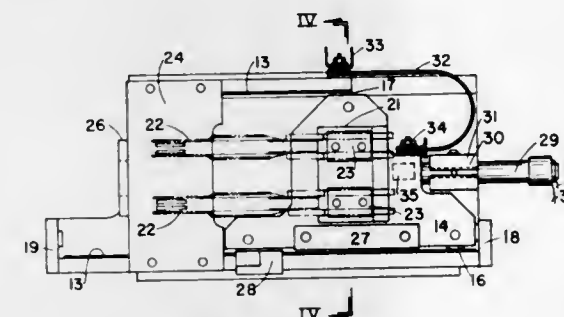
Donald E. Gillum, Goleta, Calif., assignor to Information Magnetics Corporation, Goleta, Calif.

Filed May 4, 1971, Ser. No. 140,032

Int. Cl. H02k 41/02

U.S. Cl. 310—13

5 Claims



A linear electric motor has a carriage mounted on the side of the motor for motion parallel to the armature axis and the side of the motor is slotted to accommodate a mechanical connection so that the carriage supports the armature. Torque on the carriage is minimized by axially slicing away an axially parallel part of the normally round motor to locate the carriage ways as close to the motor armature axis as is commercially practicable. The load and the servo feedback transducers are mounted on the carriage at the node point of deflection of the carriage caused by armature torque.

3,656,016

SUBFRAME FOR POWER TOOL HAVING DOUBLE INSULATED BRUSH HOLDERS

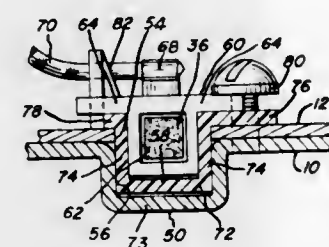
Anthony Jacyno, Aurora, and Harold R. Botefuhr, Bensenville, both of Ill., assignors to G. W. Murphy Industries Inc., Portable Electric Tools Division, Houston, Tex.

Filed Oct. 6, 1970, Ser. No. 78,431

Int. Cl. H02k 5/14

U.S. Cl. 310—50

6 Claims



A subframe for a power tool comprised of first and second frame members secured together in contiguous engagement throughout a substantial portion of their peripheries. The frame members include complementary cut outs defining a motor receiving opening. A pair of brush receiving spaces are defined by a pair of stuck out portions on opposite sides of the motor receiving opening in one of the frame members together with an opposed notch in the other of the frame members. Each of the brush receiving spaces is adapted to receive one or more insulating inserts for holding brushes.

3,656,018

BRUSH HOLDER ASSEMBLY

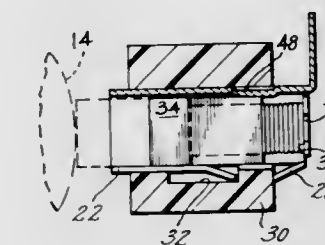
William M. Maher, Churchville, N.Y., assignor to General Electric Company

Filed Nov. 25, 1970, Ser. No. 92,586

Int. Cl. H01r 39/38

U.S. Cl. 310—242

10 Claims



The invention disclosed is a brush holder assembly for use in electric motors. It may be of any general shape and is characterized by suitable structure that provides an interference fit between the brush and its holder whereby the spring-biased brush is wedged in the holder as a preassembly and is then easily released by a slight pressure to permit the brush to smoothly reciprocate in the brush holder against the commutator.

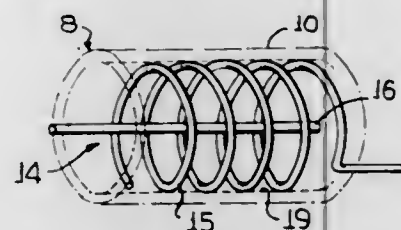
3,656,019

HYDROGEN-FILLED GAS DETECTOR HAVING CATHODE HELIX SUPPORTED BY ENVELOPE WALL
Richard W. Stowe, Falls Church, Va., assignor to Melpar, Inc., Falls Church, Va.

Filed Aug. 11, 1967, Ser. No. 660,046
Int. Cl. H01j 17/06, 17/20, 39/28

U.S. Cl. 313-217

1 Claim



An ultraviolet detector in which the electrode configuration is non-symmetrical in that one electrode operates permanently as the emitter and the other as the collector, at least one of the electrodes supported by the inner surface of the tube envelope and offering an expansive wide angle field of view for incoming ultraviolet radiation. The electrodes are DC biased to provide a high voltage difference therebetween, i.e., between cathode, or emitter, and anode or collector, the former responsive to each photon of ultraviolet energy incident from within the wide angle.

3,656,020

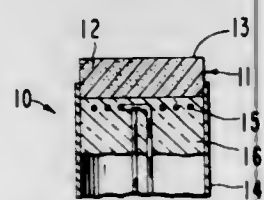
THERMIONIC CATHODE COMPRISING MIXTURE OF BARIUM OXIDE, CALCIUM OXIDE AND LITHIUM OXIDE

Leo J. Cronin, Watsonville, Calif., assignor to Spectra-Mat, Inc., Watsonville, Calif.

Filed Nov. 18, 1970, Ser. No. 90,764
Int. Cl. H01j 1/14

U.S. Cl. 313-346 DC

7 Claims



A cathode is disclosed utilizing an emission material of barium oxide, calcium oxide and lithium oxide.

3,656,021

CORONA DISCHARGE DEVICE

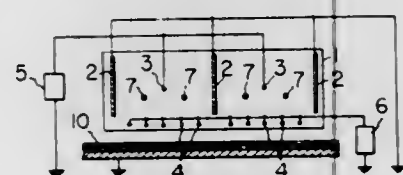
Masayoshi Furuichi, Tokyo; Seichi Miyakawa, Chiba, and Nobuchika Masuda, Tokyo, all of Japan, assignors to Katsuragawa Denki Kabushiki Kaisha, Ota-ku, Tokyo-to, Japan

Filed Jan. 28, 1971, Ser. No. 110,697
Claims priority, application Japan, Jan. 29, 1970, 45/7856

Int. Cl. G03g 15/02; H01t 19/00

U.S. Cl. 317-4

7 Claims



In a corona discharge device wherein corona discharge is established between a fine corona discharge electrode and a counter electrode, a vibration suppression member is positioned between the corona discharge electrode and the

counter electrode for preventing transverse vibration of the corona discharge electrode by electrostatic force.

3,656,022

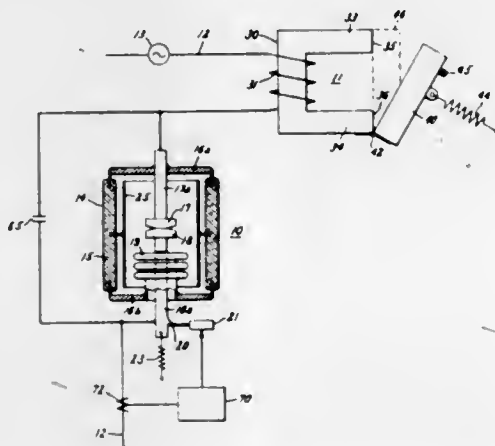
ALTERNATING CURRENT CIRCUIT BREAKER COMPRISING A SERIES REACTOR FOR SHAPING CURRENT AND VOLTAGE WAVES NEAR CURRENT ZERO

Allan N. Greenwood, Media, Pa., assignor to General Electric Company

Filed Mar. 30, 1971, Ser. No. 129,391
Int. Cl. H02h 7/22, 3/08

U.S. Cl. 317-11 C

5 Claims



Discloses an a-c circuit breaker comprising the series combination of a reactor and a circuit interrupter that opens in response to overcurrents. The reactor saturates during a severe overcurrent and then comes out of saturation just prior to current zero to force the arcing current to decay at a much lower rate during this latter period than during the immediately preceding period. The reactor is prevented from saturating during normal currents by an air gap in its core which is bridged in response to an overcurrent by a magnetizable armature.

3,656,023

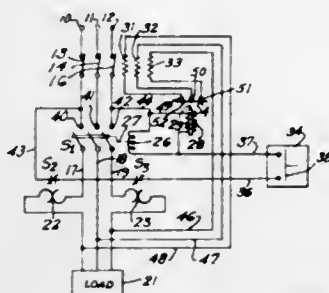
PROTECTIVE CIRCUIT

Joseph M. Hadfield, 5725 North Melvin Avenue, Chicago, Ill.

Filed Sept. 21, 1970, Ser. No. 73,718
Int. Cl. H02h 7/085

U.S. Cl. 317-13 R

6 Claims



A protective circuit for a load such as an unattended electric motor which operates in response to a control circuit. A heater control circuit is controlled by the control circuit such that power is not applied to the heaters when the control circuit demands that the load be energized. In the event that the main power contacts weld or stick and do not release when the control turns off, contacts to the heaters are closed so that the heaters open bimetallic heat responsive switches in the main power lines.

A modification of the invention is provided for loads of very high power requirements and include large oil switches or air break circuit breakers which are energized if the main power contacts fail to open.

3,656,024

TRANSIENT PROTECTION FOR ELECTRICAL IRRIGATION CONTROL SYSTEMS

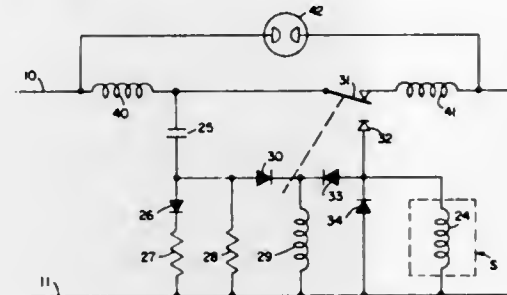
Wayne Edward Davis, Bricktown, N.J., assignor to Johns-Manville Irrigation Corporation, New York, N.Y.

Filed Mar. 19, 1971, Ser. No. 126,220

Int. Cl. H02h 9/04

U.S. Cl. 317-20

7 Claims



Current induced in an electrical irrigation control system by lightning, for example, is delayed and discharged around the relay contacts and solid state components of the individual sprinkler control units by high current capacity, quick-acting bi-directional gas diodes.

3,656,025

CURRENT LIMITER

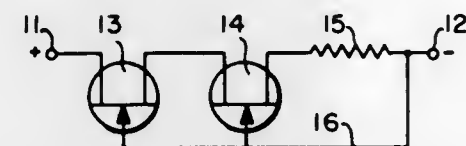
Denes Roveti, 15 Lincoln Park Center, Annapolis, Md.

Filed May 4, 1971, Ser. No. 140,048

Int. Cl. H03k 5/08

U.S. Cl. 317-20

10 Claims



This invention relates to current limiters particularly for medical equipment. The current limiter of this invention is adapted to be inserted directly into the line which connects a patient to an electronic device. It comprises a pair of field effect transistors connected in series with a biasing resistor. One of the transistors has a lower cut-off potential than the other, and the one with the higher cut-off point also has substantially higher resistance and breakdown strength.

3,656,026

SOLID STATE OVERCURRENT DEVICE WITH VARIABLE FREQUENCY REFERENCE

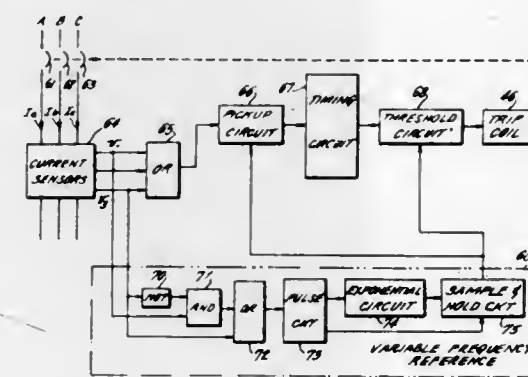
Stanley E. Zocholl, Holland, Pa., assignor to I-T-E Imperial Corporation, Philadelphia, Pa.

Filed Mar. 12, 1971, Ser. No. 123,771

Int. Cl. H02h 3/08

U.S. Cl. 317-36 TD

9 Claims



A solid state overcurrent relay is operated from saturating current transformers which generate output voltages which

are responsive to the current in a system being monitored. A pickup circuit is operated when the monitored current exceeds a given value and initiates a timing operation by charging an RC circuit. As the voltage of the RC circuit reaches a given value as compared to a reference voltage circuit, a semiconductor switch is operated, thereby to initiate a control operation. Both the pickup level and the output voltage of the timing circuit are compared to reference voltages. The reference voltage is varied in accordance with the frequency of the output sensors so that pickup and timing become relatively independent of frequency variations in the circuit being monitored.

3,656,027

ELECTRICAL CAPACITOR HAVING ELECTRICALLY-CONDUCTIVE, IMPERVIOUS CONNECTOR

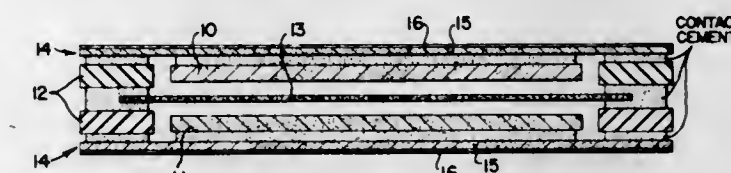
Ralph E. Isley, Northfield, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

Filed Dec. 28, 1970, Ser. No. 101,912

Int. Cl. H01g 9/00

U.S. Cl. 317-230

10 Claims



An inter-cell, electron-conducting, ion-insulating connector for use in an electrical capacitor comprising a substrate of metal sheet or graphite which is laminated on at least one side with an elastomer containing electrically conductive carbon black in sufficient amounts to render the elastomer conducting.

3,656,028

CONSTRUCTION OF MONOLITHIC CHIP AND METHOD OF DISTRIBUTING POWER THEREIN FOR INDIVIDUAL ELECTRONIC DEVICES CONSTRUCTED THEREON

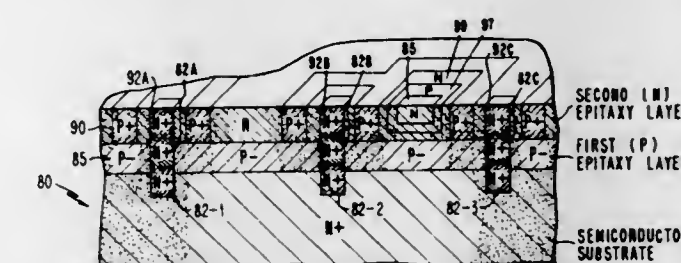
Jack L. Langdon, Wappingers Falls, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 12, 1969, Ser. No. 823,662

Int. Cl. H01l 19/00

U.S. Cl. 317-235 R

7 Claims



To eliminate parasitic voltage drops to electrodes of semiconductor devices built on a semiconductor chip or wafer, due to the use of an element of a voltage and current supply conductor in common for several such semiconductor devices, a separate path is diffused for each electrode, onto such chip or wafer as a built-up post of the basic semiconductor material of the chip or wafer, and the back surface of the chip or wafer is used as a relatively wide area surface as a voltage supply bus, which may also be connected to a metal base for the double purpose of establishing that surface at some selected known potential and providing a good heat sink for the chip or wafer. Generally, the potential of the metal base may be placed at ground, but need not be.

3,656,029

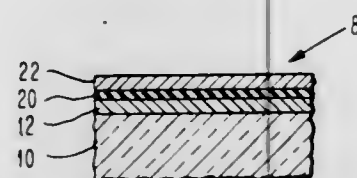
BISTABLE RESISTOR OF EUROPIUM OXIDE, EUROPIUM SULFIDE, OR EUROPIUM SELENIUM DOPED WITH THREE D TRANSITION OR VA ELEMENT
Kie Y. Ahn, Bedford, and Kyu C. Park, Yorktown Heights, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1970, Ser. No. 103,224

Int. Cl. H011 3/16, 3/22

U.S. Cl. 317—234 R

15 Claims



This disclosure provides a bistable resistor and materials therefor. The bistable resistor has base electrode, intermediate layer and counter electrode. Illustratively, intermediate layer includes a rare earth chalcogenide, e.g., EuO or EuS, doped with a percentage by weight of either a group VA element, e.g., Bi, or a first row transition element, e.g., Cr. Further, the practice of the invention includes having the host intermediate layer comprised of a combination of a plurality of different rare earth chalcogenides, and having a dopant configuration which includes a combination of a plurality of the individually suitable dopants.

3,656,030

SEMICONDUCTOR DEVICE WITH PLURALITY OF SMALL AREA CONTACTS

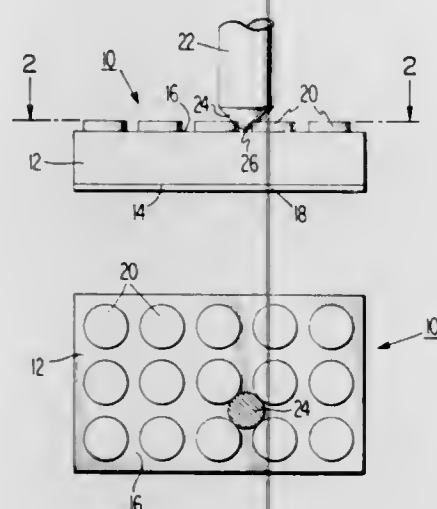
Louis Sebastian Napoli, Hamilton, and John Joseph Hughes, Spotswood, both of N.J., assignors to RCA Corporation

Filed Sept. 11, 1970, Ser. No. 71,599

Int. Cl. H011 3/00, 5/00

U.S. Cl. 317—234 R

6 Claims



A semiconductor body has an array of small metal film pads thereon. The pads are of uniform size and shape and are arranged with adjacent pads being uniformly spaced from each other. A metal terminal wire has a rounded end which fits between and contacts a plurality of the pads but is spaced from the surface of the semiconductor body so that the electrical connection between the terminal wire and the semiconductor body is through the pads.

3,656,031

LOW NOISE FIELD EFFECT TRANSISTOR WITH CHANNEL HAVING SUBSURFACE PORTION OF HIGH CONDUCTIVITY

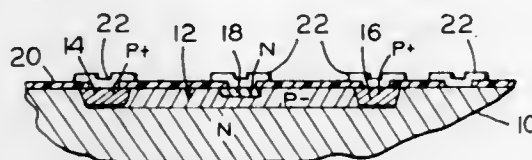
Heber J. Bresee, San Jose, Calif., and James L. Bowman, Portland, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Dec. 14, 1970, Ser. No. 97,730

Int. Cl. H011 1/14

U.S. Cl. 317—235

10 Claims



A PN junction gated field effect transistor is described in which the channel region is provided with a subsurface portion of higher conductivity than the outer surface of such channel at an intermediate position between the outer surface and the bottom of the channel in order to reduce the noise caused by surface recombination of current carriers and other surface effects, to about one-tenth its previous noise level. This subsurface portion of high conductivity is preferably formed by providing an oxide layer which, during diffusion of the channel, gathers the doping impurity from the surface of the channel to reduce the conductivity of such surface. A further method is to diffuse compensating impurities into the channel which invert the channel surface to an intrinsic material while leaving a subsurface portion of high conductivity.

3,656,032

CONTROLLABLE SEMICONDUCTOR SWITCH

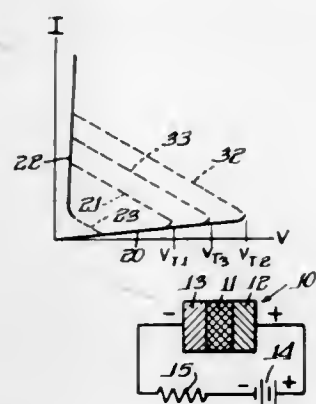
Heinz K. Henisch, State College, Pa., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Sept. 22, 1969, Ser. No. 859,630

Int. Cl. H011 15/00, 15/02, 15/06

U.S. Cl. 317—235 R

17 Claims



A controllable semiconductor switch comprises an anode, a cathode and a switchable amorphous semiconductor element interposed between the anode and cathode. The switchable amorphous semiconductor element has a high electrical resistance for substantially blocking current between the anode and cathode, and it, upon the application of a voltage above a threshold voltage value to the anode and cathode of the semiconductor switch, is capable of having at least portions thereof between the anode and cathode substantially instantaneously changed to a low electrical resistance for substantially conducting current between the anode and cathode. The anode or cathode or both may comprise a semiconductor which regulates the threshold voltage value of the semiconductor switch. Where the cathode or anode comprises a semiconductor and the other a metal, the semiconductor switch may be asymmetric in its operation, it having a higher threshold voltage value for one polarity of

the voltage applied to the anode or cathode than for the opposite polarity. By controlling the semiconductor anode and/or cathode the threshold voltage value of the semiconductor switch may be varied or regulated to desired values.

tions they form with the base are within much less than one diffusion length of the base-buried region PN junction. The emitter and collector are also within two minority carrier diffusion lengths of each other. A similar PNP embodiment is also disclosed.

3,656,033

ASSEMBLY COMPRISING AN ADJUSTABLE CAPACITOR AND A PRINTED CIRCUIT

Francois Nikles, Cornaux, and Henri T. Oguey, Peseux, both of Switzerland, assignors to Centre Electronique Horloger SA, Neuchatel, Switzerland

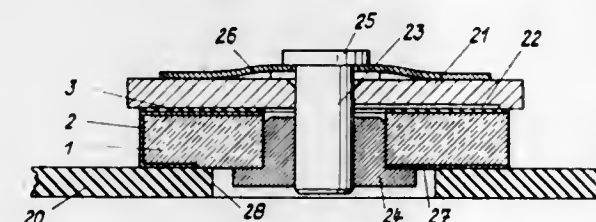
Filed Dec. 7, 1970, Ser. No. 95,634

Claims priority, application Switzerland, Dec. 17, 1969, 18730/69

Int. Cl. H01g 5/06

U.S. Cl. 317—249 D

7 Claims



A capacitor, fixed to a printed circuit, comprises a ceramic stator with a continuous metallic layer extending partially over two sides thereof. One side of this layer forms the first plate of the capacitor and the other side is connected to a first part of the printed circuit. A metallic rotor member having a recessed surface is applied by elastic means against a dielectric layer adjacent said one side of the stator. The rotor is mounted on a conducting axle extending through the stator and terminating with a conducting collar protruding from the other side of the stator but not contacting the metallic layer. A connector element, for example either a further conducting layer on the other side of the stator or a spring, connects the collar to a second part of the printed circuit.

In a capacitor in which the electrodes are in the form of elongated conductive sheets separated by elongated dielectric sheets and wound in a compact convolute or roll form with exposed electrodes at each roll edge, heat dissipation is augmented by a chill plate in contact with one of the exposed sheet electrodes at a roll edge and by a plurality of heat pipes connected to the chill plate.

3,656,036

DRIVE MECHANISM FOR AN ENVELOPE MACHINE

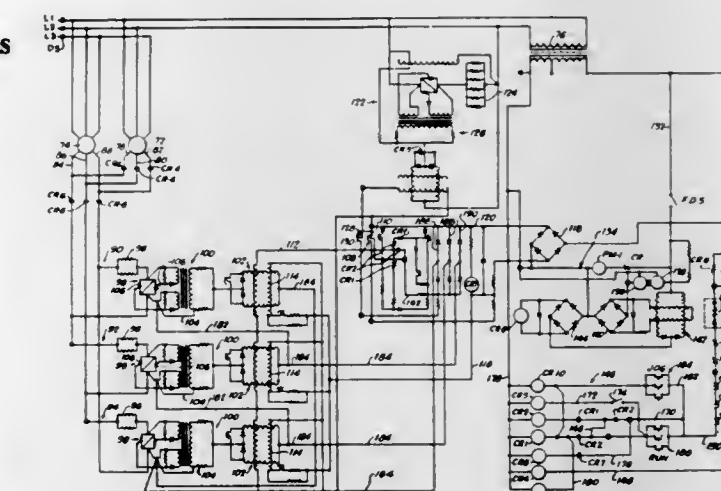
Herbert W. Helm, Hollidaysburg, and Edgar V. Weir, Butler, both of Pa., assignors to F. L. Smithe Machine Company, Inc., Duncansville, Pa.

Filed July 2, 1970, Ser. No. 51,764

Int. Cl. H02p 5/46

U.S. Cl. 318—41

11 Claims



3,656,034

INTEGRATED LATERAL TRANSISTOR HAVING INCREASED BETA AND BANDWIDTH

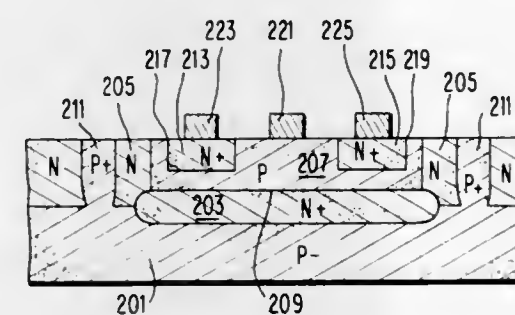
Arthur J. Rideout, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 20, 1970, Ser. No. 4,373

Int. Cl. H011 1/106

U.S. Cl. 317—235 R

4 Claims



An integrated lateral transistor which is easily made symmetrical. An NPN embodiment is constructed on a P- substrate which forms PN junctions with an adjacent N+ buried region and an N epitaxial region within which the N+ region is located. Integral with the substrate is a P+ isolation region which extends to the upper surface of the semiconductor to isolate the N epitaxial layer from adjacent devices. A base region is diffused into the epitaxial region to form a PN junction with the N+ buried region. N+ emitter and collector regions are diffused into the P type base region until the junc-

Drive for an envelope machine is provided by a pair of wound rotor motors. The motors are mounted adjacent opposite ends of an envelope machine and are drivingly connected to different components of the envelope machine. The motors are electrically connected to each other to drive all of the envelope machine components in proper timed relation to each other to form envelopes from envelope blanks. The wound rotor motors have their stators connected

in parallel and their rotors electrically connected to each other. A rotor circuit is provided and includes resistors and silicon controlled rectifiers. The silicon controlled rectifiers provide speed control for the motors by controlling the current flow through the resistors. A speed control circuit provides for stepless, smooth increase or decrease in the speed of the motors and of the envelope machine components driven thereby. The motors, because of the electrical connection of the rotors to each other, maintain the rotors in substantial alignment with little or no angular displacement between the rotors while the motors are running and driving the envelope machine components. A separate synchronization circuit is provided to rotate one of the rotors while the rotors are not connected to each other to position the rotors in substantial alignment. After the rotors are substantially aligned by the synchronization circuit, control relays are energized to close relay contacts and electrically connect the rotors to each other so that the rotors of the motors are first aligned with substantially no angular displacement therebetween. The speed of both motors may be changed by increasing or decreasing the amount of current flow through the resistors in the rotor circuit. Silicon controlled rectifiers in the rotor circuit control the amount of current flowing through the rotor circuit and the firing angle of the silicon controlled rectifiers is controlled by a separate speed control circuit. Safety circuits are provided to require the speed control circuit to be energized before the rotor circuit is closed. The resistors in the rotor circuit are positioned in the drier for the seal flap adhesive and provide a portion of the heat for the drier.

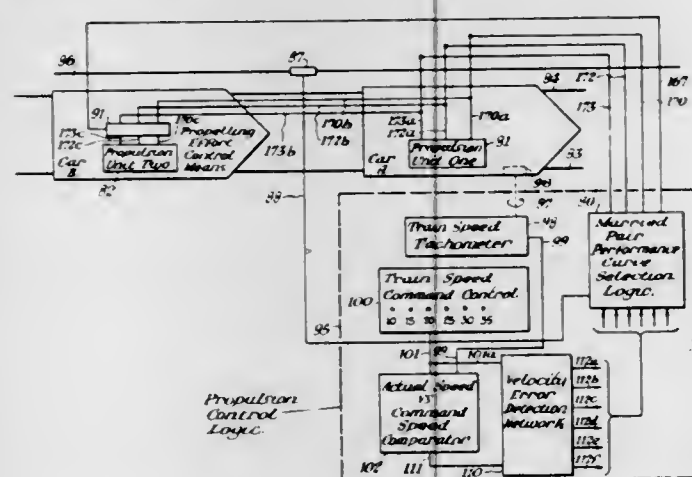
3,656,037

CAR PROPULSION SCHEME UTILIZING MARRIED PAIRS OF PROPULSION UNITS

George W. Donaldson, McKeesport, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.
Filed Mar. 23, 1970, Ser. No. 21,594
Int. Cl. H02p 7/68

U.S. Cl. 318—59

9 Claims



This invention relates to a single or multivehicle propulsion control system having at least one married pair of propulsion units.

The system is comprised of at least one married pair of propulsion units each having a plurality of selectable operating modes, one being a primary propulsion unit, while the other is a secondary propulsion unit. A propelling effort control device having a first and second state is operatively coupled to the secondary unit. A propulsion control logic unit is operatively coupled directly to the primary unit and indirectly to the secondary unit through the propelling effort control means. The propulsion units are controlled by the propulsion control logic unit and propelling effort control means to select a predetermined number of married pair operating modes, the selection of these modes closely approximating the propelling effort required to maintain a preselected vehicle speed relatively free from accelerating and decelerating effects.

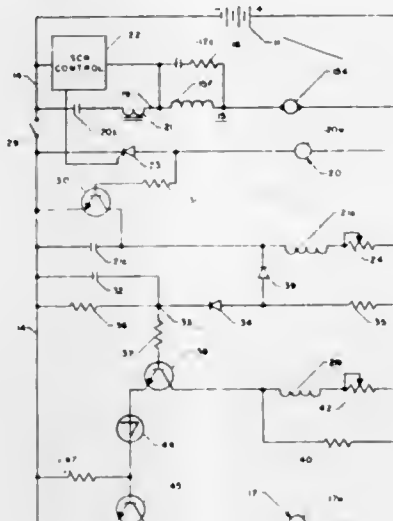
3,656,038 FIELD WEAKENING CIRCUIT FOR A SERIES FIELD MOTOR

Robert G. Ries, Milwaukee, and Robert C. Montross, Mequon, both of Wis., assignors to Square D Company, Park Ridge, Ill.

Filed Dec. 4, 1970, Ser. No. 95,047
Int. Cl. H02p 5/16

U.S. Cl. 318—139

13 Claims



In a control system for a direct current series motor, the contacts of a single throw reed relay are responsive to motor current through a winding in a motor supply conductor to selectively control the application of a motor field weakening shunt resistor by a switching circuit. The charging of a timing capacitor delays action of the switching circuit to prevent motor "hunting". The opening of the reed relay contacts under low motor load conditions permits charging of the capacitor and activating of the switching circuit to place the shunt resistor across the motor field for high speed operation. Under increased motor load, the reed relay contacts close and the capacitor discharges to time the removal of the shunt resistor from across the field. A by-pass transistor by-passes the reed relay contacts preventing activation of the switching circuit until the motor has reached its maximum unweakened field speed and the relay is provided with shunt windings to prevent "chattering" due to wavering motor current.

3,656,039

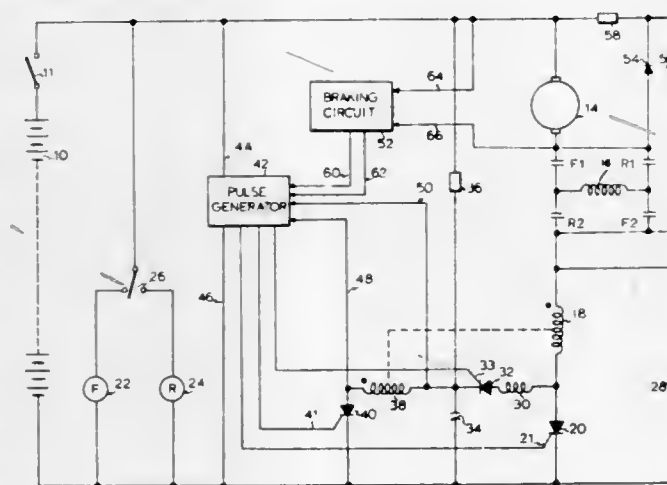
DIRECT CURRENT CONTROL CIRCUIT

Charles E. Konrad, Roanoke, Va., assignor to General Electric Company

Filed Sept. 21, 1970, Ser. No. 73,724
Int. Cl. H02p 29/02

U.S. Cl. 318—138

14 Claims



A control circuit for controlling the effective power to a load from a power source of substantially constant direct current voltage includes a first or main solid state switching

device for placing the load and the power source in series. Suitable circuitry including a commutating capacitor chargeable in a direction such that its discharge will terminate conduction of the main switching device further includes resistive means serving to maintain the capacitor in constant communication with the power source. Also provided is a means for providing dynamic braking of a direct current motor load through a resistive element such that the armature terminal voltage is adjusted linearly with the speed thereof.

3,656,040

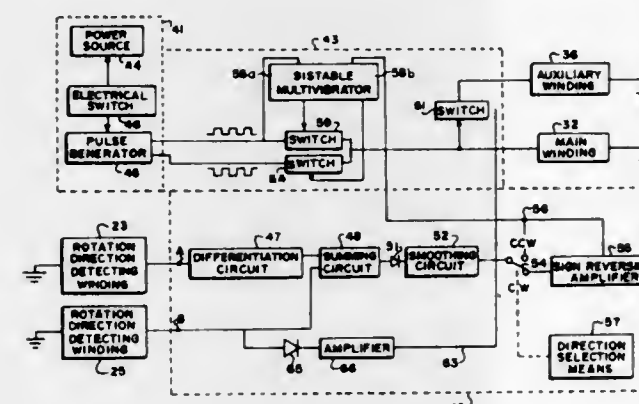
SELF-STARTING SINGLE PHASE MOTOR

Jlrair A. Babikyan, Providence, R.I., assignor to Sanders Associates, Inc., Nashua, N.H.

Original application July 2, 1968, Ser. No. 742,002, now Patent No. 3,569,753. Divided and this application Aug. 3, 1970, Ser. No. 67,668
Int. Cl. H02d 1/46

U.S. Cl. 318—168

11 Claims



A permanent magnetic motor is provided having main and angularly displaced auxiliary windings and means for detecting the direction of rotation of the motor's permanent pole rotor and for producing control signals to cause the motor to rotate in a desired direction. The structure for detaching the rotor rotational direction comprises two separate electrical windings which inductively coupled with the magnet piece of the rotor so that when the rotor rotates, voltages are induced in both of the windings, which voltages are compared to determine whether the rotor is moving in a clockwise or counterclockwise direction of rotation. If the desired direction of rotation is detected, then the input signal applied to the main winding is not altered. If the direction of rotation is opposite to the desired rotation, then a signal of opposite polarity is applied to the main windings. In the event no signal output is detected from the two electrical windings, indicating that the motor did not start, then a pulse of either polarity is applied to the auxiliary winding, such that it initiates rotation, and then direction is sensed and controlled, as above. Thus, the motor may be started and once started may be rotated in a selected direction of rotation.

3,656,041

APPARATUS FOR CONTROLLING THE FEEDING OF PAPER IN HIGH-SPEED PRINTERS

Giorgio Bonzano, Caluso, Italy, assignor to Honeywell Information Systems Italia S.p.A., Turin, Italy

Filed July 14, 1970, Ser. No. 54,815

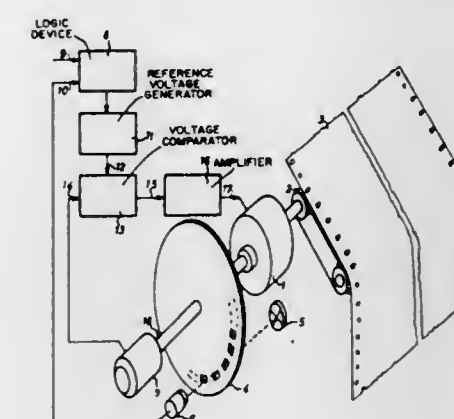
Claims priority, application Italy, July 17, 1969, 19733 A/69
Int. Cl. G05b 5/00; H02p 5/00; B41j 15/00

U.S. Cl. 318—318

4 Claims

Apparatus for controlling the paper feeding in printing apparatus, wherein the feed motor speed is controlled by the combined effect of a speed-space detector whose output is speed-proportional voltage and said pulses are compared

with a predetermined pulse number, and wherein the results of said comparison are employed in combination to provide a



3,656,042

AUTOMATIC COMBINATION WINDSHIELD WIPER-WASHER

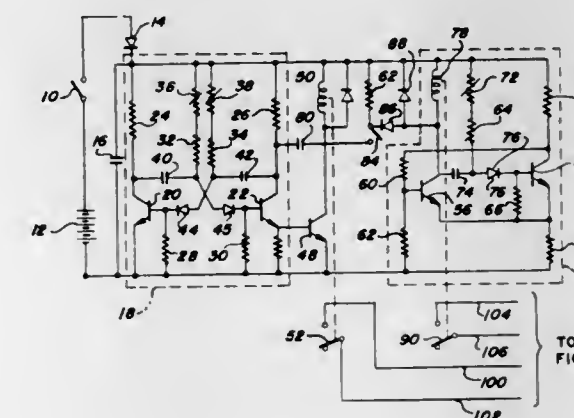
Murakami Keisuke, Tokyo, Japan, assignor to John Y. Sugihara, Streamwood, Ill.

Filed Apr. 14, 1971, Ser. No. 133,871

Int. Cl. B60s 1/46

U.S. Cl. 318—444

8 Claims



In a motor vehicle, a circuit for selectively and automatically controlling the operation of the vehicle's windshield wipers and windshield washers including an astable multivibrator circuit which generates wiper control pulses, both the duration of which pulses and the interval therebetween being variable. Each wiper control pulse energizes a wiper control relay, the contacts of which, when closed, energize a wiper motor to initiate operation of the windshield wipers. Simultaneously with each wiper control pulse, the astable multivibrator also generates a pulse inverted with respect thereto. A monostable vibrator multivibrator is connected to receive the inverted pulse from the astable multivibrator through a selectively operable manual switch. The inverted pulses are differentiated, and the resulting impulses trigger the washer control monostable multivibrator which generates a washer control pulse in response to each impulse. A washer control relay is energized by each washer control pulse for the duration of each said washer control pulse to close associated contacts connected across a washer pump motor thereby energizing the windshield washer pump.

3,656,043

STEERING SYSTEM WITH AUTOMATIC INCREASE OF RATE TIME

Shin-ichi Kawada, Yokohama; Yoichi Hirokawa, Kamakura, and Isao Masuzawa, Tokyo, all of Japan, assignors to Kabushikikaisha Tokyo Keika Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan

Filed Feb. 2, 1970, Ser. No. 7,631

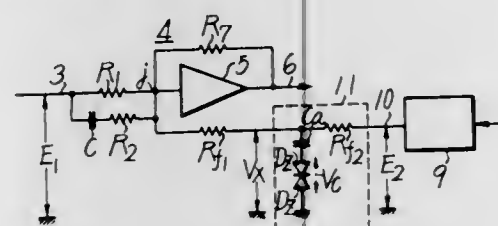
Claims priority, application Japan, Feb. 8, 1969, 44/9388;

44/9389

Int. Cl. G05b 11/14

U.S. Cl. 318—588

5 Claims



An automotive steering system including means for producing a commanded course change which is the difference between the preset course and a desired course and including an operational unit capable of accomplishing proportional and differential control and having rate feedback and in which a position feedback signal is applied to the input of the operational unit through a circuit which has a dead zone feature such that when the position feedback signal exceeds a predetermined level the time constant of the operational unit is changes so as to prevent over-shoot of the autopilot when making large corrections.

3,656,044

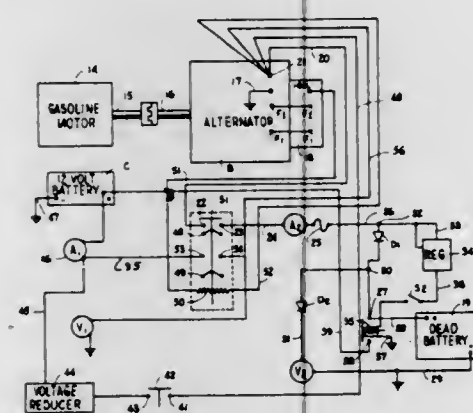
BATTERY CHARGING APPARATUS

Ansel A. King, Route 3, Pelzer, S.C.
Continuation-in-part of application Ser. No. 785,485, Dec. 20, 1968, now abandoned. This application Oct. 27, 1970, Ser. No. 84,269

Int. Cl. H02k 5/00

U.S. Cl. 320—2

2 Claims



A self-contained portable apparatus for charging dead batteries. The apparatus includes an alternator which is driven by a gasoline motor. A first circuit which includes cables extends from the alternator to the dead external battery. A charge initiating battery is mounted on the chassis, and is included in a second parallel circuit. The charge initiating battery energizes the alternator for causing such to begin charging the dead external battery. A third circuit is provided for regulating the voltage from said alternator so that the apparatus can be used to charge different potential batteries.

3,656,045

BATTERY PROTECTION CIRCUIT

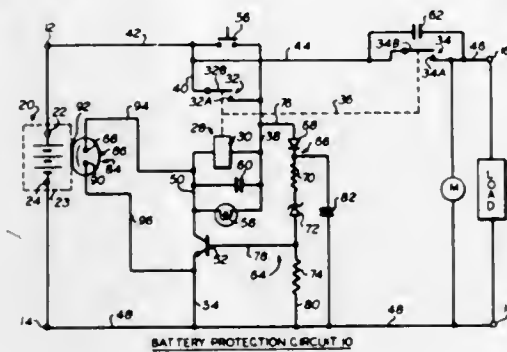
James Frezzolini, and James J. Crawford, both of Ringwood, N.J., assignors to Frezzolini Electronics Inc., Hawthorne, N.J.

Filed Apr. 16, 1971, Ser. No. 134,614

Int. Cl. H02I 3/20

U.S. Cl. 320—34

11 Claims



The circuit comprises a pair of input terminals adapted to be connected with a battery and a pair of output terminals adapted to be connected with a load. Switch means is provided which is operable between a first state to connect said pair of input and output terminals in a series loop and a second state wherein said switch means disconnects at least one input from one output terminal. Disconnect means is operable in response to the battery potential falling below a preselected value for operating the switch means to the second state. Disabling means is provided which is operable in response to the battery temperature falling below a predetermined temperature for disabling the disconnect means.

3,656,046

POWER CONVERSION SYSTEM

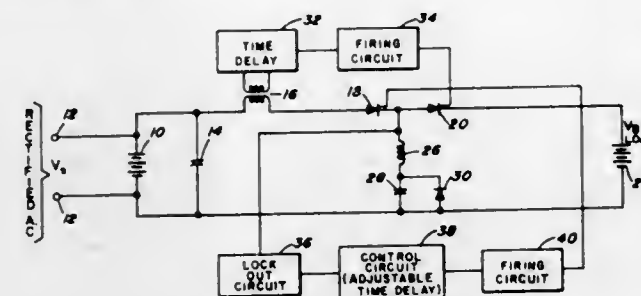
Harry G. Parke, Brooklyn, N.Y., assignor to Galbraith-Pilot Marine Corp., Brooklyn, N.Y.

Filed June 18, 1970, Ser. No. 47,314

Int. Cl. H01m 45/05; H02m 7/44

U.S. Cl. 320—59

9 Claims



A circuit for obtaining power from a source and delivering a lower D.C. voltage to a load. A first silicon controlled rectifier is fired to charge up a series resonant circuit to approximately twice the input voltage. When the capacitor is fully charged, a signal fires a second silicon controlled rectifier to discharge the capacitor into the load. When the potential on the capacitor and its associated inductance has been reduced to the proper point, the second rectifier cuts off to end the cycle.

3,656,047

MULTI-PHASE INVERTER USING ISOLATED DIRECT CURRENT SUPPLIED FOR FIRING THE SCRS

Raymond J. Yarema, La Grange Park, and George H. Studtmann, Mount Prospect, both of Ill., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Feb. 4, 1971, Ser. No. 112,527

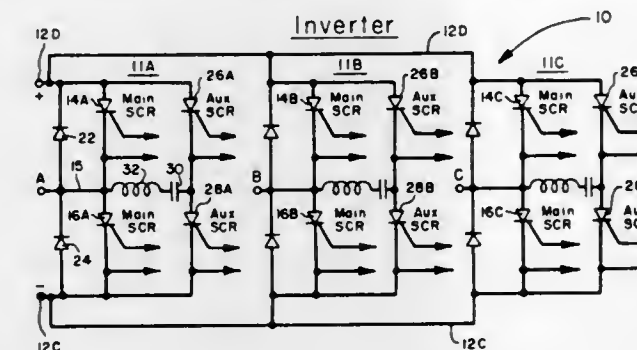
Int. Cl. H02m 7/52

U.S. Cl. 321—5

14 Claims

An impulse commutated, variable output frequency, multiphase inverter type of power switching system employing

main SCRs to handle the primary output currents and auxiliary SCRs to aid in commutating the main SCRs is disclosed wherein the firing of the SCRs is done by using isolated direct current supplies. Each SCR is fired by a separate driving circuit which includes individual isolated direct current supply and a switch unit to connect that supply directly to the gate-cathode circuit of the associated SCR. The control circuitry includes an oscillator whose output frequency is selectively variable, and a three-phase square-wave generator driven by the oscillator which produce two square-waves, one the inverse of the other, for each phase. Each of these six



outputs of the generator drives a pulse and a delay pulse circuit which respectively produce a first pulse and a delayed second pulse in response to each change of polarity of the particular square-wave input. These pulse and delay pulse are inductively coupled to different ones of the multivibrator circuits to turn on the switch unit and to "fire" an SCR in accordance with a predetermined sequence so as to generate a three-phase a.c. output from the inverter. This arrangement allows for short rise times and fast turn-off of the SCR gate drive and also allows the output frequency to be varied over a large range from d.c. to large values.

3,656,048

NON-LINEAR EXCITER CONTROLLER FOR POWER SYSTEM DAMPING

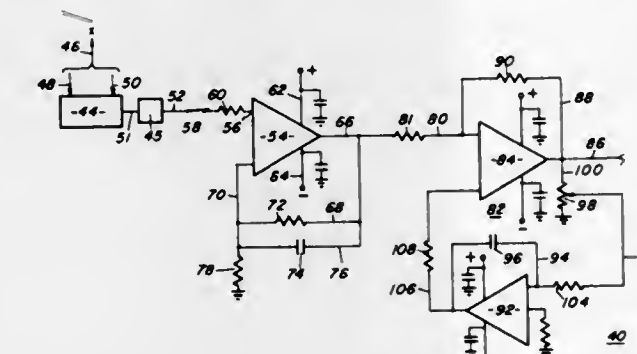
Adolf W. Hauf, Bonneville Power Administration, Lewiston, Idaho, assignor to The United States of America as represented by the Secretary of the Interior

Filed July 16, 1970, Ser. No. 55,541

Int. Cl. H02p 9/32

U.S. Cl. 322—19

4 Claims



Damping of power system oscillations is accomplished by additionally directing exciter-voltage regulation for individual system generators in accordance with variations in the derivative of reactive power generated by a generator. Signal voltage proportional to reactive power in generator output is differentiated to develop a signal voltage representing rate of change of reactive power variations which is applicable as an auxiliary input for determining operational control of exciter-voltage regulation of the generator. Control for suppressing system oscillations is continuous as long as generator bus voltage does not exceed pre-set upper and lower voltage limits.

3,656,049

VOLTAGE REGULATING DEVICE FOR GENERATORS
Kenji Hazumi, Tokyo, Japan, assignor to Sawafuji Electric Co., Ltd., Tokyo, Japan

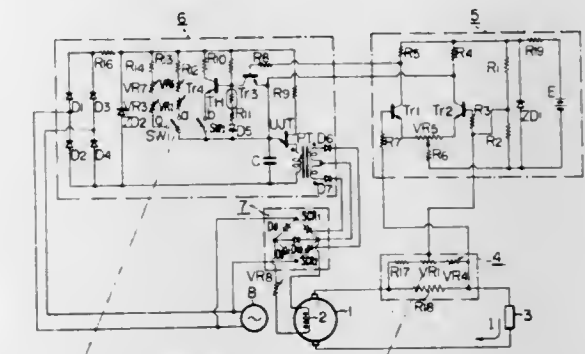
Filed Dec. 10, 1969, Ser. No. 883,829

Claims priority, application Japan, Dec. 26, 1968, 43/96169

Int. Cl. H02r 9/26

U.S. Cl. 322—27

5 Claims



A voltage regulating device for generators comprising a circuit for detecting the current through a load of a generator; an amplifier circuit for amplifying the output voltage of said load current detecting circuit and a phase control circuit which is driven by the output of said amplifier circuit for controlling the conduction starting phase of the exciting current of the generator in response to the characteristic of the load so as to control the output voltage of said generator and SCR-diode bridge circuit. The output pulses from said phase control circuit lag behind when the load current is high while the output pulses advance when the load current is low, so that the generator may have the characteristic that its output voltage may be dropped at a very steep slope when the load current is increased.

3,656,050

TRANSISTORIZED VOLTAGE REGULATOR CIRCUIT

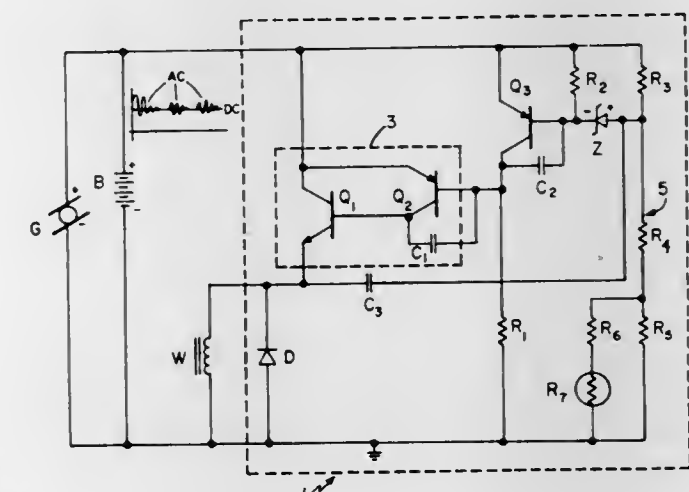
John M. Alrey, Winchester, Mass., assignor to GTE Laboratories Incorporated

Filed May 25, 1970, Ser. No. 40,157

Int. Cl. H02p 9/30

U.S. Cl. 322—28

14 Claims



A transistorized voltage regulator circuit employing regenerative feedback for controlling current flow through the field winding of a dc generator or alternator such as commonly employed in conjunction with a storage battery in automotive vehicles. When the voltage across the terminals of the storage battery, comprising both a dc voltage portion and a superimposed periodic ac voltage portion, has a value less

than a predetermined regulation value, current is provided to the field winding by means of a complementary pair of output transistors including a low-cost npn output power transistor connected in series with field winding and a pnp output transistor interconnected with the npn output power transistor so as to provide maximum current flow to the field winding.

When the voltage across the terminals of the storage battery reaches a value which equals or exceeds the predetermined regulation value, a control circuit including a pnp control transistor and a resistive voltage-divider-Zener breakdown diode arrangement operates to cause the output transistors to switch to their non-conducting states thereby terminating current flow to the field winding. To insure rapid and abrupt switching of the output transistors from their conducting states to their non-conducting states, and vice versa, thereby to prevent excessive power dissipation in the output transistors, a regenerative feedback circuit is provided between the output circuit of the npn output power transistor and the input of the Zener diode to couple regenerative (positive) feedback to the input of the Zener diode.

3,656,051

FAST RESPONSE FEEDBACK CONTROLLED GENERATOR

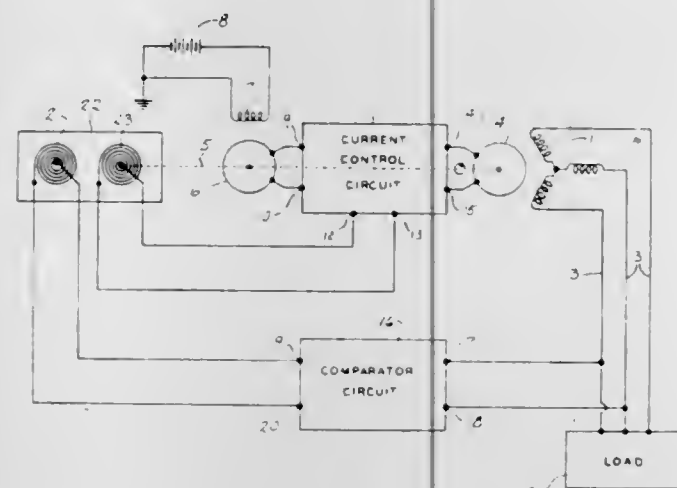
Aloysius W. Pratt, New Carlisle, Ohio, assignor to Kohler Co., Kohler, Wis.

Filed July 20, 1970, Ser. No. 59,775

Int. Cl. H02p 9/30

U.S. Cl. 322-28

11 Claims



A power unit comprised of an alternator and exciter operating together to generate a controlled a-c voltage. The exciter armature and alternator field winding are rotated on a common shaft along with a current control circuit. The current control circuit contains four SCR's arranged in a full-wave bridge rectifier configuration. Their gates are controlled by a command signal and the SCR's conduct in pairs to alternately connect the exciter armature to the alternator field winding to directly control the magnitude of the alternator field current and to maintain the alternator output voltage at a predetermined level. A comparator circuit generates a train of pulses which constitute the command signal and control the firing of the SCR's. The timing, or phase relationship of these pulses is determined by the magnitude of the alternator output voltage. The command signal is conveyed from the stationary comparator circuit to the current control circuit by a transceiver comprised of a stationary primary winding and a rotating secondary winding, both wound concentric to the axis of shaft rotation.

3,656,052 APPARATUS FOR PROVIDING REGULATED VOLTAGE DURING BRIEF POWER INTERRUPTIONS

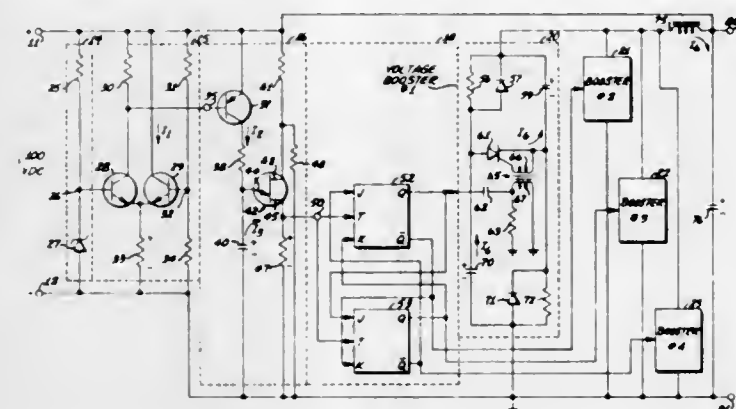
Luther L. Genuit, Scottsdale, and John R. Nowell, Phoenix, both of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 4, 1971, Ser. No. 103,625

Int. Cl. G05f 1/56, 1/62

U.S. Cl. 323-17

9 Claims



A plurality of voltage boosters connected to a D.C. power supply each stores a quantity of electrical charge while the power supply provides a regulated value of output voltage. When the output voltage of the supply decreases below a predetermined value the boosters are sequentially connected to the D.C. supply and return substantially all of the stored charges to the supply, so that the output voltage increases to the regulated value.

3,656,053

OSCILLOSCOPE READER AND CALIBRATION SYSTEM

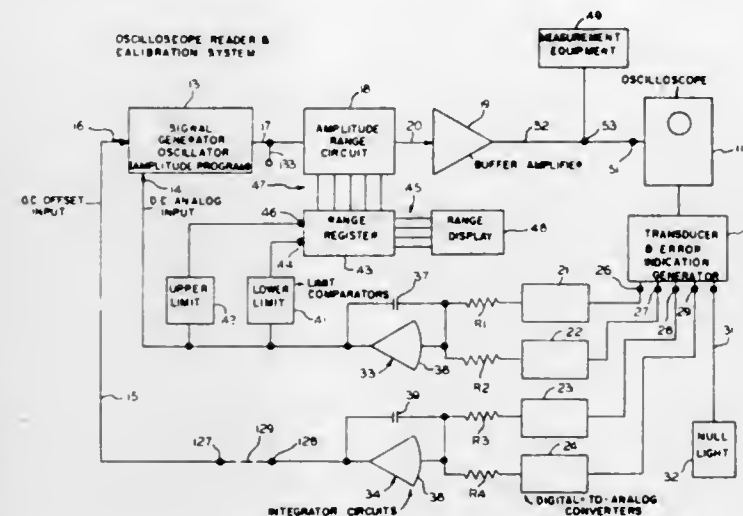
Peter Richman, Lexington, Mass., assignor to Teradyne Applied Systems, Inc., Chicago, Ill.

Filed Feb. 2, 1970, Ser. No. 7,659

Int. Cl. G01r 31/22, 13/20

U.S. Cl. 324-20

35 Claims



An oscilloscope reader and calibration system. The system comprises a closed loop including signal generator means for feeding variable signals into the oscilloscope. Light sensitive transducer means are arranged to detect the desired parameters of the oscilloscope displayed signal. Responsive thereto control signals are generated which vary the input signal to the generator and thus change the output signal from the generator. The output signal serves as the calibration input to the scope. When a null is obtained, no signal variation occurs. In the null condition the error in calibration is easily measured or utilized for corrective action even by unskilled personnel.

3,656,054 LEAKAGE FIELD FLAW DETECTOR WITH CURRENT ENERGIZATION WITH MEANS TO CONTROL CURRENT ENERGIZATION BY PROBE SCAN

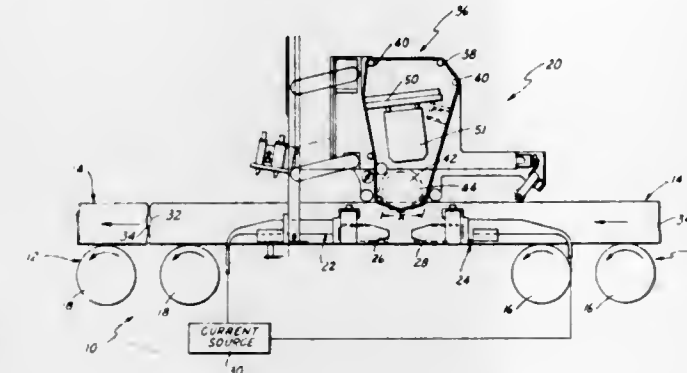
Friedrich M. O. Forster, Der Schoene Weg 144, 741 Reutlingen, Germany

Filed July 14, 1969, Ser. No. 848,388

Int. Cl. G01r 33/12

U.S. Cl. 324-37

5 Claims



A nondestructive testing apparatus and method are disclosed herein for testing objects by measuring the stray magnetic flux field adjacent the surface thereof. The workpiece is magnetized by means of a pulsed electric current circulating therethrough during a portion of the test interval whereby the magnetizing is accomplished with a minimum amount of power. The amount of magnetizing power required is further reduced by recording the stray fields on a magnetic medium such as a flexible tape and subsequently scanning the tape with a suitable magnetic pickup probe.

3,656,055

INTERFACE DETECTION APPARATUS HAVING A SIDE ARM DETECTOR WITH THREE ELECTRODES

Phillip Harvey Jilbert, Tadley, England, assignor to United Kingdom Atomic Energy Authority, London, England

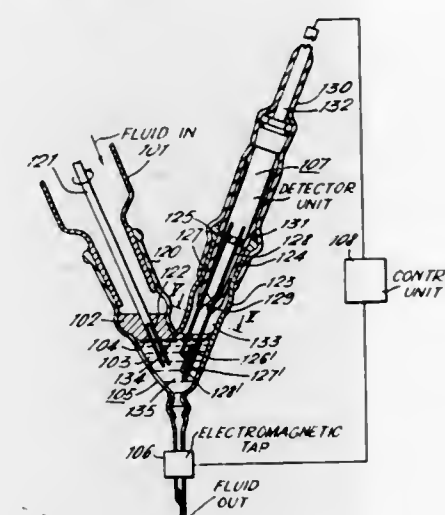
Filed Oct. 6, 1969, Ser. No. 863,956

Claims priority, application Great Britain, Oct. 15, 1968, 48,918/68

Int. Cl. G01r 27/26

U.S. Cl. 324-61 R

11 Claims



To detect the interface between two fluids (two liquids or a gas and a liquid) flowing in a duct and having different electrical properties, three electrodes are located at a position along the duct, two of the electrodes forming with the third a pair of capacitors displaced from one another in the direction of flow so that substantially separate fluids are present between the electrodes forming the respective capacitors at a given position of the interface. The two

capacitors form two arms of an AC bridge and a circuit detects the out-of-balance output from the third electrode when the interface reaches the electrodes. Preferably the electrodes are formed by three insulated wires extending into the duct from a side-arm to leave an air-pocket between the liquid surface and the surface from which the wires extend. The apparatus has application in liquid phase-separation apparatus for chemical analysis.

3,656,056

BULLET HOLE LOCATOR-RESISTANCE TYPE

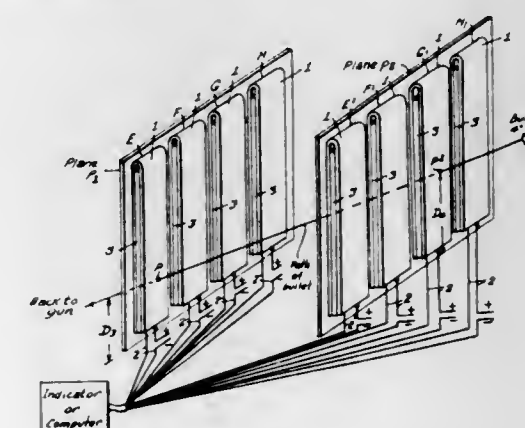
Eugene W. Dalzell, Jr., Pittsfield, Mass., assignor to The United States of America as represented by the Secretary of the Army

Filed Apr. 7, 1969, Ser. No. 814,130

Int. Cl. G01r 27/02; G01l 5/14

U.S. Cl. 324-65 R

1 Claim



The point at which a bullet or other passing object passed a line may be determined by the present invention. Or, the direction from which the object came, is ascertained by comparing the points at which the object passed spaced-apart lines or planes. Electrical resistance type elements, connected to an indicator or computer, indicate the points at which the object passed two or more lines or planes. As exemplary, one can determine the direction a bullet came from which struck a helicopter.

3,656,057

SAFETY TERMINATOR WITH TESTING AND PULLING MEANS

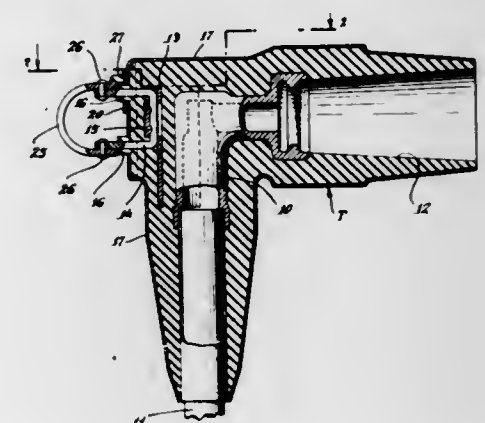
Carlo Bruno De Luca, Monroe, Conn., and Allan Mallanik, Spring Lake, Mich., assignors to Burndy Corporation

Filed Nov. 5, 1970, Ser. No. 87,240

Int. Cl. G01r 19/16

U.S. Cl. 324-133

5 Claims



A terminator is equipped with a ring whereby it may be pulled off a contact such as the electrode of a transformer. The ring is pivoted to a metal bracket extending outside the terminator from a capacitor plate embedded within the body

of the terminator in closely spaced relation to a current carrying contact also within the terminator body. Therefore, a suitable tool applied to the ring or the bracket can indicate whether or not the terminator contact is conducting electricity. While the terminator body is covered by a conductive coating, the bracket extends through an uncoated part of the terminator surface so as to be capable of being charged with the capacitor. When the ring is to be used for pulling the terminator, it must be grounded to the coated terminator surface to permit its safe use.

3,656,058

ENVIRONMENTAL TEST BED ASSEMBLY FOR MINIATURE ELECTRONIC COMPONENTS

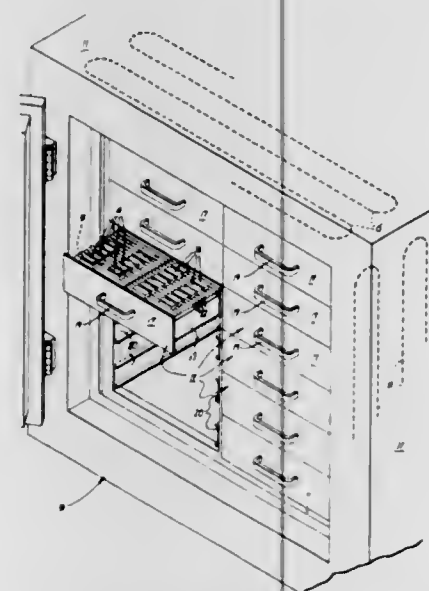
Claude L. Leathers, 1364 Wylie Way, San Jose, Calif.

Filed July 2, 1969, Ser. No. 838,464

Int. Cl. G01r 31/22; H02b 1/04

U.S. Cl. 324-158 F

4 Claims



A test bed assembly for use in conjunction with an environmental test oven employs a readily removable tray assembly which carries support or mounting boards arranged in spaced parallel relation. The mounting boards are connected at their bottoms to ride upon electrically active rods and, at their upper edge, are arranged to carry readily removable test sockets.

3,656,059

SINGLE SENSOR MOTOR VEHICLE VELOCITY DETECTOR

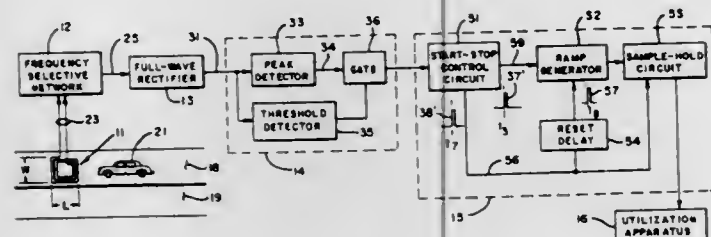
Scott M. Overstreet, Los Altos, Calif., assignor to Sylvania Electric Products, Inc.

Filed May 25, 1970, Ser. No. 40,247

Int. Cl. G01p 3/54

U.S. Cl. 324-173

3 Claims



In this detector, the sinusoidally varying signal voltage induced in an inductive sense loop by a ferromagnetic motor vehicle passing over it is adjusted by a low pass filter having a 6 db. per octave high frequency roll off characteristic in order to obtain a signal waveform of essentially uniform amplitude regardless of vehicle velocity. The frequency of the initial portion of the induced signal, which is proportional to the vehicle velocity, is measured by sequentially detecting

two successive peak transitions of the filtered signal and measuring the time interval therebetween.

3,656,060

TIME INTERVAL MEASURING AND ACCUMULATING DEVICE

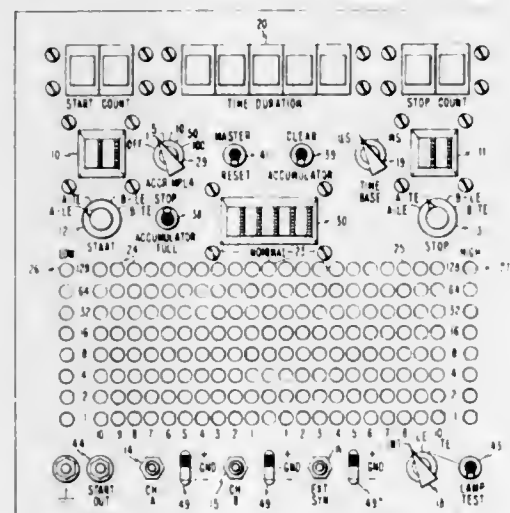
Carl J. Bauernfeind, and Raymond F. Zeman, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of application Ser. No. 791,613, Jan. 16, 1969, now abandoned. This application Jan. 15, 1971, Ser. No. 106,874

Int. Cl. G04t 9/00

U.S. Cl. 324-186

7 Claims



A device for electronically measuring a series of time periods and accumulating all measurements obtained in a visual display for further processing or evaluation. The device can measure the time between leading and trailing edges of a single pulse, the interval between different pulses within a train of pulses or the interval between pulses in one pulse train to pulses in different pulse trains and store the measurements obtained until the maximum capacity for the accumulator for any value or value range is attained. Further the input channels may be controlled to identify the input pulse trains in a variety of predetermined ways according to commonly considered wave forms.

3,656,061

PORTABLE BATTERY TESTER WITH MEANS TO SIMULATE NORMAL OPERATING DRAIN CONDITIONS

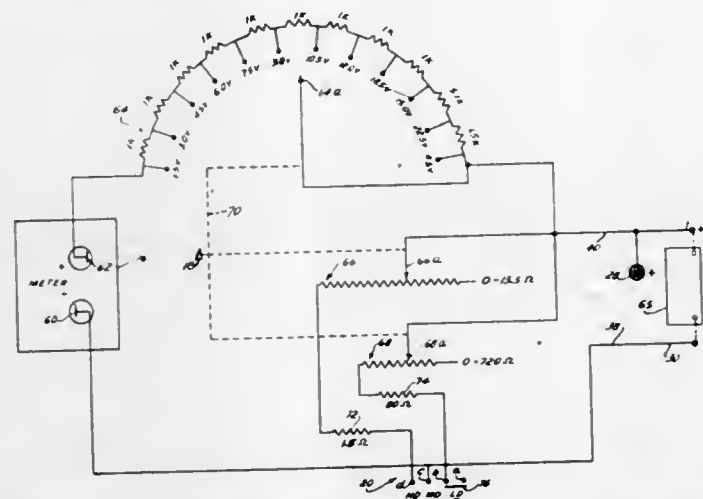
Henry Rogers Mallory, Greenwich, Conn., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed June 11, 1970, Ser. No. 45,524

Int. Cl. G01n 27/42

U.S. Cl. 324-29.5

4 Claims



A portable battery tester with a meter to measure the battery voltage through a series resistor adjusted to limit the current to the meter to the operating range of the meter, and

with variable shunt resistors adjustable to a value that will simulate the load conditions to which the battery is to be applied, to simulate the current drain for that usage.

3,656,062

LIGHTNING PROTECTION SYSTEM

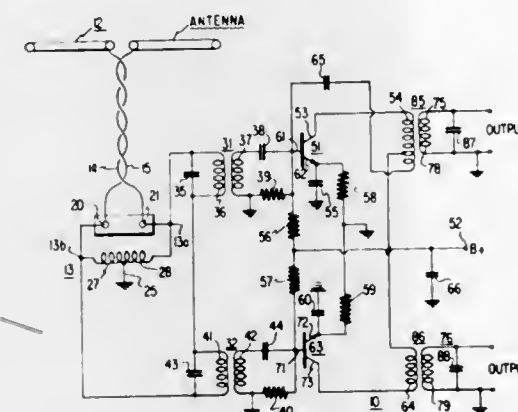
Steven Wlasuk, Blackwood, N.J., assignor to RCA Corporation

Filed Mar. 26, 1969, Ser. No. 810,606

Int. Cl. H04b 1/06

U.S. Cl. 325-362

4 Claims



The destructive effects of electrical storms in destroying the input stage of a receiver including active devices when coupled to an antenna is minimized by the use of a suitable saturable reactance coupled between the antenna terminals and the first stage of the receiver.

3,656,063

DIGITAL FREQUENCY COMPARATOR

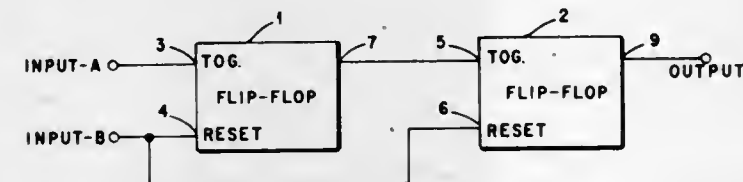
Donald W. Vollmer, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 29, 1970, Ser. No. 32,948

Int. Cl. H03d 13/00

U.S. Cl. 328-133

2 Claims



A digital frequency comparator circuit whose output is the frequency difference between two input signals and which consists of two flip-flops triggered by the negative going portion of the input waveform connected in a divide-by-four configuration and where the reset output is energized whenever coincident input signals arrive at the first flip-flop's toggle and reset inputs. The circuit produces an output pulse whenever two consecutive negative going portions of an input waveform arrive at the toggle input without an intervening negative going portion of a second input waveform arriving at the reset input of the first flip-flop.

3,656,064

DATA DEMODULATOR EMPLOYING COMPARISON

George R. Giles, Williamsville, and Donald G. Shuda, Clarence Center, both of N.Y., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Sept. 17, 1969, Ser. No. 858,627

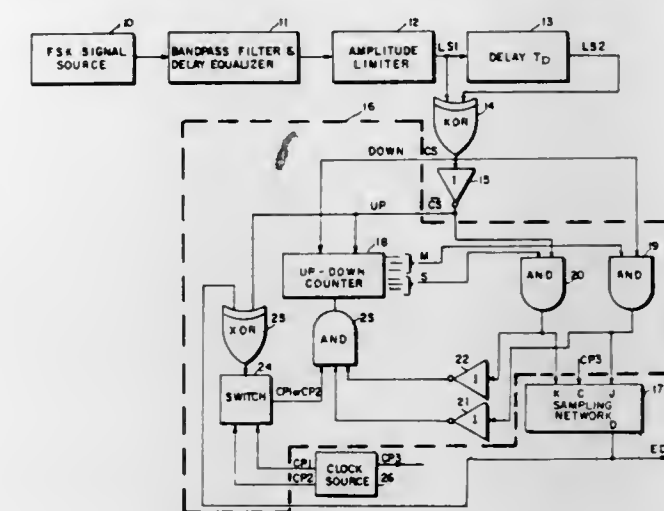
Int. Cl. H04l 27/14

U.S. Cl. 329-104

12 Claims

Data demodulator which demodulates a received signal by means of comparing the received signal with itself delayed to produce a comparison signal having one amplitude value upon identity and another different amplitude value upon

non-identity. The comparison is performed by a modulo two network herein illustrated as an EXCLUSIVE OR gate. The comparison signal is filtered by a digital filter which includes



an UP/DOWN counter and associated control circuitry. The output of the digital filter is sampled by a JK flip-flop to provide the demodulated data signal.

3,656,065

BIO-POTENTIAL ISOLATED AMPLIFIER

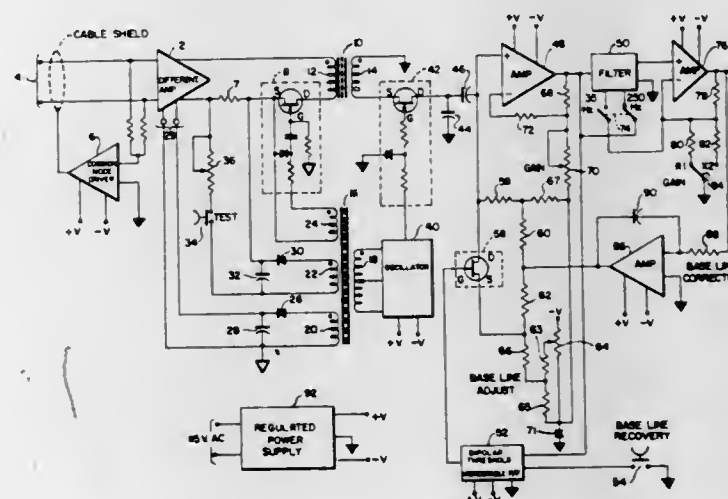
Clyde J. Reinhard, La Habra Heights, and Donald D. Miller, Long Beach, both of Calif., assignors to Beckman Instruments, Inc.

Filed June 12, 1970, Ser. No. 45,848

Int. Cl. H03f 3/38

U.S. Cl. 330-10

7 Claims



A floating differential input amplifier is connected through a first field-effect transistor gate to an input winding of a signal transformer. An oscillator is connected to a primary winding of a power isolation transformer which transformer has one secondary winding connected to a rectifier circuit which in turn is connected to supply bias power to the differential amplifier. Another secondary winding of the power isolation transformer is connected to operate the first field-effect transistor gate. The output winding of the signal transformer is connected through a second field-effect transistor gate in series with a coupling capacitor to the input of a potentiometric operational amplifier. The potentiometric operational amplifier is connected to a filter amplifier and an overload detection circuit. An integrating amplifier is connected between the output of the filter amplifier and the input of the potentiometric operational amplifier to provide DC base line correction. The overload detection circuit is connected to operate a field-effect transistor switch connected to the input of the potentiometric operational amplifier.

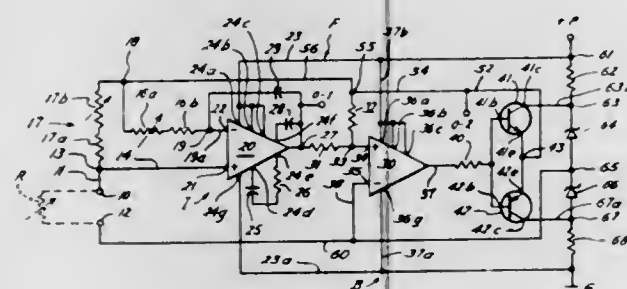
er and through which the input coupling capacitor can be rapidly charged. A common-mode driver amplifier has one input connected through a resistance network to the inputs of the floating differential amplifier and the other input connected to the common ground of the output circuitry. The output of the common mode driver is connected to an electrostatic cable shield surrounding the input leads connected to the differential amplifier inputs.

3,656,066
INFORMATION FORMAT CONVERTER-OSCILLATOR
Thomas J. Reynal, Harris County, Tex., assignor to Systronics Incorporated

Filed May 27, 1970, Ser. No. 40,965
Int. Cl. H03k 3/28

U.S. Cl. 331-65

26 Claims



Information format converter receives input information represented by variable input resistance and converts this input information into an output signal whose frequency varies in accordance with the input information. A charge storage means charges over a time period in accordance with the resistance value of the input resistance and provides a signal to an output means, a bi-stable level detector, having two output threshold levels which changes state between the two levels when said storage means reaches either of the two levels. The converter can be connected so that the frequency of the output signal varies in direct proportion with the resistance value of the input or so that the period of the output signal varies in direct proportion with the resistance value of the input. The converter also uses a new bi-stable level detector which eliminates the requirement that precision reference voltages be used in the converter.

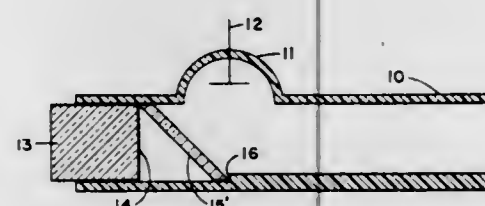
The converter can also be used as a voltage waveform generator.

3,656,067
LASER CELL
Alfred T. Zavodny, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed May 8, 1970, Ser. No. 35,781
Int. Cl. H01s 3/08

U.S. Cl. 331-94.5

3 Claims



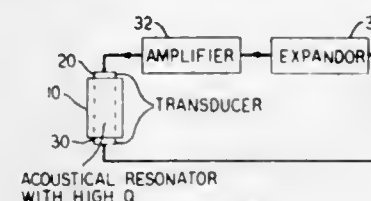
A fluid-filled amplifier cell for laser generation comprises an elongated housing wherein at least one end contains, within the cell, a window supported at the Brewster angle and wherein such end is plugged with a mirror.

3,656,068
RESONANT SELF-PULSING ACOUSTO-OPTICAL MODULATOR
Peter Klaus Runge, Fair Haven, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Dec. 3, 1970, Ser. No. 94,647
Int. Cl. G02f 1/28

U.S. Cl. 331-94.5

12 Claims



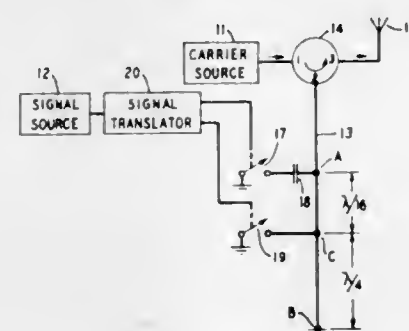
A self-pulsing acousto-optical modulator system produces acoustical pulses in the modulator which are capable of deflecting an optical beam. Multiple resonances in the modulator are phase locked by means of an electrical feedback path, thereby producing a continuous series of traveling pulses in the modulator. When this modulator system is placed in a laser cavity it causes the laser beam to be repetitively switched out of the cavity, producing laser pulses.

3,656,069
MULTIPHASE DIGITAL MODULATOR
John Peter Beccone, Middlesex; Kaneyuki Kurokawa, Murray Hill, and Wolfgang Otto Schlosser, Basking Ridge, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed July 15, 1970, Ser. No. 55,116
Int. Cl. H03c 3/00

U.S. Cl. 332-16 R

9 Claims



In one embodiment, high-speed phase modulation is provided by directing a microwave carrier into the first port of a circulator, reflecting it from variable locations of a reflecting transmission line connected to the second port, and directing it from the third port to a load. By selectively switching diodes, one directly connected, and one capacitively connected, to the reflecting line, four-level phase digital modulation is obtained.

3,656,070
VARIABLE AXIAL RATIO COMPENSATOR
Stephen R. Monaghan, Harvard, and James D. Birch, Townsend, both of Mass., assignors to The United States of America as represented by the Secretary of the Navy

Filed June 21, 1971, Ser. No. 155,052
Int. Cl. H01p 1/16, 3/12

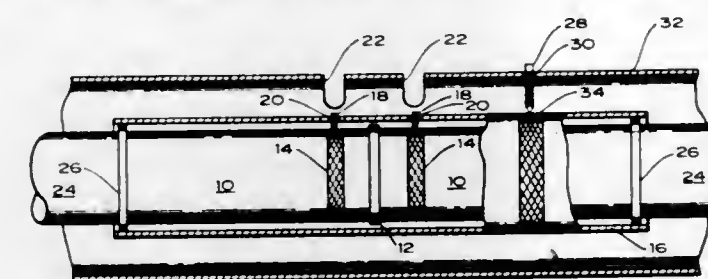
U.S. Cl. 333-21 A

5 Claims

A device which compensates for polarization quality defects in circularly polarized or two-mode duplexed waveguide systems by making an elliptically polarized wave circularly polarized. Two adjacent, coaxial, elliptical waveguide sec-

tions are adjusted to give the correct axial ratio. The two elliptical waveguide sections are then locked together and

direction in the opening and a second center conductor in electrical engagement with the other terminal and extending axially in the opposite direction in the opening, and an insu-



rotated to arrive at the proper compensating polarization angle.

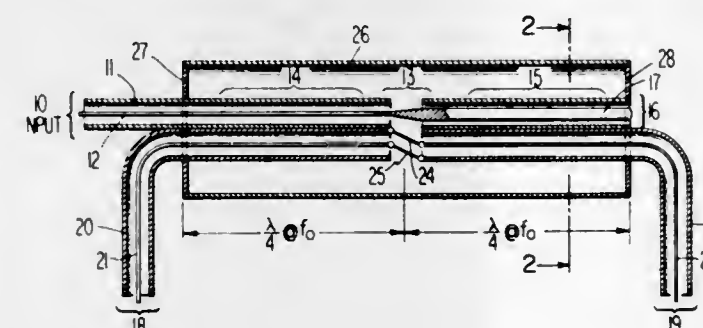
lator in the jack and plug bodies fixing the respective center conductors in place in the opening and separated from the jack and plug bodies.

3,656,071
WIDE BAND BALUN
Oakley McDonald Woodward, Princeton, N.J., assignor to RCA Corporation

Filed June 25, 1970, Ser. No. 49,745
Int. Cl. H01p 5/10

U.S. Cl. 333-26

8 Claims



A wide band balun for connecting an unbalanced coaxial input line to a balanced load. The input line is separated into a first and a second portion by a gap in its outer conductor. The balun achieves wide band operation by the use of two short circuited stubs in shunt with respect to the gap and an open circuited stub in series with respect to the gap.

ERRATA

For Classes 333-31, 333-71 and 335-205 see:
Patent Nos. 3,656,179 thru 3,656,181

3,656,072
COAXIAL ASSEMBLY FOR MOUNTING A VARACTOR DIODE

David R. Ludwig, Randolph, and David A. Sherman, Sudbury, both of Mass., assignors to Walter J. Kreske, Newton Centre, Mass.

Continuation of application Ser. No. 677,466, Oct. 23, 1967, which is a continuation of application Ser. No. 478,499, May 24, 1965, which is a division of application Ser. No. 101,441, Apr. 7, 1961, Pat. No. 3,194,976. This application July 25, 1969, Ser. No. 854,336

U.S. Cl. 333-97 R

1 Claim

A subcombination of a coaxial broadband frequency multiplier, the subcombination consisting of coaxial connector jack and plug bodies connected together in electrical engagement with each other and having an axially aligned opening through the entire jack and plug bodies, the opening carrying along the axis thereof a varactor having oppositely disposed terminals with a first center conductor in electrical engagement with one of the terminals and extending axially in one

A miniature electric relay is disclosed which includes a header member made of magnetic material. A small permanent magnet is mounted on the header member immediately under the armature such that when the armature is in its de-energized position, one end thereof contacts the permanent magnet and thus completes a low reluctance magnetic circuit having no air gaps therein. When the coil of the relay is energized, the weak strength of the permanent magnet is easily overcome by the magnetic field established by the electric coil and the armature is rotated to cause contact actuation in the usual manner. Once the end of the armature is removed from the permanent magnet and an appreciable air gap exists, the permanent magnet is of sufficiently small strength to cause no appreciable forces on the armature, and thus the presence of the permanent magnet does not require an appreciable stronger coil to overcome its effect. A conventional return spring is provided to return the armature to its de-energized position once the coil is de-energized.

3,656,074
CONTROL ROD POSITION TRANSMITTER
Frank Bevilacqua, Windsor, and Herbert A. Runde, Windsor Locks, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

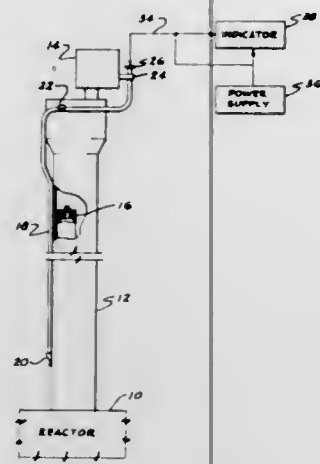
Filed Nov. 14, 1968, Ser. No. 775,638
Int. Cl. H01h 36/02

U.S. Cl. 335-206

14 Claims

Apparatus for sensing and transmitting, to an indicating means, the position of a movable member comprising a magnet which moves with the member, a plurality of flux responsive switches individually positioned along a line parallel to

the path of movement of the member, and a potentiometer electrically connected to the switches to provide a signal



commensurate with the position of the member. The signal may then be transmitted to a position indicating device.

3,656,075

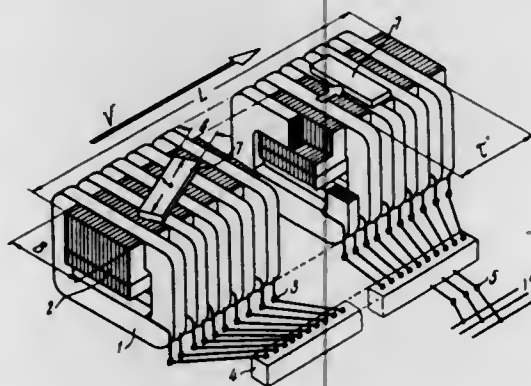
APPARATUS FOR CONVEYING ELECTRICALLY CONDUCTIVE NON-MAGNETIC BODIES BY A MAGNETIC FIELD WHILE SIMULTANEOUSLY ORIENTING THE BODIES

Benjamin Alexandrovich Ioffe, ulitsa Raunsa, 45/2, kv. 81, Riga, U.S.S.R.

Filed Dec. 15, 1969, Ser. No. 885,194
Int. Cl. H01f 1/00

U.S. Cl. 335-219

5 Claims



The device for conveying electrically conductive non-magnetic bodies with a concurrent orienting thereof comprises an inductor wherein the number of ampere-turns of its winding, the pole pitch and the width of the effective zone thereof are so selected as to create electrodynamic forces in excess of the resistance forces exerted upon the conveyed bodies during their being moved and turned. The pole pitch however, is equal to or greater than the width of the body being oriented.

3,656,076

TIME DELAY ELECTROMAGNETIC DEVICE

Robert E. Prouty, John E. Gilman, III, and James J. Smith, all of Logansport, Ind., assignors to Essex International, Inc.

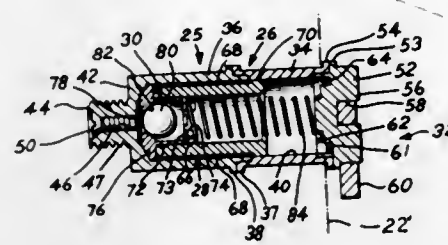
Filed Feb. 2, 1970, Ser. No. 7,598
Int. Cl. H01f 7/10

U.S. Cl. 335-240

14 Claims

A time delay electromagnetic device includes a core for an electromagnetic coil having a tubular sleeve comprising a magnetizable and a non-magnetizable portion which is sealed at one end by a magnetizable pole piece and substantially filled with a damping liquid. A magnetizable plunger is positioned within the sleeve and includes a ball retaining cage and ball check valve positioned in a passage extending through the plunger. The cage is closed at one end and in-

cludes an aperture therein. When the plunger is attracted to the pole piece, the ball check valve blocks the flow of the liquid through the passage, causing the liquid to pass through



a small space between the plunger and the sleeve to delay the movement of the plunger toward the pole piece.

3,656,077

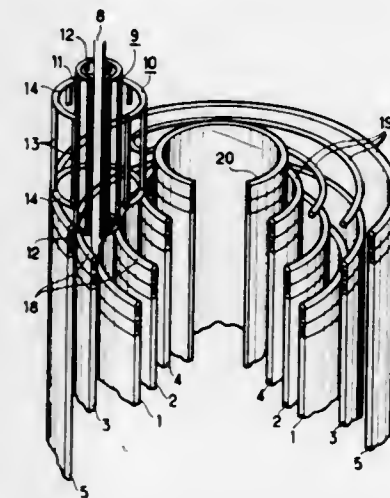
DISTRIBUTION OF EQUIPOTENTIAL SURFACES OF INDUCTANCE WINDINGS COMPRISING LAYERS WITH A DOUBLE SERIES OF STEPS

Georges Laser, Garches, and Daniel Bornet, Paris, both of France, assignors to Alsthom-Savoisienne

Filed Sept. 8, 1970, Ser. No. 70,166
Claims priority, application France, Sept. 8, 1969, 6930723
Int. Cl. H01f 15/04

U.S. Cl. 336-84

7 Claims



A simply-built device for distributing the potential around a high-voltage output conductor and at the ends of the layers of windings of an inductor coil or of a transformer consisting of windings in layers arranged in a double step configuration on either side of a middle layer which is the shortest and to which is connected the high-voltage output. It consists of cages formed by conductors, each connected to an end of a winding layer by flat conductor grids placed above the layers of winding, and each connected to the end of the layer of wire.

3,656,078

TEMPERATURE RESPONSIVE CIRCUIT CONTROL INSTRUMENT

Italo Di Domenico, Pittsford, N.Y., assignor to Qualitrol Corporation, Fairport, N.Y.

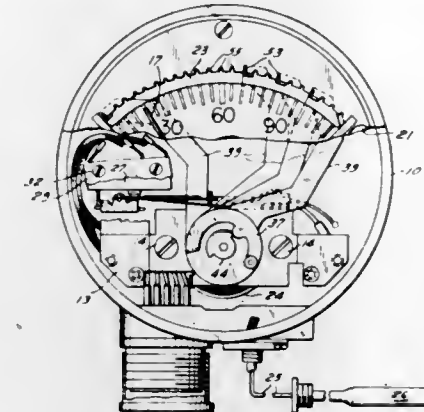
Filed Nov. 3, 1970, Ser. No. 86,404
Int. Cl. H01h 71/16

U.S. Cl. 337-70

9 Claims

An electrical circuit control instrument having a control shaft operable by a thermal element responsive to temperature changes in an external medium. Arranged along one side of the interior of the casing is a bank of switches each of which has a fixed position and is connected in a separate control circuit. A cam individual to each switch and carried by the shaft is cooperable with tripping mechanism to trip its switch. Each cam is initially adjustable angularly on the shaft

to determine its precise moment of cooperation with the tripping mechanism. Subsequent adjustments as to the moment of cam and tripping mechanism cooperation are made by a manipulative lever carrying the tripping mechanism so as to vary the position of the latter relative to its cam. Each lever is curved so as to curve over its related switch without



interference when being swung fully in one direction.

In a modified form, a manually releasable clutch is connected in the control shaft which, when released, permits turning of the control shaft and cams independently of the thermal element so as to obtain a test operation of the tripping mechanism.

3,656,079

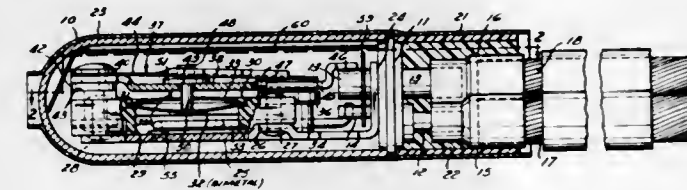
THERMOSTATIC SWITCH

Paul R. Lee, Mansfield, Ohio, assignor to Essex International, Inc.

Filed Oct. 13, 1969, Ser. No. 865,793
Int. Cl. H01h 61/04

U.S. Cl. 337-102

7 Claims



Thermostatic switch having a broad area, plate-like main heater between a bimetal member and a cantilever-mounted leaf spring mobile contact carrier. A dielectric block supports the mounted end of the mobile contact carrier and one end of the main heater, as well as the bimetal member. This block is mounted on a metal base plate which also supports a stationary contact for engagement by a mobile contact on the free end of the contact carrier. The foregoing abstract is merely a resume of one general application, is not a complete discussion of all principles of operation or applications, and is not to be construed as a limitation on the scope of the claimed subject matter.

3,656,080

THERMOSTAT OR THE LIKE HAVING TWISTED BIMETAL STRIP THEREIN

Alton R. Wells, 4573 West Trade Winds Avenue, Lauderdale-by-the-Sea, Fla.

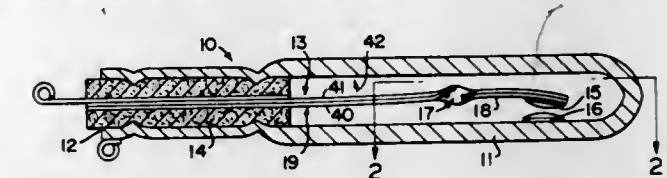
Filed Apr. 29, 1970, Ser. No. 32,955
Int. Cl. H01h 37/52, 61/01

U.S. Cl. 337-111

9 Claims

In this thermostat, thermal protector, or the like, a casing has at least one initially open end and a bimetal strip extends into the casing as a cantilever, being positioned thereby by insulation means securing the strip in position and sealing the initially open end of the casing. The strip has layers of dif-

ferent metals on the top and bottom surfaces thereof, and the strip has about a 180° twist therein intermediate the secured



portion and the free end portion thereof whereby improved cycling in the thermostat is obtained.

3,656,081

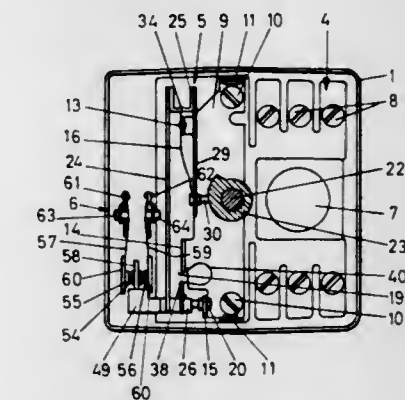
ELECTRIC SWITCH WITH A SNAP-ACTION SYSTEM
Claus John, Horuphav, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed Jan. 15, 1970, Ser. No. 3,065
Claims priority, application Germany, Feb. 14, 1969, P 19 07 419.2

Int. Cl. H01h 37/18, 37/52, 37/62

U.S. Cl. 337-346

1 Claim



A snap action thermostatic switch assembly of the type having a bimetal arm and an omega spring. The assembly has a fixed contact and a pair of resiliently mounted movable contacts on opposite sides of the fixed contact. The movable contacts have lugs and the bimetal arm has an actuating element which engages these lugs to move one contact or the other away from the fixed contact. The bimetal arm has a displacement range so that the actuating element thereof separates from the contact lug of a movable contact that is brought into engagement with the fixed contact. With this construction the tendency of a movable contact to rebound is minimized by reason of the mass associated with a movable contact being reduced the instant the movable contact touches the fixed contact.

3,656,082

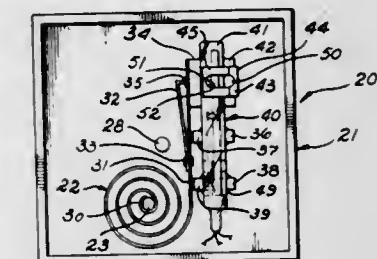
POSITIONING DEVICE

Roland D. Beck, La Crescenta, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Sept. 28, 1970, Ser. No. 75,924
Int. Cl. H01h 1/66, 37/66, 37/68

U.S. Cl. 337-366

10 Claims



A thermostat for supplying natural gas to a gas fired furnace or the like at two different rates, depending upon the

difference between the temperature setting of the thermostat and the ambient temperature. The thermostatic switch has a ferromagnetic armature which is normally attracted by a fixed magnet and is selectively attracted by a movable magnet fixed to a bimetal. A cantilever spring wire makes it possible for the magnet to close two pairs of contacts in the switch at different times. Both pairs of contacts are closed with a snap action even though only one pair of movable ferromagnetic bodies are employed.

ERRATA

For Classes 337—319 and 339—17 see:
Patent Nos. 3,656,182 and 3,656,183

3,656,083

ELECTRICAL SAFETY DEVICE

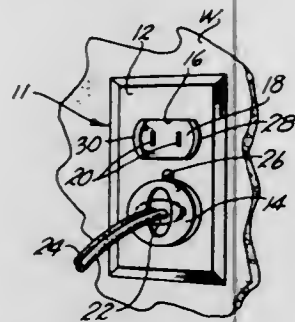
Richard G. Brook, 4280 Kathy Avenue, Riverside, Calif.

Filed Sept. 1, 1970, Ser. No. 68,700

Int. Cl. H01r 13/54

U.S. Cl. 339—39

4 Claims



A faceplate with arcuate outlet apertures has oppositely directed flanges configured to the arcuate portions of the apertures. Safety guards having intumed projections are adapted to be engaged with the flanges for holding the guards in protective covering relation to the apertures. The guards are cup-shaped covers, each with a perforation permitting passage of an electrical cord and plug. The projections can be constituted by a resilient bead which snaps over the flanges, or a screw thread or a pair of lips engaged with the flanges by rotary movement.

3,656,084

CONNECTOR CONSTRUCTION FOR HIGH VOLTAGE SHIELDED CABLES

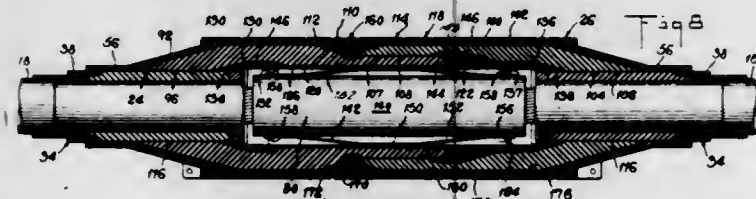
Michael W. Malia, Washington, N.J., assignor to Amerace Esna Corporation, New York, N.Y.

Filed July 6, 1970, Ser. No. 52,425

Int. Cl. H01r 13/52

U.S. Cl. 339—60 R

7 Claims



In an electrical connector having component parts capable of being assembled in the field, a pair of housing members each having an inner portion of electrically insulating elastomer and an outer portion of electrically conductive elastomer with a generally continuous and void-free juncture between the inner and outer portions, the junctures being routed around potential voids and following a continuous contour in the vicinity of the assembled ends of the housing

members to avoid deleterious and concentrated electrical stresses in that vicinity.

3,656,085

CONNECTOR FOR CONTROL CIRCUITS FOR A TAPE PERFORATOR

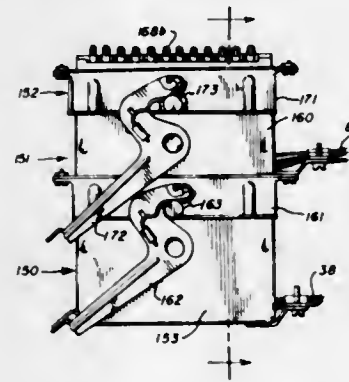
Morton J. Holiday, 8180 Ogden Street, Thornton, Colo.

Original application Sept. 20, 1968, Ser. No. 761,218, now Patent No. 3,595,471. Divided and this application Dec. 17, 1969, Ser. No. 885,668

Int. Cl. H01r 13/54

U.S. Cl. 339—91 R

4 Claims



A connector for interconnecting corresponding leads of a plurality of branches of a multiple-lead network, such as found in the control systems of a multi-channel tape perforator. The connector comprises a plurality of plug and socket members with a branch of the multiple-lead network at each member.

3,656,086

MODULAR ELECTRICAL CONNECTOR ASSEMBLY

Jean Debaigt, Maisons Laffitte, France, assignor to Compagnie Generale D'Entreprises Electriques, Levallois-Perret, France

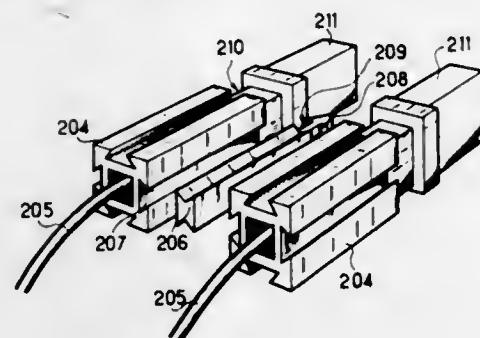
Filed Oct. 15, 1969, Ser. No. 866,651

Claims priority, application France, Oct. 18, 1968, 170569

Int. Cl. H01p 13/64, 13/46

U.S. Cl. 339—92 M

12 Claims



Modular lead-through connecting elements are assembled of strips or in a matrix and operate in conjunction with plug-in type connectors to prevent all connecting errors. The connectors can be locked in the operating position, and may comprise at least one reference marker for identification purposes.

3,656,087

DEVICE FOR CONNECTING AND PROTECTIVELY ENCLOSING SEPARATED LENGTHS OF ELECTRICAL CONDUCTOR CABLE

James M. Nutton, 269 Barker Street, North Andover, Mass.

Filed Mar. 21, 1969, Ser. No. 809,092

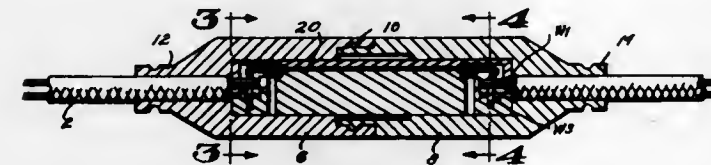
Int. Cl. H01r 7/28

U.S. Cl. 339—95

5 Claims

Outer tubular casing sections are detachably secured together to protectively enclose a cable connector block in

which separated ends of electrical conductor cable may be releasably engaged and held in electrically connected relationship. Displaceable contact elements are yieldably mounted in the connector block in a position to engage and



lock around bare conductor wire ends. The connector block is formed with an aperture through which a lock actuating accessory may be inserted to move the contact elements out of a wire engaging position.

3,656,088

CONNECTOR

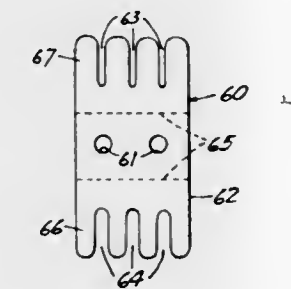
William J. Selm, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed July 27, 1970, Ser. No. 58,248

Int. Cl. H01r 9/08

U.S. Cl. 339—98

4 Claims



Connector for small insulated aluminum wires comprises a wire-receiving insulating body member having wire-anchoring ridges and an insulating cap member carrying a resilient U-shaped connector plate which is doubly slotted, with a wide outer slot and a narrow inner slot, for each wire.

3,656,089

ELECTRICAL PLUG

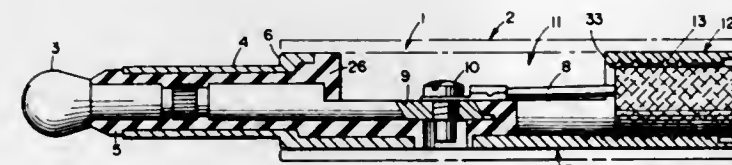
James R. Bailey, Chicago, Ill., assignor to Switchcraft, Inc., Chicago, Ill.

Filed June 3, 1970, Ser. No. 43,021

Int. Cl. H01r 17/18, 13/62

U.S. Cl. 339—110 C

6 Claims



An electrical plug useful as a telephone plug and for other purposes is constructed with a removable handle which is interlocked with the plug body and can be removed to expose one or more terminals within the plug merely by rotating the handle a partial turn in one direction and pulling the two members apart axially. The handle and plug body can then be reassembled and interlocked by rotating the handle a partial turn in the opposite direction. Assembly screws are thereby eliminated.

3,656,090

TWO-PART ELECTRICAL COUPLING

Thomas Victor McDonald, Cheltenham, and Kenneth McDonald Stockley, Bath, both of England, assignors to Smiths Industries Limited, London, England

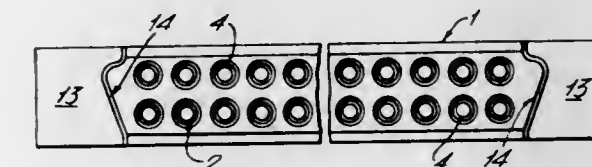
Filed May 19, 1970, Ser. No. 38,664

Claims priority, application Great Britain, Apr. 23, 1969, 26,336/69

Int. Cl. H01r 13/64

U.S. Cl. 339—186 M

10 Claims



A two-part electrical coupling has a plurality of electrical connectors on one part for electrically engaging respective electrical connectors of the other part. The parts are provided with mating keys and keyways for ensuring that the electrical engagement can be effected only following a mechanical engagement of the parts when in one predetermined alignment and orientation with respect to one another. The keys and keyways are disposed on respective parts of the coupling and the keys are slidable along respective keyways as the two parts are urged together to establish the electrical engagement. Each key and keyway has a transverse section that is in the form of a sawtooth with unequal flanks.

3,656,091

TERMINAL JUNCTION SYSTEM

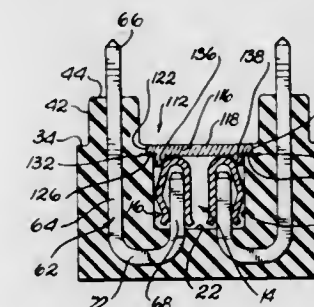
John W. Anhalt, 5046 El Adobe Lane, La Crescenta, Calif.; James W. Maston, 686 Alameda Street, Altadena, Calif., and Gerald J. Selvin, 4433 Portico Place, Encino, Calif.

Filed Aug. 31, 1970, Ser. No. 68,238

Int. Cl. H01r 31/08, 9/00

U.S. Cl. 339—198 R

5 Claims



A terminal junction system is formed of an insulated housing member having a central channel extending along its axial length. A plurality of rows of contact terminals extend along the axis of the housing member, one end of the contact terminals extending into the channel. A bussing spring which comprises a pair of side walls interconnected by an end wall is mounted in the channel and is contiguous with at least a pair of the contact terminals. The distance between the side walls of the bussing spring is such that when the spring is inserted in the channel between rows of contact terminals the side walls are contiguous with at least two adjacent contacts of each row. Moreover, the bussing spring may be utilized to interconnect a plurality of contact terminals of the same row. The other ends of the contact terminals can be coupled through one of the walls of the insulated housing member. Further, means may be formed on the insulating housing member so that when an external contact member is secured to one of the contact terminals an environmental seal may be provided at the junction of the contact terminal of the terminal junction and the external contact member. Visible

sealing means may be provided to cover said channel and simultaneously observe interconnection between adjacent contacts formed in the channel.

3,656,092

TERMINAL DEVICE FOR WELDED TERMINATION OF ELECTRICAL LEADS

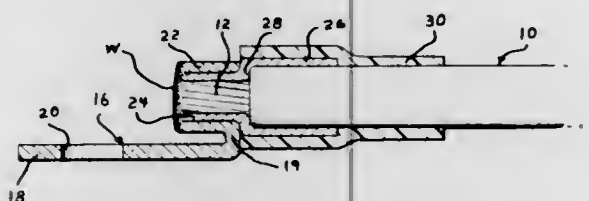
Robert Charles Swengel, Sr., Hellam, and Timothy Allen Lemke, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation of application Ser. No. 720,775, Apr. 12, 1968, now abandoned. This application Aug. 7, 1970, Ser. No. 62,212

Int. Cl. H01r 11/06

U.S. Cl. 339-213 T

18 Claims



A terminal is disclosed which includes an inner sleeve portion adapted to receive a conductive lead inserted therein and an outer sleeve portion surrounding the inner sleeve portion with the sleeves arranged, relative to parts of the device which connect to other terminals, to permit a welding operation providing a weld of improved characteristics. In one embodiment for use in terminating aluminum wire the inner sleeve is made of aluminum and the outer sleeve is made of a different material such as a copper base metal alloy to provide a connection of dissimilar materials. A heat sensitive insulating sleeve is used to provide a seal of conductive interface and wire support, the sleeve being actuated by the heat of welding transferred through terminal sleeve portions.

3,656,093

ELECTRICAL CONNECTORS

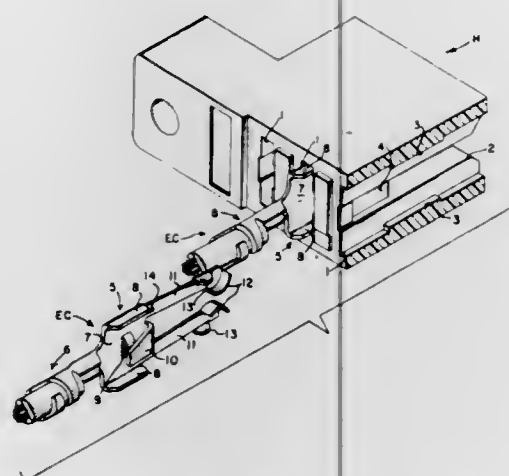
Robert John Kinkaid, New Cumberland, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation of application Ser. No. 653,419, July 14, 1967. This application Jan. 12, 1970, Ser. No. 1,966

Int. Cl. H01r 13/12

U.S. Cl. 339-217 S

3 Claims



An electrical connector comprises a body section provided with cantilever leg members extending outwardly from one side and in the same plane thereof, the free ends of the leg members having intumed and arcuate-shaped sections defining contacts for electrical engagement with conductive paths of a PC board. The leg members converge toward each other and they are provided with stabilizing lugs to maintain the contacts in position in their passageways of a dielectric housing.

ELECTRICAL CONNECTOR AND METHOD OF MAKING SAME

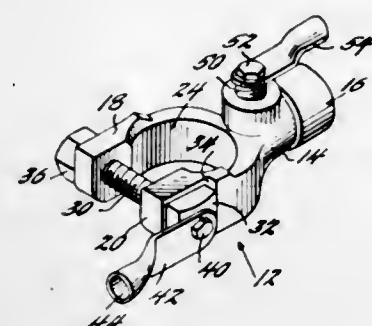
Clarence B. Haegert, 1211 Elm Street, Coffeyville, Kans.

Filed Feb. 27, 1970, Ser. No. 15,267

Int. Cl. C22c 17/00; H01r 11/26

U.S. Cl. 339-230 C

4 Claims



An electrical connector includes a body means having means for securing an electrical member thereto. The body means is formed of a zinc base alloy comprising aluminum, copper, cadmium, tin, lead, magnesium, iron and zinc within certain critical ranges. The zinc alloy is heated to a molten state and the molten alloy is then pressure or gravity molded, subjected to fast chilling and chemically treated to form an electrical connector free from corrosion.

3,656,095

TERRAIN AVOIDANCE SYSTEM FOR A TOWED UNDERWATER VEHICLE

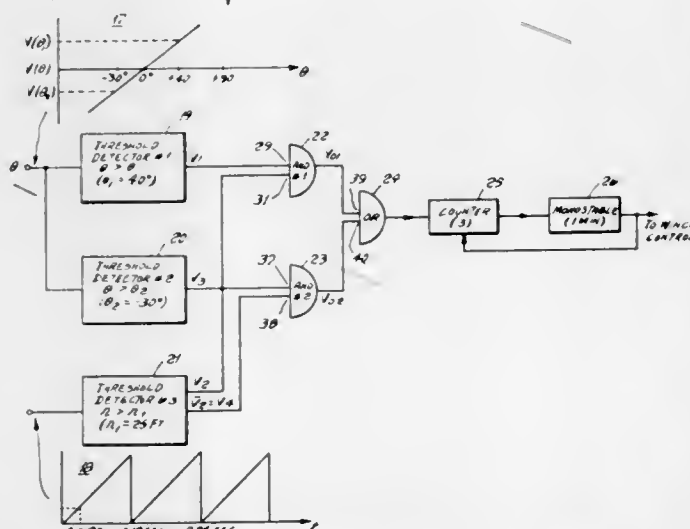
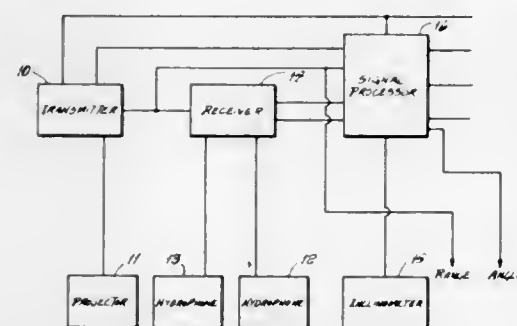
Richard R. Cavey, Ellicott City, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Aug. 25, 1970, Ser. No. 66,721

Int. Cl. G01s 9/68

U.S. Cl. 340-3 R

7 Claims



A terrain avoidance system to provide a towed underwater vehicle with the ability to avoid those terrain features which

constitute a danger, yet permit the vehicle to navigate and search irregular terrain. This capability is provided employing the information obtained by an obstacle detection sonar subsystem; sonar information is so processed that the altitude control winch system for the vehicle is overridden when a terrain feature is classified as a potentially dangerous obstacle.

3,656,096

DIGITAL DELAY TIME COMPRESSION CIRCUIT

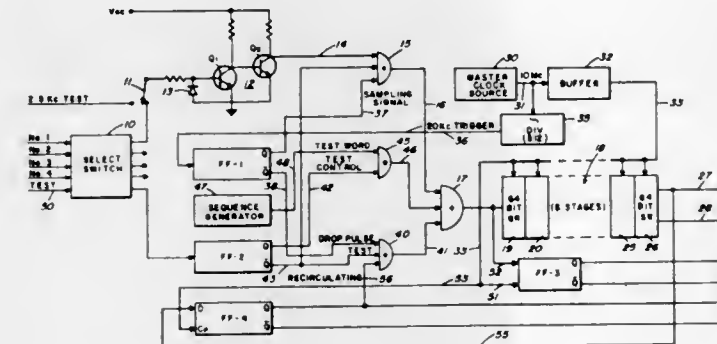
Eugene R. Roeschlein; Donald C. Weiss, and David L. Zeph, all of Indianapolis, Ind., assignors to The United States of America as represented by the Secretary of the Navy

Filed May 7, 1970, Ser. No. 35,377

Int. Cl. G01r 23/00

U.S. Cl. 340-5 R

5 Claims



A digital delay time compression circuit (DELTC) having a shift register to produce a 512 bit delay with an input from an AND-OR gating circuit to sample hydrophone data and recirculate this data in the shift register, or optionally through a one-bit flip-flop delay, to produce delayed and compressed digital words of 512 or 513 bits on an output thereof for correlation with other hydrophone data, and enabling and blocking pulse means applied to the AND-OR gating circuits to pass test words to periodically test the DELTC for proper operation.

3,656,097

SIGNAL PROCESSING SYSTEM FOR EXTRACTING A PERIODIC SIGNAL OF UNKNOWN FREQUENCY FROM A HIGH LEVEL BACKGROUND NOISE

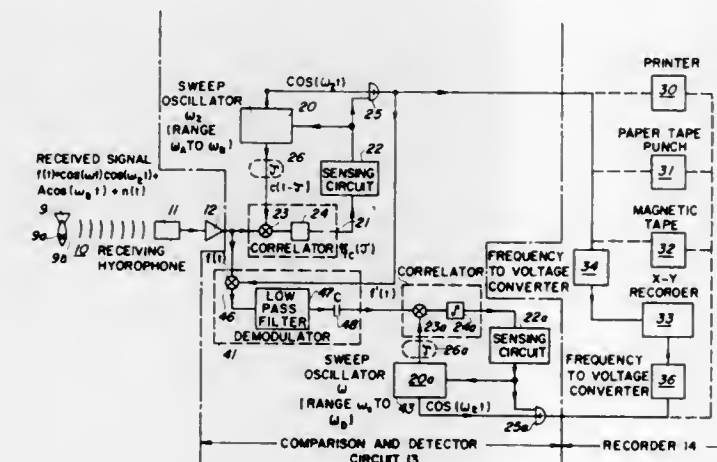
Donald P. Massa, Cohasset, Mass., assignor to Massa Division Dynamics Corporation of America, Hingham, Mass.

Filed Dec. 29, 1969, Ser. No. 888,451

Int. Cl. G01r 23/14; H04b 11/00

U.S. Cl. 340-5 R

16 Claims



A detector identifies the frequency of a periodic signal buried beneath the threshold of background noise. A correlator compares the frequency of the output of a sweep generator

with the incoming signal. When the correlator indicates that the frequency of the sweep generator output coincides with that of the periodic signal, a recording is made of the sweep generator output.

3,656,098

GUIDE LOCK FOR MOTOR VEHICLES

Rainer Duren, and Klaus Neidig, both of Wolfsburg, Germany, assignors to Volkswagenwerk Akt.

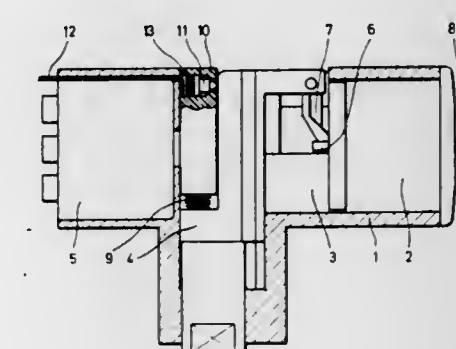
Filed Oct. 17, 1969, Ser. No. 867,300

Claims priority, application Germany, Oct. 19, 1968, P 18 04 142.4

Int. Cl. G08b 21/00

U.S. Cl. 340-52 D

2 Claims



A steering column lock for motor vehicles with a warning device operative whenever the door of the vehicle is opened upon the key having been failed to be pulled out.

3,656,099

METHOD OF AND MEANS FOR CONTROLLING TRAFFIC

Paul R. Campbell, 181 Halifax Street, Adelaide, South Australia, Australia (5000)

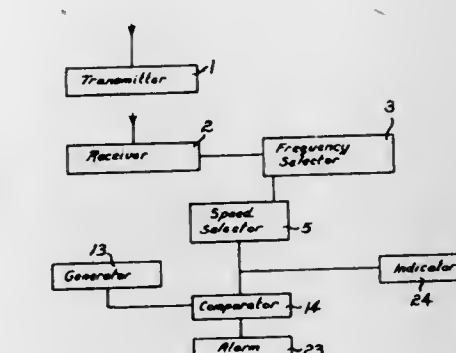
Filed Dec. 5, 1969, Ser. No. 882,459

Claims priority, application Australia, Dec. 8, 1968, 47420/68

Int. Cl. B60q 1/00

U.S. Cl. 340-62

7 Claims



Method of indicating to the driver of a vehicle whether he is exceeding a speed limit as he passes through various areas, the vehicle containing a generator which produces a frequency of voltage in proportion to the vehicle speed and including means which can either be set by the operator or which are set by a radio signal or the like at the area concerned, the device including a comparator which actuates an alarm if the actual speed is outside of the limit set, whether the speed is below or above the set limit.

3,656,100

ANTI-HIJACKING VEHICULAR ALARM SYSTEM

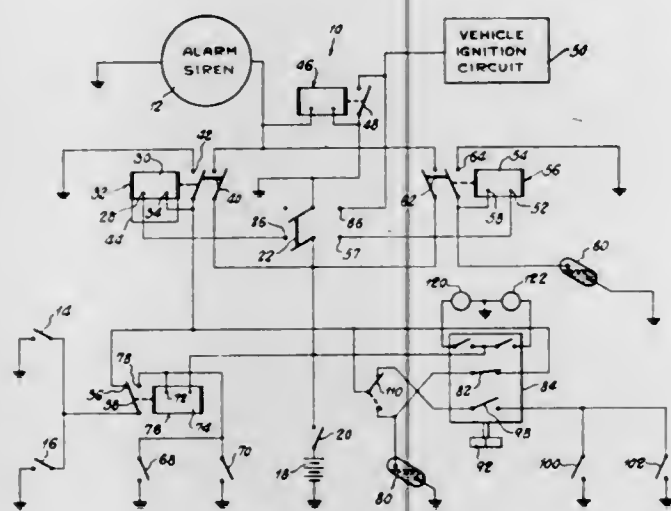
Joseph P. Beltrami, Garfield, N.J., assignor to Itad Alarm Systems, Inc., Garfield, N.J.

Filed May 8, 1970, Ser. No. 35,606

Int. Cl. B60r 25/10

U.S. Cl. 340-63

15 Claims



In an anti-hijacking vehicular alarm system in which an alarm is to be actuated upon unauthorized opening of a door of a vehicle, alarm circuit means for actuating the alarm in response to the opening of a vehicle door, operator means for selectively activating or deactivating the alarm circuit means, timer means capable of being actuated to operate for a selected interval of time, means for precluding operation of the operator means during the selected interval of time without actuation of the alarm, and means for precluding alteration of the duration of the selected interval of time during that interval without actuation of the alarm.

3,656,101

ENGINE SHUT-OFF CONTROL SYSTEM WITH TIMER BUZZER TELL-TALE PACKAGE

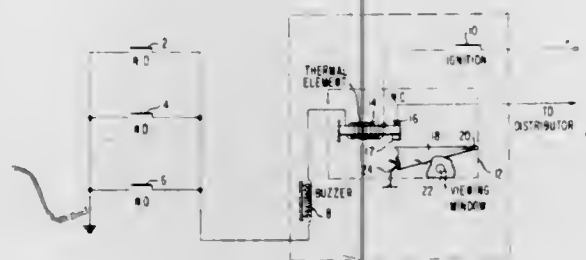
Lloyd T. Akeley, Fullerton, Calif., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,151

Int. Cl. B60b 3/04

U.S. Cl. 340-53

5 Claims



An engine shut-off control system utilizing a timer-buzzer package in which a plurality of detector switches are connected in circuit with a buzzer for signaling the operator whenever one of the switches is closed in response to detection of an abnormal operating condition of the engine. A thermal timer is connected in series with the buzzer and opens an associated switch after a given amount of time has elapsed to interrupt the current to the distributor of the engine.

3,656,102

VEHICULAR ANTITHEFT DEVICE HAVING RELAY SWITCHES FOR INTERRUPTING INDUCTION COIL CIRCUIT AND FOR ACTIVATING AN ALARM

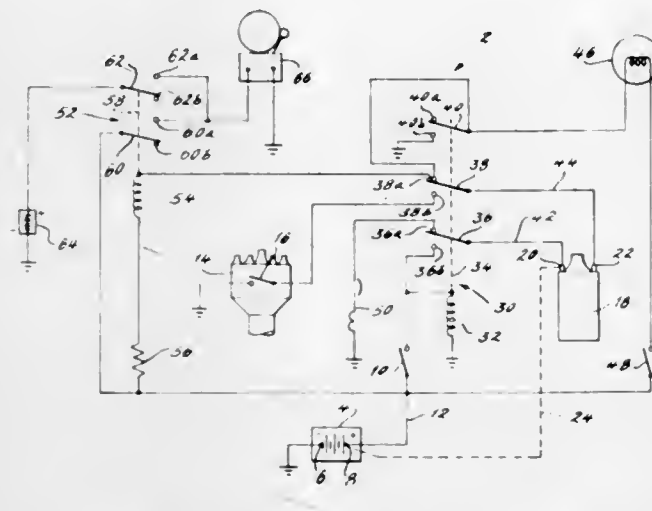
David A. Hale, 5222 Dowler Avenue, Pine Lawn, Mo., and Earl R. Housman, 5814 Dressell Avenue, St. Louis, Mo.

Filed June 1, 1970, Ser. No. 42,235

Int. Cl. B60r 25/04

U.S. Cl. 340-64

8 Claims



An antitheft device for automobiles and similar vehicles includes a pair of relay switches, one of which breaks the ignition circuit on both sides of the induction coil when the ignition switch is open. The other relay switch connects the battery with an alarm device whenever the circuit to the induction coil is disrupted either by severing the wires leading to the coil or by placing the coil at the same potential as the battery. The other relay switch also connects the alarm with an auxiliary battery whenever the automobile battery is disconnected from the ignition system. Thus, the antitheft device signals an alarm and renders the ignition system inoperative whenever a thief attempts to run a jumper wire from the battery to the induction coil. It also signals an alarm whenever the thief attempts to remove the battery.

3,656,103

VEHICLE'S DIRECTION INDICATING LAMP AND BRAKE LAMP FOR COMBINATION USE

Hiroshi Tanaka, Motosu-gun; Shozo Naito, Ama-gun, and Tetsuji Shimizu, Nagoya, all of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Nishibiwajima-cho, Nishikasugai-gun, Aichi-Perecture, Japan

Filed Mar. 18, 1969, Ser. No. 808,235

Int. Cl. B60q 1/38

U.S. Cl. 340-67

9 Claims



A signalling system for an automobile operates a plurality of lamps on the rear of a vehicle either simultaneously or sequentially. It responds to a brake signal appearing on one

line and a direction signal appearing on another line. The system is composed of a plurality of bistable circuits each connected to one lamp and receiving its input signal from the adjacent bistable circuit. The brake signal turns on the first bistable circuit which immediately turns on the others in sequence. Thus the lamps are lit simultaneously. The direction indicating signal turns on the first bistable circuit to light the first lamp but also incorporates a time delay into the couplings between the adjacent bistable circuits. Thus the lamps are turned on sequentially. The indicator signal also turns on a transistor that cuts off any brake signal that may occur during a direction indicating signal.

3,656,104

ADVANCE ANTI-LOCKOUT VEHICLE PARKING SIGNAL HAVING ADJUSTABLE DECK MOUNTED BRACKETS

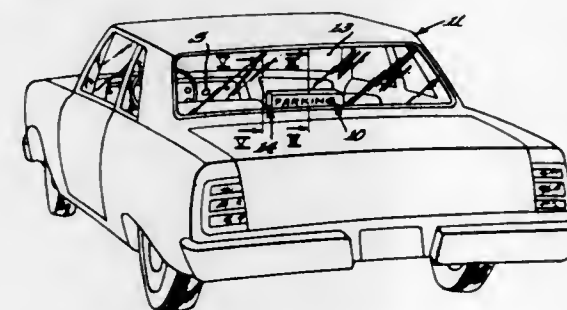
Herb G. Samra, 1606 North 74th Court, Elmwood Park, Ill.

Filed June 4, 1970, Ser. No. 43,370

Int. Cl. B60q 1/00, 1/46

U.S. Cl. 340-95

1 Claim



A visual signal device for vehicles effectively providing an advance clear warning, which cannot be misinterpreted, of intent to take a position in traffic for parking the vehicle so that following vehicles or pedestrians may maneuver in advance to prevent a traffic jam or avoid injury. The device produces a flashing conspicuous parking message which is manually controlled and not interrupted by any automatic mechanisms on the vehicle. A preferred form of the device is easily mounted on the rear shelf or deck of a vehicle at a selected height and distance from the rear window of the vehicle so as to provide an unobstructed rear view and so as to be clearly visible through the window from the rear of the vehicle. A feature includes a tiltable adjustment for the device so as to beam the signal at the most effective angle.

3,656,105

VEHICLE MARKER LIGHT HAVING METAL STRAP EXTENDING INTO CUPPED LENS

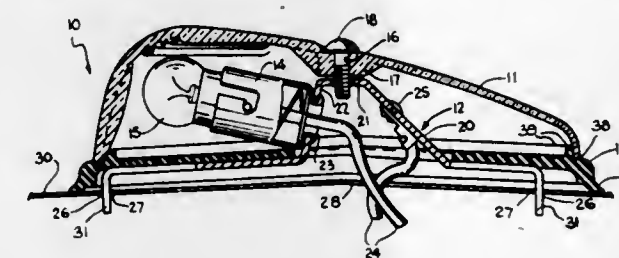
Ernest R. Steltzer, Lysander, and Edward J. Nitsch, Camillus, both of N.Y., assignors to R. E. Dietz Co., Syracuse, N.Y.

Filed Apr. 29, 1971, Ser. No. 138,464

Int. Cl. B60q 1/00

U.S. Cl. 340-119

4 Claims



A vehicle marker light has a cupped lens enclosing a lamp and its socket. The lamp base comprises a comparatively narrow metal strap extending longitudinally of the lens and, except for its outwardly bent ends, lying within the lens. At its center the strap is bent inward of the lens, then bent longitudinally along the inner surface of the top of the lens, then bent outwardly of the lens, and then longitudinally again, the outwardly bent portion being apertured for securement of

the socket thereto and the longitudinally extending portion along the top of the lens being apertured and threaded for reception of a screw passing through the top of the lens. The outwardly bent ends of the strap have spring biased detent ends for quick installation in holes in a sheet metal portion of the vehicle body. A resilient pad between the lens and strap has a perimetrical resilient skirt for sealed engagement with the vehicle body.

3,656,106

EVALUATION CIRCUIT FOR THE DETERMINATION OF INFORMATION SENSED FROM MATRIX MEMORIES

Karl-Ulrich Stein, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

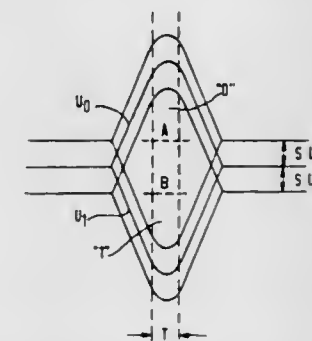
Filed May 25, 1970, Ser. No. 41,144

Claims priority, application Germany, June 9, 1969, P 19 29 142.0

Int. Cl. H03k 5/18; G06k 5/00

U.S. Cl. 340-146.1

2 Claims



A circuit for evaluating the correctness of information content of signals sensed from a mass storage memory, such as a magnetic core or a magnetic thin film memory. A pair of threshold circuits, each having a different threshold, receive the sensed signal and a reading strobe-type signal, generally desired of the same magnitude of the sensed signal, and provide valid or fault indicating signals to a coupling circuit having a pair of output terminals, one of which is enabled to indicate information content and the other of which is enabled when the information content is in question.

3,656,107

AUTOMATIC DOUBLE ERROR DETECTION AND CORRECTION APPARATUS

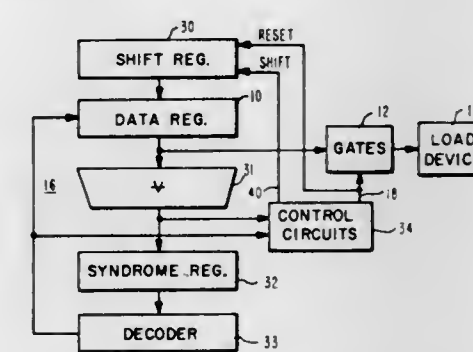
Mu-Yue Hsiao, and Wadie F. Mikhail, both of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 23, 1970, Ser. No. 83,334

Int. Cl. G08c 25/00

U.S. Cl. 340-146.1

10 Claims



A method and apparatus are provided for detecting and correcting double errors automatically by generating syndrome S bits from a binary word having check bits and data bits. The syndrome S bits themselves are decoded to locate and correct single errors. When double errors occur in the binary word, the syndrome S bits automatically operate a switching device which changes the bits of the binary word one at a time to correct one of the double errors. If one of the double errors is not corrected when a given bit is

changed, this is indicated by the syndrome S bits, and the bit under test is restored as the next bit of the binary word is changed or complemented. Whenever one of the double errors is corrected by the switching device, the syndrome bits then indicate the location of the remaining single error, and the syndrome S bits are decoded to correct the second one of the double errors.

3,656,108

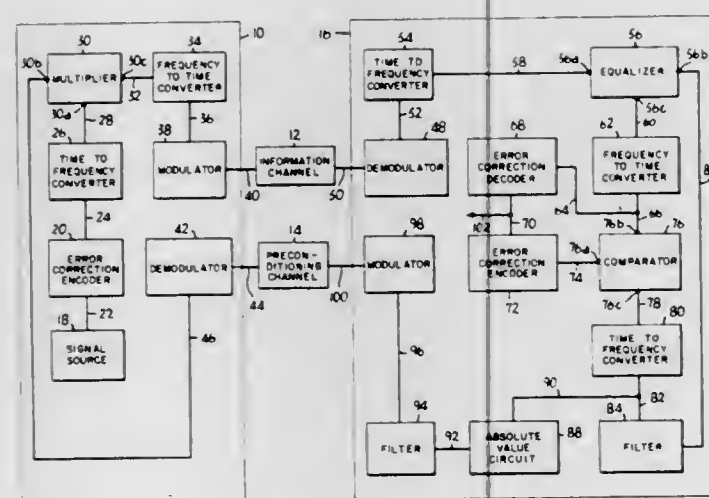
SIGNAL PRECONDITIONING METHOD AND TRANSMISSION SYSTEM

Timothy Arbuckle, Montclair, and Herbert Sullivan, Fort Lee, both of N.J., assignors to Computer Modem Corporation, Fort Lee, N.J.

Filed June 9, 1969, Ser. No. 831,669
Int. Cl. G08c 25/00

U.S. Cl. 340-146.1

10 Claims



A system for intelligible exchange of signals through noise-affected communication channels. Apparatus is provided in a transmitting station for preconditioning signals intended to be transmitted over a telephone line or like channel to a remote receiving station. The preconditioning apparatus is operative to modify characteristics of said signals in accordance with further signals generated at the receiving station and indicative of channel transmission characteristics, the preconditioning resulting in a uniform distribution or spreading of channel spike noise throughout received signals. Noise uniformity in received signals permits ready determination of the said signals intended to be transmitted. A method of preconditioning digital data signals for such exchange is particularly set forth.

3,656,109

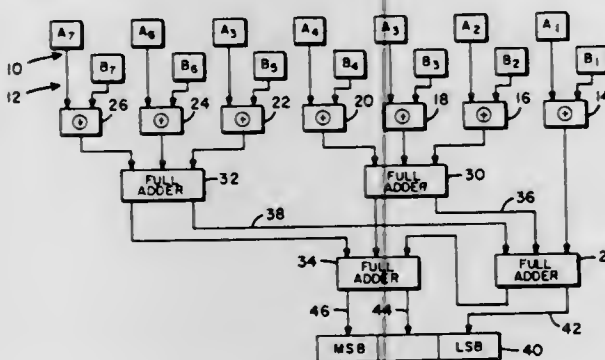
HAMMING DISTANCE AND MAGNITUDE DETECTOR AND COMPARATOR

Patrick H. Conway, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Mar. 13, 1970, Ser. No. 19,176
Int. Cl. G06f 7/02, 7/385

U.S. Cl. 340-146.2

4 Claims



The specification describes the design for a Hamming distance and magnitude detector as well as a Hamming mag-

nitude comparator, each implemented with conventional boolean logic devices operating in a parallel manner.

3,656,110

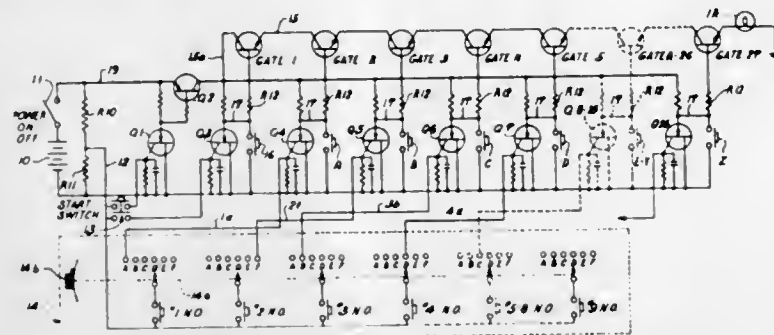
CREDIT CARD ASSOCIATED APPARATUS FOR PERSONNEL IDENTIFICATION

Charles V. Crane, Olathe, Kans., assignor to C & S Security Devices Inc., Olathe, Kans.

Filed Nov. 20, 1969, Ser. No. 878,445
Int. Cl. H04q 5/16; G06k 7/06

U.S. Cl. 340-149

4 Claims



A device-implemented process for verifying the identity of the bearer of a document or card without physically utilizing the document or card in said process includes the steps of assigning a first code for said document or card which is known to said bearer but which does not appear on said document or card, assigning a second code to said document or card which is visibly placed on same, programming a code interpreting device with said second code, comparing said second programmed code with said first code by utilizing said device, and indicating by said device when said first code corresponds to said second code as a result of a comparing step, said corresponding of codes thereby identifying the bearer of the document or card.

The device includes an encoding and a decoding section. The encoding section permits the device to be programmed in accordance with the second code which visibly appears on the card or document by manually operating a rotary switch and selectable push buttons.

The decoding section is operated by the manipulation of a second set of push buttons in order to enter the first code in the device. The device electronically compares the decoding first code with the encoded second code so that when the two codes correspond a visual indication is registered and the bearer of the document is sufficiently identified.

3,656,111

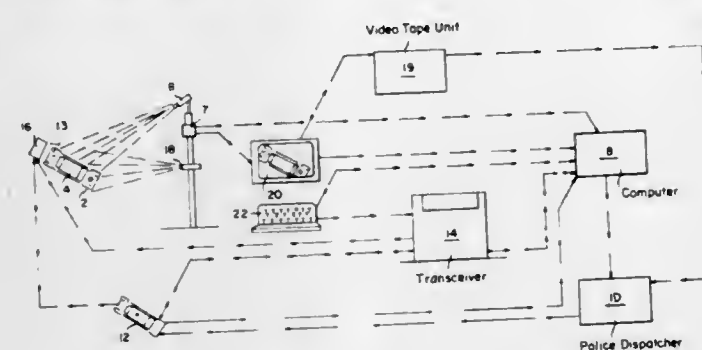
COMPUTER CONTROLLED STOLEN VEHICLE DETECTION SYSTEM

Ronald B. Royster, Sr., 1705 Belle Haven Drive, Apt. 203, Landover, Md.

Filed Sept. 27, 1968, Ser. No. 763,267
Int. Cl. H04q 3/00, 5/00

U.S. Cl. 340-149

5 Claims



A method for detecting stolen or other wanted vehicles which comprises positioning the detecting means at a plurality of locations for detecting vehicles which have been specifically marked for selective individual identification, and

providing transmitting means at each of the locations for transmission of detected vehicular information to a central computer. Each of the detecting means and transmitting means is operated simultaneously with the computer which stores stolen vehicle information, and compares the stored information with the detected vehicular information transmitted from the transmitting means to the computer. After the information is compared, a signal is transmitted corresponding to the stolen vehicle information to immobilize the stolen vehicle near the detecting means.

3,656,112

UTILITY METER REMOTE AUTOMATIC READING SYSTEM

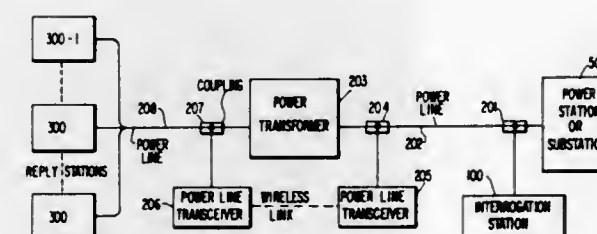
Stephen Paull, Falls Church, Va., assignor to Constellation Science and Technology Corporation, Oxon Hill, Md.

Filed Mar. 14, 1969, Ser. No. 807,339

Int. Cl. H04q 9/02

U.S. Cl. 340-151

32 Claims



A digital data processing and communications system for a remote utility meter data acquisition system is disclosed. The system employs an electronic interrogator which may be either mobile or fixed. The interrogator transmits an encoded interrogation message to a designated fixed reply station associated with a utility meter. Upon receipt of a properly authenticated interrogation, the reply station transmits the utility meter reading back to the interrogator. The system is so designed that when more than one reply station is within range of the interrogation message, only the one reply station that is addressed in the interrogation message will transmit a reply. Thus, an interrogating operation may be carried out in which many reply stations are interrogated in successive order, with each station transmitting its reply in turn. Transmission between the interrogation station and the various reply stations may be via radio link, acoustic link, electric power line, or a combination thereof.

3,656,113

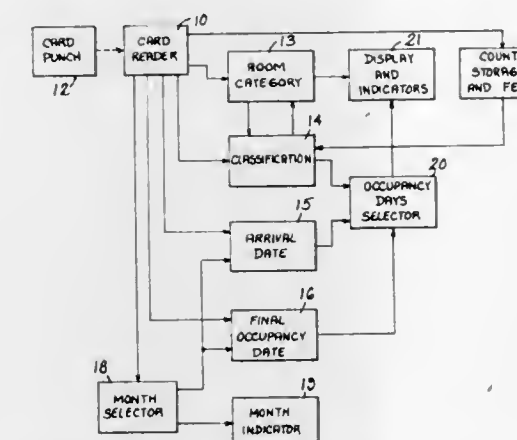
CONTROL SYSTEM FOR ROOM RESERVATION

William G. Lince, Yarmouth Port, Mass., assignor to UMC Electronics Company, North Haven, Conn.

Filed Nov. 1, 1968, Ser. No. 772,673
Int. Cl. H04g 3/00

U.S. Cl. 340-153

18 Claims



This disclosure relates to a system which displays the availability of categories of items over a predetermined

number of units of time. Provision is made to constantly update the display by incrementing or decrementing the appropriate item categories between initial and final dates of use of any item. The units of time may be classified into groups to allow an expired group of units of time to be annexed to the last group of units of time to continuously utilize the system over a predetermined future time period.

3,656,114

ELECTRONIC LOCK ARRANGEMENT HAVING PARALLEL CODED INPUT

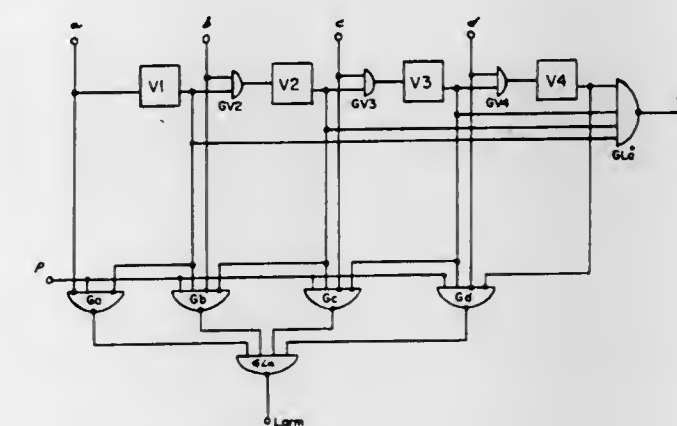
Tore Gottfrid Hesselgren, Borensvagen 1, Johanneshov, Sweden

Filed May 1, 1969, Ser. No. 820,921

Claims priority, application Sweden, May 7, 1968, 6113/68
Int. Cl. H04g 3/02

U.S. Cl. 340-164

3 Claims



An electronic lock arrangement is disclosed, the arrangement comprising a plurality of consecutively disposed code step circuits. Each circuit, when actuated by an input code pulse train, generates a parallel output, which outputs define a lock release output signal when the input code pulse train is received in proper predetermined order.

3,656,115

FUSIBLE LINK MATRIX FOR PROGRAMMABLE NETWORKS

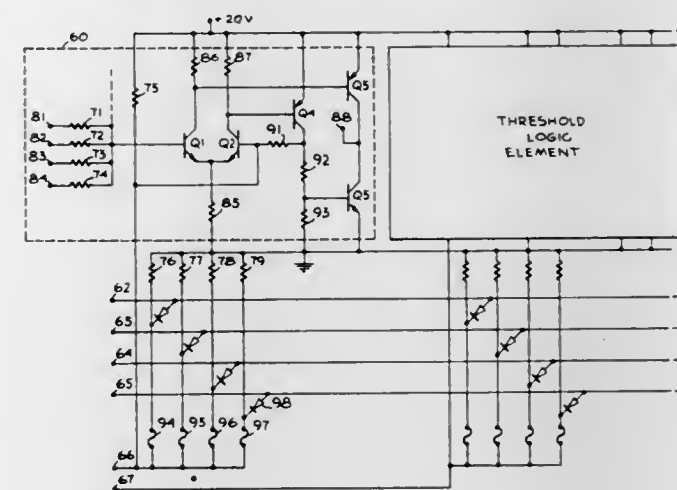
Roy P. Foerster, Thousand Oaks, Calif., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif.

Continuation of application Ser. No. 728,684, May 13, 1968, now abandoned. This application Apr. 19, 1971, Ser. No. 135,356

Int. Cl. H04q 9/00

U.S. Cl. 340-166 R

3 Claims



A fusible link matrix is provided to enable a parameter (e.g., resistance) of a module to be adjusted, without requiring physical access to the components thereof, by selectively

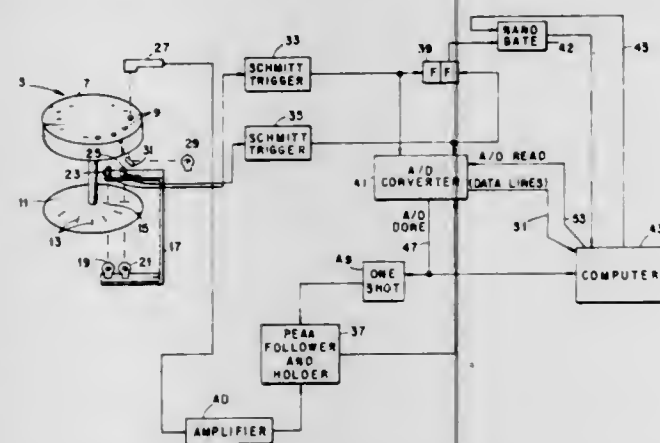
fusing (opening or closing) links of the matrix through an addressing bus. Decoupling diodes between the fusible links and lines of the bus prevent sneak current paths.

3,656,116

COMPUTER INTERFACE

James M. Jansen, Jr., Oak Ridge, Tenn., assignor to The United States of America as represented by the United States Atomic Energy Commission
Filed May 5, 1970, Ser. No. 34,783
Int. Cl. G06f 3/05; G05b 21/00
U.S. Cl. 340—172.5

2 Claims



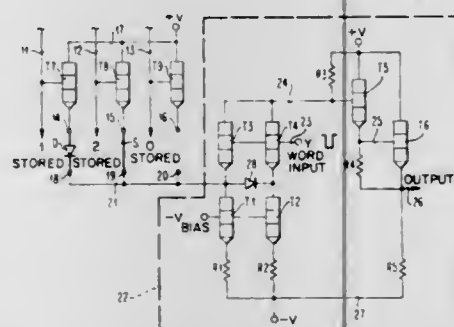
An improved interfacing system has been provided for processing data values in the form of rapidly occurring analog pulses from an analytical photometer into a digital computer. The interface comprises an electrical circuit having a data sample-and-hold section that provides data values to an analog-to-digital converter for reading into the computer. A gating circuit is provided which, when enabled by the computer, allows the computer to sense the first of a series of data pulses to provide an address signal into the computer for addressing the following series of pulses in the computer memory taken from the analog-to-digital converter. The computer may communicate with several interfaced photometers by means of programs held in storage whereby the data values are automatically processed according to the analyses being performed by the photometers.

3,656,117

TERNARY READ-ONLY MEMORY

Gerald A. Maley, Fishkill, and James L. Walsh, Hyde Park, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 5, 1971, Ser. No. 112,934
Int. Cl. G11c 17/00, 11/40
U.S. Cl. 340—173 SP

16 Claims



A ternary read-only memory comprises a matrix of transistors arranged in rows and columns. A plurality of bit lines are each connected to the transistors of a respective one of the columns. Connected to the emitter of each transistor is an impedance which may be either a diode, a conductive shunt or an open circuit. A word amplifier is connected to

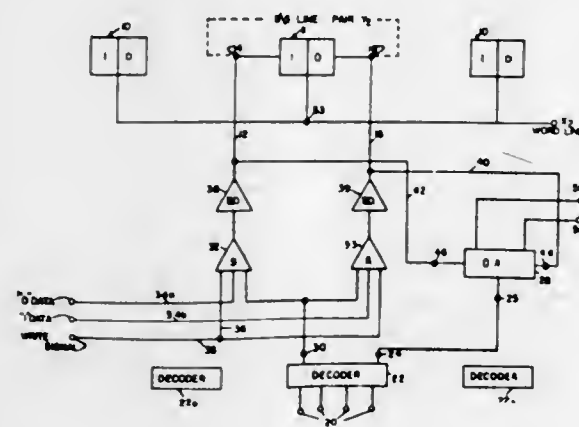
each row of transistors. Means are provided for energizing one of the bit lines and one of the word amplifiers so as to select one transistor for reading out. Each word amplifier includes means for generating a ternary logic function depending upon the value of the impedance connected to the emitter of the transistor selected by energization of the respective bit line and word amplifiers.

3,656,118

READ/WRITE SYSTEM AND CIRCUIT FOR SEMICONDUCTOR MEMORIES

Richard W. Bryant, Poughkeepsie, and George K. Tu, Wappingers Falls, both of N.Y., assignors to Cogar Corporation, Wappingers Falls, N.Y.
Filed May 1, 1970, Ser. No. 33,554
Int. Cl. H03r 19/08; G11c 11/00
U.S. Cl. 340—173 FF

24 Claims



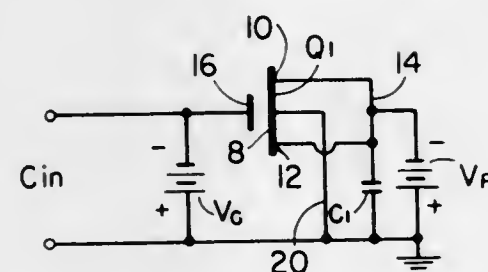
This disclosure relates to a system and semiconductor circuit for reading out of and writing into selected storage cells of a semiconductor memory. In particular, the disclosure relates to such a system and circuit wherein a group of cells utilizes a single decoder for both the read and write operations. The use of a single decoder for a group of cells is accomplished by utilizing both the in-phase and out-of-phase outputs of each decoder to minimize the number of logic stages required.

3,656,119

MEMORY UTILIZING THE NON-LINEAR INPUT CAPACITANCE OF AN MOS DEVICE

Lamar T. Baker, West Islip, N.Y., assignor to General Instrument Corporation, Newark, N.J.
Filed Apr. 24, 1970, Ser. No. 31,490
Int. Cl. G11c 11/40, 5/02
U.S. Cl. 340—173 R

27 Claims



An MOS memory uses the non-linear input capacitance of an MOS device as the data storing element to increase the data storage time. In another embodiment of the invention the non-linear input capacitance of an MOS device is utilized to increase signal feedthrough to a signal node in a memory circuit. In a third embodiment of the invention, practical use is made of the usually undesirable parasitic PNP transistor action of an MOS circuit in a memory amplifier. Also dis-

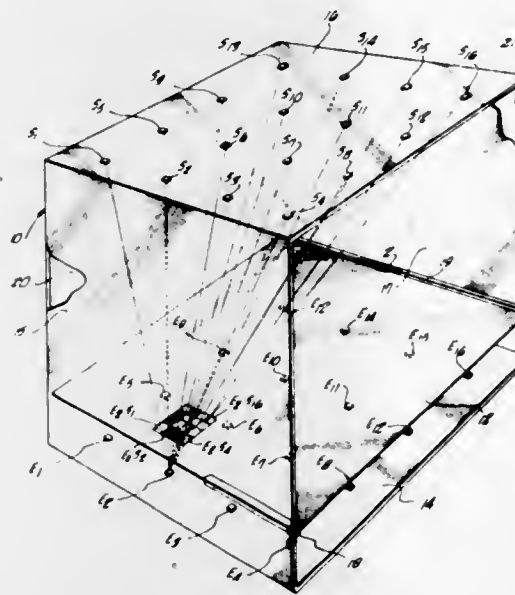
closed is an improved two-device memory cell in which the principles of the invention are utilized.

3,656,120

READ ONLY MEMORY

Douglas R. Maure, Hamden, Conn., assignor to Optical Memory Systems Inc., Santa Ana, Calif.
Filed June 5, 1969, Ser. No. 830,594
Int. Cl. G11c 13/04, 5/04
U.S. Cl. 340—173 LM

14 Claims



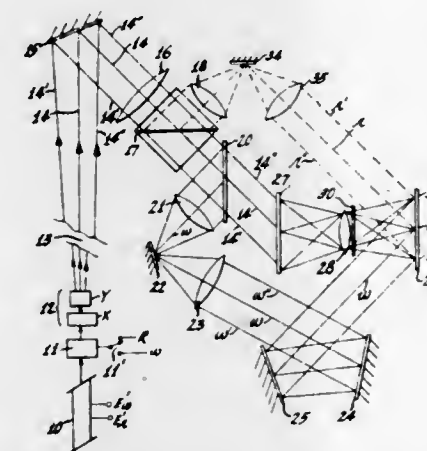
A read only memory wherein an array of light emitting elements and an array of light sensing elements are positioned on opposite sides of an optical mask is disclosed. The mask is selectively provided with bit value defining light transmissive and non-transmissive portions at the intersection points of the light transmission paths as defined by the arrays and the mask. Individual emitting array and sensing array components are selectively energized and sensed respectively to determine the bit values defined by the mask.

3,656,121

ELECTRICALLY AND OPTICALLY ACCESSIBLE MEMORY

Jan Aleksander Rajchman, Princeton, and Walter Frank Kosonocky, Skillman, both of N.J., assignors to RCA Corporation
Filed Oct. 15, 1969, Ser. No. 866,564
Int. Cl. G11b 7/00
U.S. Cl. 340—173 R

5 Claims



A computer memory system is disclosed which includes a randomly and electrically accessible semiconductor "page" memory. The semiconductor page memory is conventional to the extent that it includes a planar array of electrically-ac-

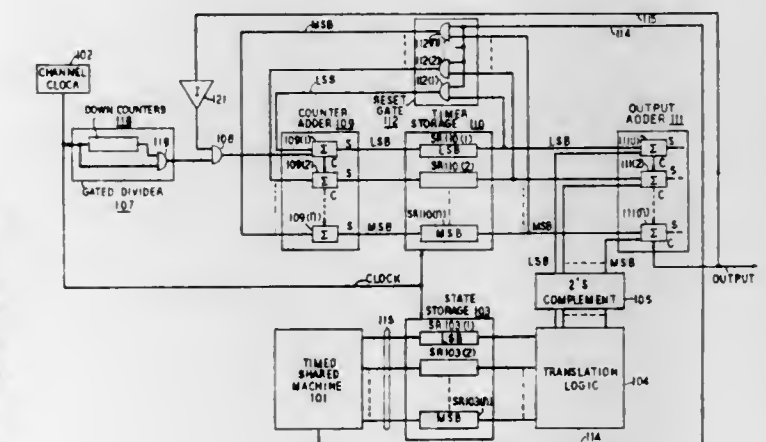
cessible flip-flops for storing a corresponding number of binary information bits. In addition, each flip-flop is provided with a photosensor by which the flip-flop can be set in response to received light, and is provided with a light valve controlled by the state of the flip-flop. A laser light source, a light deflector and holographic optics are provided to create a hologram of the array of light valves at any one of many small areas on an erasable holographic storage medium. Subsequently, the hologram can be illuminated to recreate and project the image of the array of light valves onto the array of photosensors to return the information to the flip-flops in the semiconductor page memory. In this way, the semiconductor page memory serves as a page-at-a-time electrical input-output unit for a great many pages of information stored optically on the erasable holographic storage medium.

3,656,122

TIME-SHARED SHIFT REGISTER COUNTER WITH COUNT MODIFIED EACH NTH RECIRCULATION

Gerald P. Pasternack, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 11, 1969, Ser. No. 884,252
Int. Cl. G11c 19/00; H03k 27/00, 23/02
U.S. Cl. 340—173 RC

4 Claims



Numbers representing time periods are stored in a plurality of shift registers, each register being associated with a digit of the stored number. Each shift register has a plurality of stages, equal in number to the number of time periods which are served by the counter. The number derived from the output of the shift register is recirculated to the input through an adder, the number count being thereby increased to correspond to elapsed time. The number count is increased, however, only during every nth recirculation to reduce the magnitude of the number which defines an elapsed time period thereby reducing the number of shift registers required.

3,656,123

MICROPROGRAMMED PROCESSOR WITH VARIABLE BASIC MACHINE CYCLE LENGTHS

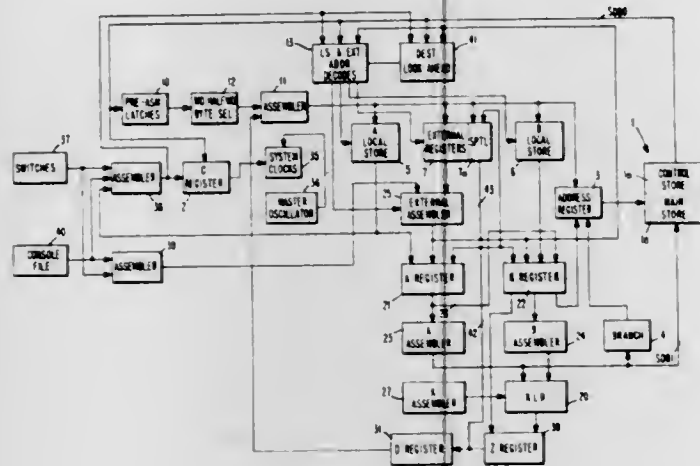
Richard J. Carnevale, Endwell; Leland D. Howe, Jr., Owego; Thomas A. Metz; Karl K. Womack, both of Endicott, and Frank A. Zuria, Johnson City, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 16, 1970, Ser. No. 29,223
Int. Cl. G06f 9/12

U.S. Cl. 340—172.5

8 Claims

A microprogrammed processor has a single storage unit for both main store and control store wherein the read/write times of the storage unit are less than the time required for the microprogram controlled hardware to execute a control word. Since there is no requirement for the hardware to wait for a next succeeding access to storage as in typical known processors, but rather the storage unit now waits for the hardware, it becomes feasible and practicable to improve the

performance of the processor significantly with little additional cost by providing basic machine cycle times for different control word executions which are maintained at a minimum. In the preferred embodiment, a decode circuit examines each control word after it is transferred from control store to a control register to determine the word type which



is to be executed. Depending upon the word type, the decode circuitry applies control pulses to the processor clock to cause it to produce a selected one of three available cycle lengths or a combination of two of said three available cycle lengths. In this manner, system performance is significantly improved.

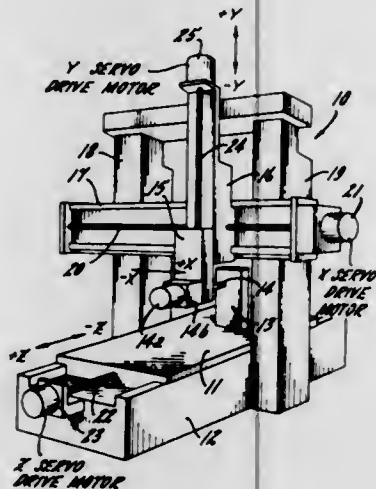
3,656,124 LINEAR AND CIRCULAR INTERPOLATION CONTOURING CONTROL USING REPEATED COMPUTATION

John K. McGee, Houston, Tex., assignor to Giddings & Lewis, Inc., Fond du Lac, Wis.

Filed Sept. 26, 1968, Ser. No. 762,835
Int. Cl. G06f 15/46

U.S. Cl. 340—172.5

82 Claims



A numerical path control system including a time shared digital computer generating for each of a plurality of axes regularly recurring numerical excursion commands. A two axis system is shown to be capable of deriving from a small number of data words successive straight line path or circular arc path command signals at a rate of 50 times a second and of converting these into intermediate or secondary command signals which are applied to the servos of the machine axes at a rate of 500 times a second.

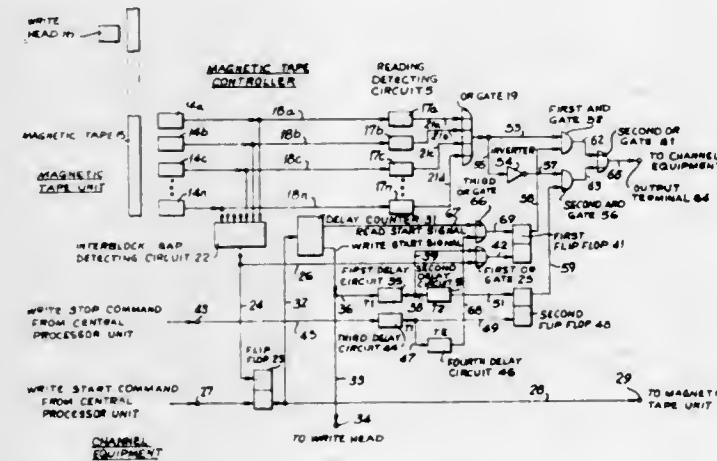
3,656,125 WRITING CHECKING SYSTEM

Kaoru Kanda, Yokohama, and Tadahiro Kobayashi, Kawasaki, both of Japan, assignors to Fujitsu, Limited, Kawasaki, Japan

Filed Nov. 9, 1970, Ser. No. 87,882
Claims priority, application Japan, Nov. 20, 1969, 44/93133
Int. Cl. G11b 27/36, 5/46

U.S. Cl. 340—174.1 B

5 Claims



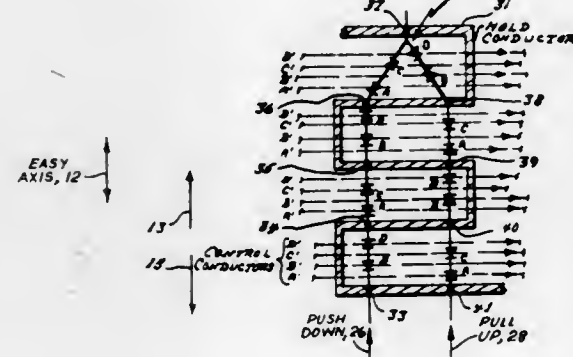
Data recorded on magnetic tape is read by a read head after a specific constant period of time determined by the interval between the write head and the read head and the transfer speed of the magnetic tape. The writing checking system determines whether or not the data written on the magnetic tape by the write head may be read by the read head after a specific predetermined period of time. There is a period of time between the writing of the data on the magnetic tape by the write head and the passage of the data under the read head. Such period of time is utilized to predetermine the time at which the data should not be read by the read head and the time at which the data should be read by the read head and to check whether or not the data read by the read head satisfies the predetermined condition, thereby enhancing the reliability of the writing.

3,656,126 BI-DIRECTIONAL SHIFT REGISTER

Harvey I. Jauvris, Belmont, Mass., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Dec. 31, 1969, Ser. No. 889,446
Int. Cl. G11c 21/00
U.S. Cl. 340—174 FB

3 Claims



A magnetic domain punch-through diode shift register having a pair of vertical low coercive channels in a region of high coercivity. Dispersed in the channels are punch-through magnetic domain diodes which alternate with opposing polarities. A domain can be propagated in only one direction by applying a conducting pulse to a chosen diode at the same

time as a drive pulse is applied. A folded hold conductor alternates its direction between every two diodes.

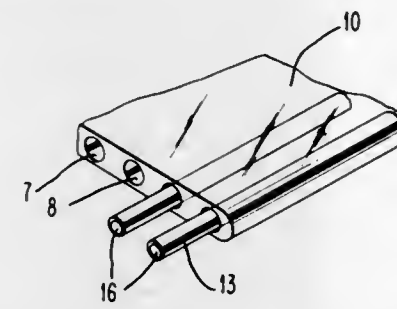
3,656,127 MEMORY PLANE

Gilbert R. Reid, Norristown, Pa., assignor to Sperry Rand Corporation, New York, N.Y.

Continuation of Ser. No. 426,050, Jan. 18, 1965
Filed May 4, 1970, Ser. No. 60,541
Int. Cl. G11c 11/04, 11/14

U.S. Cl. 340—174 PW

6 Claims



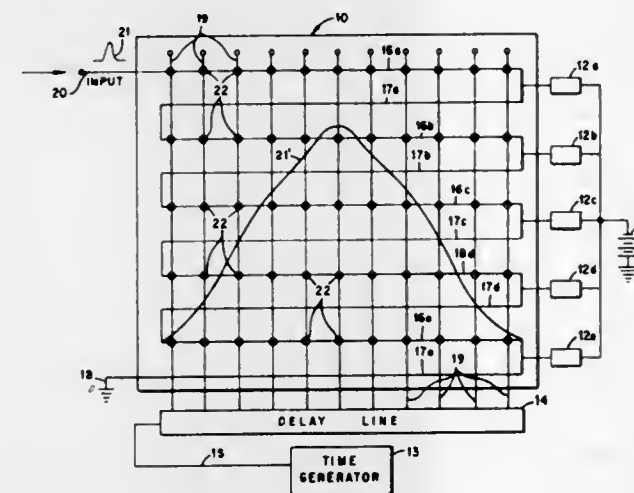
There is disclosed an apparatus which houses a delicate memory element which is the size of a human hair. The apparatus is characterized by high packing density on the order of 25-50 elements to the inch. Parallel, enclosed channels are formed in an insulating material and are dimensioned so that the magnetizable wires are held in position therein without being stressed during variations in temperature as well as for facile insertion and removal both during manufacturing and repair operations.

3,656,128 MAGNETIC MATRIX RECORDING SYSTEM

Kristian Aaland, Livermore, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Dec. 22, 1970, Ser. No. 100,740
Int. Cl. G11c 27/00, 11/14, 5/02
U.S. Cl. 340—174 AN

10 Claims



A magnetic matrix recording and storage system in which an array of thin-film magnetic memories is utilized to record electrical signals as a function of time. In general, for example, one axis of a magnetic matrix card (i.e., an array of magnetic bit memories) provides a time base wherein each column or word line is sequentially periodically excited. The remaining axis concurrently records in threshold steps the magnitude of a signal, thereby providing a magnetically stored plot of the signal as a function of time. The magnetic system may be used, for example, to provide the equivalent of an oscilloscope-camera combination for the recording of a time-varying signal, where the waveform of

the signal is traced out as the boundary between regions of the two stable states of magnetization possible in the film. The magnetic matrix system may utilize, instead of cards or ribbons, parallel wires, each plated with a magnetic thin film and wrapped with coils of wire which provide the bias and signal fields. Readout of the magnetic matrix recording system may, for example, be accomplished by magneto-optical means or electronically.

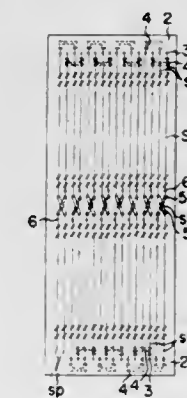
3,656,129 MAGNETIC-CORE MEMORY MATRIX

Joichiro Ezaki, Funabashi-shi, Japan, assignor to TDK Electronics Company Ltd., Chiyoda-ku, Tokyo, Japan

Filed Aug. 26, 1969, Ser. No. 853,026
Claims priority, application Japan, Sept. 3, 1968, 43/76211
Int. Cl. G11c 5/06, 11/06

U.S. Cl. 340—174 CR

4 Claims



A magnetic-core memory matrix in which conductive connecting portions are fixed to an insulating board at the curved or intersecting portions of the sense windings for connecting the ends of said sense windings.

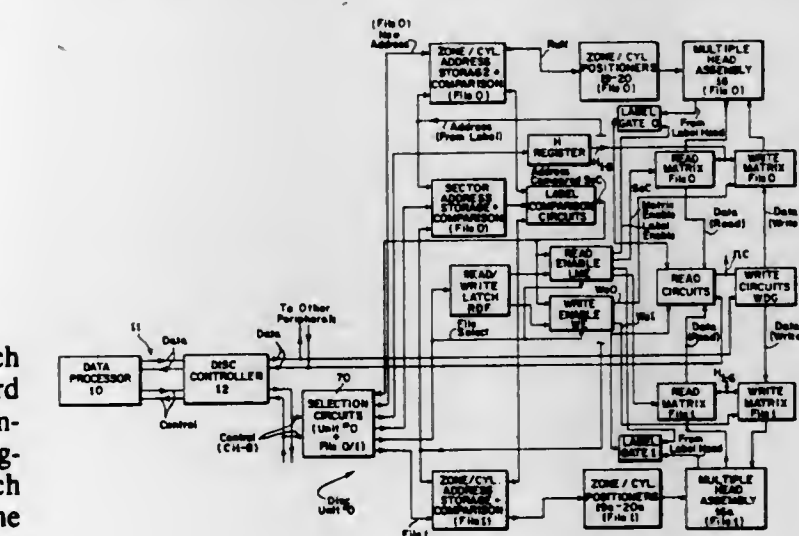
3,656,130 DISC RANDOM ACCESS MEMORY SYSTEM

Edward P. Bucklin, Jr., Hawthorne; Pat E. Evans, Torrance, and Richard K. Gerlach, Rolling Hills Estates, all of Calif., assignors to The National Cash Register Company, Dayton, Ohio

Continuation of application Ser. No. 648,496, June 23, 1967, now abandoned. This application June 4, 1970, Ser. No. 41,766

Int. Cl. G11b 21/08
U.S. Cl. 340—174.1 C

13 Claims



A control system is provided for random access to data storage areas comprising sectors of data tracks on the surfaces of rotating record discs of a group of disc storage units.

Each disc storage unit of this group comprises a pair of disc files including two interchangeable record disc stacks and a movable head assembly for each disc stack. In response to control information including an address supplied to the control system, the movable head assembly for the addressed storage unit and file is moved radially until the address, specifying the data track, compares identically to the pre-recorded (label) track address read from the disc surface by a predetermined one of the read/write heads (label head) in the head assembly. The track addresses comprise a portion only of each of a group of label tracks which are read by said predetermined label head during radial movement of the head assembly and each of the label tracks includes sector addresses and control signals including clock pulses for writing data, synchronization signals for timing of operations including switching operations for selectively gating the signals read by the label head and data signals read by a selected one of the remaining read/write (data) heads of the head assembly to a single read amplifier of the control system.

3,656,131

DATA TERMINAL MESSAGE COMPILER AND TRANSMISSION SYSTEM

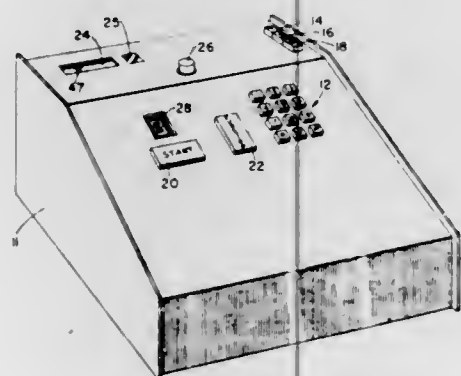
Richard L. Libby, Bedford; Robin C. Moseley; Thomas G. Jehl, both of Andover, all of Mass.; William A. Ruggirello, Derry, N.H., and J. Stewart Dunn, North Reading, Mass., assignors to DASA Corporation, Andover, Mass.

Filed May 25, 1970, Ser. No. 40,309

Int. Cl. G06f 3/02; G11b 13/00

U.S. Cl. 340-172.5

12 Claims



A data terminal message compiler and transmission system in which data is selectively entered and stored on a suitable storage means, such as magnetic tape, by means of a manual entry keyboard. The stored data is visually verifiable and may be corrected at any time prior to transmission. Upon command, stored data is serially, by character, transmitted to a receiving station and the data storage medium is then reset to accept subsequent data from the keyboard.

3,656,132

REMOTE MONITOR SYSTEM

Joseph S. Brumbelow, P.O. Box 447, Wakefield, Mass.

Filed May 26, 1970, Ser. No. 40,488

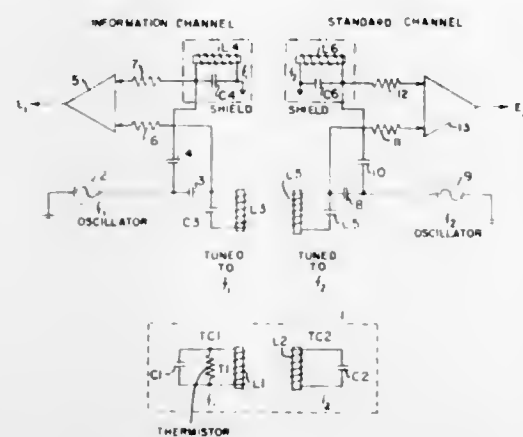
Int. Cl. G08c 19/04

U.S. Cl. 340-189

3 Claims

A system for remotely monitoring the changeable state of a moveable subject employs an illuminator having an electrical resonator which establishes an oscillating "near" magnetic field over the area to be monitored. The illuminator's resonator is driven into resonance and a sensor provides an information signal that is a measure of the oscillatory energy in the resonator. The monitored subject carries a pair of resonant circuits tuned to be set into resonance by inductive coupling to a near magnetic field. One of the resonant circuits is arranged so that its resonant frequency or its energy dissipation (Q) is affected by variations of the monitored state. When at resonance, that resonant circuit causes a

change in the oscillatory energy in the illuminator's resonator which is detected by the sensor and appears in the information signal. The other resonant circuit carried by the monitored subject is insensitive to the monitored state and is tuned to a frequency different from the resonant frequency



of the sensitive resonant circuit. When at resonance, the insensitive circuit causes a change in oscillator energy in a resonator which supplies energy to that circuit through a "near" magnetic field. The energy change is detected and a "standard" signal is obtained with which the information signal is compared.

3,656,133

DATA INFORMATION SIGNAL GENERATOR

Kiyoshi Ichikawa, Takamatsu-shi, and Akira Fujikawa, Tokyo, both of Japan, assignors to Kabushiki Kaisha Hitachi Susakusho

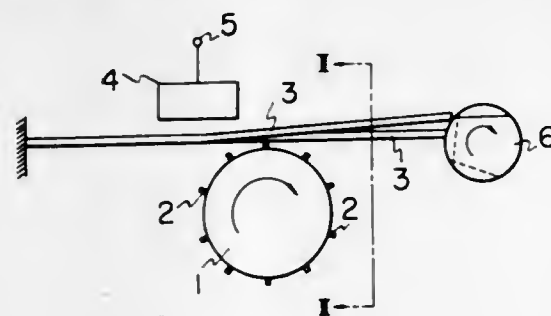
Filed July 16, 1969, Ser. No. 842,263

Claims priority, application Japan, July 17, 1968, 43/50299

Int. Cl. G08c 19/16

U.S. Cl. 340-207

14 Claims



A data information signal generator comprises a plurality of vibrating reeds each mounted to undergo free oscillation, a rotating body having notched portions around it to impart free oscillation to the reeds, another rotating body having around its peripheral surface a plurality of projections to selectively prevent the free oscillation of certain ones of the reeds in accordance with variations in physical quantities, and a detector to detect the existence or non-existence of the free oscillation of the reeds.

3,656,134

LIQUID LEVEL DETECTOR

Fred Brown, Chicago, Ill., assignor to Union Tank Car Company, Chicago, Ill.

Filed July 27, 1970, Ser. No. 58,463

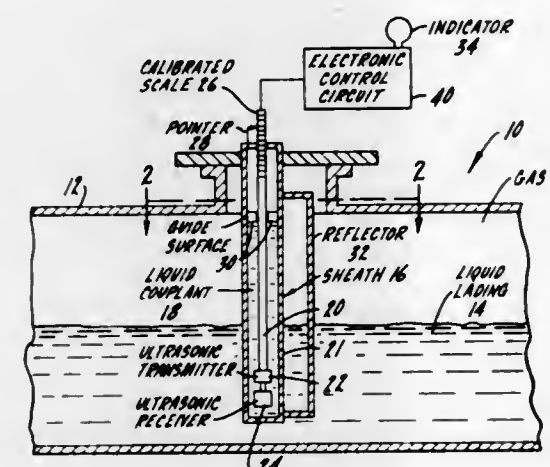
Int. Cl. G01s 9/66

U.S. Cl. 340-244

18 Claims

There is disclosed an apparatus for detecting the presence or absence as well as the height of a liquid lading in a vessel comprising; a sheath insert adapted to be inserted into the

vessel whereby at least a portion of the sheath insert is immersed within the liquid lading, a liquid couplant contained within the sheath insert, a transmitting device, a portion of which is located within the sheath insert and is adapted to transmit an ultrasonic signal through the wall of the sheath insert, a receiving device, a portion of which is located within the sheath insert and is adapted to receive the transmitted ultrasonic signal, a first means for establishing a signal path of fixed length through which the ultrasonic signal must travel from the transmitting device to the receiving device wherein a portion of the signal path is adapted to pass through the wall of the sheath insert and into the vessel, and electronic circuit means associated with the transmitting device and the receiving device whereby the electronic circuit means is responsive to the magnitude and time duration of the ultrasonic signal travelling through the fixed signal path thereby indicating the presence or absence of the liquid lading.



ing.

In a first preferred embodiment, the first means for establishing the signal path of fixed length comprises a reflector located within the vessel and spaced a fixed distance from the sheath insert wherein the ultrasonic signal from the transmitting device is reflected by the reflector and received by the receiving device in a preselected time interval only when the ultrasonic signal passes through the liquid lading.

In a second preferred embodiment, the first means for establishing the signal path of fixed length comprises a transmitting device located within a first sheath and a receiving device located within a second sheath wherein the first and second sheaths are a fixed distance apart and whereby the ultrasonic signal from the transmitting device is received by the receiving device in a preselected time interval only when the ultrasonic signal passes through the liquid lading between the first and second sheath.

3,656,135

FAULT INDICATOR CIRCUIT FOR VEHICULAR BATTERY CHARGING SYSTEMS

Donald O. Ruff, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 29, 1970, Ser. No. 32,850

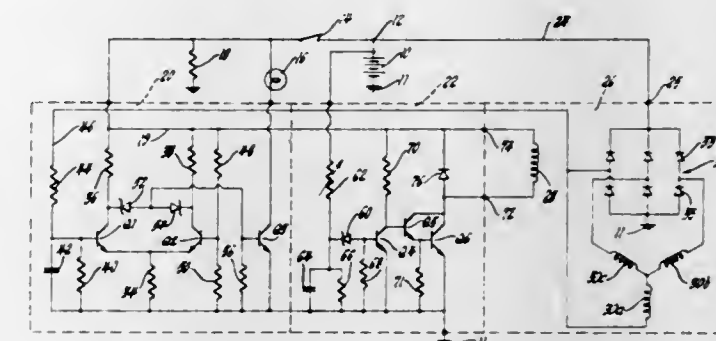
Int. Cl. G08b 21/00

U.S. Cl. 340-248 A

3 Claims

First and second Zener diodes respectively connecting first and second output terminals of a differential amplifier to the base of a transistor, the collector of which is connected to an indicator lamp and the emitter of which is grounded. One input to the differential amplifier is connected to a point in the charging system for the vehicle battery such as the output winding of an alternator, and the other input is connected to a reference potential that varies with the rectified output voltage of the alternator. When the output of the charging system varies from predetermined levels, one or both of the

Zener diodes break down to bias the transistor into conduction, thereby illuminating the lamp. Otherwise the Zeners effectively remove the bias voltage from the base of the transistor keeping it off.



3,656,136

ELECTRIC MOTOR WITH SAFETY SENSING DEVICE

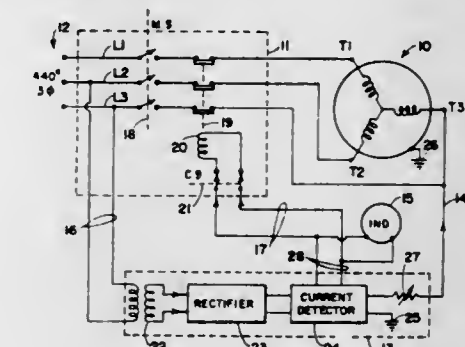
Darrell J. Blair, Ventura County, Calif., assignor to M. & B. Electric Co. Inc.

Filed July 30, 1970, Ser. No. 59,486

Int. Cl. G08b 21/00

U.S. Cl. 340-253 R

1 Claim



A sensing device is connected to one of the winding terminals of an electric motor and a measure of the winding resistance is effectively determined by the value of current flowing through the terminal. If the winding resistance is too low for safe operation of the motor as might result from moisture in the motor, a control signal is generated by the sensing means which in turn will operate an indicating device to advise operators not to apply the main power source to the motor. The same control signal may be utilized to open a switch in the main powerline and thus prevent application of power of the motor until such time as the motor is in a safe condition for operation.

3,656,137

CONVEYOR BAND MONITORING ARRANGEMENT

Walter Ratz, Gelsenkirchen, Germany, assignor to Bergwerksverband GmbH, Essen, Germany

Filed Nov. 20, 1969, Ser. No. 878,374

Claims priority, application Germany, Nov. 22, 1968, P 18 10 387.2

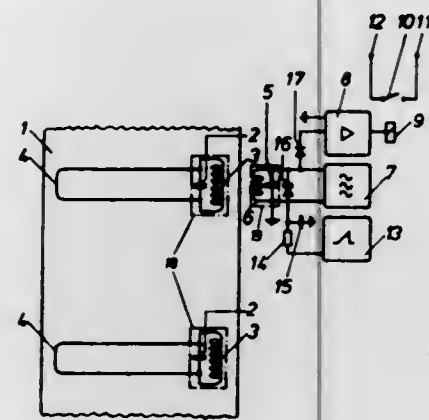
Int. Cl. G08b 21/00

U.S. Cl. 340-259

15 Claims

An arrangement for monitoring the operating condition of conveyor bands by providing them with conductive loops spaced along the conveying path of the band. Each of the conductive loops short-circuits a respective tuned circuit which can transmit through a receiver situated outside of the conveyor. When a conductive loop ceases to short circuit the tuned circuit because of a tear, for example, the receiver emits a signal directed to a warning circuit and/or a control circuit through which the drive of the conveyor may be

stopped. The tuned circuit is comprised of a capacitor and inductor connected in parallel, and the receiver frequency is wobbled to compensate for any variations in the charac-



teristics of the electrical components, for maintaining the monitoring equipment in operation under such variations in the circuit components.

3,656,138

INFUSION MONITORING DEVICE

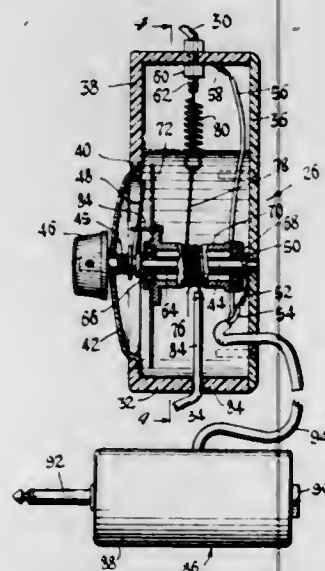
John C. Hamma, Milford, Conn., assignor to Interscience Corporation, Milford, New Haven, Conn.

Filed Mar. 18, 1970, Ser. No. 20,554

Int. Cl. G08b 21/00

U.S. Cl. 340-266

9 Claims



An infusion monitoring device for hospital use, having as its purpose the providing of a signal at the nurse's desk when an infusion (such as an intravenous injection or the like which is being made in a patient's room at a remote location) has progressed to a desired extent. The monitoring device comprises a dial carried by a turnable drum around which there is wound a flexible cable. One end of the cable is attached to a suspension hook on which a bottle containing the supply of infusion liquid is hung. A spring has one end anchored to a casing for the device and has its other end connected with the turnable drum. The drum, dial and spring are contained in the casing, which also carries a settable pointer located in front of the dial. The casing is suspended from the usual type of stand or pedestal commonly utilized for infusion and similar uses. The settable pointer is of metal, and a metal pin extends forwardly from the dial, being engageable with the metal pointer to establish electrical contact thereto. The pointer and the cooperable pin constitute part of an energized control circuit which includes a signal that is activated when contact is established between the pointer and pin. When a bottle of infusion liquid is carried by the suspen-

sion of the monitor device, the dial will be rotated in the manner of a weighing scale until equilibrium is established between the weight of the bottle and the force of the extension spring. With the dial at rest, the settable pointer is positioned so as to be a certain distance from its cooperable contact pin on the dial. This distance represents the quantity of the infusion liquid which is to be injected in the patient. As the infusion proceeds, the liquid running out of the bottle will lighten the latter, causing a slow turning of the dial in a direction to cause the contact pin to approach the set pointer. As the pin engages the pointer, the control circuit will be activated, and a signal or indicator thereof, which is located at the nurse's desk, will give an indication that the desired amount of infusion has taken place. The existing nurse's call signal system and circuit may be utilized for the above purpose, whereby these constitute part of the overall control circuit activated by the pointer and dial pin.

3,656,139

MALFUNCTION DETECTOR

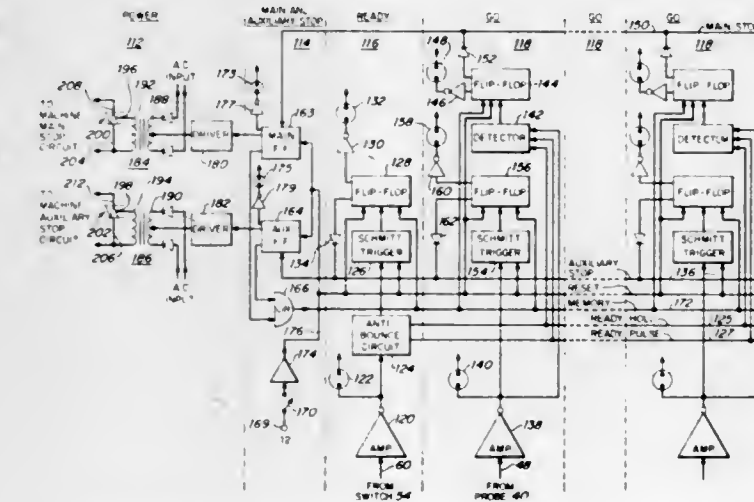
George Victor Wintriss, San Diego, Calif., assignor to Industrial Controls Inc., New York, N.Y.

Filed Apr. 28, 1970, Ser. No. 32,702

Int. Cl. G08b 21/00

U.S. Cl. 340-267 R

14 Claims



A malfunction detector for automatically monitoring and controlling operation of a cyclically operating machine performing one or more operations on work pieces at one or more stations. The detector is of modular construction and includes a circuit for providing a monitoring check cycle and indications that the monitoring cycle has been completed without detecting any malfunctions or that the cycle has not been initiated. Circuitry is also provided for indicating at which individual station any malfunction occurs during the monitoring cycle and for indicating if such malfunction circuitry at any station has become inoperative. Circuitry is also provided for initiating either immediate stoppage of the machine or stoppage at the end of the machine cycle in progress depending on the type of malfunction if the machine is so adapted.

3,656,140

SOLID STATE TIMING CONTROL FOR SINGLE CYCLE PROGRESSIVE LUBRICATING SYSTEMS

Thomas J. Gruber, Chagrin Falls, and William W. Lyth, Cleveland, both of Ohio, assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Continuation of application Ser. No. 696,948, Jan. 10, 1968, now abandoned, which is a division of application Ser. No. 461,018, June 3, 1965, now Patent No. 3,381,776, dated May 7, 1968. This application Nov. 25, 1970, Ser. No. 92,896

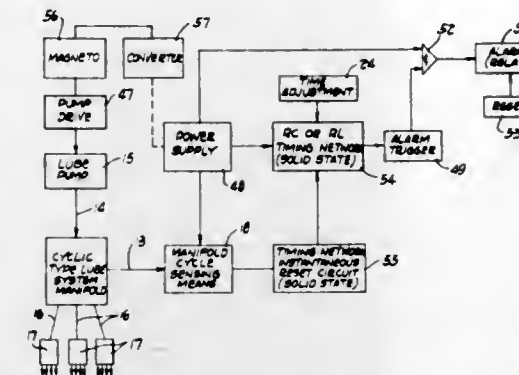
Int. Cl. G08b 21/00

U.S. Cl. 340-270

8 Claims

A lubrication control system for dispensing a measured amount of lubricant within a predetermined period of time

having a lubrication dispensing piston, an electronic timing circuit responsive to movement of the piston and a warning



device controlled by the timing circuit for signalling a failure of the lubricating system to dispense an amount of lubricant within the predetermined time interval.

3,656,141

BIRD-SCATTERING DEVICE

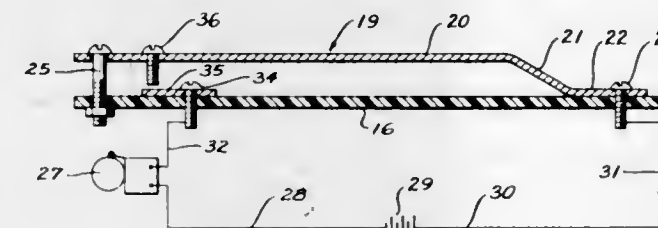
Frank C. Hill, 3033 22nd Avenue, Oakland, Calif.

Filed Jan. 23, 1970, Ser. No. 5,198

Int. Cl. G08b 13/10

U.S. Cl. 340-272

2 Claims



A bird-scattering device operative in response to the weight of the bird alighting thereon to provide an audible alarm effective to frighten birds in the vicinity thereof. The device includes a support casing having a chamber housing therein an electric circuit that comprises an audible alarm in series with a switch operative to complete the circuit whenever a bird alights upon the device. The switch provides as the movable element thereof a large perch normally biased into an inoperative position but displaceable into a closed alarm-energizing position effective to complete the electric circuit whenever a bird lights upon the perch.

3,656,142

SWITCHING CIRCUIT FOR LUMINOUS DISPLAY TUBES

Yoshio Tatsuta, Ise, Japan, assignor to ISE Electronics Corporation, Ise, Japan

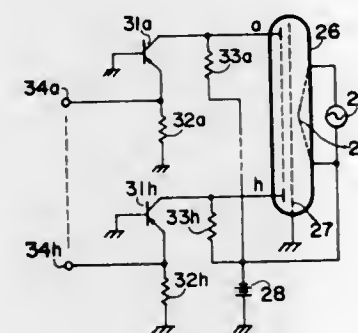
Filed Aug. 26, 1970, Ser. No. 67,001

Claims priority, application Japan, Sept. 1, 1969, 44/68940

Int. Cl. G09f 9/00

U.S. Cl. 340-324 R

2 Claims



In a switching circuit connected between a letter selecting circuit and a luminescent letter display tube there is provided a transistor for each anode electrode of the display tube. The

base electrode of the transistor is grounded, the emitter electrode is suitably biased, the collector electrode is connected to the anode electrode and the control signal is applied to the emitter electrode.

3,656,143

UNAUTHORIZED ENTRY INDICATOR AND METHOD

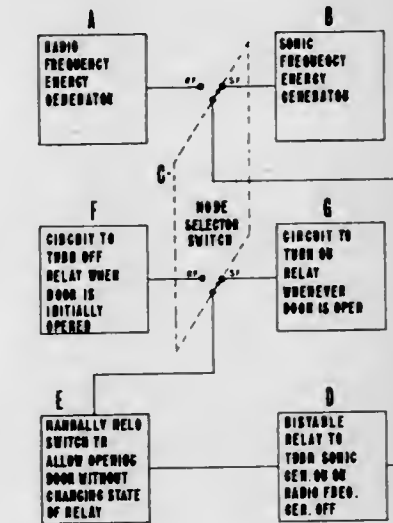
Lyle Douglas Smith, 3400 Carlyn Spring Road, Falls Church, Va.

Filed Jan. 13, 1970, Ser. No. 2,519

Int. Cl. G08b 13/08

U.S. Cl. 340-274

11 Claims



A preferred apparatus for practicing the method comprises silicon controlled rectifiers with anode gate triggering incorporated in a two mode alarm device that can be attached to the inside of a door. Audible mode indicates by the emittance of a penetrating sound perceived by someone on the inside of the door that it is being opened. Radio frequency mode indicates by the absence of a signal, received on a portable radio outside the door, that the door was opened after the mode switch was locked and left.

3,656,144

TIME DELAYED THEFT ALARM FOR A CARRYING CASE

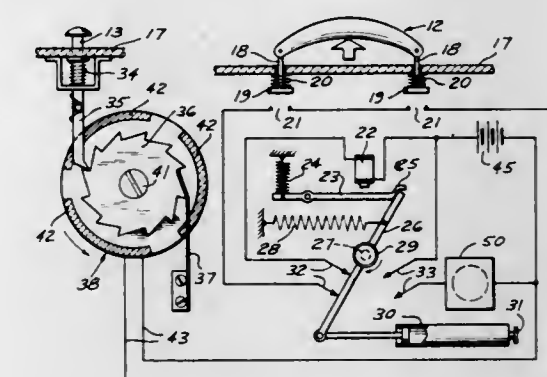
Peter W. Forte, 30 Vassar Place, Rockville Centre, N.Y.

Filed June 4, 1970, Ser. No. 43,358

Int. Cl. G08b 13/14

U.S. Cl. 340-283

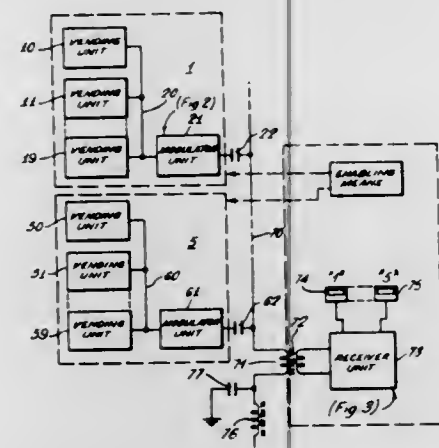
4 Claims



A carrying case alarm system has a time-delay mechanism for initiating an alarm signal at some predetermined time after theft of the carrying case has occurred, thereby enabling the owner of the case to separate himself from the thief prior to initiation of the alarm signal. The system comprises a first switch positioned for operation by a carrying handle on the case, the switch being connected to energize

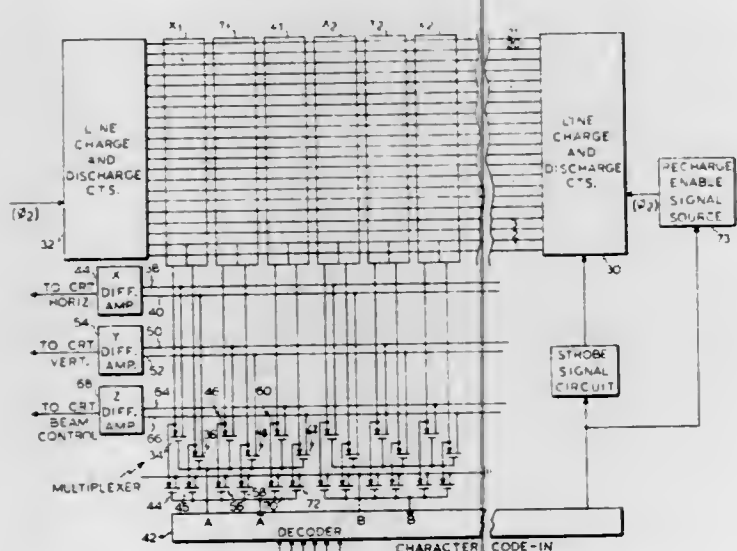
an electromagnet for actuating a pivotal lever. The lever is pivoted by a spring but impeded in its motion by a dashpot, said lever being positioned to close a second switch for energizing the alarm after a predetermined time depending on the pivotal speed of the lever as limited by the dashpot.

3,656,145
VENDING AND RECORDING APPARATUS
Sydney E. Proopa, London, England, assignor to Quickmaid
Rental Service Limited, London, England
Filed Mar. 10, 1969, Ser. No. 805,688
Claims priority, application Great Britain, Mar. 8, 1968,
11,441/68
Int. Cl. G08c 19/12
U.S. Cl. 340—310
8 Claims



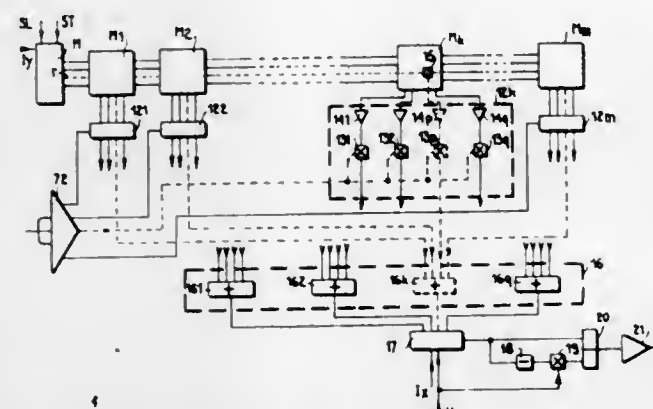
The invention relates to vending and recording apparatus in which an signal generator is actuated when an article is dispensed from the vending machine to transmit modulated carrier frequency signals over a physical line, having a receiving station having a signal receiving and recording apparatus for receiving, demodulating and amplifying carrier frequency signals and for recording cost unit signals representative of the value of the dispensed article.

3,656,146
INTEGRATED CIRCUIT CHARACTER GENERATOR
 Carver A. Mead, 2036 Pasadena, Glen Road, Pasadena, Calif.
 Filed Jan. 25, 1971, Ser. No. 109,136
 Int. Cl. G06f 3/14
 U.S. Cl. 340—324 A 10 Claims



Deflection and intensity control signals suitable for forming characters on the face of the cathode ray tube are derived from suitably shaped charge pick-up plates capacitively spaced from a sequentially excited conductor grid.

3,656,147
SYMBOL DISPLAY SYSTEM FOR MESSAGES
RECEIVED IN SIGNAL FORM
Yvon Fouche, Chatou, and Jean Dansac, Paris, both of
France, assignors to Compagnie Internationale Pour L'In-
formatique
Filed Jan. 21, 1969, Ser. No. 792,664
Claims priority, application France, July 28, 1968, 137376
Int. Cl. G06f 3/14
U.S. Cl. 340—324 A **16 Claims**



Alpha-numerical signals are indicated on the face of a cathode ray tube, the scanning of which is controlled by stored signals derived from photo-sensitive sensors, arranged in a matrix, and exposed to light from an electro-luminescent source, addressing a specific field in a mask, the mask carrying on its fields representations of the alpha-numerical symbols.

3,656,148

DATA HANDLING APPARATUS

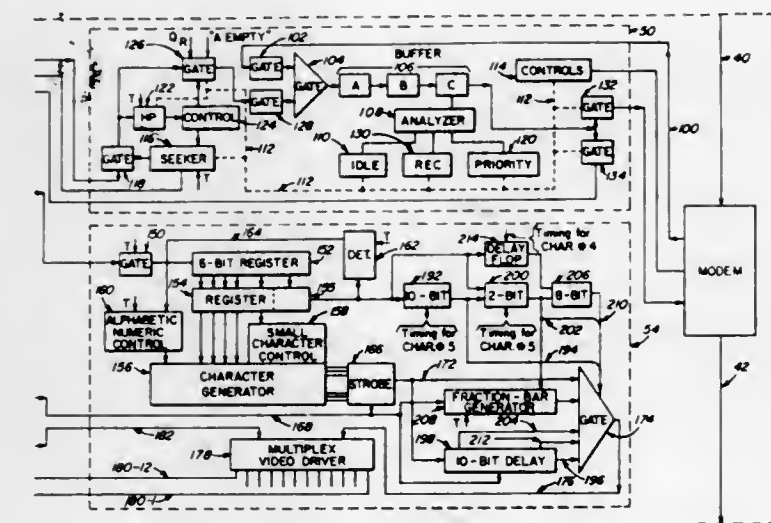
Richmond D. Belcher, Thornwood; Robert J. Duggan, Bronx, both of N.Y.; George R. Ellis, Trumbull, Conn.; Robert H. Esslinger, Wilton, Conn.; W. Frederick Goodyear, Westport, Conn.; Joseph C. Marshall, Chappaqua, N.Y., and Thomas R. Mason, Stamford, Conn., assignors to The Bunker-Ramo Corporation, Oak Brook, Ill.

Original application June 1, 1965, Ser. No. 460,117, now Patent No. 3,500,327, Continuation-in-part of application Ser. No. 370,323, May 26, 1964, now abandoned. Divided and this application Feb. 25, 1969, Ser. No. 839,099

Int. Cl. G06f 3/14

U.S. Cl. 340—324 A

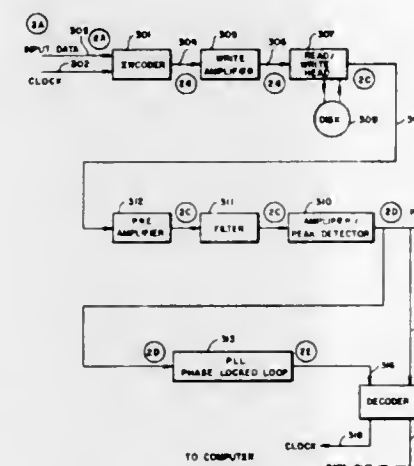
12 Claims



A system for receiving queries from data entry means at a plurality of remote stations and for sending replies from a central station having data storage and data processing means to the appropriate remote station to be displayed on a data presentation means such as a cathode ray tube. The

queries at the remote stations are interrogated by circuitry at an intermediate station. A recirculating memory means is provided at the intermediate station for assembling the query messages. A complete query is transmitted from the intermediate station to the central station where a reply message corresponding to the query is developed. The reply is transmitted back to the intermediate station and stored in a recirculating memory. The reply message is periodically sent as a succession of signals to the appropriate remote station to control the display on the data presentation means. Periodically, the central station interrogates all queries stored at the intermediate station, including those for which replies have previously been generated, and generates new replies in response to these queries. The information display at the remote station is in this manner maintained current.

3,656,149
THREE FREQUENCY DATA SEPARATOR
 Keshava Srivastava, Waltham, and Samuel J. Dixon, Hollist,
 both of Mass., assignors to Honeywell Information Systems
 Inc., Waltham, Mass.
 Filed Nov. 23, 1970, Ser. No. 91,626
 Int. Cl. H04l 3/00; H03r 13/24
 U.S. Cl. 340—347 DD
 16 Claims

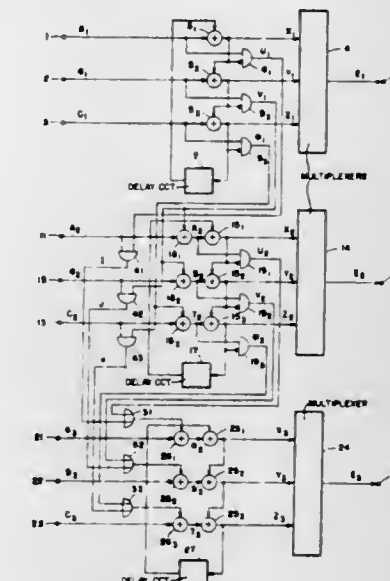


A three frequency data separator is disclosed. Information which has been recorded on a magnetic storage medium using a three frequency recording technique is decoded by utilizing a phase-locked loop which generates signals at twice the data rate. A preamble existing in the machine and the phase-locked clock are used to generate a "window" in the middle of a cell. The "window" is checked to determine if there is a phase reversal in the middle of the cell; such a phase reversal indicates a ONE whereas the absence of a reversal indicates a ZERO.

3,656,150
CODE CONVERSION SYSTEM
Kotaro Kato, Tokyo, Japan, assignor to Nippon Electric Com-
pany, Limited, Tokyo, Japan
Filed Feb. 20, 1970, Ser. No. 13,013
Claims priority, application Japan, Feb. 26, 1969, 44/14814;
44/148415
Int. Cl. G06F 5/00
U.S. Cl. 340—347 DD **14 Claims**

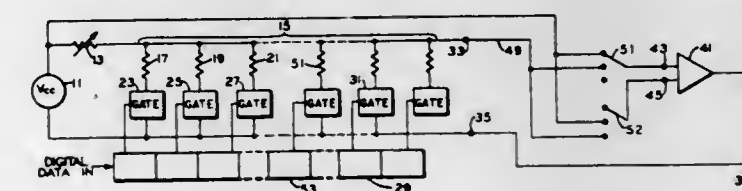
U.S. Cl. 340-347 BB

When providing a summing conversion in a binary system or in a system having a radix of 2^m , where m is a positive integer equal to or greater than 2, in which a plurality of trains of binary coded signals having a low repetition rate are multiplexed into a single train or a plurality of trains of coded signals of a higher repetition rate with the multiplexed signals representing a summing conversion of input binary signals, the invention performs the logical operations for summing and carry operation on the coded signals of the low repetition rate, and then multiplexes the converted signals into a train or trains of the higher repetition rate. Conversely, a



signals of a lower repetition rate before performing the logical operations for differential conversion and carry operation to recover the plurality of trains of the original coded signals of the low repetition rate.

3,656,151
DIGITAL FUNCTION GENERATION NETWORK
William E. Richeson, Jr., and Mike B. Feher, both of Fort Wayne, Ind., assignors to The Magnavox Company, Fort Wayne, Ind.
Filed Mar. 26, 1970, Ser. No. 22,958
Int. Cl. H03k 13/04
U.S. Cl. 340—347 DA
5 Claims

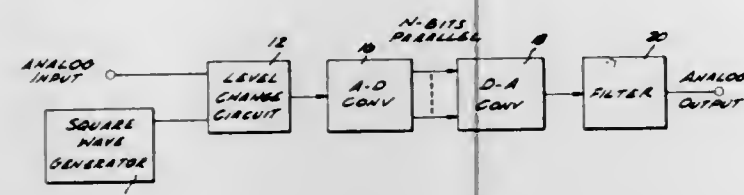


A scheme for transforming input digital information into output analog information where the output is a specified and not necessarily linear function of the input is disclosed. In its simplest form, the circuitry for achieving this result consists of a ladder network, a waveshaping impedance, and a signal generator connected in series. Each rung of the ladder network is a series impedance and gate circuit associated with a specified digital position in the input code and the corresponding impedance is weighted as a function of its positional significance. An output operational amplifier may optionally be provided which serves to invert and appropriately shift the output signal to achieve the desired output waveform.

3,656,152
IMPROVED A-D/D-A CONVERTER SYSTEM
James L. Gundersen, Carson, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.
Filed Feb. 16, 1970, Ser. No. 11,499
Int. CL H03k 13/02
U.S. CL 340—347 AD 11 Claims

U.S. CL. 340—347 AD **11 Claims**
A system for transmitting digital representations of analog signals which increases resolution without a corresponding increase in the number of bits in the digital data which is

transmitted. In one embodiment, the analog input signal is applied to a level change circuit and summed with a square wave having peak-to-peak voltage equal to one-half the magnitude of the value of the least significant bit of the digital representation. The square wave pattern output of the level change circuit is applied to an analog-to-digital converter and the digital output is transmitted to a digital-to-analog con-



verter. The output of the digital-to-analog converter is filtered to provide the analog output signal. During the time that the square wave pattern crosses an analog-to-digital converter threshold value, the resultant digital-to-analog output is a square wave with an average value between the normal discrete analog output levels. This results in twice as many levels at the analog output which is equivalent to the addition of one bit of resolution.

3,656,153

ANALOGUE-DIGITAL CONVERTING APPARATUS
Ikuro Takeda; Takashi Suzuki, and Hikaru Furukawa, all of Tokyo, Japan, assignors to Takeda Riken Industry Company Limited, Tokyo, Japan

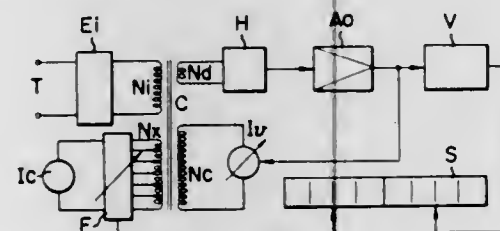
Filed Apr. 7, 1970, Ser. No. 26,301

Claims priority, application Japan, Apr. 9, 1969, 44/26858

Int. Cl. H03k 13/02

U.S. Cl. 340-347 AD

1 Claim



This disclosure is an analogue-digital converting apparatus wherein a magnetic core is provided with an input winding, a variable winding in which the number of turns can be changed, a fixed winding of a constant number of turns, and the core also having a magnetic flux detecting winding, these windings being coupled to appropriate circuitry such that, as detected by the flux winding, a flux developed in the core by a current in the input winding can be balanced by current introduced in the fixed and variable windings, the latter current being displayed digitally such that its magnitude can be read with a high precision of more than 8 to 9 digits to represent the magnitude of the input current.

3,656,154

APPARATUS FOR CONVERTING A CYCLIC ANALOG SIGNAL TO A DIGITAL SIGNAL

Joseph A. Ross, Fort Salonga, and Hakan O. Hemdal, Huntington, both of N.Y., assignors to Potter Instrument Company, Inc., Plainview, N.Y.

Filed Sept. 9, 1970, Ser. No. 70,754

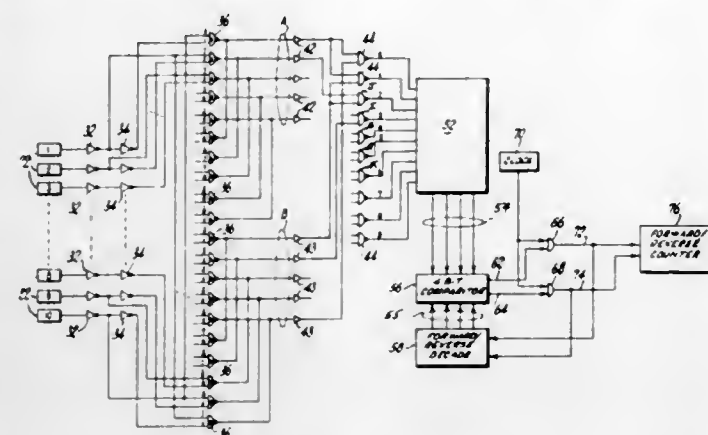
Int. Cl. H03k 13/175

U.S. Cl. 340-347 AD

1 Claim

The specification and drawings disclose 10 photocells arranged to view a full cycle of a space distributed analog signal. Each photocell is coupled to the input of an amplifier whose output rests in one binary state if the input exceeds one level and rests in another binary state if its input falls

below another level. Of the large number of combinations in which the binary outputs of the amplifiers can exist, logic cir-



cuitry responsive to certain combinations only produces one unique output for each incremental displacement of the periodically varying signal.

3,656,155

ELECTROMAGNETIC HORNS

Eric Bernard Parkes, Birmingham, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

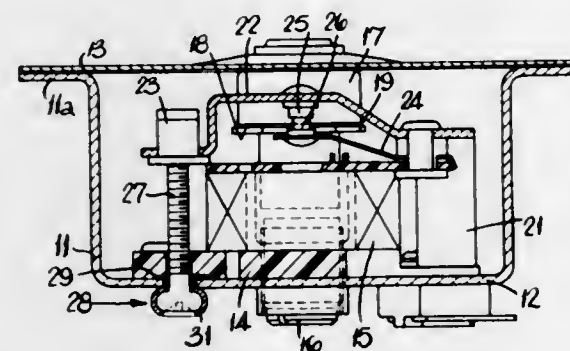
Filed Apr. 22, 1970, Ser. No. 30,869

Claims priority, application Great Britain, June 11, 1969, 29,514/69

Int. Cl. G08b 3/00

U.S. Cl. 340-388

6 Claims



An electromagnetic horn comprises a casing, a resilient diaphragm closing the casing, an electromagnet carried by the casing, an armature associated with the electromagnet and secured to the diaphragm and a movable contact within the casing. The movable contact is movable into or out of engagement with the fixed contact by the armature to control energisation of the electromagnet and a bolt extends through the casing and is connected to the fixed contact so that rotation of the bolt relative to the fixed contact adjusts the position of the fixed contact relative to the casing. The head of the bolt is accessible from the exterior of the casing and is engaged in a restraining member which is secured to the casing so as to be immovable relative to the casing in a direction parallel to the axis of the bolt. The restraining member holds the bolt against axial movement relative to the casing but permits angular movement of the bolt relative to the casing.

3,656,156

D.C. VIBRATING HORN

Charles Berns, Brookfield, Conn., assignor to Edwards Company, Inc., Norwalk, Conn.

Filed July 10, 1970, Ser. No. 53,754

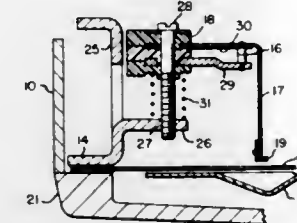
Int. Cl. G08b 3/00

U.S. Cl. 340-388

2 Claims

A D.C. horn apparatus has been provided including an open housing, a diaphragm mounted over the opening in the housing and an electromagnetic means including a circuit breaker contact for providing vibrating motion to the

diaphragm when energized. The improvement includes a resilient vibrating contact mounted at one end to the housing having one contact thereon, a secondary contact arm mounted on the housing at one end and having a second contact engaging said first contact for closing the circuit of the



electromagnetic means, and a resilient damper pad mounted on the free end of the vibrating arm for engaging the diaphragm and transferring motion of the diaphragm when activated by said electromagnetic means for opening the contacts and damping interaction of the vibrating arm and the diaphragm.

3,656,157

APPARATUS AND METHOD FOR PRODUCING AND TRANSMITTING SIGNALS

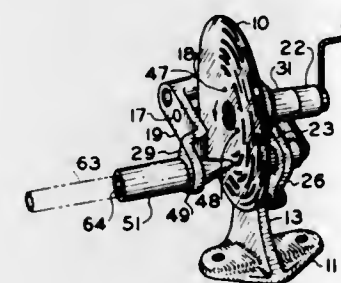
Russell H. Romney, 3259 Bon View Drive, Salt Lake City, Utah

Filed May 18, 1970, Ser. No. 38,382

Int. Cl. G08b 3/06

U.S. Cl. 340-404

10 Claims



Signals, such as elements of the Morse code, are produced by projecting a stream of energy, such as a small gas stream or light beam, against the normally obstructing annular zone of a rotating disc provided with apertures which allow the energy to pass through in a controlled pattern. Means mounting the input stream and the transmitter in axial alignment are mounted for selective shifting to other annuli of the disc; in this way a disc can carry a series of different signals. The transmitter may be a simple transducer, such as an air activated pipe, or whistle, or it may be a light conduit leading to a photosensitive transducer. The tone produced stimulates closely the commercial radio and wireless signals and facilitates teaching the code by means of aural rather than visual images.

3,656,158

INTEGRATED FULLY SUPERVISED FIRE ALARM SYSTEM

Harry C. Goodwater, San Francisco, Calif., assignor to Audio Alert Corporation, San Francisco, Calif.

Filed Nov. 30, 1970, Ser. No. 93,768

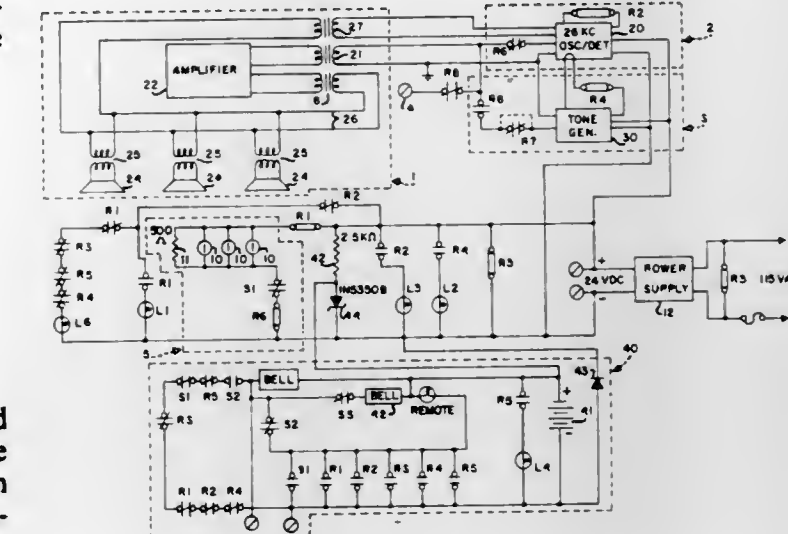
Int. Cl. G08b 21/00

U.S. Cl. 340-409

13 Claims

A low voltage audio fire alarm system fully integrated in a paging and music speaker system. The alarm circuits including pull-boxes and automatic fire, smoke and heat detection apparatus and the audio circuits are fully and continuously supervised against component failure by means of a plurality of current responsive relays. The audio path including the

speaker system and associated amplifiers is continuously monitored by a low level supersonic 26KC signal. Fail-safe



features utilizing multi-contact switches and relays are incorporated throughout the system to prevent inadvertent silencing of alarms in the absence of an alarm condition.

3,656,159

MINIMUM SIZE TRANSPONDER

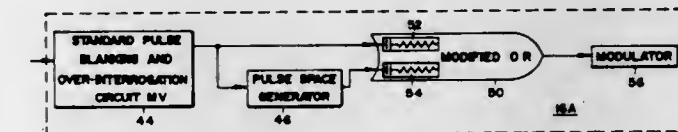
Keith M. Kingsbury, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Mar. 2, 1970, Ser. No. 15,730

Int. Cl. H03k 5/13; G01s 9/56

U.S. Cl. 343-6.8 R

8 Claims



A transponder of minimum size is disclosed which will, upon receipt of an interrogation, send out a pair of pulses with adjustable spacing, and in one adjustment thereof, will send out pulses continuously, while in another adjustment thereof it will send out pulses, one pulse transmitted for one pulse received. The minimum size of the transponder is attained in part by combining the functions of parts of a known transponder in circuits of minimum size.

3,656,160

DOWNED-AIRCRAFT RADIO LOCATOR-BEACON EMPLOYING PLURAL LOOP ANTENNAS

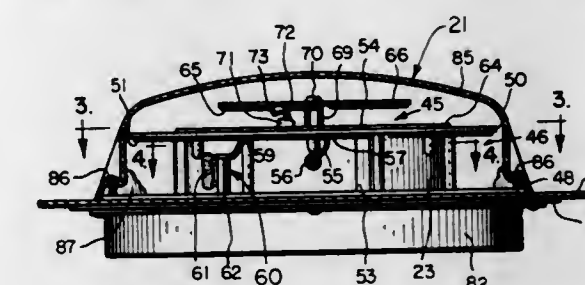
Jay E. Burton, Fort Collins, Colo., assignor to Burton Instrumentation, Inc., Fort Collins, Colo.

Filed Feb. 9, 1970, Ser. No. 9,880

Int. Cl. H01q 1/24

U.S. Cl. 343-702

14 Claims



A compact dual-frequency specially-modulated radio transmitter and combined antenna assembly are mounted in an aircraft. Operation is initiated either automatically in the

event of a crash or manually by a remote control, with the remote control system incorporated in a manner such that severing or shorting of its connections in a crash will not prevent automatic operation. Overall size and airdrag are minimized by sandwiching the principal transmitter components between a ground plane and a loop-shaped antenna parallel thereto.

3,656,161

MAINTAINING A CIRCULARLY POLARIZED MAGNETIC FIELD AT A MOVING POINT

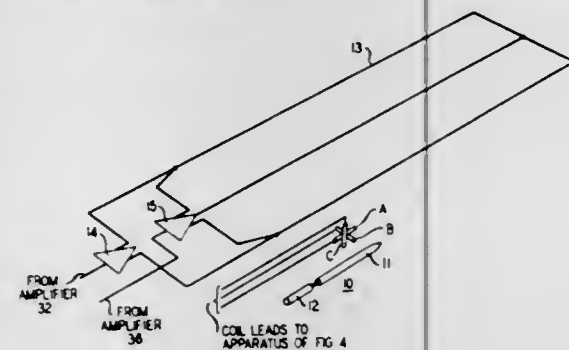
William Frederick MacPherson, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 31, 1969, Ser. No. 889,464

Int. Cl. H04b 7/00

U.S. Cl. 343-100 PE

4 Claims



A circularly polarized magnetic field is maintained at the location of a subsoil penetrator traveling beneath a dipole-quadrupole field propagating antenna which serves as a reference frame with respect to which the penetrator is guided.

3,656,162

DIPLEXER FOR RADIO COMMUNICATION

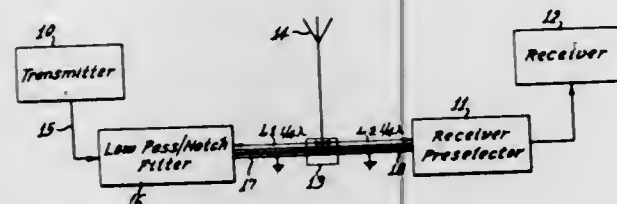
Thomas Francis Mee, New York, N.Y., assignor to Litton Systems, Inc., Beverly Hills, Calif.

Filed Sept. 19, 1969, Ser. No. 859,507

Int. Cl. H04b 1/52

U.S. Cl. 343-180

1 Claim



A diplexer enabling radio transmitter and receiver to operate simultaneously or sequentially with the same antenna with closely spaced transmitter and receiver frequencies. The diplexer consists essentially of a low pass and notch filter in the transmitter circuit, a band pass filter in the receiving circuit and series coaxial cables of predetermined lengths in the transmitting and receiving circuits which are connected to a common antenna. The electrical length of the coaxial cable in the transmitting circuit is adjusted to be a high impedance to the receiver frequency, whereas the electrical length of the coaxial cable in the receiving circuit is adjusted to be a high impedance to the transmitter frequency. The low pass filter and the receiver band pass filter may be similar to those normally used in radio communication without diplexing. The notch filter is tuned to reject the wave energy generated by the transmitter at the receiver frequency.

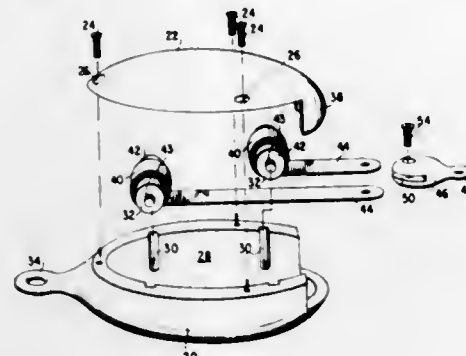
3,656,163
ANTENNA TENSIONING UNIT
William C. Rogers, 5363 N.W. 36th Street, Miami Springs, Fla.

Filed Jan. 6, 1970, Ser. No. 952

Int. Cl. H01q 1/28

U.S. Cl. 343-705

18 Claims



An aircraft antenna tensioning unit shaped to reduce aerodynamic drag and corona discharge in which the tensional force may be selected after installation of the device on an aircraft without resort to special tools.

3,656,164

RETRACTABLE AIRCRAFT ANTENNA WITH STREAMLINED RADOME FOR SCANNING

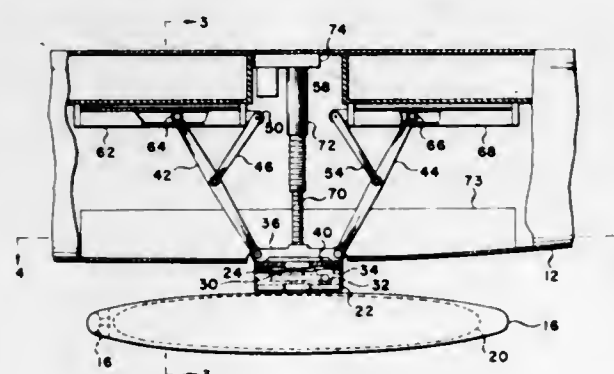
Henry F. Rempt, Van Nuys, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Dec. 4, 1969, Ser. No. 882,200

Int. Cl. H01q 1/28

U.S. Cl. 343-705

7 Claims



A rotatable antenna selectively positionable to an operative location beneath the underside of the fuselage of an aircraft; the antenna being capable of being of a greater longitudinal length than the diameter of the aircraft fuselage, and being selectively retractable, vertically, to a stored position entirely within the aircraft fuselage.

3,656,165

LENS POLARIZATION CONTROL

Carlton H. Walter, Roger C. Rudduck, and Charles E. Ryan, Jr., all of Columbus, Ohio, assignors to The Ohio State University Research Foundation, Columbus, Ohio

Continuation-in-part of application Ser. No. 431,890, Feb. 11, 1965, now abandoned. This application Sept. 18, 1968, Ser. No. 767,564

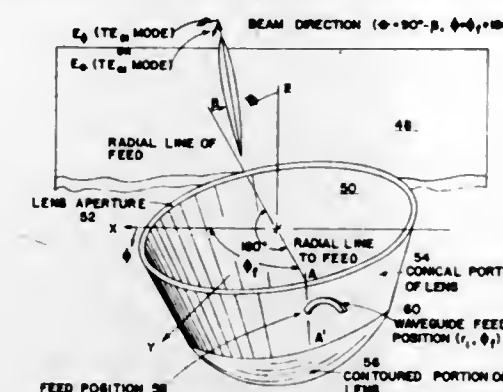
Int. Cl. H01q 19/06

U.S. Cl. 343-754

6 Claims

The invention is for a geodesic Luneberg lens antenna structure of nonplanar construction excited by horizontally and vertically polarized electromagnetic energy. Excitation of the lens by a single dual polarized feed will produce two divergent beams — one horizontally and the other vertically

polarized. Excitation of the lens by two separate feeds at locations indicated by application of the criteria disclosed



herein will result in the capability of providing arbitrary elliptical polarization including linear and circular polarization.

3,656,166

BROADBAND CIRCULARLY POLARIZED OMNIDIRECTIONAL ANTENNA

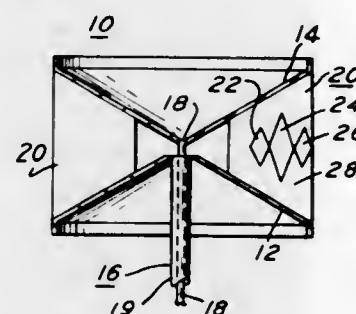
Robert T. Klopach, and Joseph Bohar, both of Lansdale, Pa., assignors to American Electronic Laboratories, Inc., Colmar, Pa.

Filed June 5, 1970, Ser. No. 43,771

Int. Cl. H01q 19/00

U.S. Cl. 343-756

14 Claims



An omnidirectional, circular polarized antenna which includes a biconical dipole and a plurality of passive members mounted around the axis of the dipole within a boundary formed by a cylinder enclosing the biconical dipole. Each of the passive members includes three diamond shaped metal elements in side-by-side relation and laying in the same plane. The plane of each of the passive members is at an angle with respect to the axis of the biconical dipole.

3,656,167

DIPOLE RADIO ANTENNAE

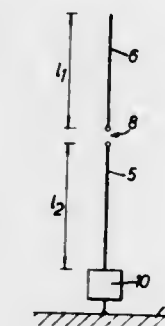
Charles A. Lea, Ilford, England, assignor to The Plessey Company Limited, Ilford, England

Filed Nov. 25, 1969, Ser. No. 879,753

Int. Cl. H01g 9/16, 21/06

U.S. Cl. 343-793

2 Claims



Dipole whip antenna arrangements are disclosed which are capable of operating over a wide frequency band without the use of continual manual or automatic tuning. This is achieved

by connecting the dipole whip antenna to the ground plane through a reactance network which is specially designed so as to match the impedance at the feed point of the dipole arrangement to a desired value over the desired frequency band. For this purpose, the reactance network is an active network, and operates by effectively cancelling out the reactance of the antenna.

3,656,168

SPIRAL ANTENNA WITH OVERLAPPING TURNS
George T. Stropki, Gahanna, Ohio, assignor to North American Rockwell Corporation, El Segundo, Calif.

Continuation-in-part of application Ser. No. 856,283, Sept., 1969, now abandoned. This application May 25, 1971, Ser. No. 146,819

Int. Cl. H01q 1/36

U.S. Cl. 343-895

2 Claims



An antenna of the type that radiates a circularly polarized electromagnetic energy field is constructed with one of an included pair of transversely overlapping double-wound spiral conductors secured to a different one of substantially parallel opposite surfaces of a dielectric support means. The improved broad band antenna radiates energy in the range of approximately 2 to 17 GHz without radiation pattern degradation at higher peak power values in comparison to conventional circularly polarizing antennas.

3,656,169

METHOD AND APPARATUS FOR WRITING CHARACTERS

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Kabushiki Kaisha, Tokyo, Japan

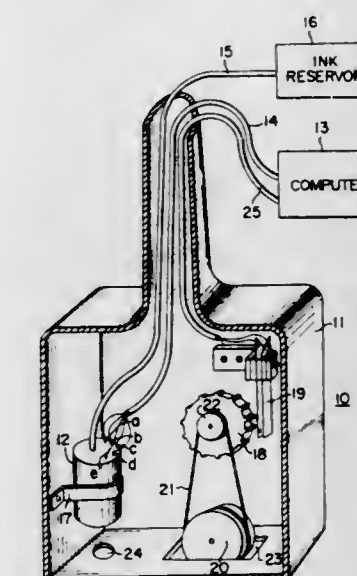
Filed May 19, 1970, Ser. No. 38,736

Claims priority, application Japan, May 23, 1969, 44/39616

Int. Cl. G01d 15/18

U.S. Cl. 346-1

10 Claims



A recording device which is mechanically separated from a processor is manually moved on the recording medium to

record the characters or indicia upon it. The recording of the characters on the recording medium while moving the recording head is accomplished by the stream of ink droplets ejected from the nozzle and control signals transmitted from the processor.

The control signals from the processor to the recording head are generated in response to the displacement signals generated by a signal generating means within the recording head is manually moved.

3,656,170

TILTABLE ANTENNA

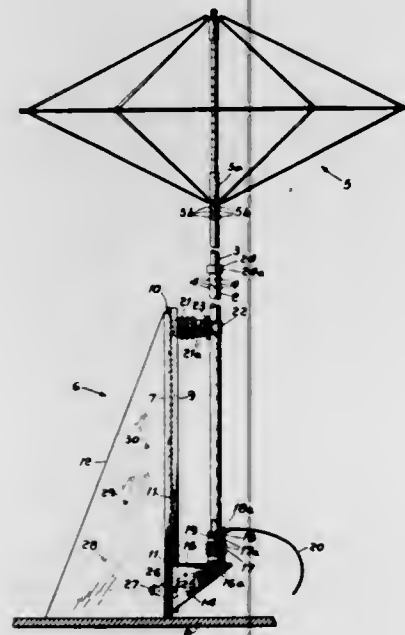
Harry R. Smith, Verona, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 25, 1970, Ser. No. 49,680

Int. Cl. H01q 3/02

U.S. Cl. 343-882

10 Claims



There is disclosed a supporting base for a vertical self-supported shipboard antenna including a vertical section and an antenna element subassembly mounted adjacent the top of the section. The supporting base includes a first member permanently secured to and extending vertically from the deck of a ship and a second member coextensive with the first member having its lower edge spaced from the deck and its top edge hinged to the top of the first member. The lower portion of the vertical section is secured to and electrically insulated from the second member. Screws are passed through one of the first and second members and are threaded into the other of the first and second members to controllably interconnect these members to hold the antenna in a vertical operating position. A first rope is secured to the second member, is passed through an aperture in the first member and engages a pulley and a tubular member supported by the base and a second rope is secured to the vertical section above the hinge point. The two ropes are manipulated to cooperate in tilting the second member and the antenna to a horizontal position to enable maintenance of the antenna and raising the antenna to its vertical operating position. The arrangement securing the vertical section to the second member includes ballast to counterbalance the antenna and to urge the antenna into its vertical operating position.

3,656,171 APPARATUS AND METHOD FOR SORTING PARTICLES AND JET PROP RECORDING

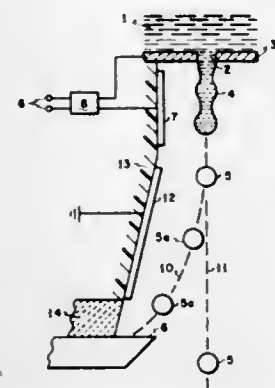
John A. Robertson, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Filed Dec. 8, 1970, Ser. No. 96,083

Int. Cl. G01d 15/18

U.S. Cl. 346-1

20 Claims



Apparatus and method for sorting a spaced progression of particles by selectively applying electrical charges and then subjecting the particle progression to the influence of an electrically conductive surface. Each charged particle in progression past the conductive surface induces thereon a sheet of electrical charge and this sheet in turn causes lateral displacement of the inducing particle. There is further disclosure of jet drop recording apparatus employing sheets of self-induced electrical charge for sorting fluid marking drops into "print" and "no-print" trajectories.

3,656,172

IMPRESSION SENSING

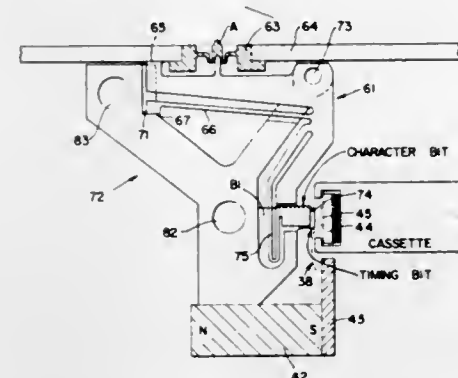
Robert E. Wiltz, Wellesley; Edmund D. Schreiner, Newton, both of Mass., and Malcolm C. Winsor, Mount Vernon, Vt., assignors to Athena Systems, Inc., Bedford, Mass.

Filed Apr. 27, 1970, Ser. No. 31,925

Int. Cl. G06k 17/00; G01d 15/12

U.S. Cl. 346-74 M

11 Claims



Embossed OCR characters are sensed and converted into representative seven-bit words on magnetic tape with a timing bit recorded adjacent to each of the seven information bit positions. There are seven feeler pins each centered in a respective one of the four vertical and three horizontal segments that form a rectangular figure-of-eight. Associated with each pin is a narrow edge of low reluctance magnetic material that is urged away from and moved toward magnetic tape in response to the presence and absence, respectively, of a segment in an embossed character being sensed. The magnetic tape is backed by a pole of a permanent magnet, the other pole being magnetically coupled to the sensing elements so that the magnetic flux path is through a narrow edge and the tape. When the narrow edge is close to the tape, the magnetic field strength is sufficient to change the state of that small portion of the magnetic tape opposite the

narrow edge to record there a binary one. When the narrow edge is away, the state of the magnetic tape opposite the narrow edge remains unchanged to record a binary zero. Adjacent to each movable narrow edge is a fixed sharp edge that records a one as a timing signal. In this manner the invention senses an embossed array of characters and converts them to a corresponding array of binary encoded digital data on a magnetic tape that may then be electronically processed with computers or other utilization apparatus.

3,656,173

LIQUID DEVELOPMENT OF ELECTROSTATIC IMAGES

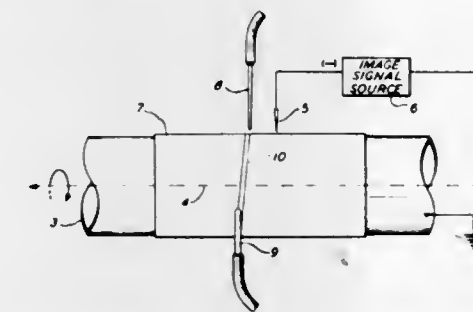
Rudi Fussel, Teaneck, N.J., assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

Filed Aug. 8, 1969, Ser. No. 848,621

Int. Cl. G01d 15/06, 15/08

U.S. Cl. 346-74 ES

4 Claims



A liquid developing system for latent electrostatic images is disclosed, wherein a fine stream of liquid developer is directed upon the surface bearing the said image, relative motion being provided between the impinging stream and the surface so that a scan pattern covering the surface is defined by the linear trace of the stream striking the surface. A vacuum pickup head is positioned to follow the linear trace of applied developer, whereby excess liquid is removed from the said surface.

3,656,174

FLUID DROP MARKING APPARATUS

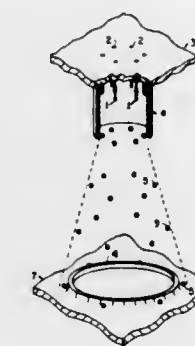
John A. Robertson, Chillicothe, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Continuation-in-part of application Ser. No. 96,083, Dec. 8, 1970. This application Feb. 26, 1971, Ser. No. 119,230

Int. Cl. G01d 15/18

U.S. Cl. 346-75

4 Claims



A fluid drop marking apparatus which generates a plurality of fluid marking streams from a set of orifices spaced apart along a closed contour in an orifice plate. The streams are stimulated to create a corresponding set of drop trains and the drops are selectively charged by application of an electrical signal to a conductive surface surrounding the streams at their breakup points. The conductive surface extends downstream for production of outwardly attractive images of the drop charges; thereby causing the charged drops to be deflected outwardly for selective catching by an apertured

catching plate. Half-tone representations are created by modulation of the applied electrical signal; the nature of the modulation depending upon the type of catching plate aperture employed.

3,656,175

SEMICONDUCTOR DIODE LASER RECORDER

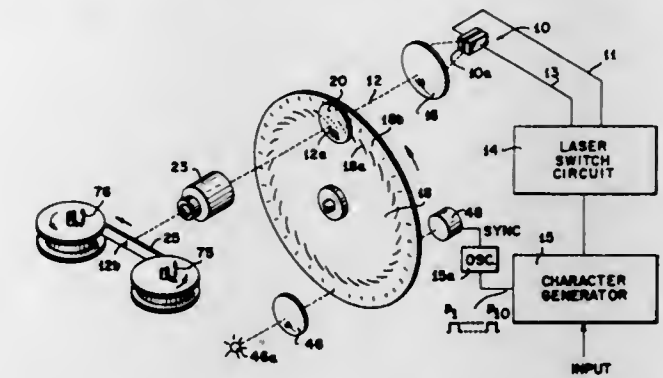
Carl O. Carlson, Los Angeles; Herbert L. Bernstein, Gardena, and Albert J. Franco, Los Angeles, all of Calif., assignors to The National Cash Register Company, Dayton, Ohio

Filed June 16, 1969, Ser. No. 833,272

Int. Cl. G06k 15/02

U.S. Cl. 346-76 L

10 Claims



A microimage recording system wherein a semiconductor diode laser is controlled to emit a laser beam which is used to thermally record data on a recording medium. In a first embodiment, the beam emitted by a rectangular shaped junction of a semiconductor diode laser is projected through a suitable optical system including a multi-spirally slotted scanning disc which causes the laser beam to have a scanning action over a moving recording medium for recording highly reduced microimages thereon. In a second embodiment, the beam emitted by each junction of a multijunction semiconductor diode laser is controlled independently thus permitting one or more of the individual junctions to be selectively energized to emit individual laser beams which are directed by suitable optics onto the moving recording medium for the recording of the highly reduced microimages.

3,656,176

RECORDING MODULE FOR A RECORDER

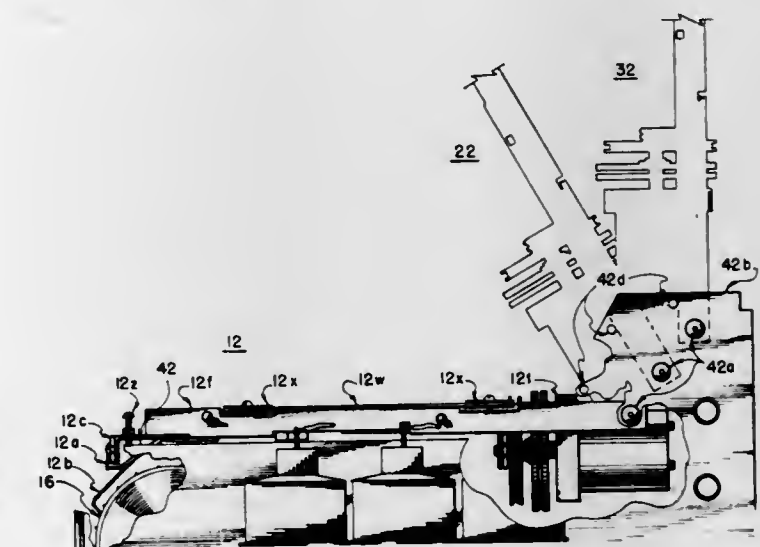
Walton F. Staley, Jr., Philadelphia, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed July 8, 1970, Ser. No. 53,141

Int. Cl. G01d 11/24

U.S. Cl. 346-145

7 Claims



A round or strip chart recorder preferably of the self-balancing type for recording and indicating the values of a plurality of measured quantities. This recorder is characterized by a plurality of stacked recording modules each

comprised of a pivoted frame including a pair of side plates or arms secured in parallel spaced relation by support shafts which also serve as guide rods for a marker carriage assembly. The frame supports a scale, motor and drive means for the marker carriage, and a marker carriage assembly supporting a marker and index. In a preferred embodiment the recorder is an automatic self-balancing strip chart recorder employing a plurality of pivoted recording modules having capillary pens. Each recording module will additionally include one or more slidewire assemblies and a tray for support of a flexible capillary tube. The use of hinged recording modules provides access for servicing without unplugging or disassembly of any recording module. Each recording module may be disconnected for elimination or replacement of the module without unplugging or disassembly. Additionally, depending upon the number of pairs of pivot points provided in the recorder main frame structure, a recorder is readily assembled or later modified in a manner to include a larger or smaller number of recording modules.

3,656,177

METHOD AND APPARATUS FOR FORMULATING FABRIC PATTERNS

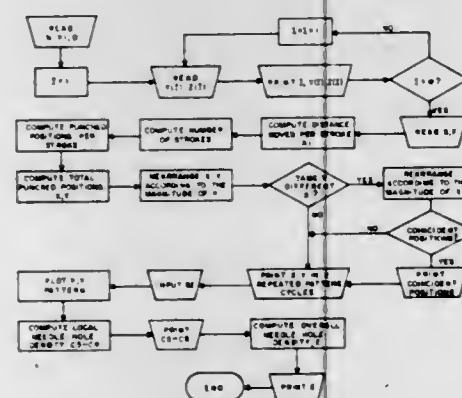
Seng Fang Chung, Philadelphia; William L. Kuechler, Jenkintown, and George J. Steinbronn, Philadelphia, all of Pa., assignors to Proctor & Schwartz, Inc., Philadelphia, Pa.

Filed Mar. 18, 1970, Ser. No. 20,853

Int. Cl. G06f 15/06, 15/20

U.S. Cl. 444-1

10 Claims



The application of computer technology to the needle punching of fabric wherein the input data of needle density, needle positions, strokes per minute, and fabric feed rate give rise to the plotting of a pattern of needle punches which can be reviewed for desirability. Coextensive webs of fabric of the same color or of different colors may then be fed into a needle punching machine under input data found desirable with needle penetration of the webs forcing the fibers into the desired pattern including an evenly punched pattern for single color fabric or for surface finishing and a special, designed pattern for multi-color fabric.

3,656,178

DATA COMPRESSION AND DECOMPRESSION SYSTEM

Paul A. D. De Maine, and Gordon K. Springer, both of State College, Pa., assignors to Research Corporation, New York, N.Y.

Filed Sept. 15, 1969, Ser. No. 857,707

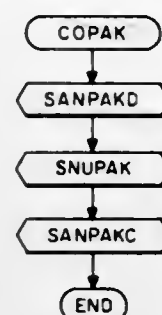
Int. Cl. G06f 7/06

U.S. Cl. 444-1

25 Claims

A high speed, multistage, compressor-decompressor system for processing arbitrary bit strings by reversibly removing redundant information. Alphanumeric information is processed by Type 1 compression which involves removing patterns of contiguous bytes and replacing each removed pattern by decompression information which takes considerably less storage space, and Type 2 compression which involves removing individual redundant bytes and constructing a bit

map identifying the location of the removed bytes. Numerical information is processed by a compression technique involving truncation, recursive differencing, sequence removal, packing, and then utilizing the Type 1 and Type 2 compression which are used in conjunction with alphanumeric information.



mation. The information which is to be compressed is arranged in strings of bytes and any information defining removal of redundant information from a string is kept together with the string. As a result, each string is self-defined in the sense that it contains all information needed to decompress that string.

3,656,179

MICROWAVE STRIPLINE PHASE ADJUSTER

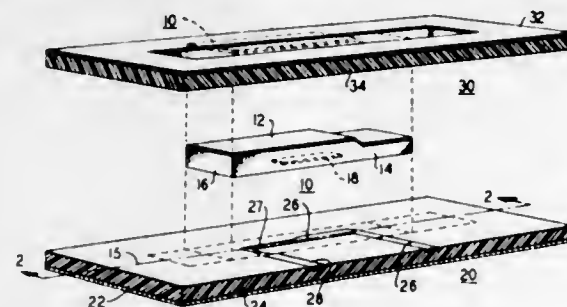
Herman Holmes De Loach, Jamestown, N.C., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 21, 1970, Ser. No. 66,018

Int. Cl. H03h 7/36

U.S. Cl. 333-31

6 Claims



This specification describes a microwave stripline phase adjuster wherein the phase of an applied signal is changed by continuous substitution of one dielectric material for another along a length of the stripline circuit path. A constant impedance is maintained by a simultaneous change in the width of the circuit path.

3,656,180

CRYSTAL FILTER

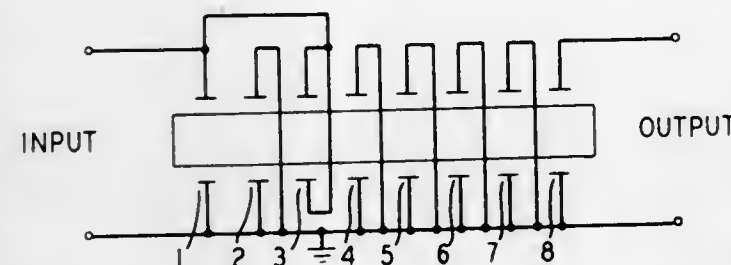
Arthur Rechtman Braun, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 12, 1970, Ser. No. 63,204

Int. Cl. H03h 7/10, 7/00

U.S. Cl. 333-71

12 Claims



In a monolithic crystal filter which employs a combination of mass loading and acoustic coupling, a secondary mechani-

cal wave generating resonator with short-circuited, non-grounded electrodes is employed between the input and output resonators. The input wave is applied to the intermediate resonator as well as to the input resonator, resulting in sharp peaks of attenuation which bracket the passband of the filter.

3,656,181

MAGNETICALLY OPERABLE MOMENTARY SWITCH ASSEMBLY

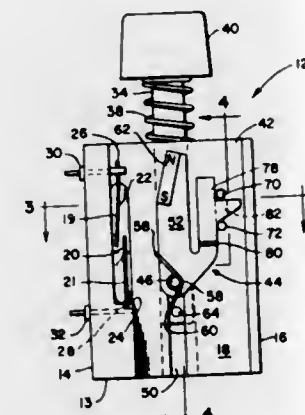
Howard S. Pack, Park Ridge, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Oct. 20, 1970, Ser. No. 82,245

Int. Cl. H01h 5/00

U.S. Cl. 335-205

16 Claims



A magnetic flux field momentarily produces a first reed switch mode upon movement of a permanent magnet to a selected position and aspect in response to depression of a self-restoring manual member. Thereafter, during the depressing stroke, a spring which had been tensioned in response to depression of the manual member is released from a restraint. The untensioning force snaps the magnet to another aspect to effect a second reed switch mode. Cam means comprising the spring restraint also enables return of the permanent magnet from its end stroke position to its start stroke position without change of aspect, whereby the second mode of the reed switch is maintained.

3,656,182

HYDRAULIC THERMOSTAT WITH DOUBLE THROW SWITCH MECHANISM

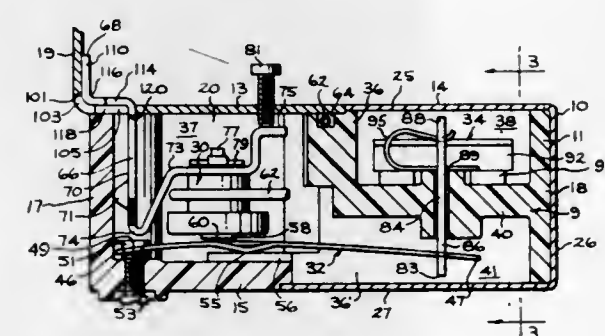
Paul R. Staples, Louisville, Ky., assignor to General Electric Company

Filed Jan. 8, 1970, Ser. No. 1,382

Int. Cl. H01h 37/20, 37/36, 37/60

U.S. Cl. 337-319

15 Claims



A single point hydraulic thermostat having a housing enclosing a diaphragm assembly bearing upon a snap-acting

spring mechanism with a point contact and controlling the position of a double throw switch mechanism. The housing is closed by a cover. The diaphragm assembly is supported from a bracket member that is connected to the cover by a slip joint. The bracket cooperates with a calibration screw for adjusting the position of the diaphragm. Hinge means are provided for both the bracket and the spring mechanism to prevent relative motion of the point contact between the diaphragm assembly and the spring mechanism during the calibration of the switch. The switch mechanism is fitted with an inclined set of fixed contacts at the top of the housing to facilitate the assembly into the housing of an insulating carrier member with movable contact members. An auxiliary spring member acts between the housing and the carrier to effect holding the top set of switch contacts closed during the initial movement of the spring mechanism until the snap-action occurs to reverse the switch setting so as to avoid contact chatter.

3,656,183

CONNECTOR ASSEMBLY

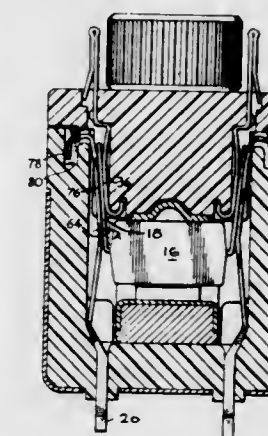
Ted B. Walterscheid, Agoura, Calif., assignor to ACS Industries, Inc., Van Nuys, Calif.

Filed Feb. 3, 1970, Ser. No. 8,352

Int. Cl. H01r 13/00, 13/54

U.S. Cl. 339-17 CF

10 Claims



Apparatus for enabling the rapid installation of dual-in-line type integrated circuit modules in an electronic system, including a male connector frame which fits into a female frame to hold a set of circuit modules between them, the female frame being easily connected to the electronic system. The male and female frames each have many corresponding recesses, and have resilient conductive elements in the recesses. The circuit modules are first installed on the male frame with their leads lying over the elements in the male frame recesses. When the male frame is inserted into the female frame, the module leads are trapped between the elements on the male and female frames. The male frame is constructed of plastic material, and the bodies of the circuit modules are held thereon between an elongated heat sink that lies close to the male frame and a retainer member on a side of the modules opposite the heat sink.

DESIGNS

APRIL 11, 1972

223,326

EXPANDED CEREAL FOOD PRODUCT

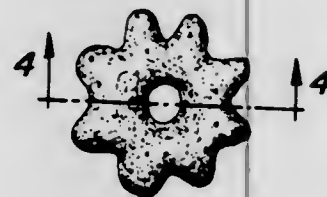
Leroy F. Duvall, Barrington, and Charles D. Stone, North Barrington, Ill., assignors to The Quaker Oats Company

Filed June 3, 1970, Ser. No. 23,289

Term of patent 14 years

Int. Cl. D1-01

U.S. Cl. D1-1



223,328

HAT OR SIMILAR ARTICLE

Rosemarie T. Kuklinski, 1401 Fairfield Lane, Wildwood, Ill. 60063

Filed Sept. 15, 1970, Ser. No. 25,002

Term of patent 14 years

Int. Cl. D2-03

U.S. Cl. D2-257



223,327

BRASSIERE

Charles M. Sachs, Teaneck, N.J., assignor to International Playtex Corporation, New York, N.Y.

Filed Dec. 15, 1969, Ser. No. 20,518

Term of patent 14 years

Int. Cl. D2-01

U.S. Cl. D2-24



223,329

SHOE

Takeshi Oshima, Kurume, Japan, assignor to Nippon Rubber Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1970, Ser. No. 22,650

Claims priority, application Japan Jan. 26, 1970

Term of patent 14 years

Int. Cl. D2-04

U.S. Cl. D2-310



APRIL 11, 1972

U. S. PATENT OFFICE

743

223,330

RUBBER GLOVE

Paul E. Ambrose, Dover, Del., assignor to Pantasote Company, New York, N.Y.

Continuation of design applications Ser. No. 14,439, Nov. 13, 1968, and Ser. No. 17,600, June 9, 1969. This application Jan. 19, 1970, Ser. No. 20,975

Term of patent 14 years

Int. Cl. D2-06

U.S. Cl. D2-374



223,332

COMBINED DOOR HANDLE AND LOCK HOUSING

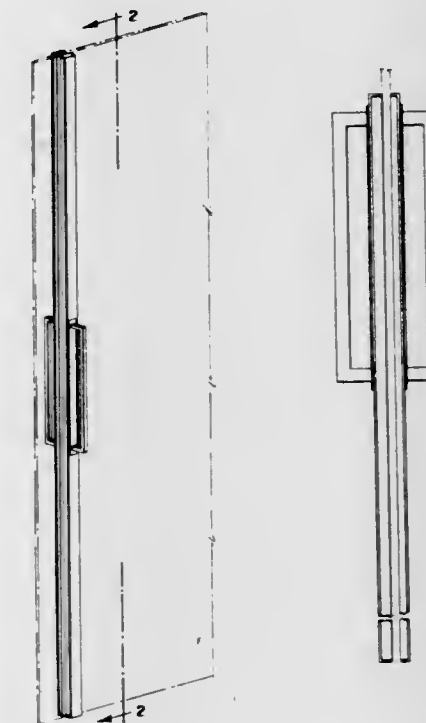
William J. Horgan, Jr., Allegheny County, Pa., assignor to Blumcraft of Pittsburgh, Pittsburgh, Pa.

Continuation-in-part of design applications Ser. No. 10,892, Mar. 8, 1968, Ser. No. 13,607, July 18, 1968, Ser. No. 20,195, Nov. 20, 1969, and Ser. No. 21,811, Mar. 9, 1970. This application June 1, 1970, Ser. No. 23,210

Term of patent 14 years

Int. Cl. D8-07

U.S. Cl. D8-138



223,331

COMBINED BUNK BED HEAD BOARD, BLACKBOARD AND FOLDING DESK OR SIMILAR ARTICLE

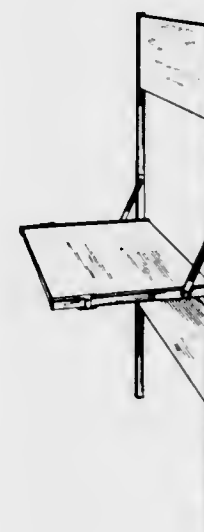
Joseph E. N. Neerinx, Uden, Netherlands, assignor to Diks & Coenen N.V., Uden, Netherlands

Filed Jan. 4, 1971, Ser. No. 103,963

Term of patent 14 years

Int. Cl. D6-01

U.S. Cl. D5-4



223,333

TOOL HANDLE STRUCTURE
Wallace I. Lindgren, 3723 Dartmouth Drive,
Minnetonka, Minn. 55345
Filed Dec. 28, 1970, Ser. No. 26,673
Term of patent 14 years
Int. Cl. D8—05

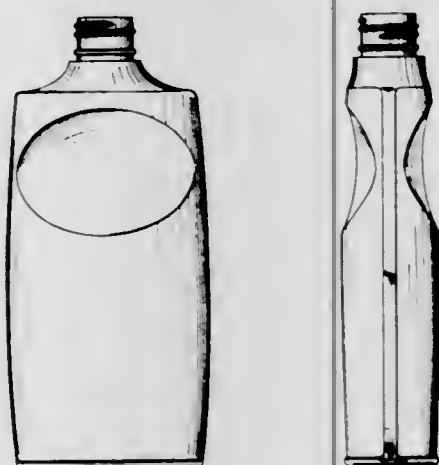
U.S. Cl. D8—83



223,334

BOTTLE
Thomas H. Hayes and Gerald B. Zinnbauer, Indianapolis,
Ind., assignors to Eli Lilly and Company, Indianapolis,
Ind.
Filed Feb. 3, 1971, Ser. No. 112,520
Term of patent 14 years
Int. Cl. D9—01

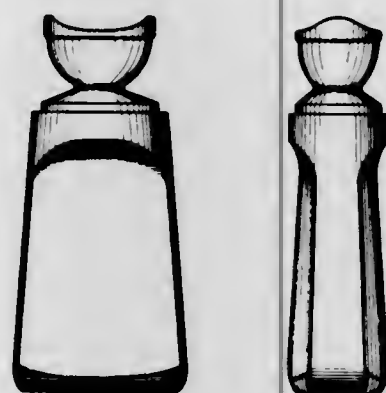
U.S. Cl. D9—45



223,335

COMBINED BOTTLE AND CLOSURE THEREFOR
Robert J. Donoghue, 900 Windsor Ave.,
Windsor, Conn. 06095
Filed Oct. 22, 1970, Ser. No. 25,602
Term of patent 14 years
Int. Cl. D9—01

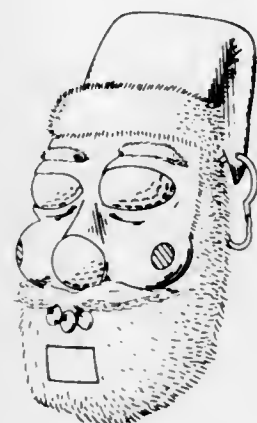
U.S. Cl. D9—10



223,336

GIFT PACKAGE FOR GOLF ACCESSORIES
James C. Taylor, Rte. 1, Box 297D,
San Marcus, Tex. 78666
Filed Aug. 24, 1970, Ser. No. 24,657
Term of patent 14 years
Int. Cl. D9—03

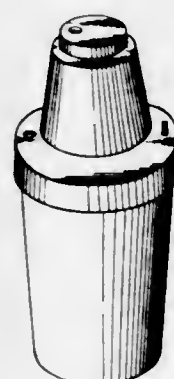
U.S. Cl. D9—193



223,337

DISPENSING CONTAINER FOR CHEMICALS
Joseph Kuchar, Montreal, Quebec, Canada, assignor to
Record Chemical Co. Inc., Montreal, Quebec, Canada
Filed May 28, 1970, Ser. No. 23,197
Claims priority, application Canada Mar. 5, 1970
Term of patent 14 years
Int. Cl. D9—02

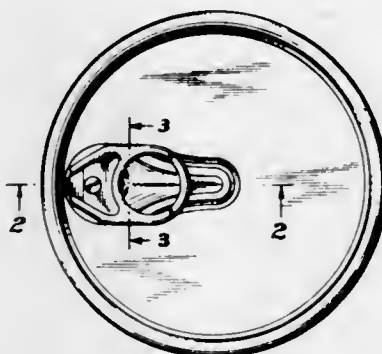
U.S. Cl. D9—218



223,338

CONTAINER END
Raymond Luscombe Batchelar, Westwood, and Carl
William Heinle, Short Hills, N.J., assignors to American
Can Company, New York, N.Y.
Filed July 15, 1970, Ser. No. 23,960
Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—255

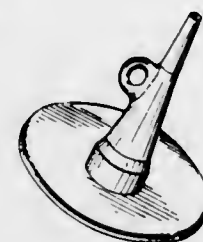


223,339

**COMBINED POUR SPOUT AND HANGER
FOR A CONTAINER**
Joseph Marg, 24043 Greenlawn Ave.,
Beachwood, Ohio 44121
Original design application Feb. 5, 1969, Ser. No. 15,640.
Divided and this application Nov. 16, 1970, Ser. No.
25,979

Term of patent 14 years
Int. Cl. D9—07

U.S. Cl. D9—290

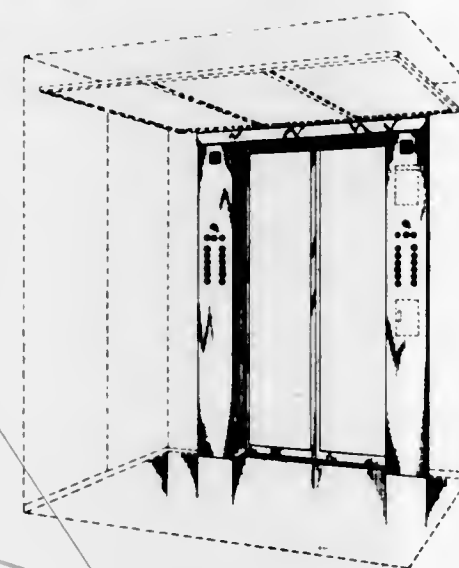


223,340

**ELEVATOR CAR ENTRANCE WITH SIGNAL
FIXTURES IN THE ENTRANCE COLUMNS**
Morrison John Broun, Flushing, N.Y., assignor to Otis
Elevator Company, New York, N.Y.
Original design application July 25, 1967, Ser. No. 7,969.
Divided and this application Sept. 2, 1969, Ser. No.
19,132

Term of patent 14 years
Int. Cl. D25—02

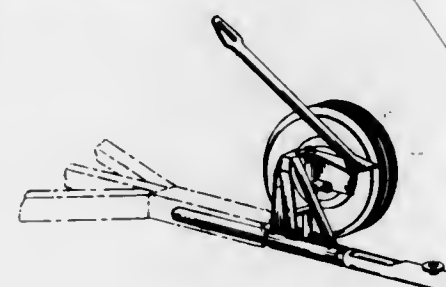
U.S. Cl. D13—1



223,341

WHEEL ASSEMBLY FOR TRAILERS
Leroy G. Houser, Star Route, Box 7,
Prescott, Wash. 99348
Filed Mar. 4, 1970, Ser. No. 21,726
Term of patent 14 years
Int. Cl. D12—16

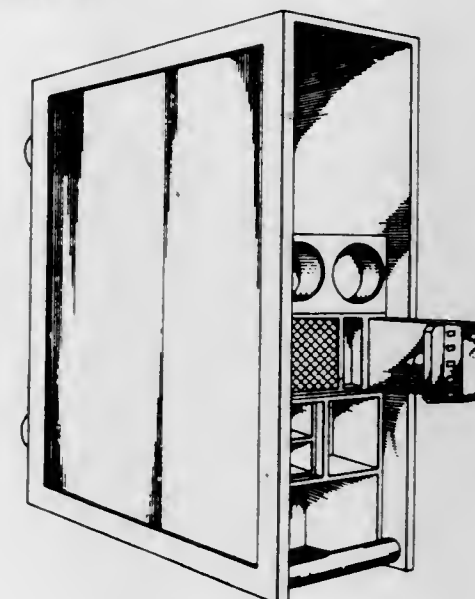
U.S. Cl. D14—3



223,342

PORTABLE BEVERAGE DISPENSER
Robert L. Smith, Los Angeles, Calif., assignor to Northrop
Corporation, Los Angeles, Calif.
Filed Aug. 31, 1970, Ser. No. 24,767
Term of patent 14 years
Int. Cl. D12—14

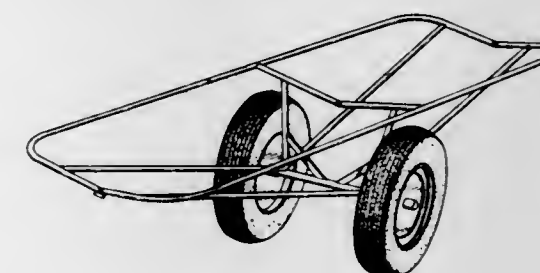
U.S. Cl. D14—3



223,343

DOLLY FOR HANDLING ROLLS OF CARPETING
George A. Kirkpatrick, 105 W. Ridgcrest Blvd.,
Ridgcrest, Calif. 93555
Filed Oct. 6, 1970, Ser. No. 25,350
Term of patent 14 years
Int. Cl. D12—02

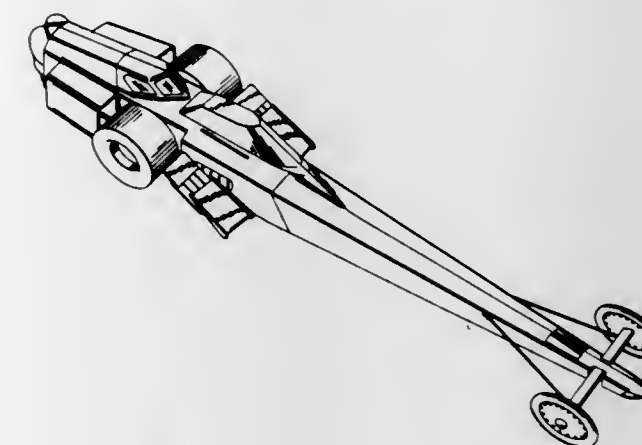
U.S. Cl. D14—3



223,344

DRAGSTER
Robert S. Kachler, 1047 Pine Ave.,
Long Beach, Calif. 90813
Filed Nov. 18, 1970, Ser. No. 26,068
Term of patent 14 years
Int. Cl. D12—08

U.S. Cl. D14—3

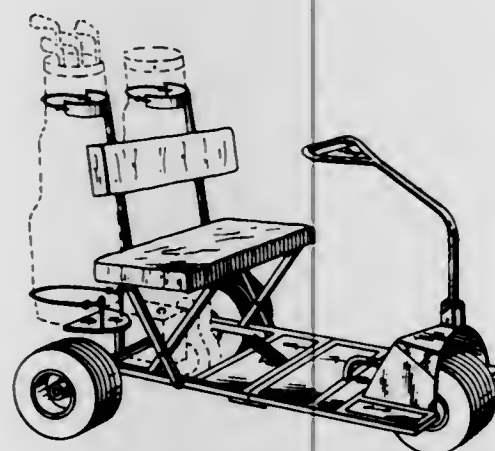


223,345

GOLF CART

Thomas G. Nycum, 216 E. 6th, Wahoo, Nebr. 68066
 Filed Dec. 10, 1970, Ser. No. 26,395
 Term of patent 7 years
 Int. Cl. D12-02

U.S. Cl. D14-3



223,346

FUEL TANK FOR SNOWMOBILES

Anthony D. Mackeen, Drummondville South, Quebec, Canada, assignor to Skiroule Limitee, Wickham, Quebec, Canada

Filed Feb. 9, 1971, Ser. No. 114,098
 Term of patent 3½ years
 Int. Cl. D12-16

U.S. Cl. D14-24



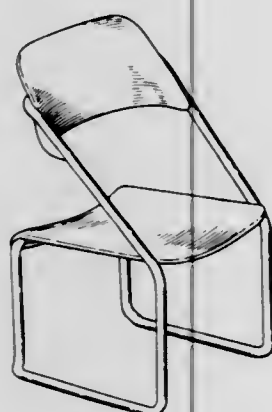
223,347

CHAIR

Thomas Lamb, 349 Wellesley St. E., Toronto, Ontario, Canada

Filed Dec. 1, 1970, Ser. No. 26,239
 Term of patent 14 years
 Int. Cl. D6-02

U.S. Cl. D15-1

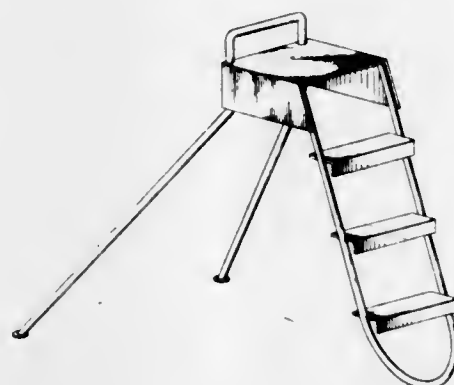


223,348

COMBINED LADDER AND PLATFORM FOR PICKING FRUIT

George H. Boyle, 229 Riverside Ave., Sunnyside, Wash. 98944
 Filed June 29, 1970, Ser. No. 23,717
 Term of patent 14 years
 Int. Cl. D6-99

U.S. Cl. D15-8



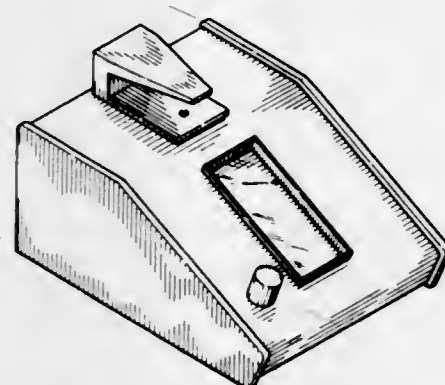
223,349

PHOTOMETER

Harold Y. Minas, Salt Lake City, Utah, assignor to Alpa Corporation, Pleasant Grove, Utah

Filed June 8, 1970, Ser. No. 23,346
 Term of patent 14 years
 Int. Cl. D24-02

U.S. Cl. D16-2

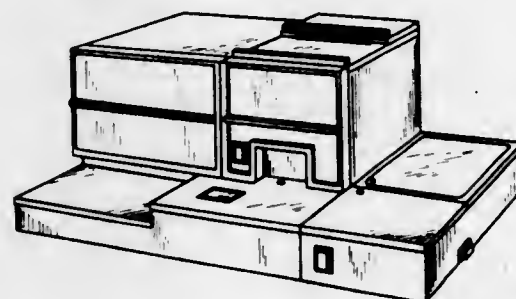


223,350

APPARATUS FOR THE PREPARATION AND EMBEDDING OF TISSUE SPECIMENS

John E. P. Pickett, 3323 Pinafore Drive, Durham, N.C. 27705
 Filed June 15, 1970, Ser. No. 23,470
 Term of patent 14 years
 Int. Cl. D24-02

U.S. Cl. D16-2



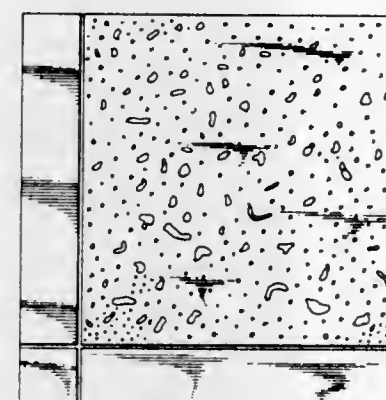
223,351

CEILING PANEL

Paul A. Voigt, Stoneybrook, N.Y., assignor to Johns-Manville Corporation, New York, N.Y.

Filed Sept. 17, 1970, Ser. No. 25,045
 Term of patent 14 years
 Int. Cl. D25-01

U.S. Cl. D18-2



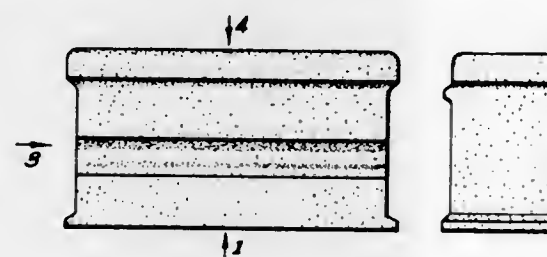
223,352

BUILDING BLOCK

Malcolm Babington Clark, Winchester, England, assignor of fractional part interest to Ronald A. Clark, Shawford, near Winchester, England

Filed Sept. 29, 1970, Ser. No. 25,254
 Term of patent 14 years
 Int. Cl. D25-01

U.S. Cl. D18-2



223,353

QUIVER

Franklin E. Adams, 12891 Chaparral, Garden Grove, Calif. 92640

Filed Jan. 27, 1971, Ser. No. 110,360
 Term of patent 14 years
 Int. Cl. D22-04

U.S. Cl. D22-13



223,354

FISH LURE

Ewell J. Harris, Rte. 3, P.O. Box 135A, Adrian, Mich. 49221

Filed June 8, 1970, Ser. No. 23,358
 Term of patent 14 years
 Int. Cl. D22-05

U.S. Cl. D22-27



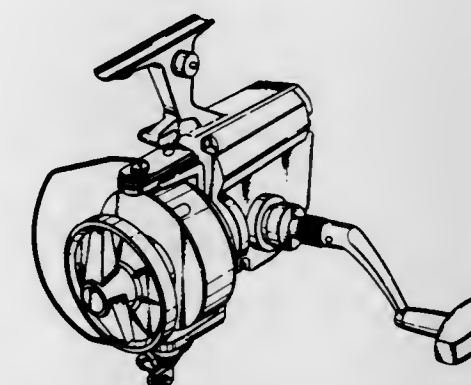
223,355

SPINNING REEL

Fuyo Kuroki, 4-2, 2-chome Nishigaoka, Tokyo, Japan

Filed Sept. 2, 1970, Ser. No. 24,805
 Claims priority, application Japan Aug. 18, 1970
 Term of patent 14 years
 Int. Cl. D22-05

U.S. Cl. D22-25



223,356

CONTAINER FOR CHLORINE PELLETS OR THE LIKE

Clellmont L. Sharp, 6204 Eagle Lake Drive, Minneapolis, Minn. 55428

Filed Nov. 2, 1970, Ser. No. 25,766
 Term of patent 14 years
 Int. Cl. D23-01

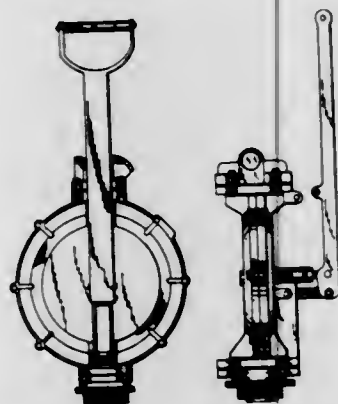
U.S. Cl. D23-2



223,357 PUMP

Thomas W. Lacy, Jr., Prairie Village, Kans., assignor to Laco Manufacturing Company, North Kansas City, Mo.
Filed Aug. 11, 1970, Ser. No. 24,430
Term of patent 14 years
Int. Cl. D23—01

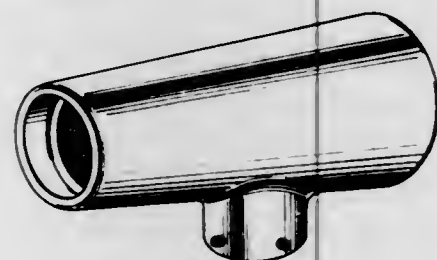
U.S. Cl. D23—14



223,358 PIPELINE VENT

William V. Porter, 226 Treasure Way, San Antonio, Tex. 78209
Filed Nov. 6, 1970, Ser. No. 25,864
Term of patent 14 years
Int. Cl. D23—01

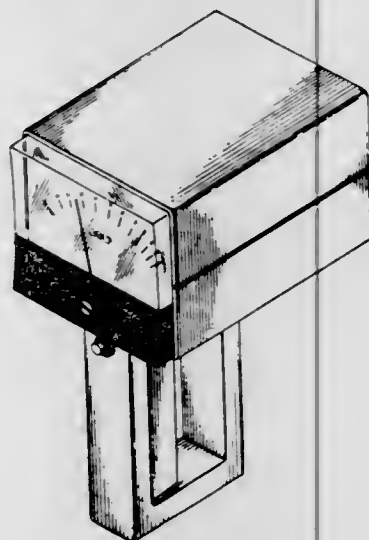
U.S. Cl. D23—41



223,359 MICROWAVE TESTING METER

Harold C. Anderson, New Brighton, Minn., assignor to Litton Systems, Inc., Minneapolis, Minn.
Filed Oct. 23, 1970, Ser. No. 25,622
Term of patent 14 years
Int. Cl. D10—05

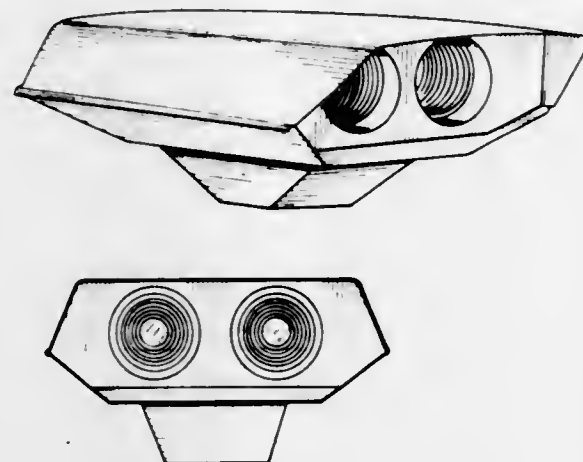
U.S. Cl. D26—1



223,360

HOUSING FOR COMMUNICATIONS TERMINAL
Charles J. Ortega, Van Nuys, and Frederic L. Naff, Jr., Los Angeles, Calif., assignors to Computer Transmission Corporation, Los Angeles, Calif.
Filed Feb. 4, 1970, Ser. No. 21,267
Term of patent 14 years
Int. Cl. D14—01

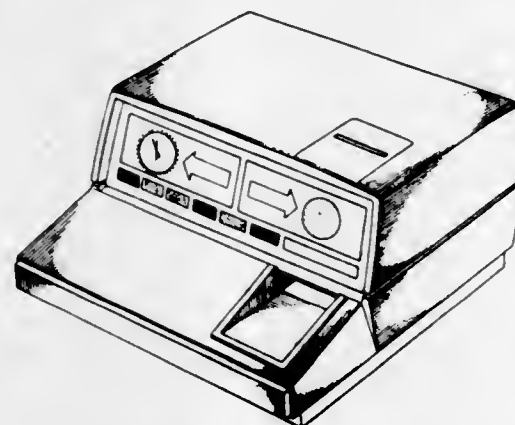
U.S. Cl. D26—5



223,361 ELECTRONIC MACHINE FOR USE IN DOCUMENT PROCESSING

William W. Crain, Santa Ana, Calif., assignor to Documentor Sciences Corporation, Santa Ana, Calif.
Filed Mar. 3, 1970, Ser. No. 21,722
Term of patent 14 years
Int. Cl. 14—02

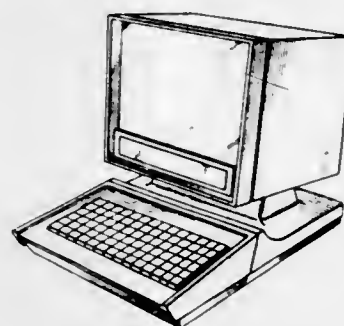
U.S. Cl. D26—5



223,362

CATHODE RAY TUBE DISPLAY TERMINAL
Moto Shimano, Clarence D. Zierhut, and Lloyd Y. Ishimaru, Van Nuys, Calif., assignors to Scantlin Electronics, Inc., Los Angeles, Calif.
Filed Aug. 5, 1970, Ser. No. 24,329
Term of patent 14 years
Int. Cl. D14—02

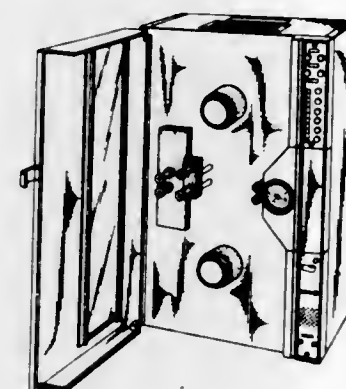
U.S. Cl. D26—5



223,363

MAGNETIC TAPE TRANSPORT
Albert W. Martin, Santa Clara, Calif., assignor to Ampex Corporation, Redwood City, Calif.
Filed Oct. 16, 1970, Ser. No. 25,533
Term of patent 14 years
Int. Cl. D14—02

U.S. Cl. D26—5

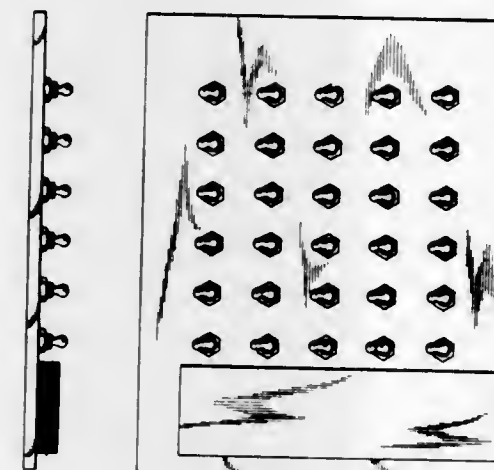


223,364

COMBINED ELECTRONIC TEST PANEL AND NOTATION PAD

Paul V. De Luca, Port Washington, N.Y., assignor to Porta Systems Corp., Port Washington, N.Y.
Filed June 9, 1970, Ser. No. 23,392
Term of patent 14 years
Int. Cl. D13—03

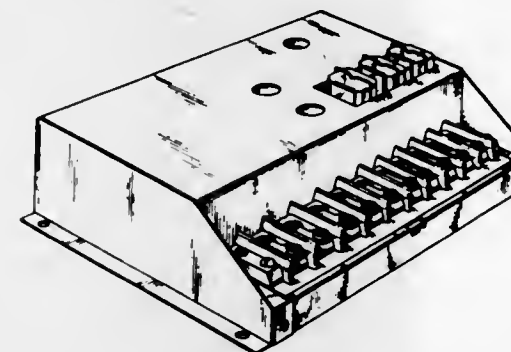
U.S. Cl. D26—13



223,365

RELAY CABINET
Robert W. Beckwith, 1002 Greenfield Lane, Mount Prospect, Ill. 60056
Filed Nov. 4, 1970, Ser. No. 25,829
Term of patent 14 years
Int. Cl. D13—03

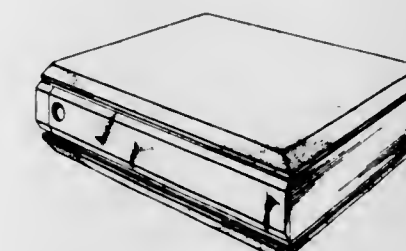
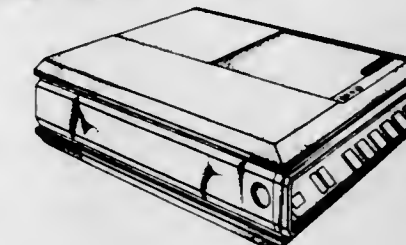
U.S. Cl. D26—13



223,366

MAGNETIC TAPE TELEVISION APPARATUS
Orville W. Larson, Elmhurst, Ill., assignor to Ampex Corporation, Redwood City, Calif.
Filed Aug. 27, 1970, Ser. No. 24,719
Term of patent 14 years
Int. Cl. D14—01, 03

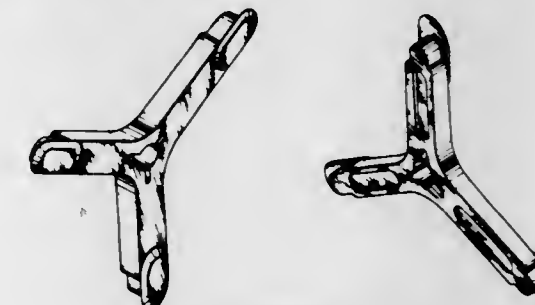
U.S. Cl. D26—14



223,367

MAGNETIC TAPE REEL ADAPTER
John C. Kountz, 1065 Van Dyke Drive, Laguna Beach, Calif. 92651
Filed Aug. 31, 1970, Ser. No. 24,766
Term of patent 14 years
Int. Cl. D24—01

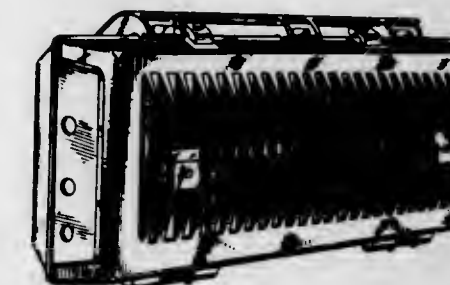
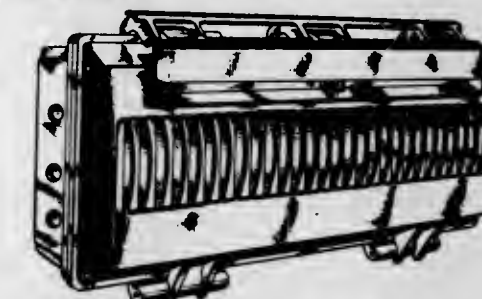
U.S. Cl. D26—14



223,368

AMPLIFIER HOUSING
Martin S. Horak, Morganville, N.J., assignor to Viko, Inc., Hoboken, N.J.
Filed Sept. 10, 1970, Ser. No. 24,923
Term of patent 14 years
Int. Cl. D14—04

U.S. Cl. D26—14



**223,369
DOG BOOT**

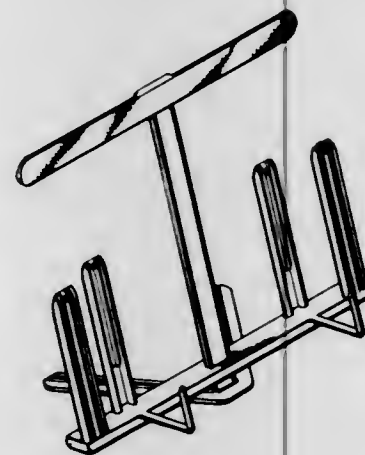
James W. Jackson, 1526A Mews Drive,
Kansas City, Mo. 64131
Filed Mar. 6, 1970, Ser. No. 21,770
Term of patent 14 years
Int. Cl. D30—01

U.S. Cl. D30—34



**223,370
BOOK SUPPORT OR THE LIKE**
Morton S. Pearl, 1940 Bay Drive,
Miami Beach, Fla. 33141
Filed Aug. 19, 1970, Ser. No. 24,575
Term of patent 14 years
Int. Cl. D6—09

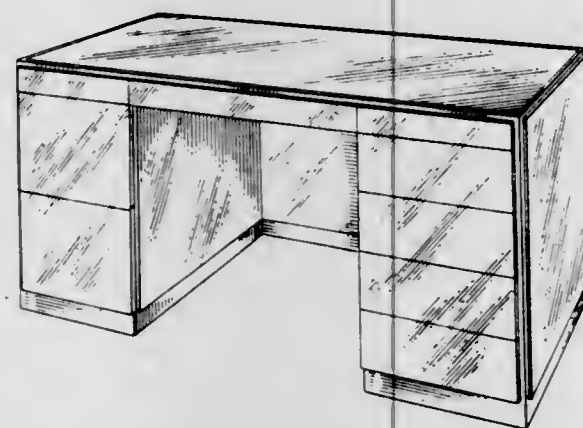
U.S. Cl. D33—2



**223,371
DESK**

Davis B. Allen, New York, N.Y., assignor to The General
Fireproofing Company, Youngstown, Ohio
Filed Oct. 8, 1970, Ser. No. 25,382
Term of patent 14 years
Int. Cl. D6—04

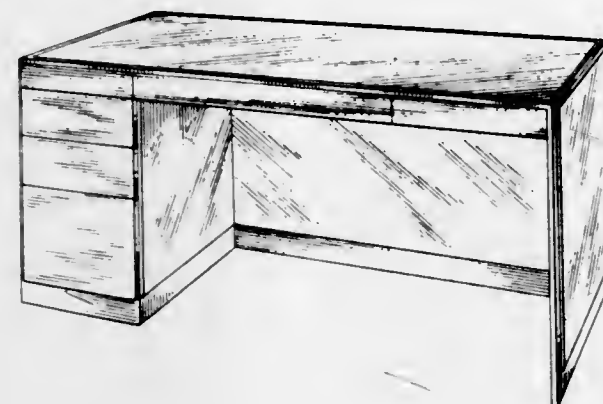
U.S. Cl. D33—7



**223,372
DESK**

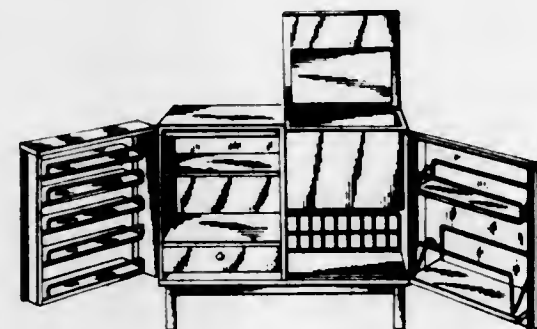
Davis B. Allen, New York, N.Y., assignor to The General
Fireproofing Company, Youngstown, Ohio
Filed Oct. 8, 1970, Ser. No. 25,383
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D33—7



**223,373
COMBINED BAR CABINET AND REFRIGERATOR**
Leif Elvestad, Skogfaret 17C, Haslum, Norway
Filed Oct. 20, 1969, Ser. No. 19,642
Term of patent 14 years
Int. Cl. D6—04

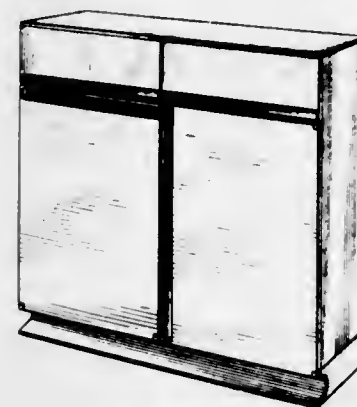
U.S. Cl. D33—19



**223,374
CABINET**

Jacques Firdmann, Grenoble, France, assignor to Etablissements Allibert, Monestier-de-Clermont, Isere, France
Filed July 13, 1970, Ser. No. 23,924
Claims priority, application France Jan. 12, 1970
Term of patent 14 years
Int. Cl. D6—04

U.S. Cl. D33—19



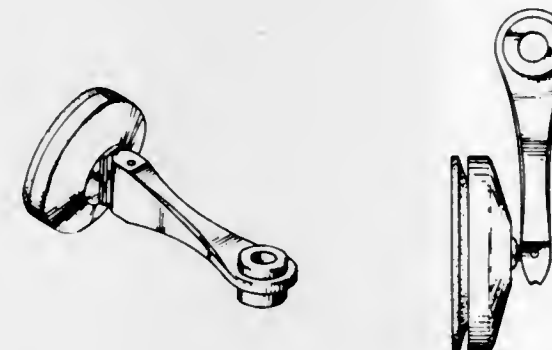
**223,375
DRAINAGE TRAY FOR SOAP OR THE LIKE**
Julia Smith, 4812 Reynolds Drive,
Torrance, Calif. 90505
Filed Sept. 28, 1970, Ser. No. 25,229
Term of patent 7 years
Int. Cl. D6—06

U.S. Cl. D33—24



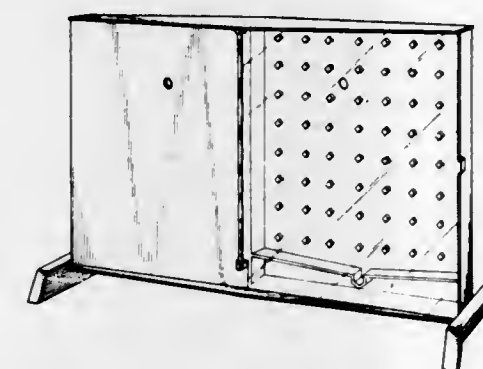
**223,376
DISPENSER HOLDER**
Steven Kiss, 4565 Tampa St., Philadelphia, Pa. 19120
Filed Nov. 23, 1970, Ser. No. 26,135
Term of patent 14 years
Int. Cl. D6—01

U.S. Cl. D33—30



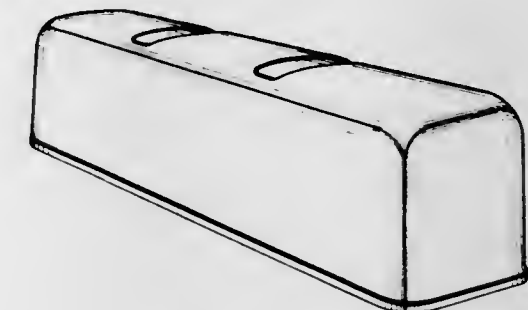
**223,377
GAME BOARD**
Gordon A. Barlow, Evanston, Ill., assignor to Marvin
Glass & Associates, Chicago, Ill.
Filed June 11, 1970, Ser. No. 23,436
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—5



**223,378
RIGID, REMOVABLE, PROTECTIVE COVER FOR
A GYMNASIUM VAULTING HORSE WITH
POMMELS**
Lee C. Austin, North Massapequa, N.Y., assignor to
R. E. Austin & Son
Filed Sept. 8, 1969, Ser. No. 19,053
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—5



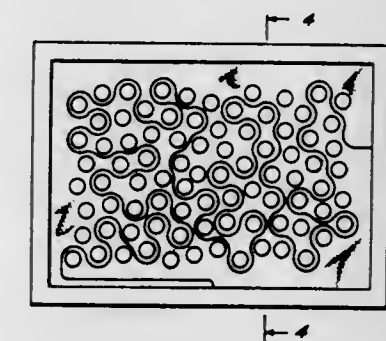
**223,379
BASE FOR NATURAL OR ARTIFICIAL FLOWERS**
Duncan Tong, 423 Central Bldg., 3 Pedder St.,
Hong Kong
Filed July 21, 1970, Ser. No. 24,050
Claims priority, application Great Britain Jan. 26, 1970
Term of patent 7 years
Int. Cl. D11—02

U.S. Cl. D35—3



**223,380
MAGNETIC GAME TABLE**
Marjorie M. Kim, San Diego, Calif., assignor to
Wilford Cruz, Fullerton, Calif.
Filed Aug. 3, 1970, Ser. No. 24,282
Term of patent 14 years
Int. Cl. D21—00

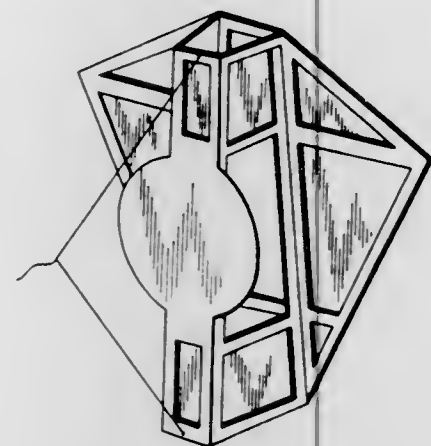
U.S. Cl. D34—5



223,381
KITE

Lindell O. Carpenter, Rye, N.Y., and Robert M. Ferguson, Dallas, Tex., assignors to Container Corporation of America, Chicago, Ill.
Filed Sept. 10, 1970, Ser. No. 24,937
Term of patent 14 years
Int. Cl. D21—01

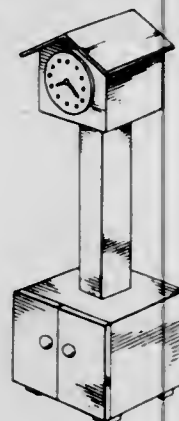
U.S. Cl. D34—15



223,382
CLOCK

Robert J. Murray, 900 Sunset Blvd., Suite 1411, Los Angeles, Calif. 90069
Filed Feb. 19, 1970, Ser. No. 21,517
Term of patent 14 years
Int. Cl. D10—01

U.S. Cl. D42—7



223,383

CAGE FOR A POPCORN POPPER
Robert Gottlieb, New York, N.Y., assignor to Argo Industries Corporation, Jackson Heights, N.Y.
Filed Mar. 25, 1970, Ser. No. 22,056
Term of patent 14 years
Int. Cl. D7—02

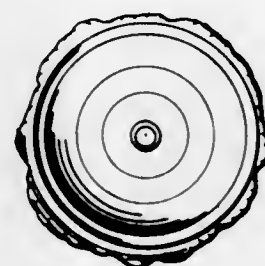
U.S. Cl. D44—1



223,384

CELERY CRISPER OR SIMILAR ARTICLE
Wilfred J. Blease, Greenville, N.H., assignor to Pioneer Plastics, Inc., Greenville, N.H.
Filed Nov. 24, 1970, Ser. No. 26,145
Term of patent 14 years
Int. Cl. D7—01

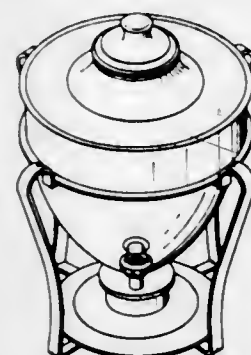
U.S. Cl. D44—1



223,385

SAMOVAR OR THE LIKE
Alvin Gruber, 2215 Disston St., Philadelphia, Pa. 19149
Filed Oct. 26, 1970, Ser. No. 25,641
Term of patent 14 years
Int. Cl. D7—02

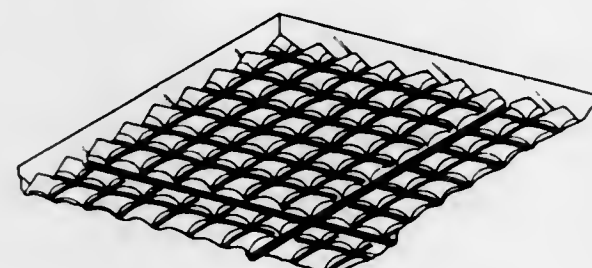
U.S. Cl. D44—26



223,386

LENS PANEL
Leo G. Stahlhut, Kirkwood, Mo., assignor to K-S-H, Inc., St. Louis County, Mo.
Filed June 1, 1970, Ser. No. 23,243
Term of patent 14 years
Int. Cl. D26—06

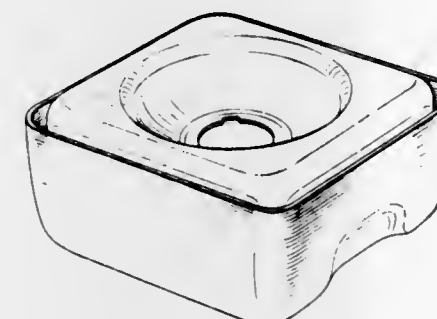
U.S. Cl. D48—16



223,387

COMBINED REFLECTOR AND HOUSING FOR TABLE LAMP OR THE LIKE
Sidney Gibson, Suite 110, 57 Godstone Road, Willowdale, Ontario, Canada
Filed June 29, 1970, Ser. No. 23,692
Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D48—20



223,389

COMBINED SPOT LIGHT AND PLUG THEREFOR
Arthur Schiffrin, 1144 Bay Blvd., Atlantic Beach, N.Y. 11509
Filed Nov. 9, 1970, Ser. No. 25,871
Term of patent 14 years
Int. Cl. D26—02

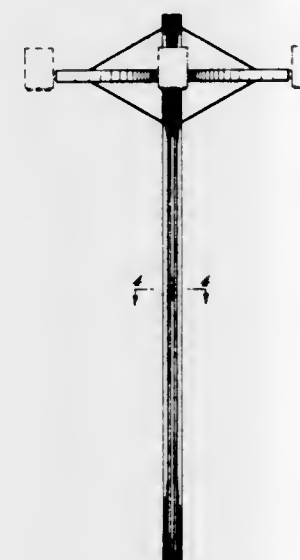
U.S. Cl. D48—20



223,388

LIGHT STANDARD OR SIMILAR ARTICLE
Robert Willoughby Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed Sept. 21, 1970, Ser. No. 25,079
Term of patent 14 years
Int. Cl. D26—03

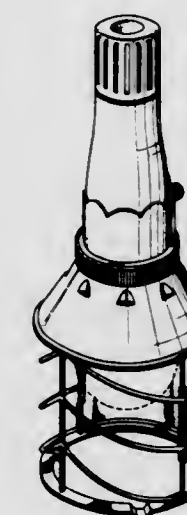
U.S. Cl. D48—20



223,390

COMBINED SOCKET HANDLE AND LAMP GUARD
Shinjiro Mori and Takezo Takamatsu, Tokyo, Japan, assignors to Mori Denki Manufacturing Co., Ltd., Tokyo, Japan
Filed Aug. 10, 1970, Ser. No. 24,398
Term of patent 14 years
Int. Cl. D26—02

U.S. Cl. D48—24

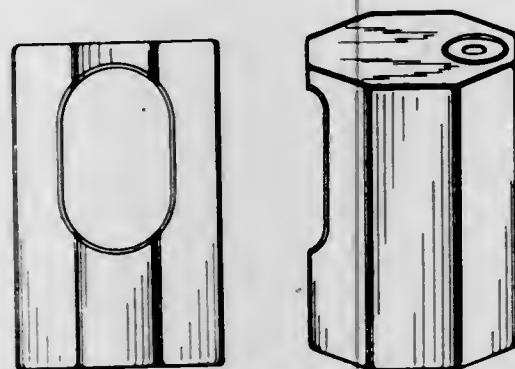


223,391

TABLE LIGHTER

Dieter Rams, Königstein, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Mar. 9, 1970, Ser. No. 21,802
Claims priority, application Germany Sept. 11, 1969
Term of patent 14 years
Int. Cl. D27—05

U.S. Cl. D48—27

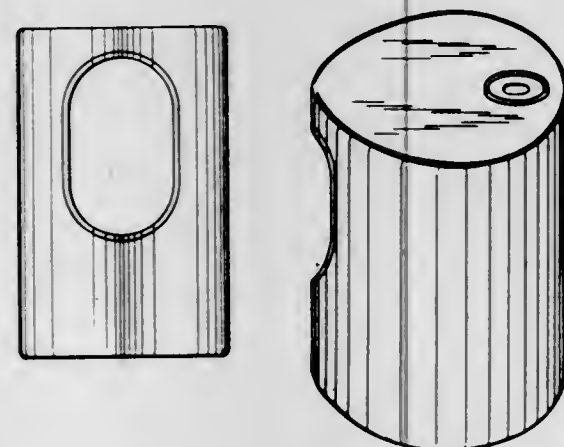


223,392

TABLE LIGHTER

Dieter Rams, Königstein, Taunus, Germany, assignor to Braun Aktiengesellschaft, Frankfurt am Main, Germany
Filed Mar. 9, 1970, Ser. No. 21,806
Claims priority, application Germany Sept. 11, 1969
Term of patent 14 years
Int. Cl. D27—05

U.S. Cl. D48—27

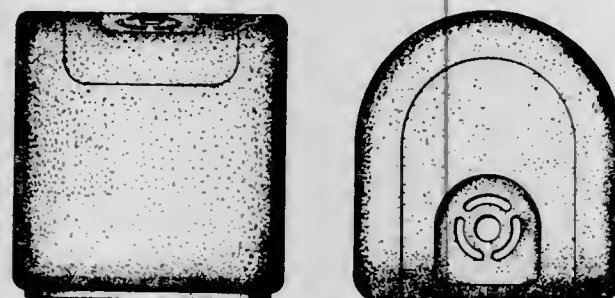


223,393

TABLE CIGARETTE LIGHTER

Dieter Rams, Königstein, Germany, assignor to Braun A.G., Frankfurt am Main, Germany
Filed Nov. 18, 1970, Ser. No. 26,049
Claims priority, application Germany May 25, 1970
Term of patent 14 years
Int. Cl. D27—05

U.S. Cl. D48—27



223,394

LUMINAIRE

Eldon L. Anderson, Jr., Fletcher, N.C., assignor to General Electric Company
Continuation-in-part of design application Ser. No. 17,648, June 11, 1969. This application June 15, 1970, Ser. No. 23,477
Term of patent 14 years
Int. Cl. D26—03

U.S. Cl. D48—31

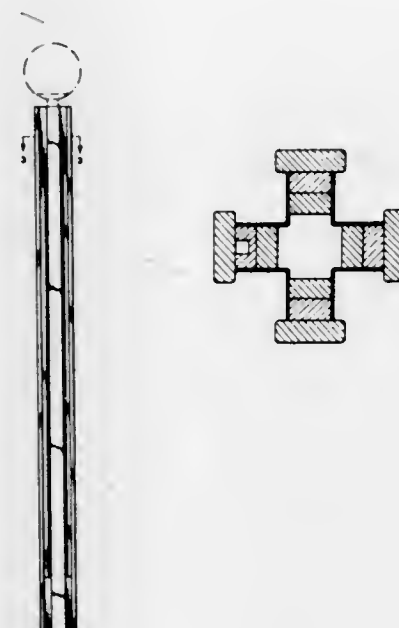


223,395

LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, 2621 36th Ave. W., Seattle, Wash. 98199
Original design application Oct. 20, 1969, Ser. No. 19,635.
Divided and this application July 2, 1970, Ser. No. 23,819
Term of patent 14 years
Int. Cl. D26—03

U.S. Cl. D48—31

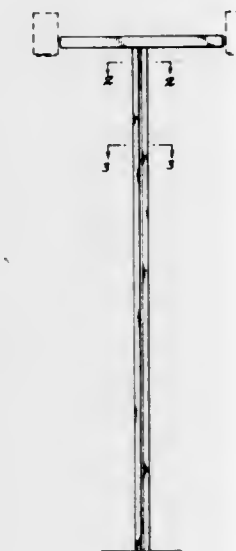


223,396

LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Filed Oct. 20, 1969, Ser. No. 19,634
Term of patent 14 years
Int. Cl. D26—03

U.S. Cl. D48—31

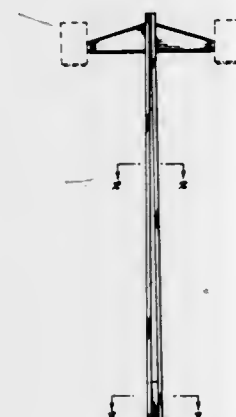


223,397

LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Continuation-in-part of design application Ser. No. 19,639, Oct. 20, 1969. This application July 13, 1970, Ser. No. 23,923
Term of patent 14 years
Int. Cl. D26—03

U.S. Cl. D48—31

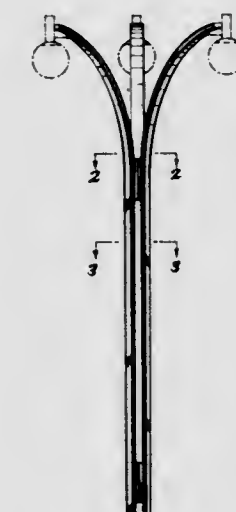


223,398

LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Original design application Oct. 20, 1969, Ser. No. 19,615, now Patent No. 220,535, dated Apr. 20, 1970. Divided and this application Aug. 31, 1970, Ser. No. 24,771
Term of patent 14 years
Int. Cl. D26—03

U.S. Cl. D48—31

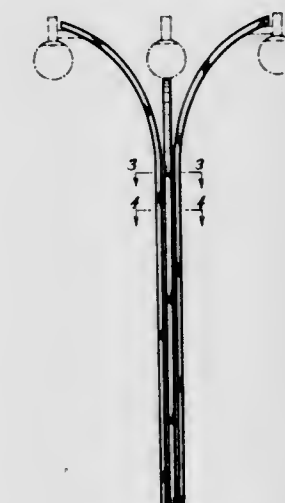


223,399

LIGHT STANDARD OR SIMILAR ARTICLE

Robert W. Selden, Seattle, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.
Original design application Oct. 20, 1969, Ser. No. 19,630, now Patent No. 220,581, dated Apr. 27, 1971. Divided and this application Aug. 31, 1970, Ser. No. 24,830
Term of patent 14 years
Int. Cl. D26—03

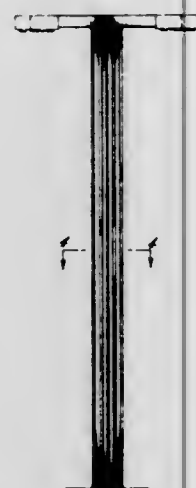
U.S. Cl. D48—31



223,400

LIGHT STANDARD OR SIMILAR ARTICLE
Robert W. Selden, Seattle, Wash., assignor to
Weyerhaeuser Company, Tacoma, Wash.
Filed Sept. 21, 1970, Ser. No. 25,095
Term of patent 14 years
Int. Cl. D26—03

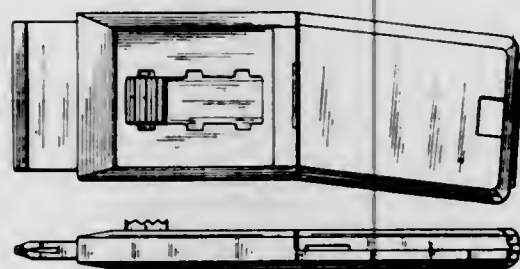
U.S. Cl. D48—31



223,401

RAZOR BLADE SCRAPER
Edward H. Meisner, Dumont, N.J., assignor to Red
Devil Inc., Union, N.J.
Filed Mar. 23, 1971, Ser. No. 127,436
Term of patent 14 years
Int. Cl. D7—05

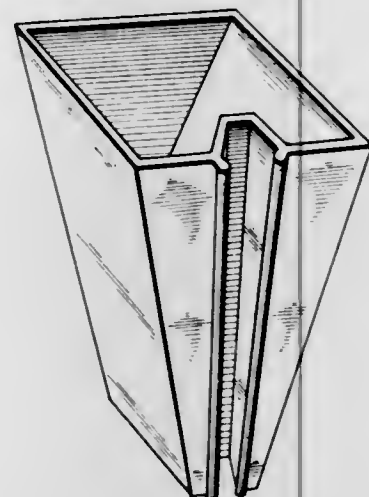
U.S. Cl. D49—23



223,402

WASTE PAPER BASKET
Francis P. McGoff, 1570 170th Ave.,
Hayward, Calif. 94541
Filed May 4, 1970, Ser. No. 22,805
Term of patent 14 years
Int. Cl. D7—05

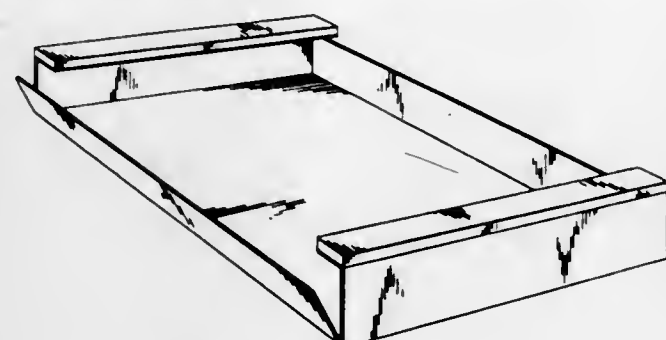
U.S. Cl. D49—30



223,403

**DISPENSING TRAY FOR PLASTIC BAGS
AND THE LIKE**
Kenneth A. Smith, 2416 SE. 9th Ave.,
Portland, Oreg. 97214
Filed Feb. 24, 1969, Ser. No. 15,884
Term of patent 14 years
Int. Cl. D9—99

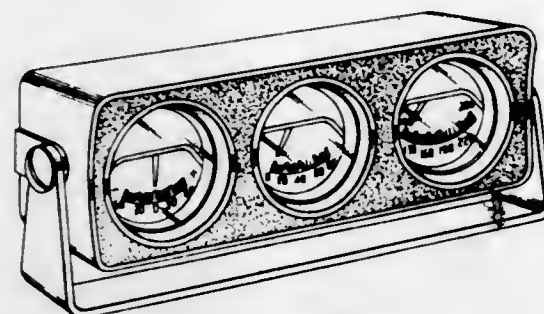
U.S. Cl. D52—2



223,404

VEHICLE INSTRUMENT GAUGE
Edwin L. Schwartz, Los Angeles, Calif., assignor to
Rite Autoronics Corporation, Los Angeles, Calif.
Filed Apr. 22, 1970, Ser. No. 22,563
Term of patent 14 years
Int. Cl. D12—16

U.S. Cl. D52—6



223,405

SPOON OR SIMILAR ARTICLE OF FLATWARE
Siro R. Toffolon, Meriden, Conn., assignor to Interna-
tional Silver Company, Meriden, Conn.
Filed Jan. 21, 1971, Ser. No. 108,686
Term of patent 14 years
Int. Cl. D7—03

U.S. Cl. D54—12



223,406

SPOON OR SIMILAR ARTICLE OF FLATWARE
Siro R. Toffolon, Meriden, Conn., assignor to Interna-
tional Silver Company, Meriden, Conn.
Filed Jan. 21, 1971, Ser. No. 108,688
Term of patent 14 years
Int. Cl. D7—03

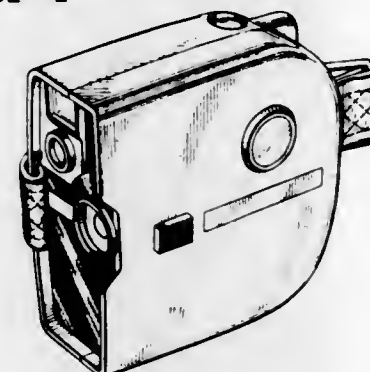
U.S. Cl. D54—12



223,407

MOTION PICTURE CAMERA
Shigeo Mizukawa, Ohmiya, and Masahiro Fukuda, Tokyo,
Japan, assignors to Fuji Shashin Film Kabushiki Kaisha,
Minamiasagaya-machi, Ashigarakami-gun, Japan
Filed Apr. 2, 1970, Ser. No. 22,201
Term of patent 14 years
Int. Cl. D16—01

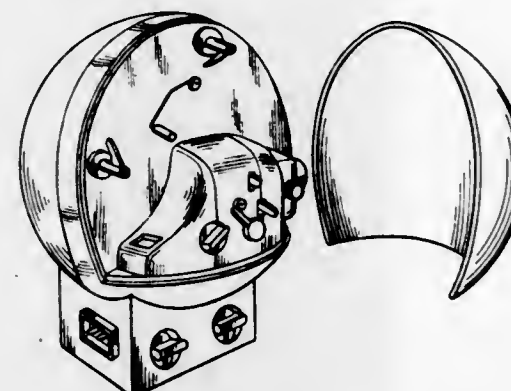
U.S. Cl. D61—1



223,408

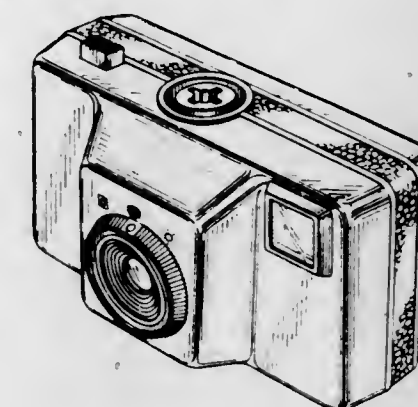
**COMBINED MOTION PICTURE PROJECTOR AND
COVER THEREFOR**
Eugenio Agrati, Via A da Baggio 20/5, and Ennio Sala,
Via A da Baggio 20/13, both of Milan, Italy
Filed Apr. 6, 1970, Ser. No. 22,274
Claims priority, application Italy Oct. 10, 1969
Term of patent 14 years
Int. Cl. D16—02

U.S. Cl. D61—1

223,409
CAMERA

Masahiro Fukuda, Tokyo, and Shigeo Mizukawa, Ohmiya,
Japan, assignors to Fuji Shashin Film Kabushiki Kaisha,
Minamiasagaya-machi, Ashigarakami-gun, Japan
Filed June 12, 1970, Ser. No. 23,463
Claims priority, application Japan Dec. 17, 1969
Term of patent 14 years
Int. Cl. D16—01

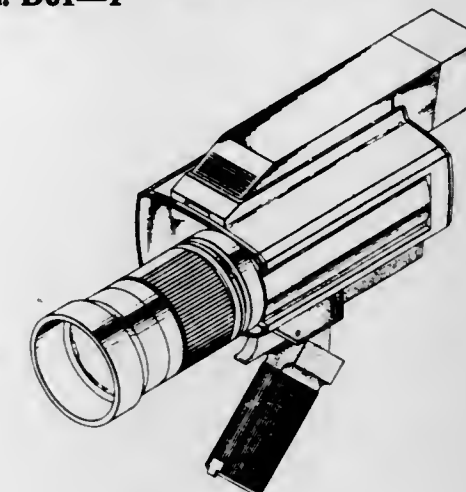
U.S. Cl. D61—1



223,410

TELEVISION CAMERA
Orville W. Larson, Elmhurst, Ill., assignor to Ampex
Corporation, Redwood, City, Calif.
Filed Sept. 9, 1970, Ser. No. 24,895
Term of patent 14 years
Int. Cl. D14—03

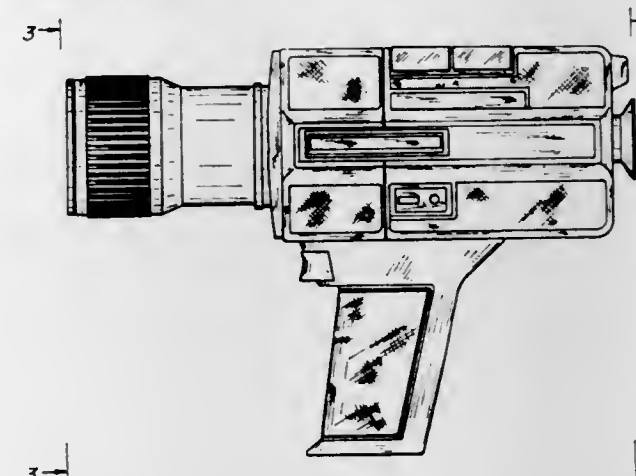
U.S. Cl. D61—1



223,411

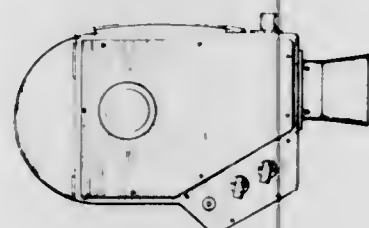
MOTION PICTURE CAMERA
Roland A. Emmerling, Montvale, N.J., assignor to
Atlas-Rand Corporation, Paramus, N.J.
Filed Oct. 16, 1970, Ser. No. 25,532
Term of patent 14 years
Int. Cl. D16—01

U.S. Cl. D61—1



223,412
MOTION PICTURE CAMERA
 Lew J. Trenka, 19 Fairmont Ave.,
 Ottawa, Ontario, Canada
 Filed Nov. 2, 1970, Ser. No. 25,767
 Term of patent 14 years
 Int. Cl. D16—00

U.S. Cl. D61—1



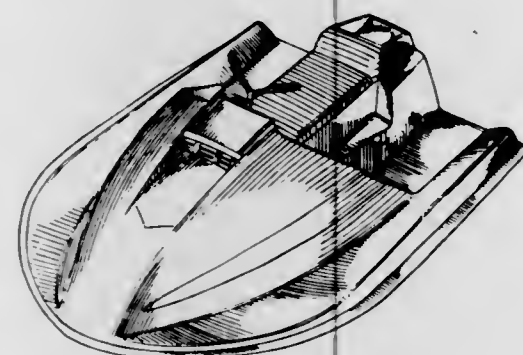
223,413
FONT OF TYPE
 William Sandwick, Cleveland, Ohio, assignor to
 American Greetings Corporation, Cleveland, Ohio
 Filed Feb. 2, 1970, Ser. No. 21,197
 Term of patent 14 years
 Int. Cl. D18—04

U.S. Cl. D64—17

A B C D E F G H I J
 K L M N O P Q R S T
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 a b c d e f g h i j k l m n o p
 q r s t u v w x y z . , : ;
 " " - - -

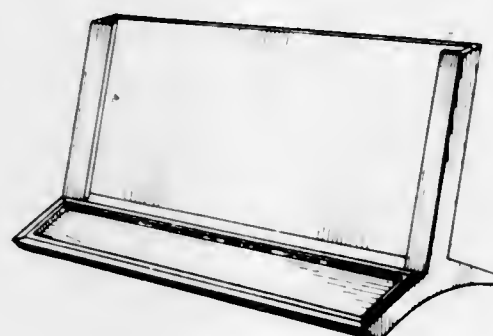
223,414
WATERCRAFT
 Yves Anselme Lapointe, Cap-Rouge, Quebec, Quebec, and
 Pierre Delisle, Tewkesbury, Quebec, Canada, assignors
 to Bombardier Limited, Valcourt, Quebec, Canada
 Filed Aug. 18, 1969, Ser. No. 18,736
 Claims priority, application Canada May 30, 1969
 Term of patent 14 years
 Int. Cl. D12—06

U.S. Cl. D71—1



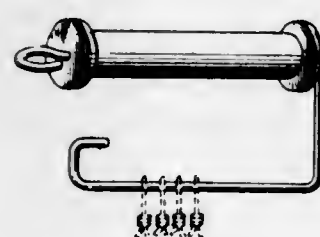
223,415
DESK CALENDAR HOLDER
 Henry Finkel, Westmount, Quebec, Canada, assignor to
 W. L. Plastics and Metal Producers Co. Ltd., Montreal,
 Quebec, Canada
 Filed Feb. 26, 1970, Ser. No. 21,642
 Term of patent 7 years
 Int. Cl. D19—03

U.S. Cl. D74—5



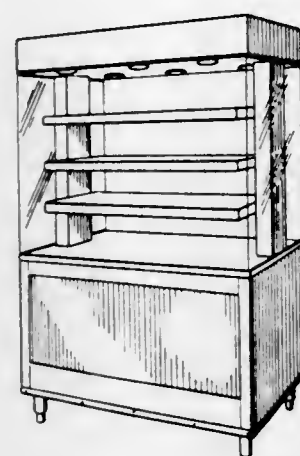
223,416
CLOTHES HANGER TRANSPORTER
 Johnny Howard Marshall, 611 Eastland Ave.,
 Ruston, La. 71270
 Filed July 15, 1970, Ser. No. 23,973
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. D80—8



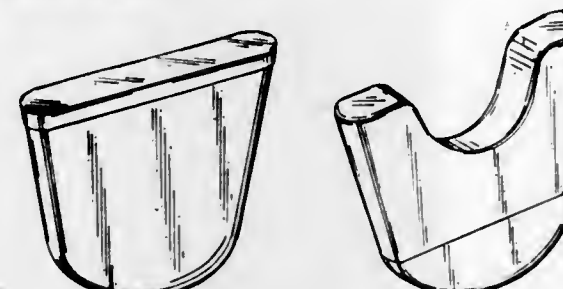
223,417
SELF-SERVICE FOOD WARMER
 Robert G. Wilson, 643 E. Faris Road,
 Greenville, S.C. 29607
 Filed Dec. 14, 1970, Ser. No. 26,447
 Term of patent 14 years
 Int. Cl. D7—02

U.S. Cl. D81—10



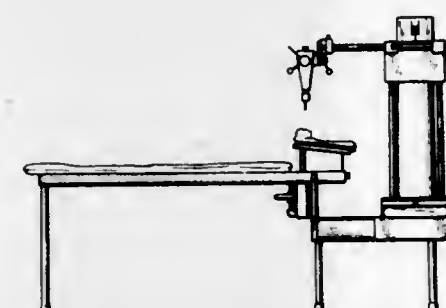
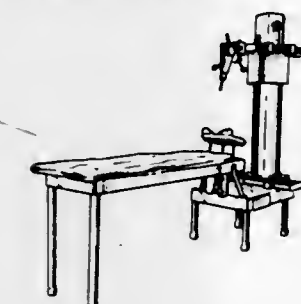
223,418
CORDLESS VIBRATING MASSAGER
 Ann M. Hess, 708 3rd Ave. NE.,
 Jamestown, N. Dak. 58401
 Filed Apr. 6, 1970, Ser. No. 22,284
 Term of patent 14 years
 Int. Cl. D24—99

U.S. Cl. D83—1



223,419
PRECISION CERVICAL VERTEBRAE
ADJUSTING INSTRUMENT
 Burl R. Pettibon, 1002 Monterey Lane,
 Tacoma, Wash. 98466
 Filed June 19, 1970, Ser. No. 23,564
 Term of patent 14 years
 Int. Cl. D24—02

U.S. Cl. D83—1



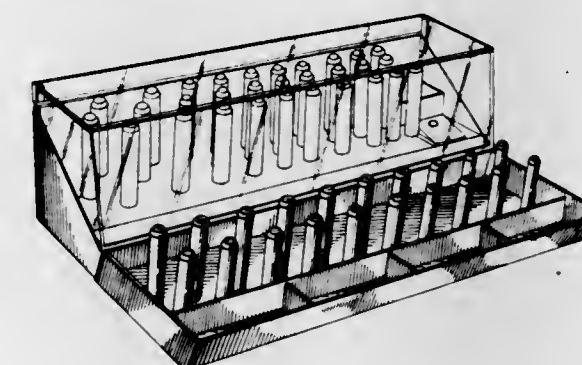
223,420
CIGARETTE DISPENSER
 Yoshihisa Tanaka, Ichikawa, Japan, assignor to Tanaka
 Shoji Kabushiki Kaisha, Tokyo, Japan
 Filed Jan. 15, 1971, Ser. No. 106,944
 Claims priority, application Japan Aug. 22, 1970
 Term of patent 14 years
 Int. Cl. D27—06

U.S. Cl. D85—2



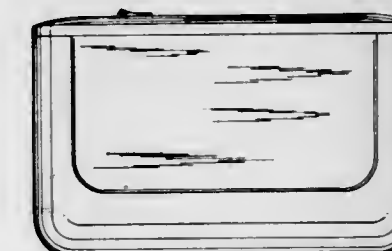
223,421
HEATER HOUSING FOR HAIR CURLERS
 John L. Benty, Scotch Plains, N.J., assignor to Bristol-
 Myers Company, New York, N.Y.
 Filed Feb. 2, 1970, Ser. No. 21,194
 Claims priority, application Denmark Aug. 4, 1969
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D86—10



223,422
HAIR DRYER
 Dieter Rams, Konigstein, Germany, assignor to Braun
 Aktiengesellschaft, Frankfurt am Main, Germany
 Filed Aug. 31, 1970, Ser. No. 24,785
 Claims priority, application Germany Mar. 24, 1970
 Term of patent 14 years
 Int. Cl. D28—03

U.S. Cl. D86—10



223,423
UNITARY SHOE-POLISHING DEVICE
 Andrew W. Brainerd, Kent H. Brainerd, and Stuart
 W. Brainerd, all of 630 Walden Road, Winnetka,
 Ill. 60093
 Filed May 21, 1970, Ser. No. 23,255
 Term of patent 14 years
 Int. Cl. D4—99

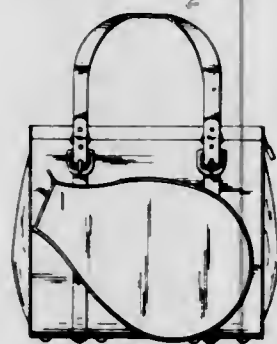
U.S. Cl. D86—11



223,424

COMBINED CARRYING BAG AND RACKET CASE
 Samuel N. Glantz and Milton Glantz, both of 1127 W.
 Division, Chicago, Ill. 60622
 Filed Oct. 21, 1970, Ser. No. 25,593
 Term of patent 14 years
 Int. Cl. D3—07

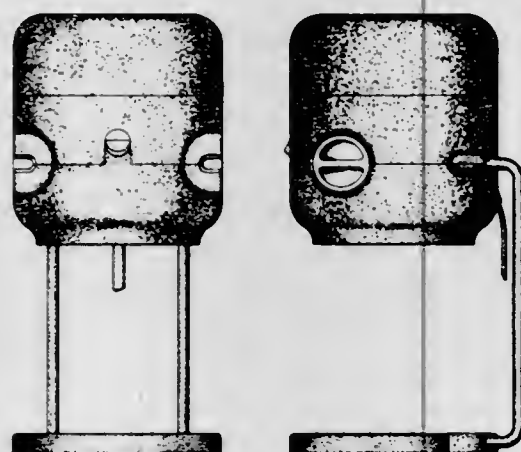
U.S. Cl. D87—1



223,425

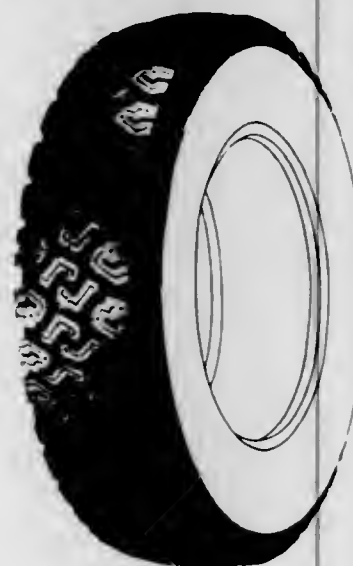
COMBINED COFFEE MILL AND GRINDER
 Florian Seiffert, Zum Talblick, Germany, assignor to
 Braun A.G., Frankfurt am Main, Germany
 Filed Nov. 16, 1970, Ser. No. 26,030
 Claims priority, application Germany May 26, 1970
 Term of patent 14 years
 Int. Cl. D7—04

U.S. Cl. D89—1

223,426
TIRE

Dennis B. Granger, Akron, Ohio, and Harold D. Fetty,
 Birmingham, Mich., assignors to The Goodyear Tire &
 Rubber Company, Akron, Ohio
 Filed July 27, 1970, Ser. No. 24,126
 Term of patent 14 years
 Int. Cl. D12—14

U.S. Cl. D90—20



223,427

DUAL PURPOSE VEHICLE TIRE
 Eugene Bordinat, Jr., Birmingham, Mich., assignor to
 Ford Motor Company, Dearborn, Mich.
 Filed Dec. 4, 1970, Ser. No. 26,294
 Term of patent 14 years
 Int. Cl. D12—15

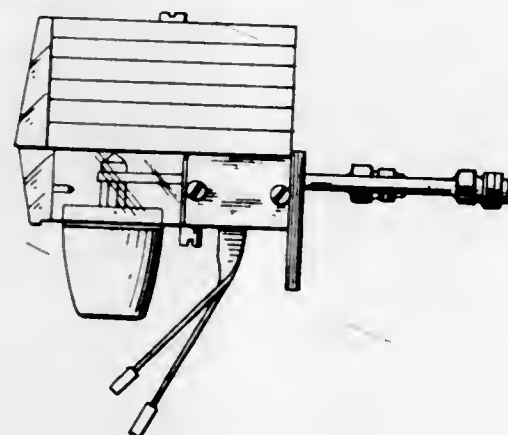
U.S. Cl. D90—20



223,428

BEVERAGE DISPENSER
 Nathan I. Tall, Deal, N.J., and Kenneth I. Tall, New
 York, N.Y., assignors to Kenco Products Corporation
 Filed Sept. 18, 1970, Ser. No. 25,358
 Term of patent 14 years
 Int. Cl. D15—08

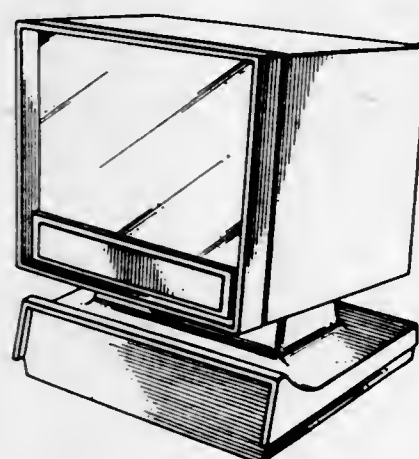
U.S. Cl. D94—3



223,429

CATHODE RAY TUBE DISPLAY HOUSING
 Moto Shimano, Clarence D. Zierhut, and Lloyd Y.
 Ishimaru, Van Nuys, Calif., assignors to Scantlin Elec-
 tronics, Inc., Los Angeles, Calif.
 Filed Aug. 5, 1970, Ser. No. 24,330
 Term of patent 14 years
 Int. Cl. D20—03; D16—03

U.S. Cl. D96—9



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 11TH DAY OF APRIL, 1972

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- Buzzards Corporation, The: *See—*
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- Cowans, Kenneth W., to Hughes Aircraft Co. Cryogenic re-
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- Cunningham, James A., and R. P. Williams, to Texas Instru-
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- Dornbos, Russell H., to Gerwin Industries, Inc. Turnbuckles.
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- Dorr-Oliver Inc.: *See—*
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- Eaton Corp.: *See—*
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- Francis, Samuel A., to The Buzzards Corp. Aquatic probe.
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- Gerwin Industries, Inc.: *See—*
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- Jaeschke, Ralph L., to Eaton Corp. Eddy current coupling.
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- Mayle, Louis F., to The Magnavox Co. Search tune system
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- Shaeffer, John A., to Dorr-Oliver Inc. Trunnion valve for con-
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- Solron, Karl, H. Rafael, and W. Stockar, to Ciba-Geigy AG.
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- Somerville, William T., and E. J. Shuster, to International
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- Cobia, Barnell L., to B. L. Cobia, Inc. Hoya carnosa rubra.
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- Cobia, B. L., Inc.: *See—*
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Oshima, Takeshi. 223,329.

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Nyeum, Thomas G. Golf cart. 223,345, 4-11-72, Cl. D14-3.

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Pettibon, Burl R. Precision cervical vertebrae adjusting instrument. 223,419, 4-11-72, Cl. D83-1.

Pickett, John E. P. Apparatus for the preparation and embedding of tissue specimens. 223,350, 4-11-72, Cl. D16-2.

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Rams, Dieter, to Braun A.G. Table cigarette lighter. 223,393, 4-11-72, Cl. D48-27.

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Seifert, Florian, to Braun A.G. Combined coffee mill and grinder. 223,425, 4-11-72, Cl. D89-1.

Selden, Robert W. Light standard or similar article. 223,395, 4-11-72, Cl. D48-31.

Selden, Robert W., to Weyerhaeuser Co. Light standard or similar article. 223,396, 4-11-72, Cl. D48-31.

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Selden, Robert W., to Weyerhaeuser Co. Light standard or similar article. 223,398, 4-11-72, Cl. D48-31.

Selden, Robert W., to Weyerhaeuser Co. Light standard or similar article. 223,399, 4-11-72, Cl. D48-31.

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Sharp, Clellmont L. Container for chlorine pellets or the like. 223,356, 4-11-72, Cl. D23-2.

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Shimano, Moto, C. D. Zierhut, and L. Y. Ishimaru, to Scanthin Electronics, Inc. Cathode ray tube display housing. 223,429, 4-11-72, Cl. D90-9.

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Smith, Kenneth A. Dispensing tray for plastic bags and the like. 223,403, 4-11-72, Cl. D52-2.

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Tanaka, Yoshihisa, to Tanaka Shoji Kabushiki Kaisha. Cigarette dispenser. 223,420, 4-11-72, Cl. D85-2.

Taylor, James C. Gift package for golf accessories. 223,336, 4-11-72, Cl. D9-193.

Toffolon, Siro R., to International Silver Co. Spoon or similar article of flatware. 223,405, 4-11-72, Cl. D54-12.

Toffolon, Siro R., to International Silver Co. Spoon or similar article of flatware. 223,406, 4-11-72, Cl. D54-12.

Tong, Duncan. Base for natural or artificial flowers. 223,379, 4-11-72, Cl. D35-3.

Trenka, Lew J. Motion picture camera. 223,412, 4-11-72, Cl. D61-1.

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112.5	3,655,636	517	3,655,741	13	3,655,838	17	3,656,052	248A	3,656,135	
149	3,655,637	518R	3,655,742	40	3,655,839	23MC	3,655,234	253R	3,656,136	
153	3,655,638	521R	3,655,744	45	3,655,840	20	3,656,053	259	3,656,137	
	3,655,639	526N	3,655,745	59	3,655,843	29.5	3,656,061	266	3,656,138	
162	3,655,640	527N	3,655,746	66	3,655,841	37	3,656,054	267R	3,656,139	
176	3,655,641	530N	3,655,749	72	3,655,842	61R	3,656,055	270	3,656,140	
194	3,655,642		3,655,750	78	3,655,844	65R	3,656,056	272	3,656,141	
210.5	3,655,643	530R	3,655,747	82	3,655,845	133	3,656,057	274	3,656,143	
233.3R	3,655,644	534R	3,655,748	89	3,655,846	158F	3,656,058	283	3,656,144	
234R	3,655,645	537N	3,655,750	94	3,655,847	173	3,656,059	310	3,656,145	
239BB	3,655,651	545R	3,655,751	98	3,655,848	186	3,656,060	324A	3,656,146	
239B	3,655,646	553D	3,655,756		3,655,849				3,656,147	
239.3B	3,655,648	558A	3,655,752	102	3,655,851	CLASS 299	3,656,062	324R	3,656,148	
239.3T	3,655,647	559R	3,655,753	115	3,655,852	15	3,656,062	347AD	3,656,152	
239.5	3,655,649	561A	3,655,754	118	3,655,850	91	3,656,063		3,656,153	
239.55C	3,655,652	562B	3,655,755	127	3,655,853	CLASS 302	3,656,063		3,656,154	
239.55	3,655,650	564A	3,655,757	134	3,655,854	59	3,656,064	347DA	3,656,151	
	3,655,653	566AE	3,655,758	147	3,655,855	CLASS 303	3,656,064	347DD	3,656,149	
240D	3,655,654		3,655,759	150	3,655,856	21F	3,656,065		3,656,150	
242	3,655,655	566A	3,655,759	206	3,655,857	CLASS 307	3,656,065		3,656,155	
243C	3,655,656	570.8TC	3,655,762	237	3,655,860	10R	3,656,066		3,656,156	
	3,655,658	576	3,655,763	250	3,655,861	87	3,656,067		3,656,157	
243R	3,655,657	584C	3,655,764	290	3,655,862	88.3	3,656,068		3,656,158	
244R	3,655,659	586R	3,655,765	294	3,655,863	132R				
247.1	3,655,661		3,655,766							
	3,655,663	592	3,655,767	21	3,655,174	CLASS 266	3,656,069		3,656,159	
247.2R	3,655,743	593	3,655,768	22	3,655,175	202	3,656,070	100PE	3,656,161	
248CS	3,655,662	597	3,655,769	38	3,655,176	210	3,656,071	180	3,656,162	
250A	3,655,660	600	3,655,770			215	3,656,072	702	3,656,160	
251QA	3,655,664	603HF	3,655,771			221R	3,656,073	705	3,656,163	
260	3,655,665	607A	3,655,772	1	3,655,177	233	3,656,074	754	3,656,164	
268PH	3,655,666	609A	3,655,774	323	3,655,178	235	3,656,075	756	3,656,165	
	3,655,667	609F	3,655,773	324	3,655,179	238	3,656,076	793	3,656,166	
	3,655,668	611A	3,655,775			246	3,656,077	882	3,656,167	
281	3,655,669	613D	3,655,776	58	3,655,180	247A	3,656,078	895	3,656,168	
283S	3,655,670	618H	3,655,777			252M	3,656,079			
288R	3,655,671	619R	3,655,778	29	3,655,181	262	3,656,080			
289OP	3,655,672		3,655,779	61	3,655,182	268	3,656,081			
293.61	3,655,674	624E	3,655,780	62	3,655,183	279	3,656,082			
293.66	3,655,673	643A	3,655,781	64	3,655,184	304	3,656,083			
293.67	3,655,680	648R	3,655,782	88	3,655,186	379	3,656,084			
293.74	3,655,675	650R	3,655,783				3,656,085			
293.84	3,655,676		3,655,784	82	3,655,185	CLASS 308	3,656,086			
294.8C	3,655,681	651F	3,655,785			6C	3,656,087			
	3,655,682	653.3	3,655,786			9	3,656,088			
295AM	3,655,677	656R	3,655,787	30	3,655,187	72	3,656,089			
295R	3,655,678	663	3,655,788	77A	3,655,188	160	3,656,090			
	3,655,679	664	3,655,789	88	3,655,189	183	3,656,091			
299	3,655,683	665R	3,655,790	95A	3,655,190	236	3,656,092			
304	3,655,686	666PY	3,655,796	95R	3,655,191		3,656,093			
306.8R	3,655,685	666B	3,655,791	101.1	3,655,192	8.1	3,656,094			
307C	3,655,687		3,655,793	106R	3,655,193	10	3,656,095			
307G	3,655,684		3,655,794	131B	3,655,194	13	3,656,096			
309.2	3,655,688		3,655,795	135D	3,655,195	50	3,656,097			
309.5	3,655,689	666P	3,655,792	136F	3,655,196	50	3,656,098			
310R	3,655,690		3,655,799	138R	3,655,197	90	3,656,099			
326.3	3,655,691	668A	3,655,798	139	3,655,198	105	3,656,100			
332.2A	3,655,693	671B	3,655,801	143R	3,655,199	242	3,656,101			
332.2C	3,655,692	671	3,655,797	148R	3,655,200		3,656,102			
340.5	3,655,695		3,655,800	153R	3,655,201	194	3,656,103			
343.2R	3,655,694	672	3,655,802	176FA	3,655,202	257	3,656,104			
346.2	3,655,696	675.5	3,655,803	181R	3,655,203		3,656,105			
	3,655,697	677H	3,655,804			CLASS 310	3,656,106			
348.5V	3,655,698	678	3,655,804	14	3,655,325	217	3,656,107			
396R	3,655,699	680E	3,655,805			346DC	3,656,108			
405	3,655,700	681.5	3,655,806	24	3,655,204	CLASS 317	3,656,109			
410.9R	3,655,701	683.15D	3,655,808	87	3,655,205	4	3,656,110			
412.6	3,655,702		3,655,809	11C	3,655,206	11C	3,656,111			
429.7	3,655,703		3,655,810	13R	3,655,207	13R	3,656,112			
	3,655,705		3,655,811	20	3,655,208	20	3,656,113			
429.9	3,655,704		3,655,812	221	3,655,209	36TD	3,656,114			
433	3,655,707	683.43	3,655,813	235B	3,655,210	230	3,656,115			
437R	3,655,706	683.63	3,655,807	235R	3,655,209	230	3,656,116			
439R	3,655,708	828	Re.27.328	237	3,655,213	234R	3,656,117			
448.2E	3,655,714	830R	3,655,815				3,656,118			
448.2N	3,655,711		3,655,816	11.13S	3,655,211		3,656,119			
	3,655,712	835	3,655,817	36R	3,655,212	235R	3,656,120			
	3,655,713	837	3,655,818	43.23	3,655,214		3,656,121			
448.2P	3,655,710	857TW	3,655,822	79.2	3,655,215		3,656,122			
448.2T	3,655,709	857	3,655,819	150AB	3,655,217	235	3,656,123			
453R	3,655,715		3,655,821	150D	3,655,216	243	3,656,124			
459	3,655,716	861	3,655,820	179	3,655,218	249D	3,656,125			
463	3,655,717	872	3,655,823	279	3,655,219		3,656,126			
	3,655,718	873	3,655,824	475	3,655,220		3,656,127			
	3,655,719	876R	3,655,825	490	3,655,221		3,656,128			
464	3,655,720		3,655,826			CLASS 318	3,656,129			
465.3	3,655,723	880R	3,655,828	11.5A	3,655,222	41	3,656,130			
465.8	3,655,721	890	3,655,827	138	3,655,223	59	3,656,131			
	3,655,724	899	3,655,829	139	3,655,224	168	3,656,132			
465.9	3,655,722	901	3,655,830	168	3,655,225	318	3,656,133			
468R	3,655,725	927R	3,655,831	39	3,655,226	444	3,656,134			
	3,655,726	930	3,655,832	93	3,655,227	588	3,656,135			
473R	3,655,728	948	3,655,833	311	3,655,228		3,656,136			
475P	3,655,729	983	3,655,835			CLASS 320	3,656,137			
479C	3,655,730		3,655,835	119	3,655,226	2	3,656,138			
485H	3,655,731	35	3,655,169	189.36F	3,655,227	34	3,656,139			
486H	3,655,732	36A	3,655,170			59	3,656,140			
486	3,655,733	64R	3,655,171	79	3,655,228	CLASS 321	3,656,141			
487	3,655,734	130	3,655,172	148	3,655,229	5	3,656,142			
491	3,655,735			169	3,655,230	CLASS 322	3,656,143			
497R	3,655,736					19	3,656,144			
501.17	3,655,737	8	3,655,173	86	3,655,231	27	3,656,145			
502R	3,655,738	CLASS 263				28	3,656,146			
505C	3,655,739	3	3,655,836	67R	3,655,232		3,656,147			

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	CLASS 418	80	3,655,870	147	3,655,882		3,655,894		3,655,307	267	3,655,319
61	3,655,302	89	3,655,871	157	3,655,883	251	3,655,895		3,655,308	388	3,655,320
	3,655,303		3,655,872	180	3,655,884		3,655,896		3,655,309	395	3,655,321
124	3,655,304	93	3,655,873	181	3,655,885	263	3,655,897		3,655,310	431	3,655,322
	CLASS 424	99	3,655,874	195	3,655,886		3,655,898	115	3,655,311	438	3,655,323
38	3,655,864	106	3,655,875	229	3,655,887	273	3,655,899		3,655,312		CLASS 431
45	3,655,865	117	3,655,876		3,655,888		3,655,900	130	3,655,313	258	3,655,324
48	3,655,866		3,655,877	238	3,655,889		3,655,901	131	3,655,314		CLASS 444
52	3,655,867	121	3,655,878	244	3,655,890			145	3,655,315		
54	3,655,868	122	3,655,879	249	3,655,891	83	CLASS 425	161	3,655,316	1	3,656,177
			3,655,880		3,655,892		3,655,305	165	3,655,317		3,656,178

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	3,655,130	3,655,057	3,655,700	3,655,086	3,655,348	3,654,784
4	3,654,632	3,655,095	3,655,745	3,655,196	3,655,390	3,654,794
	3,654,903	3,655,102	3,655,761	3,655,736	3,655,378	3,654,810
	3,655,044	3,655,116	3,655,763	3,655,875	3,655,586	3,654,824
	3,655,188	3,655,127	3,655,778	3,656,085	3,655,635	3,654,836
	3,656,052	3,655,132	3,655,780	3,656,160	3,655,630	3,654,858
	3,656,159	3,655,133	3,655,798	Re:27,326	3,654,863	3,654,863
5	3,655,112	3,655,155	3,655,814	3,654,645	3,655,657	3,654,876
	3,655,219	3,655,159	3,655,889	3,654,688	3,655,664	3,654,879
6	Re:27,338	3,655,161	3,655,902	3,654,689	3,655,694	3,654,883
	3,654,630	3,655,163	3,655,903	3,654,693	3,655,723	3,654,894
	3,654,647	3,655,191	3,655,914	3,654,700	3,655,724	3,654,898
	3,654,660	3,655,195	3,655,925	3,654,720	3,655,732	3,654,912
	3,654,662	3,655,198	3,655,932	3,654,722	3,655,782	3,654,917
	3,654,674	3,655,208	3,655,939	3,654,730	3,655,827	3,654,922
	3,654,675	3,655,215	3,655,952	3,654,744	3,655,866	3,654,924
	3,654,683	3,655,221	3,655,958	3,654,765	3,655,882	3,654,938
	3,654,685	3,655,236	3,655,977	3,654,855	3,655,120	3,654,977
	3,654,694	3,655,253	3,655,980	3,654,892	3,654,999	3,654,999
	3,654,705	3,655,264	3,655,997	3,654,979	3,655,000	3,655,000
	3,654,713	3,655,265	3,656,007	3,655,032	3,654,734	3,655,002
	3,654,715	3,655,268	3,656,015	3,655,063	3,654,740	3,655,014
	3,654,728	3,655,272	3,656,020	3,655,075	3,654,783	3,655,021
	3,654,733	3,655,289	3,656,031	3,655,076	3,654,888	3,655,022
	3,654,735	3,655,298	3,656,058	3,655,089	3,654,930	3,655,023
	3,654,767	3,655,311	3,656,059	3,655,228	3,654,969	3,655,025
	3,654,787	3,655,320	3,656,063	3,655,244	3,655,030	3,655,065
	3,654,792	3,655,360	3,656,065	3,655,293	3,655,059	3,655,068
	3,654,804	3,655,402	3,656,073	3,655,385	3,655,094	3,655,090
	3,654,807	3,655,410	3,656,082	3,655,430	3,655,117	3,655,109
	3,654,811	3,655,415	3,656,083	3,655,431	3,655,122	3,655,111
	3,654,814	3,655,434	3,656,091	3,655,448	3,655,187	3,655,121
	3,654,817	3,655,442	3,656,101	3,655,496	3,655,308	3,655,145
	3,654,821	3,655,469	3,656,115	3,655,537	3,655,495	3,655,156
	3,654,822	3,655,503	3,656,128	3,655,579	3,655,594	3,655,162
	3,654,832	3,655,515	3,656,130	3,655,606	3,655,803	3,655,164
	3,654,850	3,655,517	3,656,136	3,655,622	3,656,080	3,655,184
	3,654,852	3,655,541	3,656,139	3,655,830	3,656,163	3,655,185
	3,654,904	3,655,546	3,656,141	3,655,876	3,654,701	3,655,189
	3,654,914	3,655,547	3,656,146	3,655,891	3,655,114	3,655,212
	3,654,915	3,655,550	3,656,152	3,655,908	3,655,149	3,655,217
	3,654,948	3,655,551	3,656,158	3,655,915	3,655,417	3,655,282
	3,654,963	3,655,566	3,656,164	3,656,014	3,655,790	3,655,283
	3,654,974	3,655,572	3,656,175	3,656,057	3,656,048	3,655,285
	3,654,985	3,655,595	3,656,183	3,656,061	Re:27,334	3,655,325
	3,655,007	3,655,600	3,656,028	3,656,074	3,654,631	3,655,339
	3,655,008	3,655,616	3,656,049	3,656,120	3,654,665	3,655,365
	3,655,009	3,655,621	3,656,110	3,656,138	3,654,668	3,655,376
	3,655,020	3,655,625	3,656,126	3,656,156	3,654,669	3,655,411
	3,655,052	3,655,680	3,656,132	3,656,156	3,654,707	3,655,414

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,655,476	3,654,857	3,655,279	3,655,698	3,655,372	3,654,790
3,655,477	3,654,902	3,655,347	3,655,699	3,655,373	3,654,800
3,655,484	3,654,947	3,655,383	3,655,716	3,655,374	3,654,818
3,655,539	3,655,037	3,655,565	3,655,722	3,655,375	3,654,833
3,655,562	3,655,058	3,655,727	3,655,777	3,655,377	3,654,837
3,655,602	3,655,079	3,655,728	3,655,786	3,655,379	3,654,840
3,655,702	3,655,126	3,655,758	3,655,807	3,655,380	3,654,854
3,655,704	3,655,136	3,655,818	3,655,812	3,655,381	3,654,859
3,655,731	3,655,201	3,655,927	3,655,822	3,655,382	3,654,873
3,655,734	3,655,243	3,656,060	3,655,828	3,655,392	3,654,934
3,655,751	3,655,266	3,656,088	3,655,838	3,655,393	3,654,940
3,655,791	3,655,277	3,656,109	3,655,852	3,655,394	3,654,950
3,655,797	3,655,424	28 : 3,655,081	3,655,855	3,655,397	3,654,971
3,655,811	3,655,427	3,655,165	3,655,857	3,655,398	3,654,972
3,655,868	3,655,432	29 : 3,654,672	3,655,865	3,655,399	3,654,986
3,655,882	3,655,441	3,654,698	3,655,888	3,655,400	3,654,988
3,655,892	3,655,444	3,654,754	3,655,890	3,655,401	3,655,019
3,655,906	3,655,447	3,654,795	3,655,895	3,655,404	3,655,029
3,655,918	3,655,474	3,654,830	3,655,897	3,655,407	3,655,066
3,655,919	3,655,494	3,654,870	3,655,898	3,655,409	3,655,067
3,655,920	3,655,585	3,654,871	3,655,912	3,655,423	3,655,074
3,655,945	3,655,764	3,654,984	3,655,917	3,655,425	3,655,083
3,655,974	3,655,842	3,655,046	3,655,923	3,655,451	3,655,104
3,655,994	3,655,911	3,655,261	3,655,924	3,655,457	3,655,153
3,655,995	3,655,975	3,655,296	3,655,953	3,655,462	3,655,158
3,656,005	3,655,986	3,655,509	3,655,993	3,655,463	3,655,160
3,656,016	3,656,050	3,655,593	3,656,002	3,655,464	3,655,186
3,656,023	3,656,053	3,655,646	3,656,011	3,655,465	3,655,190
3,656,047	3,656,056	3,655,726	3,656,024	3,655,472	3,655,193
3,656,089	3,656,070	3,655,755	3,656,030	3,655,473	3,655,260
3,656,104	3,656,072	3,655,766	3,656,045	3,655,482	3,655,275
3,656,134	3,656,087	3,655,856	3,656,062	3,655,487	3,655,286
3,656,181	3,656,097	3,655,863	3,656,068	3,655,488	3,655,307
18 : Re:27,329	3,656,113	3,655,869	3,656,069	3,655,490	3,655,317
3,654,629	3,656,126	3,655,981	3,656,071	3,655,497	3,655,324
3,654,636	3,656,131	3,655,985	3,656,084	3,655,531	3,655,343
3,654,641	3,656,132	3,656,102	3,656,100	3,655,544	3,655,354
3,654,751	3,656,149	3,654,872	3,656,108	3,655,573	3,655,357
3,654,805	3,656,172	3,655,077	3,656,121	3,655,603	3,655,421
3,654,973	26 : Re:27,327	3,655,478	3,656,122	3,655,614	3,655,453
3,655,223	Re:27,339	3,655,192	3,656,161	3,655,618	3,655,468
3,655,224	3,654,639	3,655,247	3,656,170	3,655,627	3,655,481
3,655,234	3,654,643	3,655,940	3,656,173	3,655,640	3,655,500
3,655,359	3,654,736	Re:27,330	3,655,151	3,655,669	3,655,530
3,655,443	3,654,762	Re:27,332	3,654,635	3,655,675	3,655,534
3,655,513	3,654,764	3,654,640	3,654,642	3,655,677	3,655,538
3,655,563	3,654,770	3,654,706	3,654,658	3,655,691	3,655,556
3,655,566	3,654,797	3,654,708	3,654,709	3,655,703	3,655,599
3,655,666	3,654,801	3,654,727	3,654,716	3,655,752	3,655,708
3,655,781	3,654,816	3,654,786	3,654,718	3,655,753	3,655,729
3,655,788	3,654,820	3,654,829	3,654,729	3,655,765	3,655,815
3,655,850	3,654,826	3,654,856	3,654,732	3,655,767	3,655,831
3,655,854	3,654,827	3,654,882	3,654,743	3,655,769	3,655,837
3,655,881	3,654,864	3,654,890	3,654,835	3,655,832	3,655,843
3,656,076	3,654,878	3,654,925	3,654,844	3,655,861	3,655,847
3,656,096	3,654,926	3,654,927	3,654,847	3,655,866	3,655,921
3,656,135	3,654,958	3,654,931	3,654,893	3,655,883	3,655,926
3,656,151	3,654,980	3,654,957	3,654,900	3,655,901	3,655,942
19 : 3,654,731	3,655,010	3,654,967	3,654,901	3,655,904	3,655,943
3,654,885	3,655,034	3,655,026	3,654,935	3,655,907	3,655,944
3,655,101	3,655,070	3,655,038	3,654,939	3,655,916	3,655,976
3,655,138	3,655,113	3,655,041	3,654,943	3,655,955	3,655,979
3,655,315	3,655,202	3,655,088	3,654,959	3,655,960	3,655,983
3,655,321	3,655,203	3,655,091	3,654,960	3,655,970	3,655,984
3,655,644	3,655,206	3,655,093	3,654,975	3,655,971	3,656,013
20 : 3,654,966	3,655,209	3,655,118	3,654,976	3,655,972	3,656,027
3,655,290	3,655,225	3,655,169	3,655,031	3,655,999	3,656,051
3,655,294	3,655,227	3,655,171	3,655,033	3,656,004	3,656,079
3,656,094	3,655,238	3,655,173	3,655,036	3,656,018	3,656,140
3,656,110	3,655,240	3,655,177	3,655,045	3,656,028	3,656,165
21 : 3,654,772	3,655,249	3,655,218	3,655,048	3,656,029	3,656,168
3,654,907	3,655,273	3,655,231	3,655,069	3,656,034	3,656,171
3,655,027	3,655,291	3,655,237	3,655,085	3,656,035	3,656,174
3,655,131	3,655,299	3,655,255	3,655,100	3,656,064	40 : 3,654,691
3,655,235	3,655,309	3,655,295	3,655,105	3,656,064	3,654,702
3,655,526	3,655,333	3,655,302	3,655,115	3,656,078	3,654,703
3,656,182	3,655,395	3,655,351	3,655,119	3,656,105	3,654,886
22 : 3,654,666	3,655,440	3,655,367	3,655,123	3,656,107	3,654,978
3,655,413	3,655,458	3,655,378	3,655,125	3,656,117	3,655,216
3,655,435	3,655,516	3,655,403	3,655,135	3,656,118	3,655,301
3,655,520	3,655,522	3,655,416	3,655,140	3,656,119	3,655,341
3,655,701	3,655,523	3,655,527	3,655,152	3,656,123	3,655,358
23 : 3,654,851	3,655,549	3,655,532	3,655,183	3,656,144	3,655,480
3,655,128	3,655,581	3,655,533	3,655,194	3,656,148	3,655,525
24 : 3,654,759	3,655,598	3,655,540	3,655,197	3,656,154	3,655,535
3,654,921	3,655,633	3,655,558	3,655,200	3,656,162	3,655,536
3,655,051	3,655,647	3,655,560	3,655,204	3,654,654	3,655,801
3,655,214	3,655,678	3,655,561	3,655,211	3,654,677	3,655,804
3,655,274	3,655,705	3,655,567	3,655,222	3,654,699	3,655,848
3,655,330	3,655,713	3,655,571	3,655,229	3,654,937	3,655,873
3,655,405	3,655,733	3,655,610	3,655,257	3,655,107	3,656,067
3,655,508	3,655,773	3,655,611	3,655,262	3,655,353	41 : 3,654,742
3,655,524	3,655,885	3,655,613	3,655,267	3,655,720	3,654,834
3,655,626	3,655,928	3,655,619	3,655,276	3,655,859	3,655,144
3,655,690	3,655,929	3,655,637	3,655,281	3,655,893	3,655,251
3,655,715	3,655,969	3,655,648	3,655,288	3,656,179	3,655,323
3,655,754	27 : 3,654,738	3,655,652	3,655,288	39 : Re:27,328	3,655,930
3,656,025	3,654,777	3,655,653	3,655,288	Re:27,331	42 : 3,654,653
3,656,095	3,654,853	3,655,659	3,655,331	3,654,650	3,654,673
3,656,111	3,654,875	3,655,667	3,655,335	3,654,659	3,654,682
25 : Re:27,335	3,654,880	3,655,679	3,655,338	3,654,661	3,654,697
3,654,637	3,654,910	3,655,692	3,655,361	3,654,664	3,654,704
3,654,748	3,654,933	3,655,693	3,655,366	3,654,680	3,654,749
3,654,798	3,655,050	3,655,695	3,655,368	3,654,681	3,654,771
3,654,846	3,655,096	3,655,696	3,655,370	3,654,717	3,654,775
3,654,848	3,655,181	3,655,697	3,655,371	3,654,768	

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,654,780	3,655,499	3,655,982	3,654,638	3,655,787	3,656,039
3,654,793	3,655,545	3,656,003	3,654,648	3,655,795	3,656,143
3,654,796	3,655,552	3,656,009	3,654,656	3,655,805	3,656,158
3,654,815	3,655,553	3,656,022	3,654,721	3,655,851	3,656,112
3,654,841	3,655,564	3,656,026	3,654,723	3,655,905	3,654,755
3,654,842	3,655,575	3,656,032	3,654,766	3,655,938	3,654,806
3,654,860	3,655,576	3,656,036	3,654,766	3,655,938	3,654,809
3,654,874	3,655,582	3,656,037	3,654,881	3,656,000	3,655,082
3,654,994	3,655,588	3,656,092	3,654,895	3,656,066	3,655,146
3,654,996	3,655,591	3,656,093	3,654,941	3,656,124	3,655,258
3,655,001	3,655,604	3,656,127	3,654,949	3,656,124	3,655,779
3,655,040	3,655,607	3,656,176	3,654,951	3,654,711	3,655,991
3,655,042	3,655,655	3,656,177	3,654,951	3,654,909	3,654,961
3,655,078	3,655,668	3,656,178	3,654,962	3,655,148	3,655,344
3,655,087	3,655,676	3,656,180	3,654,990	3,655,157	3,655,793
3,655,092	3,655,707	3,656,166	3,654,991	3,655,337	3,655,337
3,655,129	3,655,725	Re. 27,336	3,654,992	3,655,337	3,654,823
3,655,143	3,655,742	3,654,919	3,654,993	3,655,336	3,654,839
3,655,170	3,655,749	3,655,062	3,654,995	3,656,157	3,654,913
3,655,220	3,655,750	3,655,099	3,654,995	3,654,862	3,654,928
3,655,252	3,655,783	3,655,103	3,655,049	3,654,869	3,654,944
3,655,263	3,655,792	3,655,485	3,655,071	3,654,877	3,654,954
3,655,269	3,655,800	3,656,040	3,655,097	3,654,884	3,655,011
3,655,292	3,655,808	45 : 3,654,942	3,655,137	3,654,923	3,655,167
3,655,303	3,655,809	3,655,006	3,655,172	3,655,053	3,655,179
3,655,312	3,655,813	3,655,141	3,655,256	3,655,297	3,655,210
3,655,332	3,655,823	3,655,327	3,655,270	3,655,362	3,655,245
3,655,346	3,655,825	3,655,471	3,655,342	3,655,420	3,655,422
3,655,349	3,655,826	3,656,044	3,655,506	3,655,498	3,655,452
3,655,350	3,655,860	47 : 3,654,714	3,655,548	3,655,785	3,655,455
3,655,433	3,655,864	3,654,778	3,655,590	3,655,819	3,655,475
3,655,436	3,655,894	3,654,803	3,655,706	3,655,821	3,655,608
3,655,459	3,655,957	3,655,305	3,655,718	3,655,853	3,655,671
3,655,467	3,655,959	3,656,116	3,655,719	3,655,931	3,655,934
3,655,492	3,655,978	48 : Re. 27,325	3,655,738	3,655,962	3,655,950
3,655,493			3,656,019	3,655,968	3,656,006
				3,656,012	3,656,012
				3,656,038	3,656,038
				3,656,061	3,656,061

DESIGN PATENTS

6 : 223,342	223,404	18 : 223,424	33 : 223,384	223,381	48 : 223,336
223,343	223,429	20 : 223,334	34 : 223,327	223,383	223,358
223,344	223,335	22 : 223,357	223,338	223,428	49 : 223,349
223,353	223,405	26 : 223,416	223,368	37 : 223,350	53 : 223,341
223,360	223,406	223,401	223,401	223,394	223,348
223,361	12 : 223,370	223,356	223,411	38 : 223,418	223,388
223,362	17 : 223,326	223,426	223,421	39 : 223,339	223,395
223,363	223,328	223,427	36 : 223,340	41 : 223,413	223,396
223,367	223,365	223,333	223,351	42 : 223,403	223,397
223,375	223,366	223,359	223,364	223,332	223,398
223,380	223,377	223,369	223,371	223,376	223,399
223,382	223,410	223,386	223,372	223,385	223,400
223,389	223,423	31 : 223,345	223,378	44 : 223,417	223,419
223,402					

PLANT PATENTS

6 : 3,102	12 : 3,105	13 : 3,110	34 : 3,108	36 : 3,109	39 : 3,107
6 : 3,106					

U.S. GOVERNMENT PRINTING OFFICE: O—1972

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

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Number 3

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PATENT OFFICE NOTICES

Nice Agreement

The Department of State has deposited the instrument of accession to the Nice Agreement Concerning the International Classification of Goods and Services for the Purpose of the Registration of Marks of June 15, 1957, as Revised at Stockholm on July 14, 1967, with the Director General of the World Intellectual Property Organization. The Nice Agreement enters into force as of May 25, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.
Approved: Mar. 16, 1972.

Locarno Agreement

The Department of State has deposited the instrument of ratification of the Locarno Agreement Establishing the International Classification for Industrial Designs of October 8, 1968, with the Director General of the World Intellectual Property Organization. The Locarno Agreement enters into force, for the United States, as of May 25, 1972.

ROBERT GOTTSCHALK,
Commissioner of Patents.
Approved: Mar. 16, 1972.

ABBREVIATED FIRST ACTION PROGRAM

The Abbreviated First Action Program using Form PO-1142 announced in the OFFICIAL GAZETTE of February 2, 1971 (883 O.G. 2) has been reviewed in the light of comments received from examiners, attorneys, and other members of the public, pursuant to the notice of November 10, 1971 (893 O.G. 1). As a result of this review the program will be continued and the form modified to incorporate some of the suggested improvements. The space for the explanation of the rejection will be expanded. In addition, the instructions to the examiners will be supplemented to reinforce the original stress on the importance of legibility, clarity and completeness in setting forth the examiner's position, and desirability of including suggestions that would render the case allowable.

RICHARD A. WAHL,
Assistant Commissioner.
Mar. 17, 1972.

EXAMINER TESTIMONY

As stated in Section 1701 of the Manual of Patent Examining Procedure, patent examiners are forbidden to testify as patent experts or to express opinions, in testimony or otherwise, as to the invalidity of any issued patent. Patent examiners have, in connection with litigation involving patent validity, been called to testify on factual matters. In those cases, the practice has been to permit the examiner to testify only upon the issuance of a subpoena.

Henceforth, patent examiners will be permitted to testify on deposition in patent suits, without the need for a subpoena, provided the following conditions are satisfied:

1. The party proposing to take the testimony will state in writing, that the questions to be asked of the examiner will be phrased to comply with the permissible scope of inquiry as outlined in the protective orders contained in the Court opinions in *In re Mayewsky*, 162 USPQ 86, 89 and *Shaffer Tool Works v. Joy Manufacturing Co.*, 167 USPQ 170, 171: "... the scope of the oral depositions of the patent examiners is hereby limited to matters of fact and must not go into hypothetical or speculative areas or the bases, reasons, mental processes, analyses, or conclusions of the patent examiners in acting upon the patent applications maturing into the patent [in suit]." 167 USPQ 171.
2. That in addition to complying with the requirements of Rule 30 of the Federal Rules of Civil Procedure, the party taking the testimony will agree to give notice of the taking of the deposition of the patent examiner to

the Solicitor, at least thirty days prior to the date on which the taking of the deposition is desired.

3. That the party taking the deposition arrange with the Solicitor to notice the deposition at a place convenient to the Patent Office.

If the party desiring to take the testimony of the examiner does not agree to the conditions enumerated, the Patent Office will not permit the examiner to be deposed without a subpoena and compliance with the procedure set forth in Section 7.02, Department of Commerce Administrative Order 205-12, June 29, 1967 as amended April 10, 1970. That section states:

In any case where it is sought by subpoena, order or other compulsory process or other demand of a court or other authority (hereinafter referred to as a "demand") to require the production or disclosure of any record in the files of the Department of Commerce or other information acquired by an officer or employee of the Department as a part of the performance of his official duties or because of his official status, the matter shall be immediately referred for determination to the appropriate official described in subsection 4.01 of this order. If such official has discretion with respect to disclosure and he determines that it would be improper to comply with the demand, or if he has no discretion with respect to disclosure, the matter shall be promptly referred to the Secretary of Commerce for final determination. Unless and until the Secretary determines that the records or information should be produced, the officer or employee who appears in answer to the demand shall inform the court or other authority (a) that the section 7 of this order prohibits the officer or employee from producing or disclosing the records or other information demanded without the prior approval of the Secretary of Commerce, and (b) that the demand has been, or is being, as the case may be, referred for the prompt consideration of the Secretary. The officer or employee shall also provide the court or other authority with a copy of the regulations prescribed in this section 7 of this order, and shall respectfully request the court or other authority to stay the demand pending the receipt of instructions or directions from the Secretary of Commerce concerning the demand.

ROBERT GOTTSCHALK,
Commissioner of Patents.
Mar. 13, 1972.

Patent Suits

Notices under 35 U.S.C. 290; Patent Act of 1952

2,729,067, R. Patterson, METHOD FOR FORMING PILES, filed Nov. 8, 1971, D.C., M.D. Fla. (Tampa), Doc. 71-497-C, *Intrusion Prepack Incorporated v. Consolidated Soils, Inc.*

2,843,935, H. J. Gerber, INSTRUMENT FOR MEASURING, INTERPOLATING, PLOTTING AND THE LIKE, filed Jan. 28, 1971, D.C. Mass. (Boston), Doc. 71-258-J, *The Gerber Scientific Instrument Co. v. Charles J. Colligan and Data Scales, Inc.* Stipulation of dismissal filed Dec. 21, 1971.

2,919,506, P. V. Larsen, EXCAVATING TOOTH AND BASE SUPPORT THEREFOR, filed Sept. 7, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-2147-CC, *Esco Corporation v. Industrial Parts Depot, Inc.*

2,951,761, J. T. Stephan, FISH BAIT, filed July 31, 1968, D.C., S.D. Idaho (Boise), Doc. 1-69-60, *Puget Sound Salmon Egg Company, Inc. v. Shoshoni, Inc. et al.* Consent judgment restraining defendants from making or selling fish eggs covered by this patent, Oct. 22, 1971.

2,970,783, D. A. Cheyette, COMPOSITE WEARING PARTS FOR CRUSHERS AND THE LIKE, filed Dec. 28, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-3050-IH, *Rez Chainbelt Inc. v. DFC Company, Inc.*

2,973,643, Roderick and Gwathmey, AIRCRAFT RATE OF CLIMB INDICATING INSTRUMENTS, filed Nov. 4, 1971, D.C. Kans. (Wichita), Doc. W-4728, *Teledyne, Inc. v. Aerodynamics Corporation.*

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U. S. PATENT OFFICE

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3,012,303, Whitaker, Whitaker and Whiting, PRODUCTION OF MULTICOLORED PILE FABRIC, filed Apr. 10, 1970, D.C., W.D. Va. (Lynchburg), Doc. 70-C-15-L, *Fred Whitaker Company v. Burlington Industries, Inc.* Order, case settled by agreement. Plaintiff owner of patent, injunction issued restraining defendant, Nov. 16, 1971.

3,425,435, R. Garaballo, ROTARY OSCILLATING PISTON PUMP ADDITIVE INJECTION DEVICE FOR FLUID DELIVERY SYSTEM, filed July 6, 1971, D.C.N.J. (Newark), Doc. C-992-71, *Metropolitan Petroleum Petrochemicals Co., Inc. v. Aetna Chemical Corporation.* Stipulation and order dismissing action, filed Nov. 4, 1971.

3,425,626, Dietz & Dietz, DRINKING STRAW, filed Feb. 24, 1969, D.C., E.D.N.Y. (Brooklyn), Doc. 69C197, *John F. Dietz et al. v. Neiman Premier Corp.* Order of dismissal, Nov. 8, 1971.

3,460,162, P. H. Stjbring, METHOD FOR PEELING POTATOES OR SIMILAR TUBERS, BULBS, ROOTS, OR FRUITS AND AN APPARATUS FOR CARRYING OUT THIS METHOD, filed Oct. 19, 1971, D.C., N.D. Calif. (San Francisco), Doc. 71-2004, *Instituut Voor Beuaring en Verwerking Van Landbouwprodukten v. Magnuson Engineers, Inc.*

3,473,509, M. Miyamura, METHOD FOR THE ARTIFICIAL CULTURE OF SHRIMP, filed Jan. 5, 1972, D.C. Del. (Wilmington), Doc. 4305, *United States of America v. Marifarms, Inc. and Mitsutake Miyamura.*

3,475,070, T. C. Hoshall, DISPLAY CASE, filed Oct. 23, 1970, D.C., W.D. Okla. (Oklahoma City), Doc. 70-526-C, *Thomas C. Hoshall and Rainbo Photo Color, Inc. v. Mid-Continent News Company.* Plaintiff Hoshall has title to U.S. Letters Patent No. 3,475,070; Rainbo Photo Color, Inc., is exclusive licensee to manufacture, sell, etc. display cases constructed in accordance with said patent. Defendant Permanently restrained and enjoined from further infringement thereof, but plaintiffs agree that defendant has right to continue using display cases owned by defendant on July 23, 1971 and which were found to infringe patent, Sept. 30, 1971.

3,489,498, Brody and Chaney, FLAME PHOTOMETRIC DETECTOR WITH IMPROVED SPECIFICITY TO SULFUR AND PHOSPHORUS, filed Oct. 29, 1971, D.C., S.D. W. Va.

(Charleston), Doc. 71 222-CH, *American Standard Inc. and Meloy Laboratories v. The Bendix Corporation.*

3,494,056, B. J. Elzer, DISPLAY DEVICE, filed Dec. 23, 1970, D.C., N.D. Ill. (Chicago), Doc. 70c3216, *Grafka Commercial Arts, Inc. v. Parisian Novelty Co., Inc. and Joseph Mfg. Co.* Cause dismissed without prejudice, May 17, 1971.

3,568,853, H. J. Feibelman, ARTICLE HOLDER FOR USE IN DISPLAY RACK, filed Nov. 10, 1971, D.C., E.D.N.Y. (Brooklyn), Doc. 71C1456, *A. & H. Mfg. Co. v. Novel Box Co., Inc.*

3,589,680, C. J. Kuhn, HYDRAULIC PULLEY APPARATUS, filed Nov. 18, 1971, D.C., C.D. Calif. (Los Angeles), Doc. 71-2772-CC, *Applied Power Industries, Inc. v. Milton Wichner et al.*

3,598,088, Bowman, Bowman and Moeller, LIVESTOCK DIP APPARATUS, filed Sept. 27, 1971, D.C., W.D. Okla. (Oklahoma City), Doc. 71-621-C, *Jim H. Bowman et al. v. Lloyd Lanier et al.* Defendants enjoined; jurisdiction of cause retained by court for purpose of such further orders as may become necessary, Oct. 15, 1971.

3,599,844, B. H. Dickson, STRAW AND CHAFF SAYER OR BUNCHER, filed Dec. 21, 1971, D.C. Colo. (Denver), Doc. C-3606, *Benjamin H. Dickson and Benjamin H. Dickson, Jr. v. A. L. Chandler, doing business as Hi-Way Implement Co. et al.*

3,605,583, J. E. Keppler, VIBRATORY ROLLER COMPACTING APPARATUS AND METHOD, filed Jan. 5, 1972, D.C., N.D. Tex. (Dallas), Doc. CA-3-5418-A, *Tampo Manufacturing Company, Inc. v. Shovel Supply Company, Inc.*

3,610,815, Gould, Lieberman and Sarabia, MOTION PICTURE FILM COLOR CORRECTION SYSTEM AND METHOD, filed Oct. 27, 1971, D.C., S.D.N.Y., Doc. 71-C-4680, *Teletronics International Inc. v. Columbia Pictures Industries, Inc.*

3,614,325, Galian and Kuryla, TELEPHONE AND SIGNALING SYSTEM, filed Nov. 12, 1971, D.C. Conn. (Bridgeport), Doc. B-405-C, *Total Systems Corporation v. Teletron Systems, Inc. et al.*

3,616,743, V. Alter, VENTILATOR STRUCTURE, filed Nov. 4, 1971, D.C., W.D. Wis. (Madison), Doc. 71-C-429, *American Metal Climax, Inc. v. Wausau Metals Corporation.*

Certificates of Correction for the Week of Apr. 18, 1972

D. 221,662	3,596,962	3,610,359	3,615,971
Re. 26,494	3,597,189	3,610,393	3,615,981
3,425,846	3,597,359	3,610,462	3,615,990
3,443,940	3,598,146	3,610,657	3,616,025
3,488,319	3,598,305	3,610,846	3,616,051
3,494,121	3,598,631	3,610,937	3,616,199
3,502,972	3,598,658	3,611,003	3,616,201
3,505,289	3,599,099	3,611,101	3,616,202
3,509,019	3,599,536	3,611,347	3,616,231
3,523,151	3,599,739	3,611,381	3,616,236
3,527,745	3,600,821	3,611,403	3,616,278
3,529,988	3,600,999	3,611,418	3,616,294
3,541,964	3,601,397	3,611,939	3,616,372
3,542,854	3,601,442	3,612,000	3,616,517
3,549,643	3,601,464	3,612,103	3,616,530
3,551,447	3,601,504	3,612,109	3,616,534
3,555,802	3,601,567	3,612,177	3,616,637
3,558,785	3,601,678	3,612,324	3,616,848
3,563,189	3,601,680	3,612,349	3,616,866
3,564,067	3,601,932	3,612,730	3,616,919
3,564,951	3,603,153	3,612,731	3,617,094
3,565,213	3,603,243	3,613,071	3,617,129
3,565,706	3,603,401	3,613,080	3,617,181
3,565,949	3,603,446	3,613,222	3,617,240
3,566,047	3,603,767	3,613,264	3,617,322
3,566,727	3,603,787	3,613,731	3,617,334
3,567,833	3,603,819	3,613,943	3,617,372
3,570,772	3,603,821	3,613,947	3,617,381
3,571,748	3,604,340	3,614,028	3,617,395
3,572,902	3,604,417	3,614,059	3,617,406
3,576,046	3,604,444	3,614,216	3,617,475
3,576,380	3,604,648	3,614,311	3,617,675
3,576,813	3,605,008	3,614,436	3,617,721
3,576,921	3,605,215	3,614,438	3,617,770
3,579,189	3,605,499	3,614,476	3,617,778
3,580,272	3,605,960	3,614,584	3,617,842
3,582,183	3,606,175	3,614,655	3,617,881
3,582,524	3,606,516	3,614,696	3,617,983
3,582,629	3,606,901	3,614,728	3,618,105
3,583,644	3,606,903	3,614,758	3,618,326
3,584,944	3,607,068	3,615,104	3,618,608
3,585,603	3,607,139	3,615,184	3,618,678
3,586,785	3,607,151	3,615,233	3,618,857
3,586,955	3,607,231	3,615,244	3,618,913
3,590,378	3,607,270	3,615,269	3,618,958
3,590,960	3,607,282	3,615,319	3,618,961
3,591,402	3,607,716	3,615,322	3,619,285
3,591,890	3,607,831	3,615,327	3,619,384
3,593,104	3,608,472	3,615,342	3,619,488
3,593,580	3,608,527	3,615,559	3,619,598
3,593,721	3,608,542	3,615,647	3,619,742
3,594,071	3,608,581	3,615,662	3,619,772
3,594,286	3,608,821	3,615,667	3,621,356
3,594,327	3,609,092	3,615,715	3,622,245
3,594,587	3,609,405	3,615,736	3,622,375
3,595,707	3,609,467	3,615,763	3,624,019
3,596,165	3,609,487	3,615,793	3,631,910
3,596,410	3,610,009	3,615,796	
3,596,561	3,610,177	3,615,907	
3,596,568	3,610,339	3,615,943	

Dedications

3,214,361.—*Lynn A. Williams*, Winnetka, Ill. MULTIPHASE ELECTROLYTIC REMOVAL APPARATUS. Patent dated Oct. 26, 1965. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,255,097.—*Lynn A. Williams*, Winnetka, Ill. METHOD AND APPARATUS FOR CLARIFYING ELECTROLYTE. Patent dated June 7, 1966. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,278,411.—*Lynn A. Williams*, Winnetka, Ill. ELECTROLYZING ELECTRODE. Patent dated Oct. 11, 1966. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,326,785.—*Lynn A. Williams*, Winnetka, Ill. ELECTROLYTIC POLISHING APPARATUS AND METHOD. Patent dated June 20, 1967. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,498,904.—*Lynn A. Williams*, Winnetka, Ill. ELECTRODE FOR ELECTROLYTIC SHAPING. Patent dated Mar. 3, 1970. Dedication filed Dec. 23, 1971, by the assignee, *Anocut Engineering Company*.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

Disclaimers

3,591,348.—*Harold E. La Belle, Jr.*, Quincy, Mass. METHOD OF GROWING CRYSTALLINE MATERIALS. Patent dated July 6, 1971. Disclaimer filed Mar. 25, 1971, by the assignee, *Tyco Laboratories, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Oct. 7, 1966.

3,592,917.—*Ernest G. Jaworski*, Olivette, and *Gino J. Marco*, Webster Groves, Mo. ANIMAL FEED COMPOSITIONS AND METHODS. Patent dated July 13, 1971. Disclaimer filed Jan. 18, 1971, by the assignee, *Monsanto Company*.

Hereby disclaims the portion of the term of the patent subsequent to Jan. 5, 1968.

3,627,545.—*Glenn O. Mallory, Jr.*, Inglewood, and *Donald W. Baudrand*, Temple City, Calif. BATH AND PROCESS FOR CHEMICAL METAL PLATING. Patent dated Dec. 14, 1971. Disclaimer filed Mar. 1, 1971, by the assignee, *Allied Research Products, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to Aug. 3, 1968.

3,630,649.—*John Hancock*, Leeds and *Albert Westerman*, Normanton, England. SHROUDED GAS BURNERS AND JETS THEREFOR. Patent dated Dec. 28, 1971. Disclaimer filed May 4, 1971, by the assignee, *Geo. Bray & Company Limited*.

Hereby disclaims the portion of the term of the patent subsequent to Apr. 22, 1966.

3,631,215.—*Everett Clippinger*, San Rafael, and *Bernard F. Mulasky*, Fairfax, Calif. PLATINUM COMPONENT-TIN COMPONENT-ALUMINA CATALYTIC COMPOSITE AND AROMATIZATION PROCESS USING SAME. Patent dated Dec. 28, 1971. Disclaimer filed Mar. 26, 1971, by the assignee, *Chevron Research Company*.

Hereby disclaims the portion of the term of the patent subsequent to Sept. 29, 1967.

Disclaimer and Dedication

3,612,063.—*Theodore S. Briskin* and *Geoffrey R. Ward*, Beverly Hills, Calif. OXIDIZED CELLULOSE SMOLING PRODUCT. Patent dated Oct. 12, 1971. Disclaimer and dedication filed Apr. 8, 1971, by the assignee, *Sutton Research Corporation*.

Hereby disclaims and dedicates to the Public the portion of the term of the patent subsequent to Feb. 2, 1968.

Adverse Decision in Interference

In the designated interference involving the indicated claims of the patent, final decision has been rendered that the patentee is not the first inventor with respect to the claims listed.

Patent No. 3,225,127, J. N. Scott, Jr., BLOW MOLDING FOAM BOTTLES, decided Mar. 29, 1971, Interference No. 96,602, claims 1-8.

Patents Available for Licensing or Sale

2,995,619. SYSTEM OF TELEVISION TRANSMISSION AND PHOTOGRAPHIC REPRODUCTION OF THE TELE-VISED IMAGE. Samuel Freeman, 13 Birchwood Court, E. Syosset, N.Y., 11791.

3,225,761. FATIGUE SUPPORT. Robert Swensen, 120 Polinanna Drive, Martinez, Ga., 30907.

3,574,451. SPECTACLE FRAME. Archille Lazazzern, 48 Moherman Ave., Youngstown, Ohio, 44509.

3,601,211. STEERING ARRANGEMENT FOR A TRACK LAYING VEHICLE. Volth Getriebe KG, Brenz, Germany. Correspondence to: Michael S. Striker, 360 Lexington Ave., New York, N.Y., 10017.

3,620,546. GOLF CART WITH CLUB RACK FOLDABLE BY HANDLE. John H. Andersen, 75 Huntington Road, Stratford, Conn., 06497.

3,621,155. STEREO PILLOW. Jackson L. Pruitt, 33129 Lake Mead Drive, Fremont, Calif.

3,625,664. PROCESS FOR THE PRODUCTION OF RICH FUEL TO REPLACE NATURAL GAS BY MEANS OF CATALYTIC HYDROGASIFICATION UNDER PRESSURE OF FLUID HYDROCARBONS. Carlo Padovani. Correspondence to: Murphy & Dobyns, 2001 Jefferson Davis Highway, Suite 307, Arlington, Va., 22202.

3,627,007. TITAL AXE. Alfred H. Rieffer, 336 E. Alluvial Ave., #146, Fresno, Calif., 93710.

3,631,441. LAMP FAILURE INDICATOR. Herman H. Murphy, 3870 Highland Ave., San Diego, Calif., 92105.

3,633,915. GAME OF CHANCE. Henry E. Lippert, 130 SW 12th St., Miami, Fla., 33130.

3,634,942. PROPORTION SCALER. Raymond Nicypier, Birch Hill, Weston, Conn., 06880.

3,635,225. ASH TRAY. Malcolm C. Andrews, Correspondence to: Sherman Levy, Suite 635, Washington Bldg., 15th and New York Ave. NW., Washington, D.C., 20005.

The following 2 patents are offered by: Philip Bohannon, 2802 W. Sitka St., Tampa, Fla., 33614.

3,479,106. WIG STAND.

3,628,655. CONVERTIBLE WIG CASE.

The following 11 patents are available for licensing. Inquiries should be directed to: Mr. Rano J. Harris, Jr., President, Precision Sampling Corp., 8275 W. El Cajon, Baton Rouge, La., 70815.

2,991,647. CHROMATOGRAPHY.

3,205,711. SAMPLE INJECTION IN GAS CHROMATOGRAPHY.

3,279,659. INJECTION APPARATUS.

3,306,502. APPARATUS FOR INJECTION OF FLUIDS.

3,355,950. CHROMATOGRAPHIC SAMPLE INJECTION APPARATUS.

3,385,113. MULTIPORT VALVES.

3,474,674. LIQUID INJECTION APPARATUS.

3,482,450. SAMPLE INLET SYSTEMS FOR ANALYTICAL INSTRUMENTS.

3,528,641. TUBULAR VALVE.

3,542,072. VALVE.

3,603,471. SEPTUM VALVES.

General Electric Company is prepared to grant non-exclusive licenses under the following 126 patents.

Applications for license under the following patent may be addressed to: Patent Counsel, LSTG-I & MT Division, General Electric Company, 1 River Road, Bldg. #43, Schenectady, N.Y., 12305.

3,604,967. LIQUID METAL COLLECTOR VELOCITY DIVIDER.

Applications for licenses under the following patent should be addressed to: Division Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.

3,640,487. VERTICAL ORIENTATION DEVICE.

Applications for licenses under the following 2 patents should be addressed to: Patent Counsel, General Electric Co., 22255 Greenfield Road, Southfield, Mich., 48075.

3,549,418. MAGNETIC RECORDING FILMS OF COBALT.

3,575,825. METHOD OF INCREASING THE COERCIVE FORCE OF COBALT-TUNGSTEN FILMS BY ANODIC TREATMENT.

Applications for licenses under the following 3 patents should be addressed to: General Electric Company, Patent Counsel, Housewares Business Div., 1285 Boston Ave., Bridgeport, Conn., 06602.

2,755,574. CONTROL FOR COMBINATION DRY AND STEAM FLATIRON.

3,397,975. STEAM IRON BAFFLING.

3,593,441. STEAM IRON METALLIC SEALING STRUCTURE.

Applications for license under the following 6 patents should be addressed to: Division P Patent Counsel, Space Division, General Electric Co., P.O. Box 8555, Philadelphia, Pa., 19101.

3,595,227. DIVING VEST.

3,594,301. SPUTTER COATING APPARATUS.

3,581,234. BIAS AND TEMPERATURE COMPENSATING CIRCUIT FOR TUNNEL DIODE OSCILLATORS.

3,615,846. FLUID EXPANSION BLADDER.

3,618,380. CONTINUOUS DISCHARGE DRIVER FREE-PISTON SHOCK TUNNEL.

3,620,817. SURFACE PREPARATION ON BORON FILAMENTS FOR ADHESIVE APPLICATIONS.

Applications for license under the following 24 patents may be addressed to: Patent Counsel, Electronics Laboratory, General Electric Co., Bldg. 3, Room 216, Electronics Park, Syracuse, N.Y., 13201.

2,997,659. SEMICONDUCTOR DIODE AMPLIFIER.

3,041,552. FREQUENCY CONTROLLED OSCILLATOR UTILIZING A TWO-TERMINAL SEMICONDUCTOR NEGATIVE RESISTANCE DEVICE.

3,060,252. ENCAPSULATED THERMOELECTRIC ELEMENTS.

3,064,145. VARIABLE TRANSISTOR CIRCUIT DISCHARGING A STORED CAPACITANCE FROM A LOAD.

3,070,644. THERMOELECTRIC GENERATOR WITH ENCAPSULATED ARMS.

3,089,094. REGULATED PEDESTALLED GRID BIAS SUPPLY.

2,787,707. PULSE GENERATOR.

2,816,236. METHOD OF AND MEANS FOR DETECTING STRESS PATTERNS.

2,826,647. TRANSISTOR TETRODE AMPLIFIER A.G.C. SYSTEM.

2,838,669. COUNTING NETWORK.

2,844,644. DETACHABLE SPRING CONTACT DEVICE.

2,845,616. COMMUNICATION CODING AND DECODING APPARATUS.

2,863,008. STABILIZED AMPLIFIER.

2,863,068. SIGNAL RESPONSIVE NETWORK.

2,864,062. NEGATIVE RESISTANCE USING TRANSISTORS.

2,911,595. RELAXATION OSCILLATORS AND CONTROL METHOD THEREFOR.

2,923,834. MAGNETIC DELAY ELEMENT.

2,951,996. VARIABLE TRANSMISSION NETWORK.

2,952,773. STABLE WAVEFORM GENERATOR.

2,955,171. SYMMETRICAL DIODE LIMITER.

3,960,613. NON-LINEAR RESONANCE DEVICES.

2,963,593. CROSS-COUPLED MULTIVIBRATOR SELECTIVELY OPERABLE EITHER MONOSTABLY OR BISTABLY.

2,976,429. SEMICONDUCTOR CIRCUITS UTILIZING A STORAGE DIODE.

2,981,881. SEMICONDUCTOR CIRCUITS.

Applications for license under the following 36 patents may be addressed to: Division Patent Counsel, Electronic Systems Division, General Electric Company, Bldg. 3, Room 216, Electronics Park, Syracuse, N.Y., 13201.

- 3,112,471. VOLTAGE CONTROLLED MAGNETIC SYSTEM.
- 3,202,990. INTERMEDIATE FREQUENCY SIDE-LOBE CANCELLER.
- 3,202,991. ELECTRONIC SCANNING OF LARGE ARRAYS.
- 3,219,559. SYNCHRONIZING CIRCUIT MAINTAINING LOOP SIGNALS AS AN INTEGER PRODUCT AND EQUAL AMPLITUDE.
- 3,222,044. SIMPLIFIED ERROR-CONTROL DECODER.
- 3,230,483. ANCHOR-SLOT WAVEGUIDE COUPLING APERTURE.
- 3,237,160. SEMICONDUCTOR MULTIPLE-WORD CORRELATOR.
- 3,246,130. EXTRAPOLATION COMPUTER USING REVERSIBLE COUNTER FOR TRAJECTORY MEASUREMENT.
- 3,258,774. SERIES-FED PHASED ARRAY.
- 3,264,248. ENCAPSULATING COMPOSITIONS CONTAINING AN EPOXY RESIN, METAXYLYLENE DIAMINE, AND TRIS-BETA CHLORETHYL PHOSPHATE, AND ENCAPSULATED MODULES.
- 3,308,457. RADAR TRACKING AMPLIFYING SYSTEM.
- 3,375,405. CIRCUIT FOR REMOVING VOLTAGE SURGES FROM POWER LINES.
- 3,377,571. RADIO FREQUENCY DIRECTIONAL COUPLER UTILIZING CROSSED COUPLING SLOTS OF UNEQUAL DIMENSIONS.
- 3,380,053. DUPLEXING MEANS FOR MICROWAVE SYSTEMS UTILIZING PHASED ARRAY ANTENNAS.
- 3,384,891. METHOD AND SYSTEM FOR LONG DISTANCE NAVIGATION AND COMMUNICATION.
- 3,385,982. HIGH POWER SOLID STATE PULSE GENERATOR WITH VERY SHORT RISE TIME.
- 3,396,377. DISPLAY DATA PROCESSOR.
- 3,403,394. DIVERSITY RADAR SYSTEM.
- 3,406,329. PARALLEL INVERTER WITH RAPID RESPONSE TIME TO CHANGES IN PULSE DURATIONS.
- 3,418,241. PROCESS FOR MAKING ALUMINUM-CONTAINING FERRITES.
- 3,421,088. FREQUENCY SHIFT KEYING BY DRIVING INCREMENTAL PHASE SHIFTER WITH BINARY COUNTER AT A CONSTANT RATE.
- 3,422,428. MOVING-TARGET-RESPONSIVE RADAR SYSTEM.
- 3,426,241. MAGNETIC DEFLECTION SYSTEM FOR CATHODE RAY TUBES.
- 3,430,162. BROAD BAND HIGH POWER PULSE TRANSFORMER.
- 3,444,556. ELECTRONIC PHASE-DIFFERENCE COUNTER CIRCUIT.
- 3,447,626. SEISMIC SENSOR FOR EARTH MOVEMENT CAUSED BY A DETONATION.
- 3,450,153. ELECTRICAL PULSE GENERATOR AND REGULATOR FOR FLUID FLOW AND LIKE CONTROL SYSTEMS.
- 3,452,278. APPARATUS FOR ELECTRICAL WAVEFORM ANALYSIS.
- 3,452,281. TRANSISTOR AMPLIFIED CIRCUIT HAVING DIODE TEMPERATURE COMPENSATION.
- 3,453,539. APPARATUS FOR SEQUENTIALLY MONITORING ELECTRICAL VOLTAGES INCLUDING A CAPACITOR TRANSFER SYSTEM AND MARGINAL PREDICTION MEANS.
- 3,457,529. TEMPERATURE COMPENSATION OF CRYSTAL CONTROLLED CIRCUIT.
- 3,460,145. ELECTRONIC SCANNING SYSTEM FOR WAVE ENERGY BEAM FORMING AND STEERING WITH RECEPTOR ARRAYS.
- 3,465,207. PROTECTION CIRCUIT FOR SCR PULSE GENERATOR.
- 3,466,564. AMPLIFIER UNIT COMBINED WITH EXTERNALLY MOUNTED COMPONENTS FOR ESTABLISHING OPERATING CHARACTERISTICS THEREOF.
- 3,482,186. LASER OSCILLATOR WITH SINGLE TRANSVERSE MODE OUTPUT.
- 3,484,937. METHODS AND APPARATUS FOR FIXING INTERFACE PINS IN ELECTRICAL CIRCUIT BOARDS.

Applications for license under the following 52 patents should be addressed to: Manager, Technology Marketing Operation, General Electric Co., 1 River Road, Schenectady, N.Y., 12305.

- 3,320,097. RESEALABLE VENT FOR A SEALED CASING.
- 3,352,775. TUBE-TO-TUBE REACTOR.
- 3,410,993. FLEXIBLE SIGNAL AVERAGING METHOD AND APPARATUS.
- 3,414,702. NONTHERMIONIC ELECTRON BEAM SOURCE.
- 3,417,222. APPARATUS FOR HOLDING ELECTRICALLY NON-CONDUCTIVE MATERIAL AND IMPROVING ELECTRON BEAM CUTTING THEREOF.
- 3,424,953. ELECTROKINETIC TRANSDUCER WITH ION SCAVENGING.
- 3,432,349. ELECTRIC STORAGE CELL.
- 3,451,054. LIGHT OPTIC DIGITAL TRANSDUCER USING DISPLACED RONCHI RULINGS.
- 3,474,426. REVERSAL OF MAGNETIC CORE POLARIZATION.
- 3,478,494. VORTEX-ELECTROSTATIC SEPARATOR.
- 3,482,913. METHOD AND APPARATUS FOR COMPOSING AND ENLARGING 3-D PICTURES.
- 3,483,350. ELECTRON BEAM DETECTION AND STEERING SYSTEM.
- 3,483,529. LASER LOGIC AND STORAGE ELEMENT.
- 3,504,059. METHOD AND APPARATUS FOR MAKING THREE DIMENSIONAL PICTURES.
- 3,508,920. THREE DIMENSIONAL PICTURES AND METHOD OF MAKING.
- 3,504,953. FOIL BEARING.
- 3,516,728. INFRARED INTENSITY MODULATOR "WHEREIN OPTICAL ABSORPTION SPECTRUM OF CADMIUM TELLURIDE DOPED WITH IRON IONS VARIED."
- 3,518,929. THREE DIMENSIONAL CAMERA.
- 3,519,481. METHOD FOR FORMING THIN FILMS HAVING SUPERCONDUCTIVE CONTACTS.
- 3,522,046. THREE DIMENSIONAL COLOR PICTURES AND METHOD OF MAKING.
- 3,532,426. HOLOGRAPHIC FINGERPRINTING IDENTIFICATION.
- 3,532,591. ETCHING SILICIDE.
- 3,533,339. COLOR DISPLAY SYSTEM AND METHOD EMPLOYING LIGHT SENSITIVE RECORD.
- 3,534,164. METHOD AND APPARATUS FOR PRODUCING 3-D PICTURES UTILIZING A SCANNING BEAM.
- 3,534,588. SYSTEM FOR DETECTING LOOSE PARTS.
- 3,534,813. HEAT EXCHANGER.
- 3,538,396. COULOMETER WITH AT LEAST ONE ELECTRODE CONTAINING AN EXCESS OF CADMIUM HYDROXIDE.
- 3,541,532. SUPERCONDUCTING MEMORY MATRIX WITH DRIVE LINE READOUT.
- 3,549,806. FUNDAMENTAL PITCH FREQUENCY SIGNAL EXTRACTIONS SYSTEM FOR COMPLEX SIGNALS.
- 3,549,883. SCANNING ELECTRON MICROSCOPE "WHEREIN AN IMAGE IS FORMED AS A FUNCTION OF SPECIMEN CURRENT."
- 3,549,957. ELECTROCHEMICAL CELL WITH ELECTRON EXCHANGE MEMBRANE BETWEEN SOLUTIONS IN COMPARTMENTS.
- 3,550,084. SYSTEM AND METHOD FOR IDENTIFYING A SET OF GRAPHIC CHARACTERS GROUPED TOGETHER ON A VISIBLE INFORMATION DISPLAY.
- 3,555,347. SELF-ALIGNING ELECTRON BEAM WELDER.
- 3,556,749. APPARATUS AND METHOD FOR THE HYDROGENATION OF COAL.
- 3,558,920. BISTABLE PHOTOSENSITIVE DEVICE UTILIZING TUNNEL CURRENTS IN LOW RESISTIVE STATE.
- 3,607,125. REFORMER TUBE CONSTRUCTION.
- 3,564,266. PHOTOELECTRIC FINGERPRINT RIDE COUNTER.
- 3,565,683. COATED FILAMENTS.
- 3,566,137. HOLOGRAPHIC CHARACTER READER.

- 3,567,598. RENDERING THE SURFACE OF MOLYBDENUM AND TUNGSTEN COMPOSITIONS SOFT-SOLDERABLE.
- 3,581,280. HOLOGRAPHIC SPATIAL FILTERS AND METHOD OF MAKING SAME.
- 3,589,184. CONTINUOUS-FLOW CALORIMETER.
- 3,342,721. APPARATUS FOR TREATING LIQUIDS IN AN ELECTRICAL DISCHARGE INCLUDING MEANS FOR DIRECTING THE LIQUID IN A CONTINUOUS CURTAIN.
- 3,356,602. PROCESS OF DIMERIZING CARBOXYLIC ACIDS IN A CORONA DISCHARGE.
- 3,402,119. UNITARY CORONA REACTOR.
- 3,415,683. CORONA DISCHARGE COATING PROCESSES.
- 3,496,092. SOLID STATE CORONA GENERATOR FOR CHEMICAL-ELECTRIC DISCHARGE PROCESSES.
- 3,590,508. TRAVELING SIGN CONTROLLED BY LOGIC CIRCUITRY AND PROVIDING A PLURALITY OF DIGITAL DISPLAY EFFECTS.
- 3,534,589. FREE PARTICLE AND LOOSE OBJECT DETECTION SYSTEM.
- 3,592,473. DICE GAME HAVING TRULY RANDOM NUMBER GENERATION.
- 3,598,177. CONDUIT HAVING A ZERO CONTACT ANGLE WITH AN ALKALI WORKING FLUID AND METHOD OF FORMING.
- 3,598,955. ELECTRICAL CONTACT FOR MOVING FILAMENTS.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 21, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	1-11-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-04-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Fore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	1-25-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	2-01-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-01-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-21-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signaling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	2-11-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	3-03-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-01-71
PHYSICS, GROUP 280—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-06-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	1-06-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	2-03-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	1-08-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	1-04-71
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-17-71
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	2-03-71

Expiration of patents: The patents within the range of numbers indicated below expire during April 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 70th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 819, 83rd Congress, approved August 23, 1964 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the date of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,705,322 to 2,707,276, inclusive
Plant Patents..... Numbers 1,874 to 1,888, inclusive

PLANT PATENTS

GRANTED APRIL 18, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,112
ROSE PLANT
Gijsbert Verbeek, Hornweg 109, Aalsmeer, Netherlands
Filed Jan. 7, 1970, Ser. No. 1,330
Int. Cl. A01h 5/00

U.S. Cl. Plt.—18 1 Claim
A rose plant of the hybrid tea class, particularly for the greenhouse, originated by crossing the variety known as Miracle (Plant Patent No. 1,863) with the variety known as Dr. A. J. Verhage (synonym Golden Wave) (Plant Patent No. 2,105).

3,113
ROSE PLANT
John W. Patterson, Houston, Tex., assignor to Patterson Roses, Houston, Tex.
Filed Feb. 2, 1970, Ser. No. 8,100
Int. Cl. A01h 5/00

U.S. Cl. Plt.—19 1 Claim
1. A new and distinct variety of rose of the grandiflora class, substantially as herein shown and described characterized particularly as to the unique combination of good growing and flower producing habits, soft green foliage, relatively large beautiful flowers, of good form at all stages of bloom, moderate fragrance, better than average disease resistance, good, vigorous upright bush, a distinctive and attractive color tonality of the flowers, corresponding to Spinel Red, Plate 0023, page 189, in newly opened flowers and Spinel Red, Plate 0023 to Spinel Red, Plate 0023/1, page 189 in three days open flowers, with a small amount of Yellow Ochre, Plate 07/1, at the bases of petals in the center of the flower glowing throughout, to classify the variety as a blend.

3,114
MOUNTAIN ASH TREE
Milton Baron, East Lansing, Mich., assignor to J. Frank Schmidt and Son Co., Troutdale, Ore.
Filed Feb. 13, 1970, Ser. No. 11,359
Int. Cl. A01h 5/12

U.S. Cl. Plt.—51 1 Claim
1. A new and distinct variety of mountain ash tree of the European mountain ash species botanically known as *Sorbus aucuparia*, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a heavier and straighter tree trunk structure, a better central leader which extends well into the top of a medium dense tree crown which has an oval silhouette shape, a more vigorous and rapid habit of growth normally averaging 2 or more feet per year and with a capability of attaining a mature tree height of about 30 feet, while progeny trees derived from buddings produce whips of 6 or 7 feet tall in 1 year, the production of heavier, larger and more highly ornamental fruit clusters, an earlier fruit maturing habit, occurring by mid-July and which is at least 1 month earlier than is normal of the species when grown under the same conditions, and a distinctive and highly attractive deep rich red fruit color.

3,115
ROSE PLANT
Eldon C. Curtis, Dallas, Tex., assignor to E. V. Kimbrew, Van Zandt County, Tex.
Filed Feb. 24, 1970, Ser. No. 13,868
Int. Cl. A01h 5/00

U.S. Cl. Plt.—18 1 Claim
A new and distinct variety of hybrid tea rose plant produced by crossing Hawaii (Plant Patent No. 1,833) on Montezuma (Plant Patent No. 1,383).

3,116
AVOCADO TREE
Harold E. Kendall, P.O. Box 458, Goulds, Fla. 33170
Filed Mar. 6, 1970, Ser. No. 17,350
Int. Cl. A01h 5/03

U.S. Cl. Plt.—44 1 Claim
1. The new and distinct variety of avocado tree, substantially as shown and described, characterized particularly by its vigorous, thrifty, upright but freely branching growth; the tendency of the fruit to grow on the inside of the tree; the early blooming and seeding of heavy crop of fruit early each year and carrying crop to maturity late in the season; the fruit being further characterized as from oblong-ovate to slightly pyriform with flesh of smooth texture, free of fibre and excellent buttery taste.

3,117
AVOCADO TREE
Harold E. Kendall, P.O. Box 458, Goulds, Fla. 33170
Filed Mar. 9, 1970, Ser. No. 17,987
Int. Cl. A01h 5/03

U.S. Cl. Plt.—44 1 Claim
1. The new and distinct variety of avocado tree, substantially as shown and described, characterized particularly by its vigorous, fast, upright but freely branching growth; a flowering period in late March and early April; its fruit maturing each year in December and early January; the fruit being further characterized as small to medium size and oblong-ovate with flesh of smooth texture free of fibre and excellent buttery flavor.

3,118
ROSE PLANT
Eugene S. Boerner, deceased, late of Benton, N.Y., by Lincoln Rochester Trust Co., Rochester, N.Y., and Roger L. Boerner, Milwaukee, Wis., executors, assignors to Jackson & Perkins Company, Newport Beach, Calif.
Filed Mar. 10, 1970, Ser. No. 18,356
Int. Cl. A01h 5/00

U.S. Cl. Plt.—22 1 Claim
1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, well-branched and compact habit of growth of the floribunda type, a free-blooming habit throughout the season, medium size flowers which are borne in small clusters and on lateral branches usually singly to a stem, and a distinctive, attractive and unusual

flower color of Chinese Yellow which ages to Spinel Red on the outer edges of the petals at first, but later progressing to the center of the flower as the flower ages.

3,119

POINSETTIA PLANT

Paul Ecke, Encinitas, Calif., assignor to Paul Ecke Inc., Encinitas, Calif.
Filed Mar. 11, 1970, Ser. No. 18,771
Int. Cl. A01h 5/00

U.S. Cl. Plt.—86

1 Claim

1. A new and distinct variety of poinsettia plant, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of an ability to propagate very well by vegetative cuttings, a very vigorous, tough and durable plant habit of medium height and having the ability to grow well as a multiple stem and multiple bloom plant, a very vigorous and extensive root system, a good branching habit, stiff stems which do not require staking, very pointed and attractive dark green foliage, many very wide bracts which give the plant a full and complete appearance, retention of the bracts, foliage and inflorescences for an unusually long period of time after reaching maturity, a habit of not requiring light to delay bud set, a habit of setting buds quite easily under higher night temperatures and longer day lengths than other poinsettia varieties, a good pinching habit which produces 3 or more breaks, a normally later blooming habit than other varieties, but having the ability to be satisfactorily brought into bloom and full maturity in every month of the year through the exercise of proper greenhouse cultural techniques, a distinct and attractive slightly ruffled appearance of the bracts and their absence of any tendency to droop with age, a distinctive and attractive creamy white bract color, absence of drooping and retention of the inflorescence position relative to the bracts without rising as occurs in other varieties as the inflorescences approach maturity, and excellent keeping qualities with consequent suitability for home decoration.

3,120

POINSETTIA PLANT

Paul Ecke, Encinitas, Calif., assignor to Paul Ecke, Inc., Encinitas, Calif.
Filed Mar. 11, 1970, Ser. No. 18,772
Int. Cl. A01h 5/00

U.S. Cl. Plt.—86

1 Claim

1. A new and distinct variety of poinsettia plant, substantially as herein shown and described, characterized particularly as to novelty by a unique combination of characteristics which are substantially identical in all respects to those of the poinsettia variety known as #C-1 (Plant Patent No. 2,923) except for its bract color, said bracts being a distinctive and attractive pink color corresponding to near Delft Rose, as distinguished from the normal red color of the bracts of the variety #C-1.

3,121

APPLE TREE

Alvah Taylor, Selah, Wash., assignor to Stark Bro's Nurseries & Orchards Company, Louisiana, Mo.
Filed Apr. 16, 1970, Ser. No. 29,310
Int. Cl. A01h 5/03

U.S. Cl. Plt.—34

1 Claim

1. A new and distinct variety of apple tree, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a general resemblance to the parent variety "Rome Beauty" (unpatented), but having more upright, less weeping and thicker limbs, a much heavier fruit spur system throughout the tree, a habit of beginning the production of fruit at an earlier age, with continued heavy production there-

after, an earlier fruit coloring habit, with the fruit color being fully developed as a full blush without stripes by the time of harvest maturity and usually grading substantially 100% "extra fancy" for color, and a distinctive, attractive, full and bright cherry red fruit color completely free of striping.

3,122

POINSETTIA PLANT

Josef Holm, Stokke, Norway, assignor to Mikkelsen Inc., Ashtabula, Ohio
Filed Apr. 17, 1970, Ser. No. 29,711
Int. Cl. A01h 5/00

U.S. Cl. Plt.—86

1 Claim

1. A new and distinct variety of poinsettia plant, substantially as herein shown and described, characterized as to novelty by the unique combination of a rapid and strong rooting habit, compact foliage of good color and texture, faster and easier flowering as single stem plants, a habit resulting in a large number of side shoots when stopped by removing the terminal bud, with these being flowered uniformly and symmetrically, a habit permitting the profuse production of cuttings which consistently propagate rapidly, a symmetrical involucre, attractive bright red bracts, rapid and uniform flowering in both single and multiple flowering plants, and long lasting and rugged plant qualities.

3,123

STRAWBERRY PLANT

Harold A. Johnson, Jr., and Harold E. Thomas, Watsonville, Calif., assignors to Driscoll Strawberry Associates, Inc., Watsonville, Calif.
Filed Apr. 17, 1970, Ser. No. 29,712
Int. Cl. A01h 5/03

U.S. Cl. Plt.—49

1 Claim

1. The new and distinct variety of strawberry plant herein described and illustrated, and identified by the characteristics enumerated above.

3,124

GRAPEVINE

John M. Garabedian, 3158 Hamilton St., Fresno, Calif. 93712
Filed Apr. 29, 1970, Ser. No. 33,110
Int. Cl. A01h 5/03

U.S. Cl. Plt.—47

1 Claim

A large to medium size, vigorous grapevine, having mostly long canes, which is a regular and productive bearer of red table grapes—of superior eating quality—borne in usually conical, large to medium size clusters wherein the individual berries are usually large; the berries, which are mostly ellipsoidal, ripen about one week earlier than the Cardinal (unpatented), have firmer, more meaty flesh, less watery juice, a vinous to neutral flavor, a sweet taste attributable to a higher sugar content, and seeds which are smaller.

3,125

ALMOND TREE

Frederic W. Anderson, Merced, Calif., assignor to Arthur Bright, Le Grand, Calif.
Filed May 4, 1970, Ser. No. 34,643
Int. Cl. A01h 5/03

U.S. Cl. Plt.—30

1 Claim

A large, vigorous, open, medium to upright almond tree having abundant foliage with large to medium size ovate leaves, heavy white bloom, and well distributed, medium size, well sealed nuts borne regularly and heavily, and which nuts harvest early and approximately with the Nonpareil (unpatented).

3,126

ROSE PLANT

Roy L. Byrum, Richmond, Ind., assignor to Joseph H. Hill Company, Richmond, Ind.
Filed June 1, 1970, Ser. No. 42,610
Int. Cl. A01h 5/00

U.S. Cl. Plt.—18

1 Claim

A new variety of hybrid tea rose suitable for year around greenhouse forcing and distinguished by its continuous free production of large sized blooms having excellent petal texture, a pleasing coloration, extending from French Rose to Porcelain Rose, unusually strong and long stems, and a vigorous growth habit.

3,127

PEACH TREE

Wilton L. Staggs and Sam E. Staggs, both of Rte. 2, Campobello, S.C. 29322
Filed June 14, 1967, Ser. No. 646,133
Int. Cl. A01h 5/03

U.S. Cl. Plt.—43

1 Claim

1. A new and distinct variety of peach tree substantially as shown and described characterized particularly as to novelty by its outstanding fruit which ripens at midseason between the Loring peach and the Blake peach with firm fully colored fruit with excellent shipping qualities being of excellent size, attractive color and good flavor.

PATENTS

GRANTED APRIL 18, 1972

GENERAL AND MECHANICAL

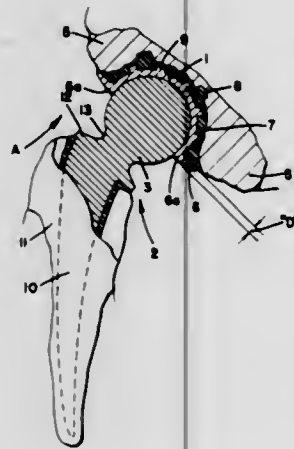
3,656,184

ARTIFICIAL HIP JOINT

Harold Viktor Chambers, R.R. 7, Brantford, Ontario, Canada
Filed Mar. 10, 1970, Ser. No. 18,267
Claims priority, application Canada, Mar. 13, 1969, 045,568
Int. Cl. A61f 1/24

U.S. Cl. 3-1

9 Claims



An artificial hip joint comprising a socket member and an inter-fitting ball member, in which dislocation of the joint is positively prevented by retaining means forming part of the socket member. The retaining means are constituted by extensions of the socket member beyond its diametral plane which define an opening into the socket smaller than that of the socket at the diametral plane. The ball member is shaped to pass through the socket opening at one particular orientation, for fitting the parts together, but once in place and orientated in normal positions of use the ball member cannot be removed from the socket.

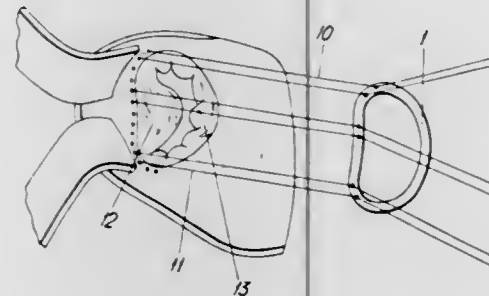
3,656,185

CARDIAC VALVULAR SUPPORT PROSTHESIS

Alain F. Carpentier, Paris, France, assignor to Rhone-Poulenc S.A., Paris, France
Filed Feb. 4, 1970, Ser. No. 8,564
Claims priority, application France, Feb. 4, 1969, 6902441
Int. Cl. A61f 1/24

U.S. Cl. 3-1

6 Claims



A cardiac valvular prosthesis, e.g., for the mitral valve, consisting solely of an annular or part-annular member adapted to fit against the base of the cusps of a human heart valve, and suture means for securing the member in place. The prosthesis cooperates with the natural valve cusps of the patient to form the valve.

3,656,186

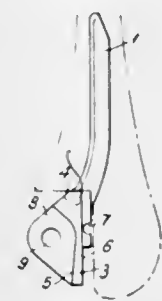
ELBOW JOINT PROSTHESIS

Roger Dee, London, England, assignor to National Research Development Corporation, London, England
Filed Feb. 10, 1970, Ser. No. 9,678
Claims priority, application Great Britain, Feb. 18, 1969, 8,855/69
Int. Cl. A61f 1/24

U.S. Cl. 3-1

Int. Cl. A61f 1/24

4 Claims



A prosthetic elbow joint device comprising a first arm curved in two mutually transverse planes and formed with a first hinge part at one end thereof, and a second arm curved in one plane and formed with a second hinge part at one end thereof, the arms and hinge parts being adapted for securement by cement with the first and second arms respectively located in the ulna and humerus in intramedullary manner, the first hinge part seated on a shoulder cut in the olecranon, and the two parts disposed for mutual pivotal connection.

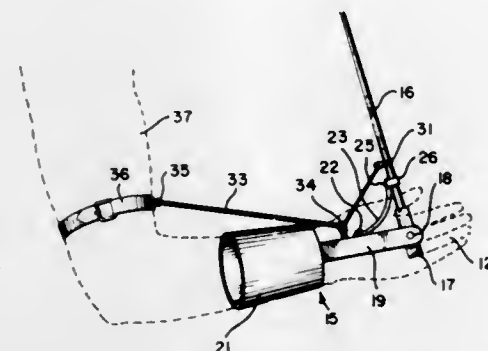
3,656,187

ARTIFICIAL HAND WITH VIOLIN BOW ADAPTER

Edward A. Katz, 315 Avenue F, Brooklyn, N.Y.
Filed Nov. 25, 1970, Ser. No. 92,712
Int. Cl. A61f 1/06

U.S. Cl. 3-12.8

6 Claims



An artificial hand with a cuff-like sleeve adapted to be attached to the stub of the forearm and having a forwardly extending strut and artificial hand and with the strut extending into the palm of the artificial hand. On the end of the strut and pivotable in the palm of the artificial hand is a clamp holder to which the violin bow is releaseably attached. Means are provided between the bow and adapted for attachment to the upper arm of the player for keeping the bow pivoted as the upper arm of the player is lifted and perpendicular and across the strings of the violin as the violin is being played. This means for pivoting the bow holder takes the form of a combined spring biasing the bow outwardly from the strut and a string connected between the bow and the upper arm of the player for maintaining the bow in parallelism with the upper arm of the player and also in the form of articulated

772

APRIL 18, 1972

GENERAL AND MECHANICAL

773

links connected between the bow and the upper arm of the player and wherein the links pivotally connected together and held with this pivot connection located adjacent to the outer side of the elbow of the player's arm.

arms which are pivotally connected with both the backrest and the base frame in such a manner that the backrest can be swung from the backrest position at the back of the seat to the horizontal bed position in front of the seat.

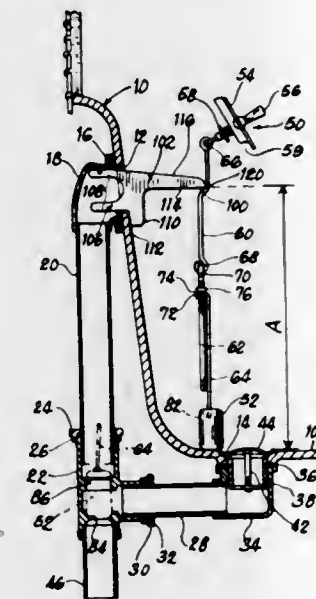
3,656,188

EXTERNALLY ADJUSTABLE BATHTUB WIRE SYSTEM AND MEANS FOR AND METHOD OF EXTERNALLY ADJUSTING SAME

Ralph E. Thorp, Lafayette, Ind., assignor to Globe Valve Corporation
Filed June 19, 1970, Ser. No. 47,731
Int. Cl. E03c 1/232

U.S. Cl. 4-199

7 Claims



A substantially universal bathtub waste and overflow wire system having a plurality of articulated links, two of which are threaded to adjust the length of the wire system. The wire system defines a bench mark cooperable with a gauge juxtaposable in a predetermined relationship to an overflow opening. When the bench mark and gauge are aligned, the wire system is adjusted to just touch the tub floor. The wire system may then be installed in the tub fittings without requiring further adjustment.

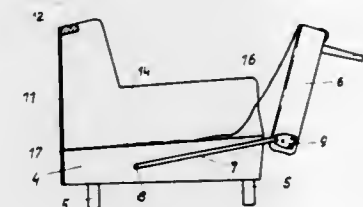
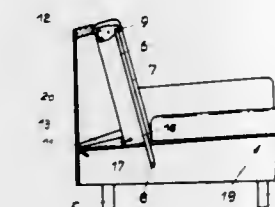
3,656,189

CONVERTIBLE CHAIR

Ole Wiberg, c/o Lars Larsson, Vesterborgate 180, Copenhagen, Denmark
Filed Nov. 5, 1969, Ser. No. 874,335
Claims priority, application Great Britain, Nov. 5, 1968, 52,307/68
Int. Cl. A47c 17/16, 21/02

U.S. Cl. 5-12

2 Claims



The invention relates to convertible settee-beds in which the backrest is connected with a base frame by a pair of side

3,656,190

BODY SUPPORT

John J. Regan, 2316 North Hale Avenue, Elmwood Park, Ill., and Bernard B. Rothstein, 6208 North Claremont Avenue, Chicago, Ill., assignors to said Regan, by said Rothstein
Filed Oct. 16, 1969, Ser. No. 866,934
Int. Cl. A47c 19/00; A61g 7/00

U.S. Cl. 5-60

11 Claims



An apparatus for supporting a body in which the surface which engages the body is provided by a plurality of movable support elements. The weight of the body causes the elements to depress, forming a surface which conforms to the body contour. Means are provided to sequentially move groups of the support elements away from body contact, and then for returning these groups to a position supporting the body. Means are also provided for adjusting the sequential speed of the element groups. The sequential movement is designed to produce a wave-like movement of the support elements longitudinally along the body.

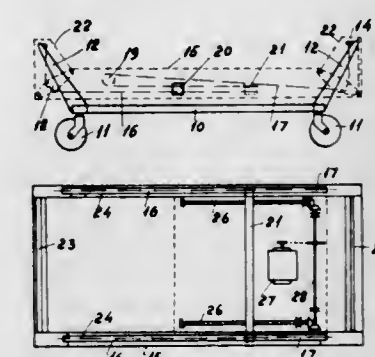
3,656,191

BEDSTEAD

Finn Andre Kjellberg; Svend E. N. Lemvig, and Bent I. Kjellberg, all of Ronne, Denmark, assignors to Trioteam a/s, Ronne, Denmark
Filed July 30, 1970, Ser. No. 59,651
Claims priority, application Denmark, Aug. 4, 1969, 4192
Int. Cl. A61g 7/10; A47c 3/32

U.S. Cl. 5-63

7 Claims



The invention relates to a bedstead, the bottom of which is adjustable to various levels, and to oblique positions, said bottom being movably suspended in wires or chains secured to corner posts of a rigid undercarriage for the bed, the extremities of said wires or chains being carried to a cross-bar with propelling means for exerting a pull on the suspension chains or wires to effect adjustment of the bed bottom, all movable parts being built-in in a double-walled bedframe enclosing the undercarriage and its corner posts.

3,656,192

MOBILE PATIENT LIFT

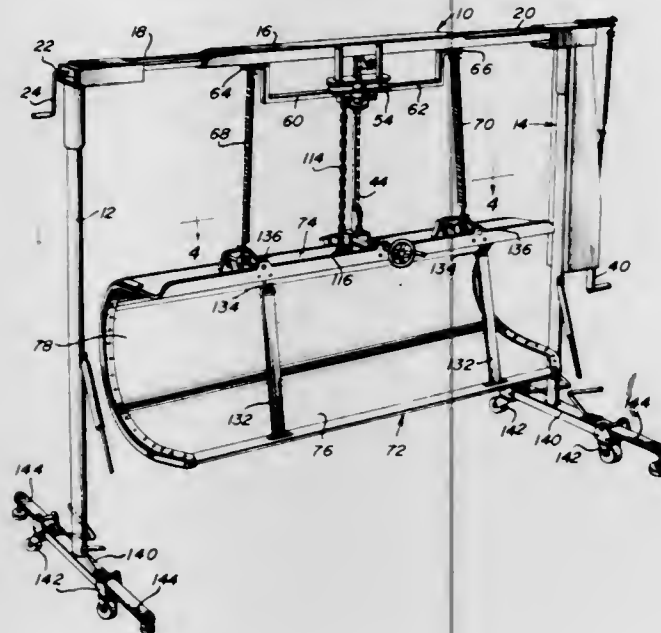
Robert R. McGeoch, 414 Roosevelt, Missoula, Mont.

Filed Nov. 6, 1970, Ser. No. 87,562

Int. Cl. A61g 1/02, 7/10; A47b 83/04

U.S. Cl. 5-81 R

14 Claims



An overhead type lift including a pair of horizontally spaced apart upright standards interconnected at their upper ends by means of an adjustable length connecting beam. A generally one-half cylindrical or C-shaped horizontally opening cradle is suspended centrally intermediate its opposite ends between the standards by means of an adjustable length tension member operatively connected between the upper transverse connecting beam and the cradle at a point centrally intermediate its opposite ends. In addition, the lower ends of the uprights or standards are provided with supporting wheel means whereby the lift may be readily rolled from one location to another and the cradle enjoys a connection with the lower end of its supporting tension member whereby the cradle may be angularly adjusted about its longitudinal horizontal axis, even while suspended solely from the upper transverse beam by means of the aforementioned tension member. Still further, the cradle is rotatable about an upstanding axis relative to the supporting tension member and extending through the point of connection of the lower end of the tension member with the cradle and a horizontally disposed stabilizing beam is rotatably supported from the transverse support beam for oscillation about an upstanding axis passing through the mid-portion of the stabilizing beam and the point of suspension of the upper end of the tension member from the support beam, the stabilizing beam generally paralleling the cradle and elongated expansion type stabilizing springs being connected between the two pairs of corresponding ends of the stabilizing beam and cradle.

3,656,193

DRESSING TRAY FOR BABIES

Rudi Schneider Alter Berg; Lisa Schneider Alter Berg, and Werner Bauer Langegasse, all of Niederstetten, Germany

Filed Feb. 24, 1970, Ser. No. 13,616

Claims priority, application Germany, Feb. 26, 1969, P 19 09 822.7

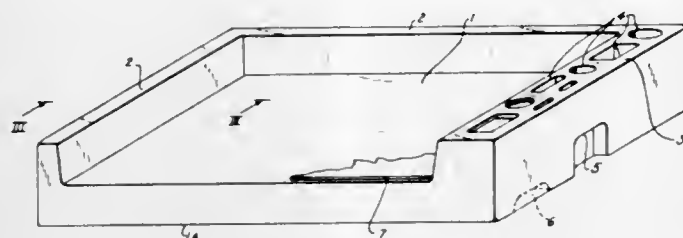
Int. Cl. A47d 9/02, 5/00; A61g 7/10

U.S. Cl. 5-92

3 Claims

A rectangular structure of solid thermoplastic foam material comprises a planar surface for supporting a baby and up-

standing flange portions on three sides of the structure for retaining the baby on the planar surface. One of the flange



portions comprises discrete cavities at its upper surface for accommodating baby utensils.

3,656,194

PLAY-PEN FOR CHILDREN

Guisepe Perego, Via Buonarroti 20043, Arcore, Italy

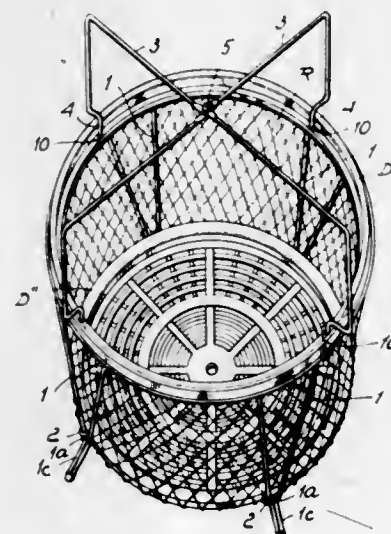
Filed July 6, 1970, Ser. No. 52,461

Claims priority, application Italy, Apr. 17, 1970, 23465 A/70

Int. Cl. A47c 27/08; A47d 9/00

U.S. Cl. 5-98 R

6 Claims



A playpen, foldable between an open position and a closed position, includes a one-piece molded plastic bottom and a one-piece molded plastic upper rim, with the upper rim being spaced above the bottom in the open position of the playpen. A nylon net is secured to respective hooks molded integrally with the bottom and with the upper rim, and forms the side walls of the playpen. Metal support legs are hingedly secured to the upper rim and are connected to the bottom by hooks having legs engaged in cylindrical sockets integral with the bottom. The upper rim is formed with integral cylindrical sockets to receive legs on a support structure for use in supporting toys or a sun-shade.

3,656,195

INFANT'S BED

Joseph R. Leahey, Route 1, P.O. Box 113, McLoud, Okla.

Filed Nov. 25, 1969, Ser. No. 879,678

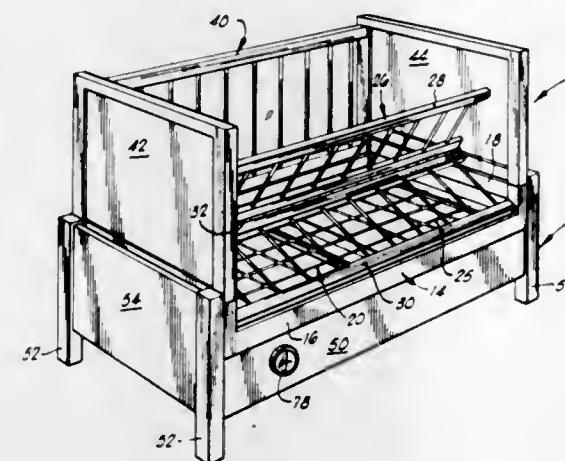
Int. Cl. E03d 13/00

U.S. Cl. 5-99

1 Claim

An infant's bed which includes a bottom section having a headboard, a footboard, and sideboards extending between and interconnecting the headboard and footboard. Resting on the bottom section and movably supported thereon is a top section which includes a horizontal rectangular frame having a first side fence pivotally secured to the rectangular frame for pivotation about a horizontal axis from an upstanding position to a horizontal position, and a second side fence pivotally secured to the rectangular frame on the opposite

side of the frame from the first side fence for pivotation about a horizontal axis from an upstanding position to a horizontal position immediately subjacent the first side fence when the first side fence is pivoted to a horizontal position. The top section further has a footboard pivotally secured to the frame for pivotation about a horizontal axis which extends generally perpendicular to the pivotal axis of the first side fence. A headboard is pivotally secured to the frame of the top section for pivotation about a horizontal axis extend-



ing substantially parallel to the pivotal axis of the footboard of the top section, and the footboard and headboard can be pivoted into horizontally extending, coplanar alignment immediately superjacent the first side fence. The top section is rollably supported on the bottom section for horizontal reciprocating movement, and a motor and pitman arm connection are provided for interconnecting the top section and the bottom section for driving the top section in reciprocation on the bottom section.

3,656,196

UNDERWATER BREATHING APPARATUS

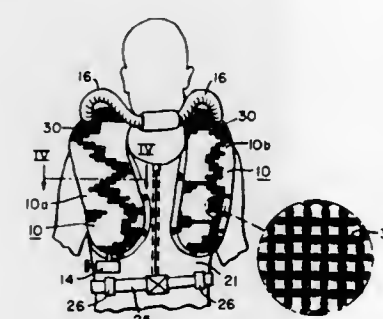
Wilbur J. O'Neill, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 12, 1969, Ser. No. 832,670

Int. Cl. B63c 11/22

U.S. Cl. 9-313

4 Claims



Diver worn breathing bags are covered with chain mail to counteract the positive buoyancy of the breathing bags and to afford armor protection for them.

3,656,197

REUSABLE SWAGING TAP

John M. Van Vleet, Hartland, Wis., assignor to Balax, Inc., North Lake, Wis.

Continuation-in-part of application Ser. No. 783,972, Dec. 16, 1968. This application Apr. 12, 1971, Ser. No. 133,238

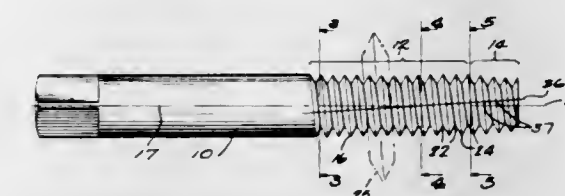
Int. Cl. B21h 3/08; B23g 7/00

U.S. Cl. 10-152

2 Claims

The disclosed swaging tap has lobes or high points of its thread disposed on a helical spiral twist path of opposite

hand to the thread, the angle of the reverse twist path with respect to the tap axis being either identical to the helical angle of the thread or at least materially less than twice the



helical angle of the thread, the angle of the thread being by definition the angle between the thread crest and a plane normal to the axis.

3,656,198

FLOATING BRIDGE

Klaus Haensgen, Witten, Germany, assignor to Lohmann & Stolterfoht Aktiengesellschaft, Witten, Germany

Filed Sept. 4, 1970, Ser. No. 69,622

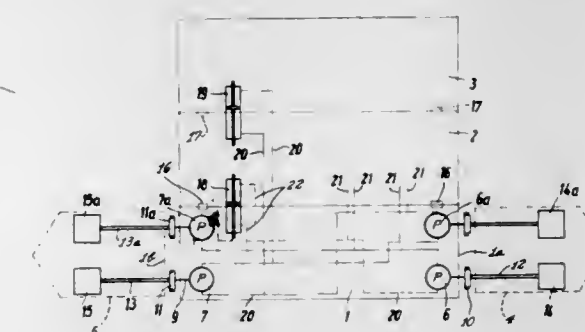
Claims priority, application Germany, Sept. 17, 1969, P 19

48 071.8

Int. Cl. E01d 15/08

U.S. Cl. 14-27

7 Claims



A floating bridge system with hinged, pivotable floats for folding and stacking them for overland transport and for spreading and unfolding them for floating. Pivoting of the floats is carried out through pumps disposed in the principle float, and operating in a closed system for pressurizing hydraulic actuators. The pumps are releasably connectable to amphibious tractors by means of shaft couplings.

3,656,199

SAFETY MECHANISM FOR A HYDRAULICALLY OPERATED DOCKBOARD

Robert R. Bregantini, Menomonee Falls, Wis., assignor to Kelley Company, Inc., Milwaukee, Wis.

Filed Nov. 2, 1970, Ser. No. 85,901

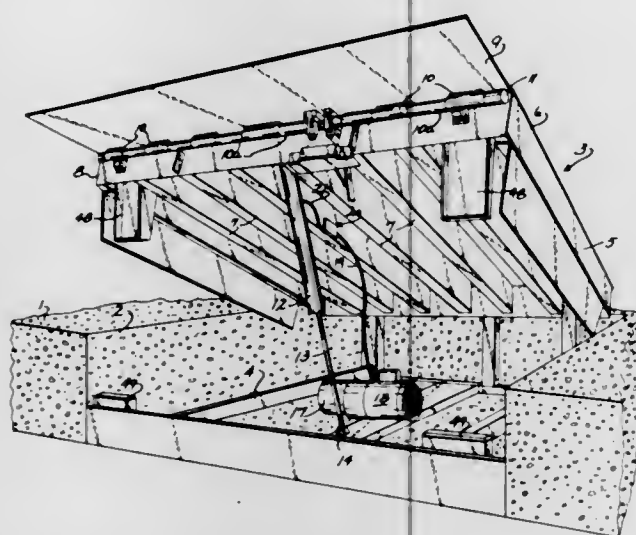
Int. Cl. B65g 11/00

U.S. Cl. 14-71

9 Claims

A safety mechanism to be incorporated with a hydraulically operated dockboard for preventing free descent of the ramp if a carrier pulls away from the dock when a load is on the ramp. The dockboard includes a ramp having its rear edge hinged to the dock and adapted to be raised upwardly to an inclined position by a hydraulic cylinder unit. The safety mechanism is located in the hydraulic supply line that supplies hydraulic fluid to the cylinder unit from a pump and the mechanism includes a pair of valves, one of which is biased to a normally closed position and the second valve is biased to a partially open position. To raise the ramp, the pump is operated and the pressurized fluid acts to move both valves to the fully open position. When the ramp is lowered in normal operation, the hydraulic fluid being displaced from the cylinder unit passes through the partially open second valve to provide a slow rate of descent from the ramp. If a

truck or carrier pulls away from the dock when a load is on the ramp, the combined weight of the ramp and the load will increase the force of the hydraulic fluid flowing from the cylinder to the pump, thereby overcoming the spring force



on the second valve and moving the second valve to a fully closed position. The closing of the second valve will prevent descent of the ramp and will retain the ramp in that position until the load is removed from the ramp.

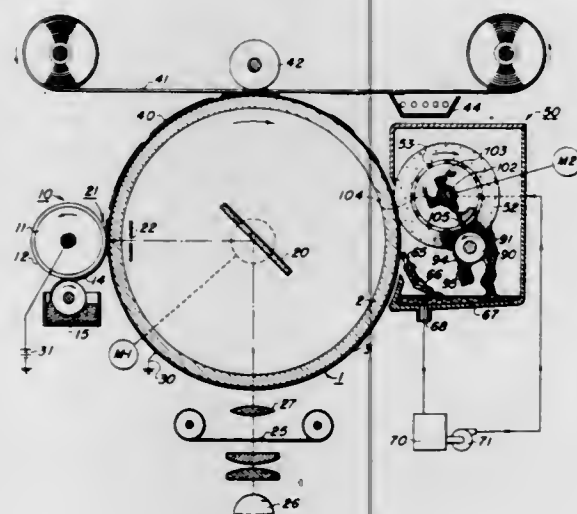
3,656,200 CLEANING APPARATUS

Bernard J. Riley, Jr., Ontario, N.Y., assignor to Xerox Corp., Rochester, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,930
Int. Cl. B08b 1/04

U.S. Cl. 15-97

9 Claims



An improved cleaning mechanism for removing contaminants from generally non-porous surfaces. A sponge-like member surrounds a hollow perforated core. Sprayers, internal to the core, spray liquids under pressure to aid in removing contaminants from the sponge-like member. A pinch roll squeezes the sponge-like member against the core at a position where an internal baffle strip contacts the core. This seals the squeezed sponge-like member at the core preventing liquids and contaminants from passing the seal barrier formed.

3,656,201 COMBINATION BLACKBOARD CHALK AND ERASER

Francisco O. Alcocer, Calle Arista 835, San Luis Potosi, S.L.P., Mexico

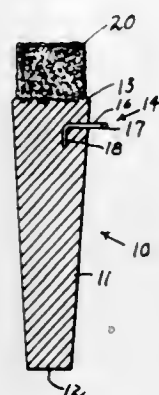
Filed Dec. 12, 1969, Ser. No. 884,503
Int. Cl. B43k 29/02; B43l 21/00

U.S. Cl. 15-118

1 Claim

A combined blackboard chalk and eraser in which the chalk is provided with an embedded eye to permit the chalk

to be attached to a cord and suspended from the top of the blackboard. The chalk has an eraser element secured to one



end thereof so that the board can be erased, using the chalk as a handle for the eraser.

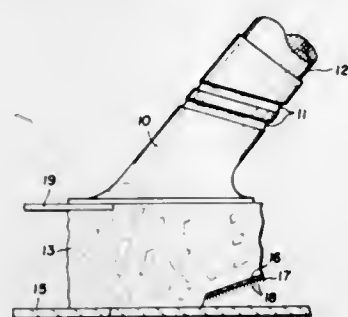
3,656,202 COMBINED SPONGE, SCOURING PILE MATERIAL AND SQUEEGEE CLEANING IMPLEMENT

Douglas E. Paton, Oakville, Ontario, Canada, assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed June 17, 1970, Ser. No. 46,867
Claims priority, application Canada, Feb. 3, 1970, 073,824
Int. Cl. A47l 13/12

U.S. Cl. 15-121

4 Claims



A cleaning tool uses a block of foamed resin material having a scrubbing face and a recessed, stiff pile material arranged adjacent the scrubbing face so that when the block is pressed lightly, only the soft scrubbing face engages the surface to be cleaned, and when the block is pressed harder, the foam material is compressed, and the pile material is brought into scouring contact with the surface to be cleaned.

ERRATA

For Classes 15-147, 15-250 and 15-349 see:
Patent Nos. 3,656,207 thru 3,656,209

3,656,203 CASTER AND CASTER BRAKE STRUCTURE FOR APPLIANCES AND THE LIKE

Theodore A. Wafart, Jr., Louisville, Ky., assignor to General Electric Company

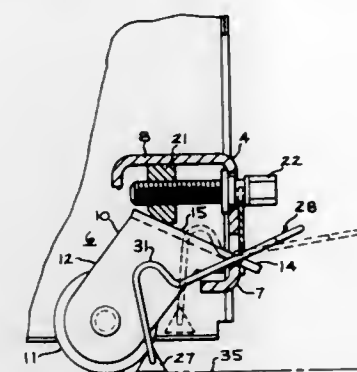
Filed Sept. 5, 1969, Ser. No. 855,624
Int. Cl. B60b 33/00

U.S. Cl. 16-35

2 Claims

An appliance supporting caster structure includes a caster assembly adjustably mounted on a frame portion of the appliance. The caster assembly includes a U-shaped body member having a caster wheel rotatably mounted thereon. A brake means for the caster wheel comprises a chock and operating means for mounting the chock on the appliance frame for movement between a position in which the chock

blocks rolling movement of the wheel and an inoperative position. The operating means also includes a portion fric-



tionally engaging the caster assembly body member for holding the chock in either of these positions.

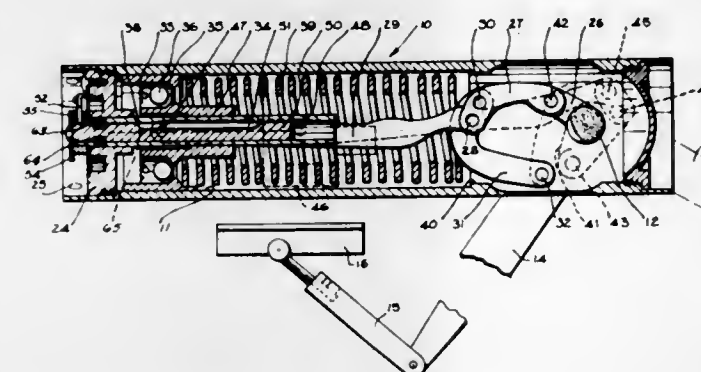
3,656,204 DOOR CLOSER

John Brown, Nowell Street, Kings Hill, Wednesbury, England

Filed Sept. 23, 1969, Ser. No. 860,249

U.S. Cl. 16-52

8 Claims



A door closer including a housing for attachment to the door frame, the housing carrying a rotatably mounted operating arm for attachment to the door, the housing containing spring means which is stressed axially in response to axial movement of a spring seating within the housing, the spring seating being coupled to the pivot for the operating arm through a linkage system.

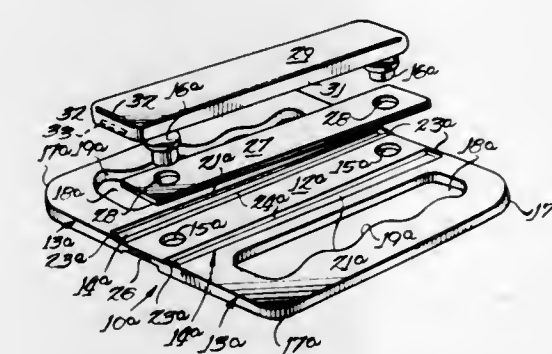
3,656,205 PLASTIC LAY-DOWN HANDLE

Ralph F. Anderson, Rockford, Ill., assignor to Keystone Consolidated Industries, Inc., Peoria, Ill.

Filed July 22, 1970, Ser. No. 57,232

U.S. Cl. 16-125

6 Claims



A novel handle formed of a suitable plastic material which will open out flat when not in use is adapted to be secured to

a case, box, luggage, or other object to be carried, by means of rivets or other suitable attaching means. The handle includes a pair of gripping members integral with an intermediate flat base and joined by grooved or narrowed hinge portions so as to allow the gripping members to open out in the same plane as the base when not in use, and when used, folded or hinged to a position with the gripping portions converging and meeting at their outer edges. The base has openings for securing means to join the handle to the article to be carried and the gripping members having elongated openings to receive the fingers of the user.

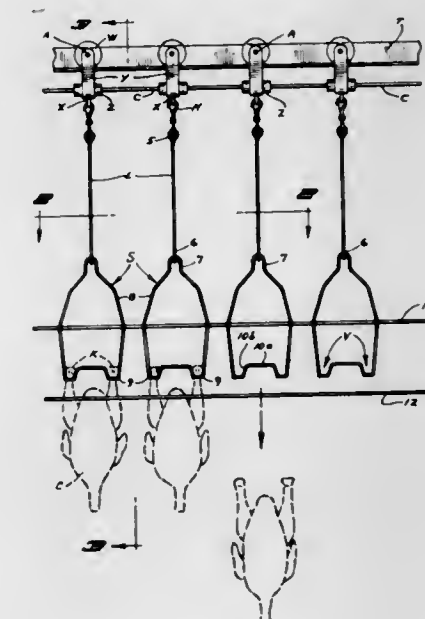
3,656,206 ARTICLE-RELEASE SHACKLE FOR TROLLEY-SUPPORTED HANDLING SYSTEMS TO FACILITATE PROCESSING

Glenn A. Klevgard, Faribault, Minn., assignor to Domain Industries, Inc., New Richmond, Wis.

Filed Jan. 9, 1970, Ser. No. 1,720
Int. Cl. A22c 21/00

U.S. Cl. 17-11

4 Claims



A shiftable and article-releasable shackle for use with a trolley-supported handling system to facilitate processing, such as the evisceration of poultry, which utilizes a multiplicity of vertically suspended shackle elements suspended at upper ends from the trolley system and having adjacent the lower extremities thereof retaining elements for interconnection of the suspended articles. In operation and functional structure, an abutment and/or deflection elements are fixedly mounted at a point or points in the course of travel of the shackles for striking against and preferably camming the shackles and particularly the retaining elements in such a way as to release the articles which then drop with the aid of gravity.

3,656,207 MOP HEAD HOLDER

Joe T. Short, West Point, Ga., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Filed May 13, 1970, Ser. No. 36,924
Int. Cl. A47l 13/252

U.S. Cl. 15-147 B

3 Claims

A mop head holder adapted for removable attachment to a

retaining clip of a mop handle and being particularly from the surface over which the brush passes onto an over-



designed for the reception and support of a wet-type mop head.

3,656,208 WINDSHIELD WIPER

Masumi Kato, Aichi-gun, and Yoshiyuki Morita, Kariya-shi, both of Japan, assignors to Nippondenso Kabushiki Kaisha, Kariya-shi, Aichi-ken, Japan

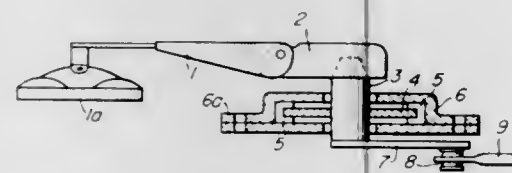
Filed Dec. 23, 1969, Ser. No. 887,493

Claims priority, application Japan, Mar. 6, 1969, 44/17075; Dec. 25, 1968, 43/113946; Jan. 6, 1969, 44/1903

Int. Cl. B60s 1/34

U.S. Cl. 15—250.31

8 Claims



Improved construction of a windshield wiper in which a wiper arm is supported by a pivot shaft by means of an arm joint. The arm joint has an extension forming a driving lever integrally formed in the arm joint, the pivot shaft is provided with a disc-like bearing plate integral therewith and extending radially therefrom so that the bearing plate is supported at its outer peripheral portion. The wiper arm may comprise a sub-arm together with a main arm, and the sub-arm is formed with an arcuate slot at its hinged portion through which the pivot shaft passes. The size and configuration of the slot so determined that the position of the sub-arm can be freely selected without being restricted by the position of the pivot shaft of the main arm.

3,656,209 ETCHING ACID PICK-UP APPARATUS

Russell S. Kinser, R.R. 1, Monticello, Ind.

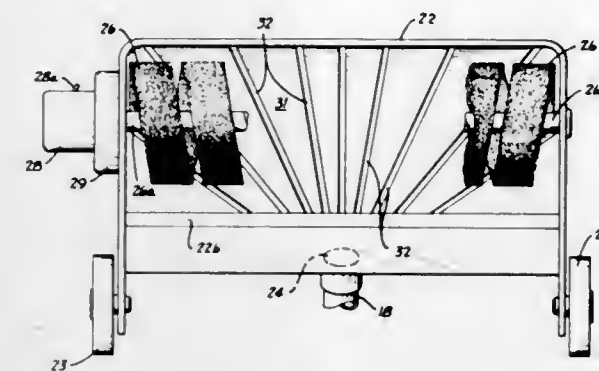
Filed Aug. 28, 1970, Ser. No. 67,698

Int. Cl. A47i 5/36

U.S. Cl. 15—349

1 Claim

An apparatus adapted for retrieving etching fluid used in applying seamless floors, particularly a pick-up head having a power-rotated spiralled brush for throwing liquid upward



ing plate which is grooved to channel the liquid toward a central vacuum aperture in the pick-up head.

3,656,210 CABLE END FITTING

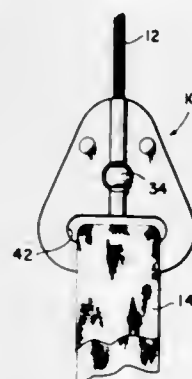
Robert W. Parker, Brawley, and Jacob H. McGary, El Centro, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Sept. 25, 1970, Ser. No. 75,511

Int. Cl. F16g 11/02; A44c 5/18

U.S. Cl. 24—123 A

4 Claims



A cable end fitting that is fabricated from a single blank of sheet metal and stamped with a recess to receive and retain an enlarged end of the cable, the blank being intermediately bent so that its free ends are in lapping relationship, and means provided for fastening the lapped free ends together to capture and to secure the cable end therebetween.

3,656,211 RECIPROCALLY LATCHED CANOPY RELEASE

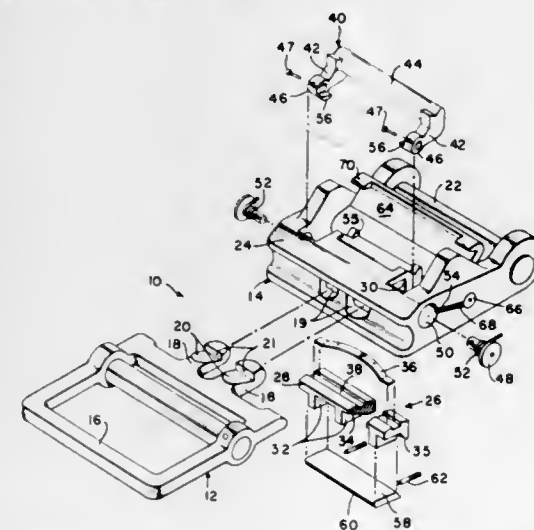
James W. Turner, and Ray E. Spinks, both of El Centro, Calif., assignors to The United States of America as represented by the Secretary of the Navy

Filed Apr. 28, 1970, Ser. No. 32,674

Int. Cl. A44b 19/00

U.S. Cl. 24—230

9 Claims



A parachute canopy release having a female fitting and a

male fitting having prongs to be positively latched within the female fitting, the latching means being preformed by a reciprocable latch bar to minimize inadvertent separation, the latch bar being cam operated by an actuating lever in a direction normal to a plane containing the prongs to release the prongs and allow the fittings to be separated.

3,656,212 UNIVERSAL CLAMP

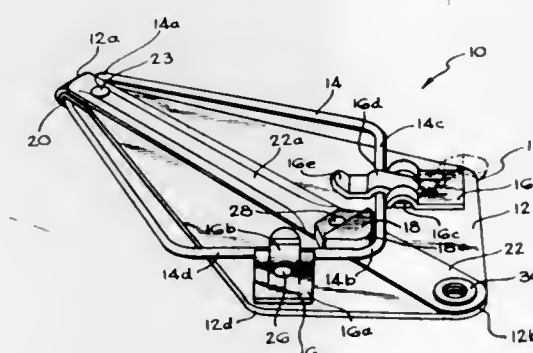
Thomas H. Velte, 417 East 14th Street, Kaukauna, Wis.

Filed July 13, 1970, Ser. No. 54,492

Int. Cl. A44b 21/00

U.S. Cl. 24—250

11 Claims



A universal clamp for securing flexible sheet-like material capable of being folded back upon itself includes a base plate disposable adjacent an edge or corner of the sheet-like material, a ring member pivotally mounted on the base plate for insertion into the folded portion of the sheet-like material, and spring clasps or the like mounted on the base plate for holding the portion of the sheet-like material in which the ring member is inserted against the base plate.

3,656,213 HEMMING CLIP

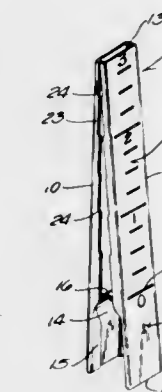
Fay C. McNeely, Route 2, Spencer, Wis.

Continuation of application Ser. No. 801,694, Feb. 24, 1969, now abandoned. This application Feb. 12, 1971, Ser. No. 115,003

Int. Cl. A44b 21/00

U.S. Cl. 24—252 GC

10 Claims



A hemming clip having a pair of elongated clamping leaves with a scale along at least one leaf which starts at a point spaced inwardly from one end of the clip and is aligned with a stop to automatically align the starting indicia of the scale with the hem fold when the clip is fully advanced on the hem. The leaves are pivotally interconnected and have a spring between the leaf lever arms. The space between the scale indicia bearing portion of the leaves is unobstructed to receive the hem.

3,656,214 CRIMPING APPARATUS FOR MANUFACTURING A BULKY YARN

Goro Ozaw; Kenzo Kosaka; Kiyoshi Adachi; Tsutomu Okaya, and Takeo Arikki, all of Nagoya-shi, Japan, assignors to Mitsubishi Rayon Company Limited, Tokyo, Japan

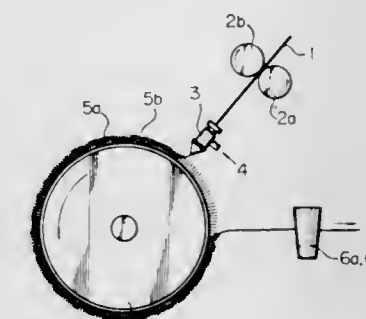
Filed Jan. 22, 1970, Ser. No. 4,827

Claims priority, application Japan, Aug. 26, 1969, 44/67084

Int. Cl. D02g 1/16

U.S. Cl. 28—1.4

8 Claims



An air-jet type crimping apparatus equipped with a fiber ejection nozzle of an increased thermal effect, a rotational crimping member having a surface on which are peripherally arranged needle or honey-combed protuberances defining a multiplicity of spaces receptive of the fibers ejected by the nozzle composing the yarn and cone-type means for taking up the yarn from the surface at speeds automatically adjusted according to variations in the thermal shrinkability of the processed fibers. Fiber cooling means may advantageously be added for enhanced stability of the crimps imparted to the fibers.

3,656,215 AUTOMATIC REELING MACHINE

Naokhiro Tanno, Kyoto-fu, Japan, assignor to Shimadzu

Selsakusho Ltd., Kyoto-fu, Japan

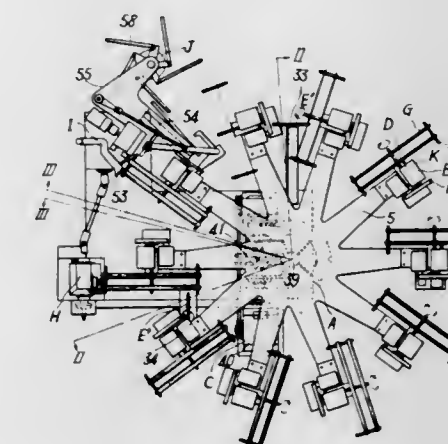
Filed Sept. 9, 1969, Ser. No. 862,621

Claims priority, application Japan, Mar. 15, 1969, 44/19719

Int. Cl. B65h 55/00

U.S. Cl. 28—21

33 Claims



An automatic reeling machine constructed so as to automatically operate continuous steps of winding a certain amount of thread on each of several reels to form a hank thereon, of lacing a tie-band on said hank thus formed and of removing said laced hank from the reel, so that substantial automation of all manufacturing processes of the laced hank can be achieved. The laced hank manufactured by the automatic reeling machine of this invention contains a constant amount of thread without breakages and can be easily released of a knot positioned adjacent to the terminating end of the thread without entangling, so that an easy-to-handle hank of high quality can be obtained.

3,656,216

FILE HANDLE

James A. Coon, 929 Drever Street, W. Sacramento, Calif., and Elwin Theobald, 4631 Solano Way, Fair Oaks, Calif., assignors to said Coon, by said Theobald

Filed July 10, 1970, Ser. No. 53,889

Int. Cl. B23d 71/04

U.S. Cl. 29-80

6 Claims



A longitudinal shaft having projections on each end thereof extending downward and inward toward each other for gripping the side wall of the end portions of a hollow file, a bolt inserted therethrough at one end thereof, a handle attached thereto at one end thereof, one of the projections and the handle having a longitudinal slot in which the bolt is inserted for adjustment of the handle and adjustment of the projection to grip the end of the file, and vertical extensions extending from both surfaces of the shaft to prevent unwanted side slippage and twisting of the adjustable handle and projection.

3,656,217

METHOD OF MAKING PIEZOELECTRIC CRYSTAL UNITS

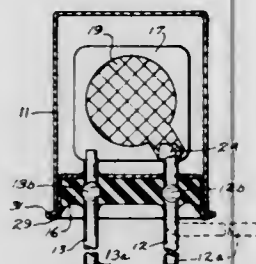
Kelley E. Scott, Jr., Plano; Daryl M. Kemper, Sandwich, both of Ill.; Lloyd E. Grove, Geneva, and Ronald J. Kiess, Decatur, both of Ind., assignors to CTS Corporation, Elkhart, Ind.

Filed June 6, 1969, Ser. No. 830,956

Int. Cl. B01j 17/00; H04r 17/00

U.S. Cl. 29-25.35

6 Claims



Crystal plate mounting means integral with malleable terminals of a piezoelectric crystal unit accommodate differently dimensioned crystal plates and permit spacing of the terminals for registry with circuit board perforations without stress-loading such plates. Other means integral with the terminals isolate the crystal plate from stress-loading when the free ends of the terminals are stressed. The illustrated mounting means comprise bifurcations formed in one end of each terminal and the illustrated other means comprise a paddle section of each terminal embedded in a resilient organic adhesive securing and hermetically sealing each terminal to an eyelet. The malleable terminals are solderable and readily deformable to secure registry between the free ends of the terminals and perforations in printed circuit boards. The organic sealant is compatible with the malleable terminal material and withstands stresses induced therein when the terminals are stressed and when the eyelet is cold welded to an envelope. The disclosed method includes the steps of securing a pair of terminals to an eyelet, adapting the ends of the terminals to support a crystal plate without stress-loading such crystal plate, securing a crystal plate in a stress free condition to the terminals, and cold welding the eyelet to an en-

velope by a cold weld processing step to avoid mass-loading the crystal plate.

3,656,218

WIRE STRIPPING AND WRAPPING GUN

Bruno Staiger, Erligheim; Siegfried Schlag, Wimsheim, and Walter Hartl, Winnenden, all of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Aug. 21, 1969, Ser. No. 851,847

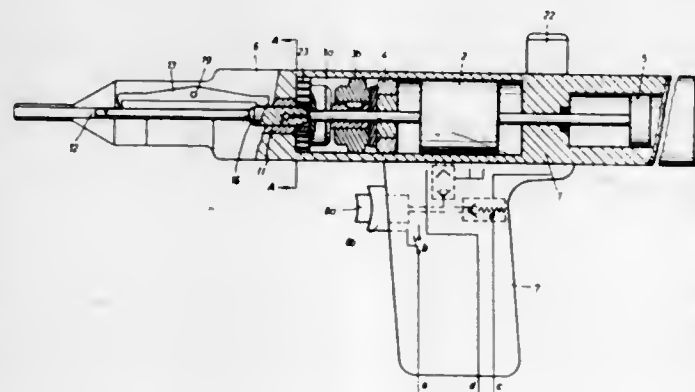
Claims priority, application Germany, Aug. 30, 1968, P 17 90

044.6

Int. Cl. B21f 15/00

U.S. Cl. 29-33 F

6 Claims



The driving mechanism for a wire stripping and wrapping tool is positioned along a central axis. Axial movement of a wrapper pin causes a knife to cut, strip and position the wire for wrapping. Different types of insulation can be accommodated.

3,656,219

CUTTING TOOL

Eugene B. Connelly, Churchill Borough, Pa., assignor to United States Steel Corporation

Filed Jan. 26, 1970, Ser. No. 5,750

Int. Cl. B26d 1/00; B23b 5/11

U.S. Cl. 29-95

24 Claims



A cutting tool is disclosed for an apparatus for cutting a crop section of pipe from the pipe at a predetermined location on the pipe. The apparatus has pipe mounting means for supporting the pipe, tool mounting means adjacent the pipe and drive means connected to one of the pipe and tool mounting means for causing relative rotary movement between the pipe and the tool mounting means. The cutting tool is mounted on the tool mounting means, is movable into cutting engagement with the pipe at the predetermined location, and is operable to create a deformed section of the pipe during the cutting operation. The cutting tool has a cutting tip provided with a pipe cutting edge and a crop cutting edge. The pipe cutting edge and the crop cutting edge intersect to form an apex. The pipe cutting edge defines with one side of the cutting tip of facing corner. The crop cutting edge defines, with the other side of the cutting tip, a crop corner. The crop corner is disposed a greater longitudinal distance from the apex than the facing corner so that the facing corner cuts through the pipe before the crop corner cuts through the crop section thereby permitting the deformed section to fall from the pipe with the crop section.

3,656,220

INDEXABLE BROACH

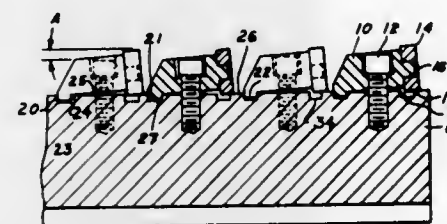
Hubert J. Dupuis, Warren, Mich., assignor to Carmet Company, Pittsburgh, Pa.

Filed Jan. 2, 1970, Ser. No. 176

Int. Cl. B26d 1/04, 1/12, 1/00

U.S. Cl. 29-95.1

9 Claims



Apparatus for broaching planar or contoured surfaces with a broaching tool having a plurality of preferably indexable and reversible cutting inserts supported by individual tool holders superimposed on a broaching block in a substantially exposed relationship to the broaching block. In preferred embodiment the broaching block contains gauging means adapted to engage a cooperating portion of the tool holder whereby the holder may be rapidly positioned and forces of broaching may be transferred from the tool holder supporting the cutting inserts to the broaching blocks. A further embodiment includes the broaching block and tool holder adapted with a keyway to engage a complementarily shaped projection to enhance the rapid positioning of the mounting block and increase the locating force upon the insert which secures it in position.

3,656,221

METHOD OF ASSEMBLY OF JOINT DEVICES AND APPARATUS THEREFOR

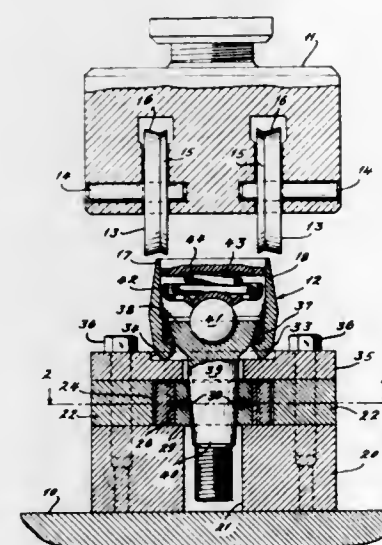
William A. Scheublein, Jr., Ballwin, and Louis P. Fister, St. Louis, both of Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

Filed Feb. 2, 1970, Ser. No. 7,514

Int. Cl. B23p 11/00; B21d 53/00, 39/00

U.S. Cl. 29-149.5 B

7 Claims



A method especially suitable for assembling joint devices for use as mechanical connections, such as ball joints, tie rod ends or idler arms, so as to eliminate internal clearance between components due to manufacturing tolerances and for the purpose of obtaining substantially precise assembly control whereby defects such as jamming and lock-up of the movable components may be avoided. The method is put into practice by relatively simple tools which collectively constitute an improved apparatus to achieve superior results in the economy of assembling joint devices of the noted character.

3,656,222

METHOD OF MAKING AN AEROFOIL-SHAPED BLADE OR BLADE BLANK

John Windsor Jones, Thornton-in-Craven, Skipton, England, assignor to Rolls-Royce Limited, Derby, Derbyshire, England

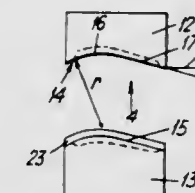
Filed Mar. 17, 1969, Ser. No. 807,586

Claims priority, application Great Britain, Mar. 27, 1968, 14,781/68

Int. Cl. B21k 3/04; B23p 15/02, 15/04

U.S. Cl. 29-156.8 H

7 Claims



A method of making an aerofoil-shaped blade or blade blank comprises forming two blade halves which are assembled together to form the complete blade or blade blank. The surfaces of adjacent blade halves have cooling fluid passages therebetween, and in assembling the blade halves a sheet of brazing material is interposed between the blade halves. The sheet is provided with slots therein which are aligned with and of corresponding shape to the cooling fluid passages.

3,656,223

METHOD OF MAKING SLIDING-CLASP FASTENERS

Dieter Malsenbacher, Stuttgart-Hohenheim, Germany, assignor to Karl F. Nagele Feinmaschinenbau, Stuttgart-Hohenheim, Germany

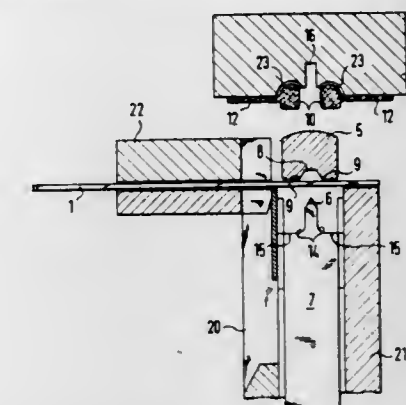
Filed Sept. 17, 1970, Ser. No. 73,203

Claims priority, application Germany, Sept. 18, 1969, P 19 47 345.1

Int. Cl. B21d 53/50; B23p 11/00; B21d 53/50

U.S. Cl. 29-408

10 Claims



This invention relates to sliding-clasp fasteners and in particular to the positioning of the end stops thereon, particularly at the opening end of the fastener. In accordance with the invention, a pair of linked or otherwise integral end stops is formed at the location of the said opening end of the fastener and is bent around for securing to the stringers and, after being mounted in position, is separated into two individual stops. During the operation of forming and separating the stops, the fastener is in the closed condition.

3,656,224

METHOD OF FORMING A HONEYCOMB CORE PANEL

Winford Blair, La Mesa, and Walter L. Bubel, Chula Vista, both of Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed Apr. 9, 1969, Ser. No. 814,603

Int. Cl. B23k 31/02

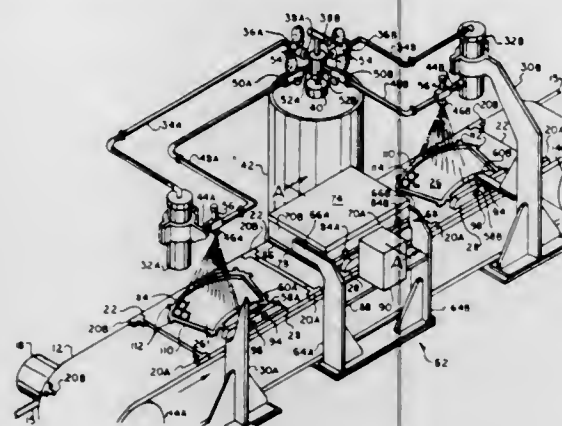
U.S. Cl. 29-471.1

5 Claims

Face sheets are bonded to honeycomb core material by applying brazing material to a side surface of one of said face

sheets, placing one side of the honeycomb core material against the side of the aforesaid face sheet covered with brazing material and the other face sheet against the other side of the honeycomb core material, heating the assembly to melt

hydroxy-containing organic compounds. The organic compounds provide an effective medium for adhering the brazing powder to a metallic surface and enable the preparation of a convenient, easy to use, brazing slurry.



the brazing material, and thereafter permitting the assembly to cool. Capillary action causes flow of the brazing material from the face sheet initially covered therewith to the other face sheet when the brazing material is melted.

3,656,225 METHOD OF SEALING AND EVACUATING VACUUM ENVELOPES

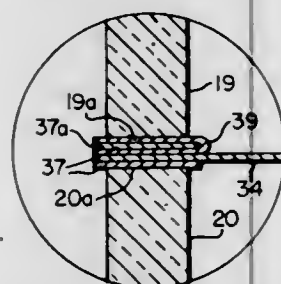
Albert Bereza, Elmira, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1969, Ser. No. 862,401

Int. Cl. B23k 31/02

U.S. Cl. 29—472.7

4 Claims



The two insulating casings of a vacuum envelope are placed in close proximity, and a plurality of spaced U-shaped brazing shims are disposed in spaced relation around an annular brazing shim, the latter being positioned between the confronting ends of the two ceramic, or insulating rings constituting the envelope of the enclosure. The envelope is placed within a vacuum furnace and heated to a temperature just below the melting temperature of the U-shaped brazing shims. In effect, this creates a peripheral opening permitting thereby a communicating passage between the interior and the exterior of the envelope for outgassing procedures.

When the desired degree of outgassing and evacuation has occurred, the temperature of the vacuum furnace is raised to the melting point of the plurality of spaced brazing shims, and they melt flowing into the space between the two ceramic or insulating casings, and sealing the same together. No tubulation is needed with this method.

3,656,226 BRAZING METAL SURFACES

Frederick A. Burne, Hamden, Conn., assignor to Olin Mathieson Chemical Corporation

Original application July 5, 1968, Ser. No. 742,527, now Patent No. 3,589,952. Divided and this application June 12, 1970, Ser. No. 57,862

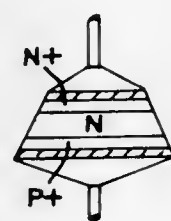
Int. Cl. B23k 35/12

U.S. Cl. 29—502

8 Claims

An improved method for brazing cuprous or ferrous surfaces utilizing an admixture of brazing powder and certain

Unequal diameter pinheads, soldered to silicon chip, so that etch produces chamfered diode.



3,656,227 METHOD OF MAKING A MOLD FOR BIDIRECTIONAL HYDRODYNAMIC SHAFT SEALS

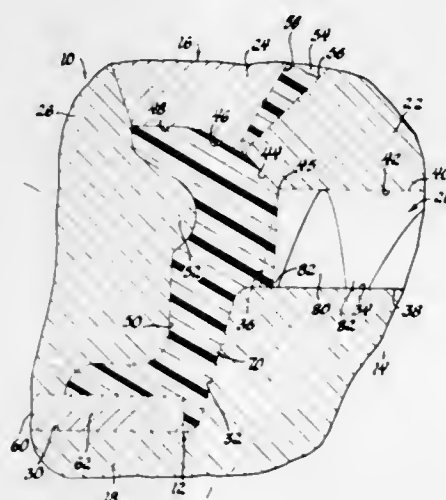
Louis H. Weinand, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 26, 1970, Ser. No. 22,978

Int. Cl. B23p 17/00

U.S. Cl. 29—530

1 Claim



A method of making a mold for bidirectional hydrodynamic shaft seals wherein the mold face for forming the air side wall of the seal includes a plurality of circumferentially spaced, wedge-shaped recesses formed by a grinding wheel. The recesses are inclined with respect to the mold face and establish projecting cylindrical pads on the molded seal, the side walls of which have arcuate shapes and define triangular, grooved areas therebetween. The bases of the side walls operatively engage the shaft to be sealed in a trapezoidal contact pattern so as to be alternately effective to unidirectionally return leaking fluid upon a reversal of shaft rotation.

3,656,228 SEMI-CONDUCTOR DEVICES AND THE MANUFACTURE THEREOF

William B. Glass, London, England, assignor to Westinghouse Brake and Signal Company Limited

Continuation of application Ser. No. 688,395, Dec. 6, 1967, now abandoned. This application Aug. 25, 1970, Ser. No. 66,884

Claims priority, application Great Britain, Jan. 30, 1967, 4,382/67

Int. Cl. B01j 17/00; H01l 5/00

U.S. Cl. 29—578

6 Claims

3,656,229 PROCESS FOR PRODUCING MAGNETIC HEAD

Yo Sakurai, Kunitachi-shi; Teizo Tamura, Katsuta-shi, and Norikazu Hashimoto, Hachioji-shi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

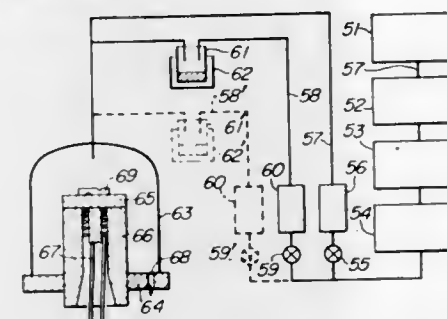
Filed Nov. 5, 1969, Ser. No. 874,292

Claims priority, application Japan, Nov. 8, 1968, 43/81256; Feb. 28, 1969, 44/14621

Int. Cl. G11b 5/42; H01f 7/06

U.S. Cl. 29—603

8 Claims



An improved magnetic head is produced by utilizing as a spacer for regulating the width of the head gap thereof a non-magnetic oxide film formed by applying a vapor of at least one volatile metal alkoxide capable of forming a non-magnetic metal oxide by thermal decomposition reaction, e.g. an alkoxide of such a metal as Al, Ti, Zr, Si or Hf, onto the surface of a ferrite core heated to above the thermal decomposition temperature of said alkoxide, thereby bringing about on the core surface the thermal decomposition reaction of said alkoxide.

3,656,230 METHOD OF MANUFACTURING MAGNETIC STORAGE ELEMENTS

Heimo Hardung-Hardung, Frankfurt am Main, Germany, assignor to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen

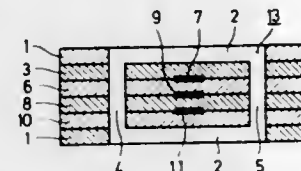
Filed July 31, 1969, Ser. No. 846,332

Claims priority, application Germany, Aug. 9, 1968, P 17 64 812.3

Int. Cl. H01f 7/06

U.S. Cl. 29—604

2 Claims



A process for the manufacture of a magnetic storage element useful in data processing apparatus. Said element is made by stacking a plurality of plates, made of a non-magnetic, and electrically insulating material, each of which has openings therein so that the openings of the stacked plates together form a recess for receiving a magnetic core. Some of the stacked plates have electrical conductors formed thereon by a printing method. The magnetic core is formed in situ in the stacked plates by solidifying a fluid mixture containing a magnetic material and a resinous binder within the recess.

3,656,231 METHOD OF INSULATING ELECTRICAL CONDUCTORS

Robert Sheldon, Abingdon, and Geoffrey Brian Stapleton, Wantage, both of England, assignors to Science Research Council, London, England

Filed June 9, 1969, Ser. No. 831,306

Claims priority, application Great Britain, June 12, 1968, 28,048/68; Jan. 31, 1969, 5,502/69

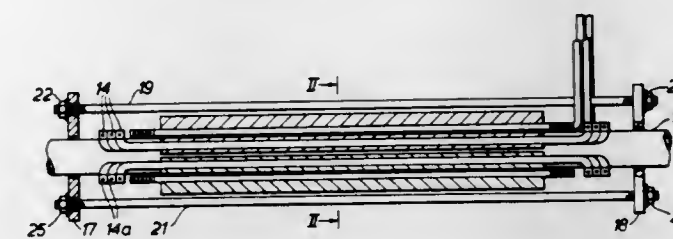
Int. Cl. H01b 13/00; H05k 3/00

U.S. Cl. 29—624

7 Claims

In electrical apparatus subject to nuclear radiation, electri-

cal conductors, in particular for the magnet coils of an accelerator, are mechanically supported and electrically insulated from one another by concrete held under permanent compressive stress.



lated from one another by concrete held under permanent compressive stress.

3,656,232 METHOD OF ENCAPSULATING COPLANAR MICROELECTRIC SYSTEM

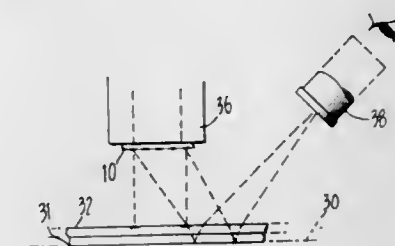
John F. Hinchey, Contra Costa, Calif., assignor to The Singer Company

Original application May 15, 1967, Ser. No. 638,536, now Patent No. 3,489,952, dated Jan. 13, 1970. Divided and this application May 28, 1969, Ser. No. 847,762

Int. Cl. H01b 68/02

U.S. Cl. 29—624

8 Claims



Microelectronic units such as integrated-circuit chips equipped with heat-conducting extensions, and also terminal pins, are sealed and bonded, face down, on a transparent mold board, precisely located with respect to gauge marks on the upper surface by observation from below, and embedded flush, or coplanar, with the surface of a cast encapsulating block such as ceramic or epoxy. Insulating interconnecting conductors are formed on the coplanar surface of said block and embedded microelectronic units.

3,656,233 MAKING POLYTETRAFLUOROETHYLENE ARTICLES INCLUDING TUBES, AND FITTINGS EMPLOYING SUCH TUBES, HAVING IMPROVED CONCENTRICITY AND DIMENSIONAL STABILITY

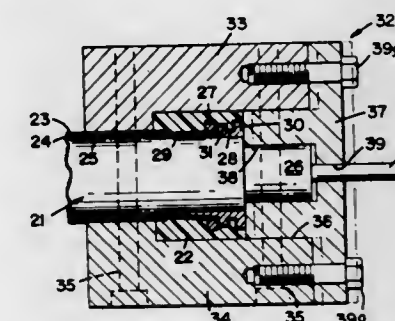
John S. Overholser, Klamath, Calif., assignor to Dynalectron Corporation, Washington, D.C.

Continuation-in-part of application Ser. No. 577,381, Sept. 6, 1966, now abandoned. This application Nov. 19, 1968, Ser. No. 776,909

Int. Cl. H02g 15/00

U.S. Cl. 29—629

15 Claims



Starting from high quality, dense, and relatively dimen-

sionally stable rods of polytetrafluoroethylene, the invention provides articles including tubes and fittings incorporating such tubes having very accurate concentricity and improved dimensional stability by: first machining and drilling the rod stock to provide desired exterior and interior dimensions, in some cases then shaping the tube to provide elbows and in other instances leaving them straight. Then the tubes are confined and their interior filled, and the ends are mechanically compressed with considerable end pressure. Then the assembly is heated to a temperature and for a time long enough to cause the polytetrafluoroethylene to expand and fill the very accurately made confining parts and to grip tightly the filling part, which is also very accurately made, allowing time enough at such temperature to obliterate the memory of former configurations of the polytetrafluoroethylene and thereby relieve the stresses incurred by previous manufacture and by the compressing. Then the assembly is cooled and the compressing parts removed. The finished part cannot thereafter shrink endwise and it retains its dimensions and concentricity.

3,656,234

EMOLLIENT APPLICATOR FOR USE WITH ELECTRIC SHAVERS

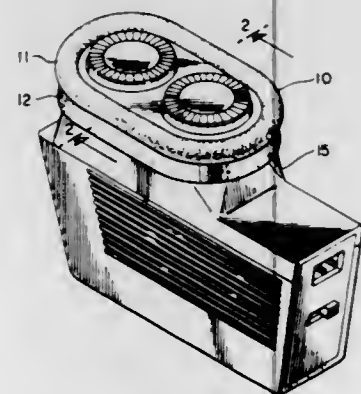
Malachy J. Regan, 1911 Jefferson Davis Highway, Room 302, Arlington, Va.

Filed July 1, 1970, Ser. No. 51,539

Int. Cl. B26b 21/44

U.S. Cl. 30-90

3 Claims



This disclosure relates to an applicator elastically applied upon the head of an electric shaving device and having integral means for the absorptive containment of an emollient which is applied upon the skin by pressure of the applicator thereon. Such emollient thereby conditions the skin and beard for removal of the latter by the cutting heads of the electric shaver.

3,656,235

SHAVING-HEAD ASSEMBLY

Frans Zuurveen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

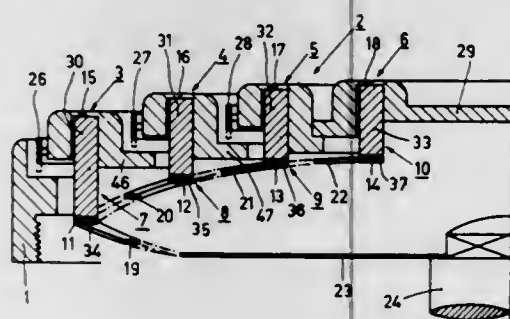
Filed June 29, 1970, Ser. No. 50,824

Claims priority, application Netherlands, July 4, 1969, 6910273

Int. Cl. B26b 19/04

U.S. Cl. 30-346.51

9 Claims



A shaving-head assembly which is actuated by one drive

shaft, with shear plates that are capable of having their angular positions varied relative to the drive shaft by the use of gimbal rings from which these shear plates are suspended. Spring biased cutters cooperatively engage with the shear plates to cut facial hair.

3,656,236

DENTURE RETENTION METHOD

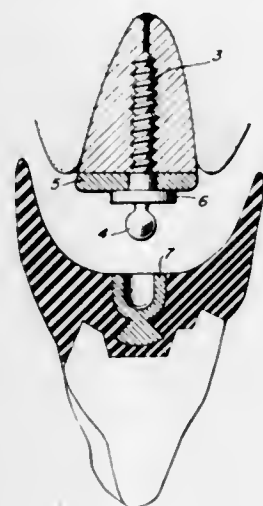
Peter F. Kurer, 39 Deansgate, Cheadle, England

Filed Oct. 16, 1970, Ser. No. 81,394

Int. Cl. A61c 13/00

U.S. Cl. 32-2

2 Claims



A dental procedure for providing a secure anchor in the mouth to which a denture can be attached utilizes a temporary post having a threaded shank carrying a cylindrical head. A natural tooth root is drilled and tapped to form a threaded hole in which the shank of the temporary post is received. An impression is taken of the face of the tooth root and the protruding head of the temporary post. The temporary post is removed and a cap, prepared from the impression and having a hole in it where the head projection occurred, is secured to the tooth root. A permanent post is then utilized which has its head in the form of a denture retainer atop a threaded shank. The threaded shank of the permanent post, after being coated with dental cement, is inserted through the hole in the cap and is screwed into the tooth root. With the shank fully inserted, the head of the post overlaps the hole in the cap, sits upon the cap to seal that hole, and aids in maintaining the cap in place on the tooth root.

3,656,237

LEAD HOLDER DRAFTING COMPASS

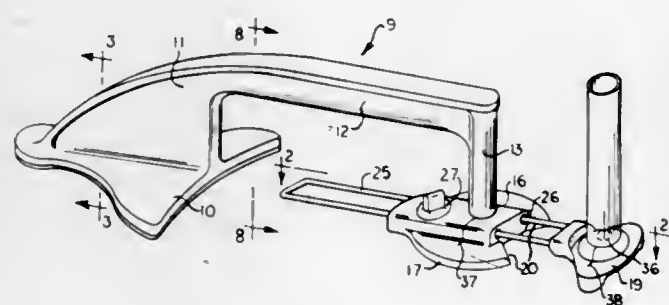
Thomas O. Killgrove, P.O. Box 395, Frazier Park, Calif.

Filed Nov. 18, 1970, Ser. No. 90,757

Int. Cl. B431 9/02

U.S. Cl. 33-27 D

5 Claims



A frame held drafting compass for drawing circles wherein the compass pivot is located at the center of the circle to be drawn and the base of the frame contacts the drawing surface outside of the circle to be drawn, so that a contact point at

the center of the circle to be drawn is unnecessary. The scribing structure includes a lead holder adjustable so that the angle of incidence of the lead to the paper can be varied.

3,656,238

LOCKING DEVICE FOR THE CARRIAGE OF A DRAWING APPARATUS

Evgeny Mikhailovich Perminov, ulitsa Angarskaya, 26 Korpus I, kv. 10, Minsk, U.S.S.R.

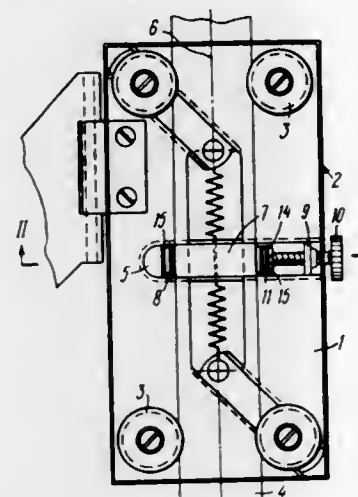
Filed July 22, 1970, Ser. No. 57,129

Claims priority, application U.S.S.R., Aug. 14, 1969, 1358220

Int. Cl. B431 13/02

U.S. Cl. 33-76 R

1 Claim



A locking device for the carriage of a drawing apparatus, in which the base of the carriage has a groove therein, extending laterally with respect of the longitudinal axis of the base, with the groove receiving a slide. The slide has its opposite end portions bent in the same direction, with one of the opposite end portions acting as a stop adapted to engage a guideway along which the carriage is adapted to travel. Mounted intermediate of the bottom of the groove and slide is a bent leaf spring having first end portion thereof secured to the slide and a second end portion thereof extending through an opening in the slide and acting as another stop, also adapted to engage the guideway.

The other one of the opposite end portions of the slide supports means for selectively clamping the guideway between two stops, and such means is associated with the second end portion of the spring.

3,656,239

MEASURING APPARATUS

Desmond Ernest Hutchinson, and John David Bickerdike, both of Bradford, England, assignors to The English Electric Company Limited, London, England

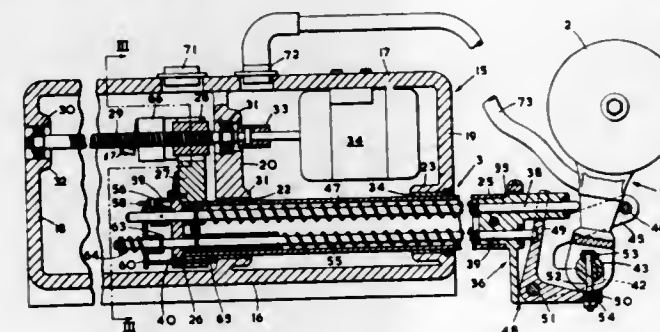
Filed Apr. 7, 1969, Ser. No. 813,966

Claims priority, application Great Britain, Apr. 9, 1968, 17,066/68

Int. Cl. G01b 3/12, 7/04

U.S. Cl. 33-141 R

6 Claims



Apparatus for measuring the diameter of a workpiece in-

cludes a wheel which is rotated by contact with the workpiece and drives a pulse generator. The number of pulses generated during each revolution is counted and gives a direct indication of the workpiece diameter.

The wheel is positioned by a unit which automatically sets the pressure of the wheel against the workpiece and retracts the wheel if any of a number of fault conditions occurs such as the feeding of the wheel against the side of a shoulder on the workpiece; reaching the limit of travel of the wheel without having reached the workpiece; over-pressure on the wheel caused, for example, by swarf between the wheel and the workpiece; and excessive forward movement of the wheel.

3,656,240

FREEZE-DRYER

Nicolaas Antonie Van Dijk, Van Houtenlaan, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

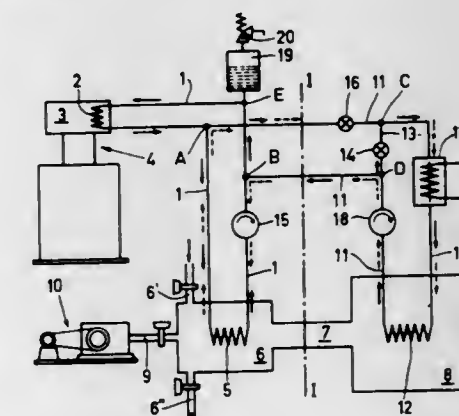
Filed May 18, 1970, Ser. No. 37,975

Claims priority, application Netherlands, May 30, 1969, 6908334

Int. Cl. F26b 13/30

U.S. Cl. 34-92

3 Claims



The invention provides a freeze-dryer of a simple construction in which the freeze-drying temperature of the vacuum chamber and the temperature of the condenser chamber which is at a lower level are adjusted by means of a liquid conducted along the cold head of a cold-gas refrigerator. This liquid is also advantageously used for defrosting the ice mass formed in the condenser chamber in a very short period of time, after the freeze-drying process.

3,656,241

EXPERIMENTAL DERRICK AND LADDER ASSEMBLY

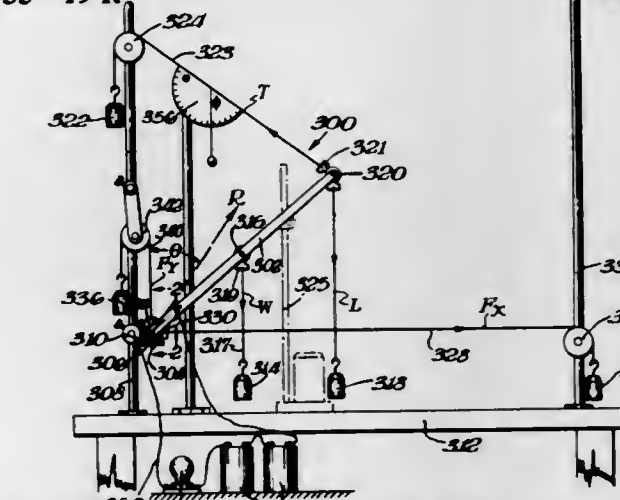
Robert F. Chambers, 504 Beverly Road, Newark, Del.

Continuation-in-part of application Ser. No. 735,259, June 7, 1968, now Patent No. 3,520,981. This application Apr. 21, 1970, Ser. No. 30,449

Int. Cl. G09b 23/08

U.S. Cl. 35-19 R

8 Claims



Elongate straight beam for demonstrating equilibrium phenomena in classroom physics instruction includes bearing

members rotatably mounted at beam ends by pins transversely disposed relative to longitudinal centerline of beam. Lugs rotatably secured to pins at longitudinal centerline of beam have openings for attaching coplanar forces to beam.

Elongate straight beam is used as experimental derrick and experimental ladder. Primary objective of derrick experiment is to determine magnitude and direction of reaction force lower support exerts against beam under equilibrium conditions. Magnitude and direction of reaction force found experimentally are compared with theoretically determined values. Primary objective in ladder experiment is to determine magnitude and direction of force lower support exerts against beam under equilibrium conditions. Also, magnitude of force upper support exerts against beam is determined. Experimental values are then compared with theoretical values.

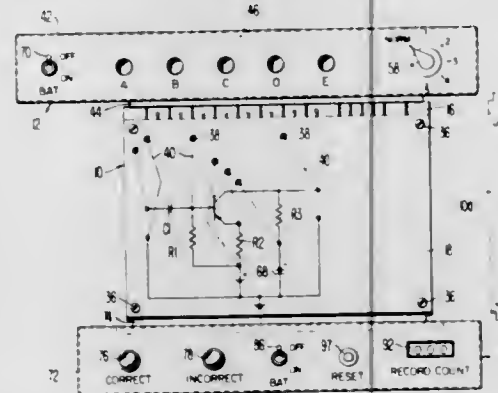
3,656,242

ELECTRONIC CIRCUITS INSTRUCTIONAL APPARATUS
Robert J. Atkinson, Philadelphia, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed Mar. 16, 1970, Ser. No. 19,826
Int. Cl. G09b 23/18, 7/06

U.S. Cl. 35-19 A

10 Claims



A teaching apparatus which permits construction and testing of a number of different electronic circuits with a single set of electronic components, such as resistors, capacitors, transistors, etc. Problems can be inserted into the apparatus, in which case the correctness of answers to the problems is indicated and the number of incorrect answers is recorded.

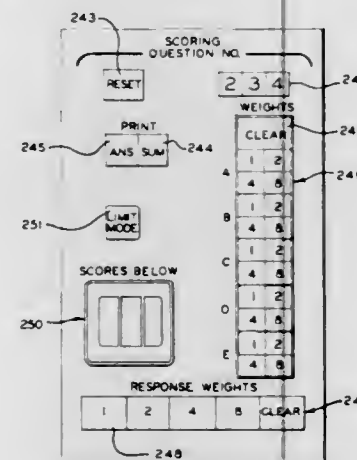
3,656,243

RESPONSE SYSTEM WITH IMPROVED COMPUTATIONAL METHODS AND APPARATUS
Bernard M. Segal, Binghamton, N.Y., and David Friedman, Framingham, Mass., assignors to The Singer Company, New York, N.Y.

Filed Aug. 10, 1970, Ser. No. 62,382
Int. Cl. G09b

U.S. Cl. 35-48 B

4 Claims



An improved classroom response system of the type wherein a number of students are provided with individual

responders each having a plurality of switches selectively operable to indicate the student's choice of response to a question or other stimulus. The invention is directed to novel methods and apparatus for performing arithmetic operations and displays which make available to the instructor information helpful in conducting the class and otherwise simplify instructional tasks. Included are means for automatically indicating which of several responses is "correct" by determining the response to which the highest weight has been assigned by the instructor. Also disclosed are novel means to calculate each individual student's cumulative score and to indicate automatically the students whose scores fall below a preselected acceptable percentage of the maximum possible score. Displays of the total number of students responding to a given question, and the percent of the class which has responded with any of the possible choices are provided.

3,656,244

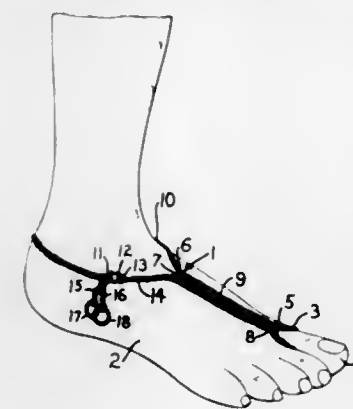
FOOT DECORATION

Mary L. Andrade, 9909 Holly, Kansas City, Mo.
Filed Aug. 27, 1970, Ser. No. 67,353

Int. Cl. A43b 00/00

U.S. Cl. 36-1

2 Claims



This invention discloses a decoration for the foot or feet of a person when going barefooted, and consists of a loop portion to engage over the toe of the user and a decorative piece between the toe and the ankle with means, such as a cord or the like, for engaging around the ankle.

3,656,245

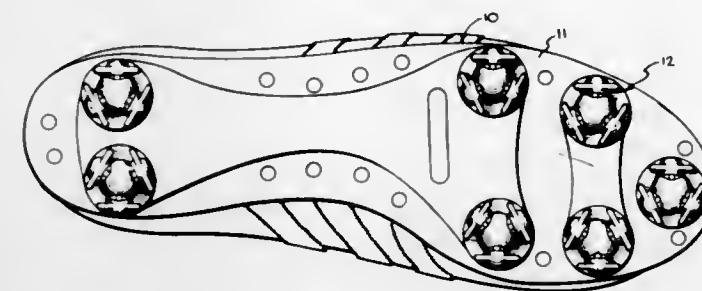
ATHLETIC SHOE CLEAT

Henry H. Wilson, 533 View Park Drive, Knoxville, Tenn.
Filed Sept. 8, 1970, Ser. No. 70,347

Int. Cl. A43c 15/00

U.S. Cl. 36-67 D

11 Claims



A cleat particularly useful for shoes worn by participants in sporting events to provide improved engagement with the surface on which the sporting event takes place and including a grouping of projections having relatively blunt nonpenetrating ends adapted to engage the surface with limited penetration thereof, such grouping including a plurality of projections disposed in spaced-apart relation with respect to each other and in a generally concentric array about a central axis, each of the projections having a cross sectional area which is small with respect to the transverse dimension of its respective grouping.

3,656,246

METHOD OF MAKING A DURABLE PRESS GARMENT WHICH MAY BE CONDUCTED IN THE HOME

John Garvin Lord, Swarthmore, Pa., assignor to Mechanical Product Development Corp., Norwood, Pa.

Filed May 20, 1969, Ser. No. 826,277

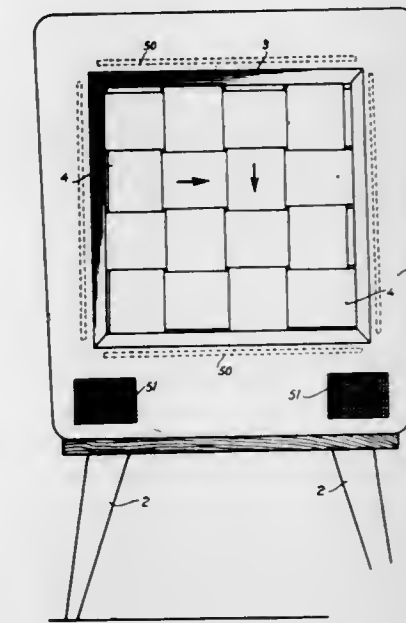
Int. Cl. D06m 13/54, 13/40

U.S. Cl. 38-144

8 Claims

A durable press garment is made by cutting and assembling the garment from a cellulose fiber-containing fabric, pressing the garment to impart suitable creases thereto, supporting the garment on a form which maintains the garment's shape while spraying a liquid containing an uncured creaseproofing agent on the garment, drying the impregnated garment while on the form under normal atmospheric conditions, repressing the garment without curing the creaseproofing agent to eliminate any wrinkles which may have formed therein and to touch up the crease, and the heating of the garment to cure the creaseproofing agent.

tapes of the horizontal rollers are interwoven with the tape of the vertical rollers. Drive means is also provided to rotate the



3,656,247

IDENTIFICATION ASSEMBLY AND METHOD

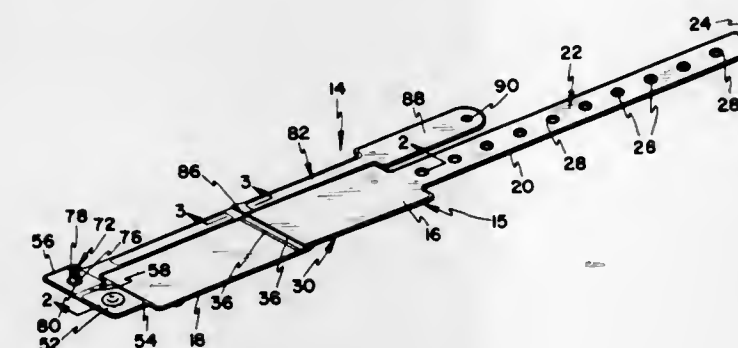
Dwight J. Bushnell, Murray, and Billy M. Jensen, Sandy, both of Utah, assignors to Bio-Logics, Inc., Salt Lake City, Utah

Filed Mar. 5, 1970, Ser. No. 16,886

Int. Cl. G09f 3/14

U.S. Cl. 40-21 C

8 Claims



A unitary identification assembly and method, the assembly comprising a band having a pocket at the exposed surface for receiving and storing an encoded identification plate and a lower pocket for receiving a visually readable identification card, the band being eccentrically connected at one end to a tether across a fold line. The tether is looped through a slot in the identification plate and a single male-female fastener mechanism unites the tether to itself and the identification band to itself in overlapping relation with the tether folded out of the eccentric position upon the identification band when in use.

rollers and move the tapes to make the indicia periodically visible and invisible.

3,656,249

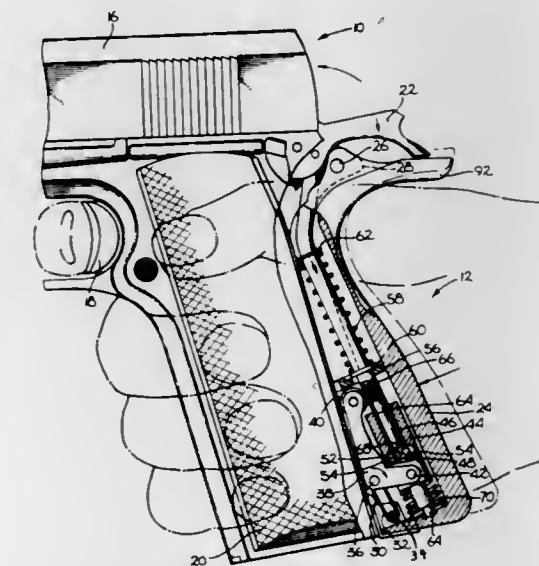
DOUBLE ACTION HANDGUN APPARATUS
Clarence A. Raville, 650 Moorpark Road, Thousand Oaks, Calif.

Filed Dec. 8, 1969, Ser. No. 883,100

Int. Cl. F41c 5/00, 19/00, 19/14

U.S. Cl. 42-69 B

24 Claims



In combination with a handgun having a firing hammer actuable by a trigger, a double action apparatus associated with the grip of the handgun comprising, a draw rod connected to the hammer, the draw rod being movable when a manual squeezing force is applied to a grip housing, the draw rod is movable by the grip housing when the hammer is located in an intermediate position between the firing position and the full cock position, with the hammer located in the above intermediate position manual actuation of the grip housing causes the hammer to move toward full cock, upon the hammer arriving at full cock the draw rod becomes disengaged with the grip housing and nonactuable thereby, actuation of the trigger causes movement of the hammer to the firing position.

3,656,248

DISPLAY APPARATUS

Otto H. Echter, Apt. 1509, Plieningerstrasse 100, Stuttgart 80, Germany

Filed May 15, 1970, Ser. No. 37,760

Claims priority, application Ireland, June 18, 1969, 836/69

Int. Cl. G09f 11/26

U.S. Cl. 40-32

12 Claims

A visual display device having at least two pairs of spaced opposed rollers. One pair of rollers is mounted horizontally in a vertical plane. The other pair of rollers is mounted vertically in the same plane. Each pair of rollers is provided with a plurality of tapes on which visual indicia are carried. The

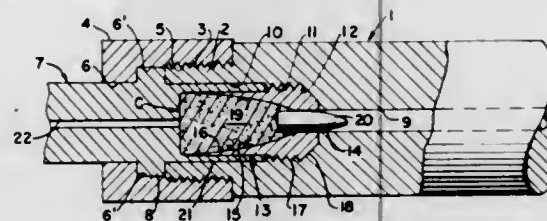
3,656,250

BREECH MECHANISM WITH INTERCHANGEABLE CHAMBER INSERTS FOR CASELESS AND CASE-TYPE CARTRIDGES

Daniel M. Brown, 806 Hampshire, Grand Prairie, Tex.
Filed Apr. 21, 1970, Ser. No. 30,438
Int. Cl. F41c 21/12, 11/00

U.S. Cl. 42-76 R

7 Claims



A breech mechanism for firearms includes a chamber insert adapted to be secured in the camber of a rifle or the like for easily converting the rifle to fire either caseless cartridges or standard case-type cartridges depending upon the insert used. A modified bolt is provided for use with the chamber insert.

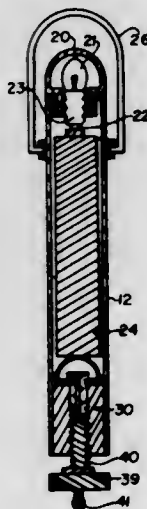
3,656,251

FISH CATCH INDICATOR

Albert L. Snider, 1601 Corona, Austin, Tex., and Charles V. Jaacks, 612 East Virginia Drive, Round Rock, Tex.
Filed Nov. 10, 1969, Ser. No. 875,452
Int. Cl. A01k 97/12, 93/00

U.S. Cl. 43-17

8 Claims



An improved electronic fish catch indicator adapted to be connected to fisherman's line comprising a tubular housing for a battery cell, a lamp, and a removable switch assembly. The switch assembly includes an arc-shaped flexible electrode, fixed switch contact surfaces, and a contact electrode movable against spring bias into contact with the fixed surfaces by a pull on a stem secured to the movable electrode to close the electrical circuit. A fishing line with a hook thereon is secured to the end of the stem extending outwardly of the housing and a pull on the line by a fish will actuate the switch to close the circuit and light the lamp. The switch assembly provided with a variable sensitivity control means for the spring biasing the movable electrode.

3,656,252

CASTING ROD

Samuel S. Sherman, 2893 Knox Avenue South, Minneapolis, Minn.

Filed Aug. 24, 1970, Ser. No. 66,213

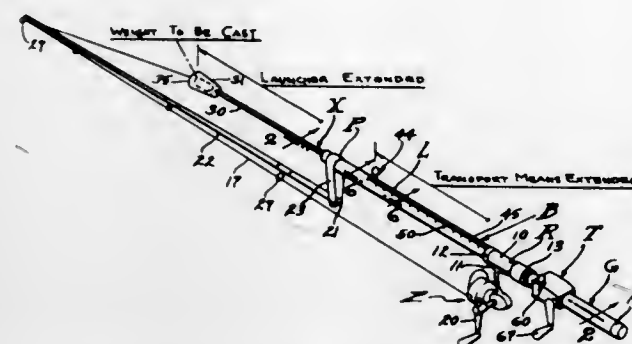
Int. Cl. A01k 91/02

U.S. Cl. 43-19

25 Claims

A fishing pole and casting mechanism adapted to throw a lure, bait, float or sinker with the fishing line attached

thereto and comprising a spring gun incorporated in the handle of the pole which mounts a conventional casting reel; the invention being characterized by the extension of the con-



ventional fishing rod in alignment with the casting reel and by the provision of selectively adjustable cocking means that tensions the spring gun for the desired distance of casting and which is predetermined according to the weight being cast.

3,656,253

FISHING LURE FLASHER

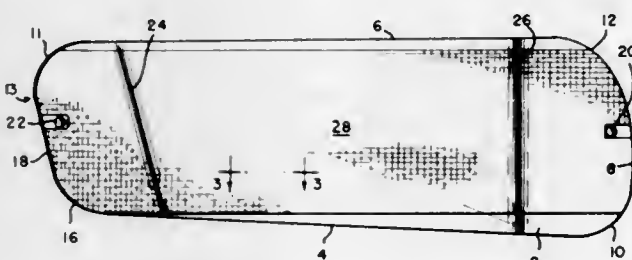
Jack R. Gaunt, 1150 Tattershall Drive, Victoria, British Columbia, Canada

Filed Apr. 15, 1970, Ser. No. 28,577

Int. Cl. A01k 85/00, 85/04

U.S. Cl. 43-42.33

4 Claims



A flasher for use in conjunction with a lure and a hook to catch fish including a base member of a relatively flat, elongated, stiff sheet plastic member having irregularly curved end portions and non-parallel side portions. A portion of each face of the base member is covered by a reflective strip. The base member is provided with an attaching hole at each end disposed along a line passing generally through the longitudinal center of the base member. The end portions of the base member are bent in opposite directions with one of the bends being approximately perpendicular to the said line between the said holes while the other bend is at a small acute angle thereto. The conformation of the flasher is such that when towed through the water, it will spin in large loops at a uniform speed, first in one direction and then in the other, producing an irregular reflective pattern attractive to fish.

3,656,254

INSECTICIDAL JET FOGGER

Robert Schmedes, Rochester, and John M. Nelson, Webster, both of N.Y., assignors to Bernzomatic Corporation

Filed Sept. 15, 1969, Ser. No. 857,984

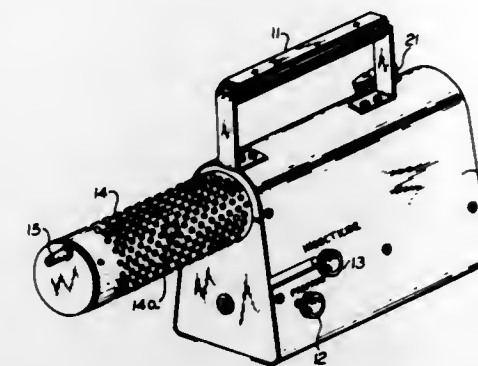
Int. Cl. A01m 7/00

U.S. Cl. 43-129

3 Claims

A hand held and operated jet fogging device comprises a carrier or housing holding a tank for the insecticidal oil and a L. P. gas cartridge. The housing has on its upper portion a

carrying handle aligned with the axis of the housing. A cylindrical guard extends from the housing in alignment with the



axis of the housing and contains a burner, vaporizing coil and jet nozzle.

3,656,255

COLLAPSIBLE BLOCK HAVING PIVOTED FRAME AND ELASTIC WEB

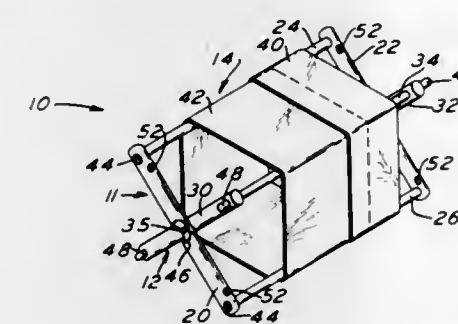
Michael Rosenfeld, 371 Harvard Street, Cambridge, Mass.

Filed June 18, 1970, Ser. No. 47,508

Int. Cl. A63h 33/08

U.S. Cl. 46-25

5 Claims



A collapsible block can be moved between collapsed and open positions. The block comprises two rectangular frames which are pivotally interconnected so that when they are swung into their open position, the frame has the configuration of an "X." At least one band of resilient material is wrapped around the frames. The band offers resistance as the block is moved from its collapsed position to its open position. However, once the block is open, the band assists in keeping it in that position.

3,656,256

ROCKING CRADLE

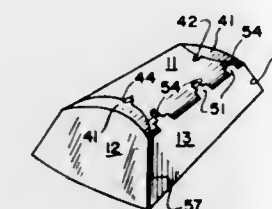
Richard N. Maskell, Downers Grove; William C. Merrick, Carol Stream, and Fred P. Voges, Park Ridge, all of Ill., assignors to Container Corporation of America, Chicago, Ill.

Filed May 22, 1970, Ser. No. 39,831

Int. Cl. A63h 33/00

U.S. Cl. 46-1 L

5 Claims



A rocking cradle is formed from a cut and scored blank of paperboard or the like. It is formed from foldably interconnected top, side and bottom panels. Both the top and bottom panels have extensions therefrom foldably connected along

curved score lines, so that both the top and bottom panels, when folded and connected to define a tube, are curved in transverse cross-section. The top panel is cut and scored and foldable to position to define inner sides of the finished cradle, and extensions from the bottom panel define inner ends for the cradle. The cradle is characterized by the top panel providing end and side rails providing good structural integrity to the total structure.

3,656,257
TOY SHACKLES

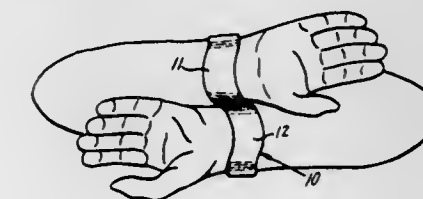
Marion H. Hill, 2621 Athens Court, Sacramento, Calif.

Filed July 28, 1970, Ser. No. 58,769

Int. Cl. A63h 33/00

U.S. Cl. 46-1 R

1 Claim



A pair of U-shaped spring bands pivoted together with a longitudinal pivot and connected by a chain along one side. The spring bands engage the crossed wrists of the user causing him to use his hands oppositely from normal when performing such things as bouncing and catching a ball, catching a ballon, lacing and tying shoes, writing names, folding and ripping paper, threading needles, and the like.

3,656,258

GAME CALL WITH VOICE ASSEMBLY HAVING POSITIONING MEANS THEREFOR

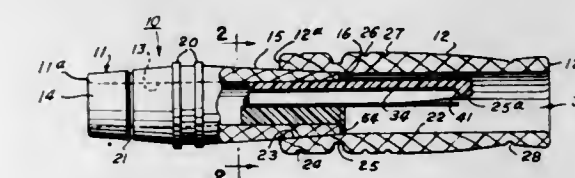
Dwight E. Thomas, Winsboro, Tex., assignor to Thomas Game Call Co., Inc., Winsboro, Tex.

Filed Aug. 10, 1970, Ser. No. 62,331

Int. Cl. A63h 5/00

U.S. Cl. 46-180

7 Claims



A game call for simulating sounds of game, particularly fowl such as ducks, crows and the like, including a voice assembly having a vibrating reed held by a reed holder and a voice trough in a voice assembly holder provided with a mouth piece. The voice assembly has stop pins for positioning the reed and voice trough and a flange for positioning the voice assembly relative to the voice assembly holder. The operator blows air through the mouthpiece vibrating the reed generating a simulated game sound which is emitted through the voice assembly holder.

3,656,259

WINDOW GUIDANCE SYSTEM FOR THE SLIDING WINDOW OF A MOTOR VEHICLE

Karl Stark, Sindelfingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Mar. 9, 1970, Ser. No. 17,608

Claims priority, application Germany, Mar. 8, 1969, P 19 11 843.5

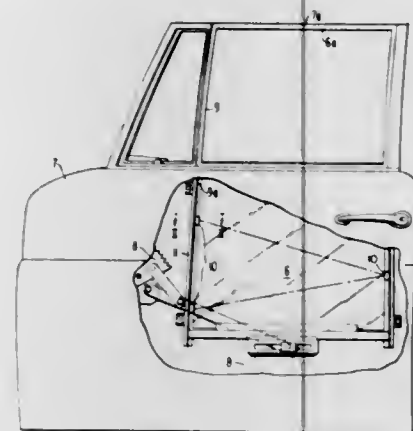
Int. Cl. E05d 15/16

U.S. Cl. 49-440

8 Claims

Window guide for the sliding windows of a motor vehicle, characterized in that the lateral guide rails making up the

guide frame of the window terminate at about the height of the belt line of the car body, that is at the door locks, and at least two guide bodies of synthetic material provided with



hollow opposed cheeks are fastened to a mounting rail arranged stationary in the window pit at one side of the window and at least a corresponding guide body is fastened to a mounting at the other side of the window.

3,656,260

CHANNEL HELD WEATHER SEAL

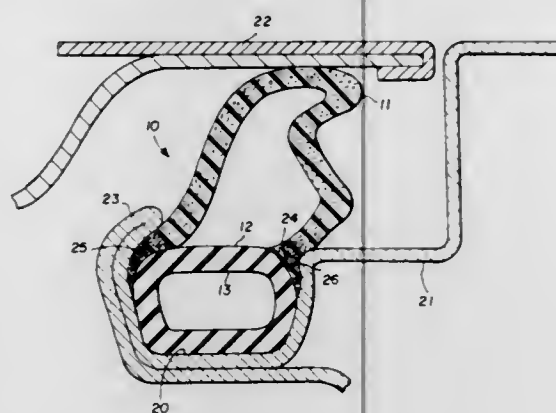
John L. Weaver, Rochester, and Edward H. Smoot, Holcombe, both of N.Y., assignors to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed Oct. 26, 1970, Ser. No. 84,063

Int. Cl. E06b 7/23

U.S. Cl. 49-489

5 Claims



A weather seal to be secured in place in a channel has a relatively resilient, compressible, and soft sealing arm extending out beyond the open side of the channel for sealing purposes, and extending into the channel under an intumed lip along the open side of the channel. A firm and resilient base integral with the sealing arm is forcibly deformed to fit into the channel, and is stressed by the channel to compress the soft material tightly against the under side of the intumed lip to seal the soft material to the channel.

3,656,261

CUTTING DEVICE CONTROL

Charles T. Everett, Warren, Ohio, assignor to Everett Industries Incorporated, Warren, Ohio

Filed Aug. 28, 1970, Ser. No. 67,807

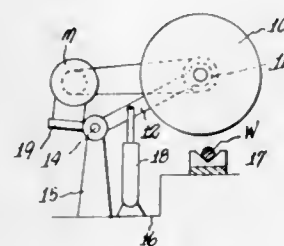
Int. Cl. B24b 1/00, 51/00, 47/06

U.S. Cl. 51-99

10 Claims

The invention relates to methods of and apparatus for controlling relative movement between a cutting device and an object to be cut and is particularly useful to regulate movement of an abrasive cut-off disc to compensate for wear of the disc. The invention utilizes the known fact that the drive

motor for the disc requires less power when the disc is out of contact with the work than when the disc is actually cutting the work. An electrical control circuit is responsive to the



amount of power drawn by the motor, to return the cutting disc to its non-cut position immediately after the disc has cut through the work.

3,656,262

APPARATUS FOR PREVENTING CIRCUMFERENTIAL OVERSPEEDING OF GRINDING WHEELS

Makoto Kikuchi, and Kikuziro Nomura, both of Kariya, Japan, assignors to Toyota Koki Kabushiki Kaisha, Kariya, Japan

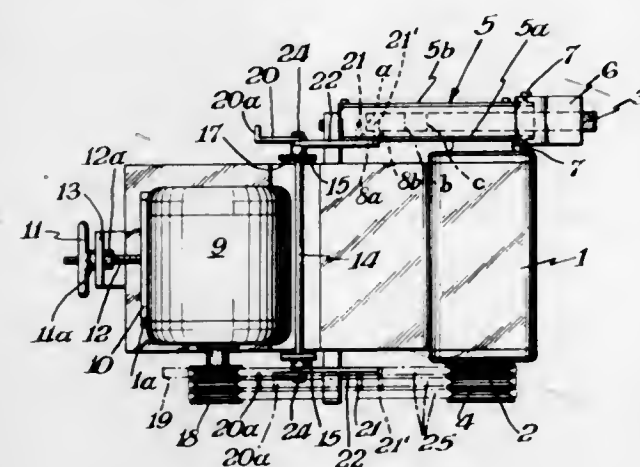
Filed June 17, 1970, Ser. No. 46,847

Claims priority, application Japan, June 21, 1969, 44/58747

Int. Cl. B24b 47/18

U.S. Cl. 51-134.5 R

3 Claims



Apparatus for preventing circumferential overspeeding of grinding wheel comprises spindle with wheel connected thereto and motor assembly connected to spindle for rotating wheel. Motor assembly includes small diameter pulley for rotating large diameter grinding wheel. Assembly also includes alternate large diameter pulley for rotating worn substantially less than large diameter grinding wheel. Movable linkage is located between periphery of grinding wheel and periphery of pulley connected to rotate wheel. Linkage prevents replacement of worn wheel with new large diameter wheel when large diameter pulley is connected to rotate wheel since large diameter pulley operates to position movable linkage at location which is to be occupied by new large diameter wheel.

3,656,263

ATTACHMENT FOR HOLDING A FORAGE KNIFE ON A GRINDING MACHINE

Julius A. Jacobsen, 526 East 6th Street, Sioux Falls, S. Dak.

Filed June 18, 1970, Ser. No. 47,184

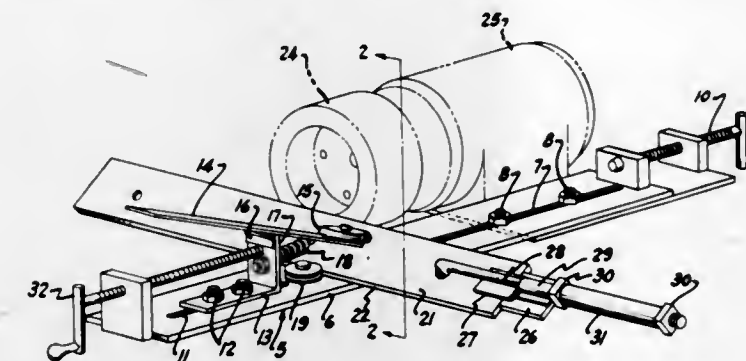
Int. Cl. B24b 41/06

U.S. Cl. 51-238 R

2 Claims

This invention consists of a horizontally disposed rectangular supporting plate that is suitably secured to a grinding machine having a horizontally disposed cupped grinding wheel rotated by an electric motor, the aforesaid plate having

an L-shaped lever bracket adjustably secured thereto, the said bracket having a spring-loaded pressure lever hingedly



secured thereto; and wheeled means of supporting and holding a forage knife while the said knife is being sharpened by the said cupped grinding wheel.

3,656,264

METHOD OF GRINDING DRILLS

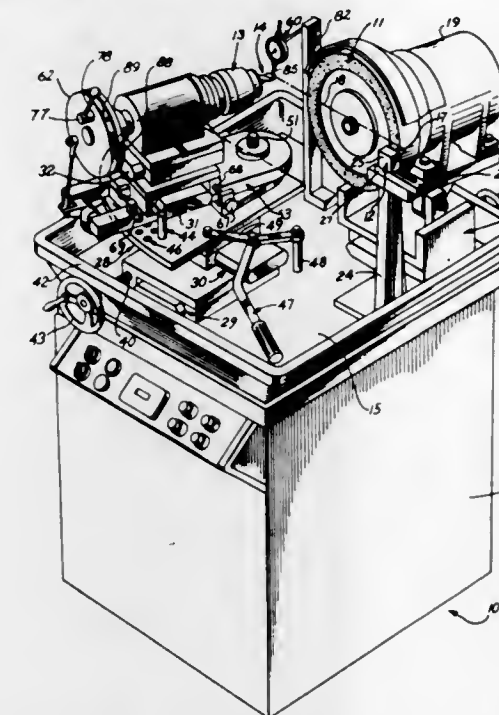
Bruce Alexander Mackey, Jr., Libertyville, and Edward Martin Naureckas, Gurnee, both of Ill., assignors to Radial Lip Machine Inc.

Original application Feb. 14, 1968, Ser. No. 705,393, now Patent No. 3,521,405, dated July 21, 1970. Divided and this application Apr. 24, 1970, Ser. No. 31,642

Int. Cl. B24b 1/00

U.S. Cl. 51-288

6 Claims



A method of grinding a drill with arcuate cutting lips comprising supporting the drill relative to a predetermined reference line, pivotally swinging the drill about a pivot point in the horizontal plane of said reference line, rotating the drill as it is being swung about the pivot point to maintain the cutting edge of the drill aligned with the reference line and in engagement with the flat grinding surface that is disposed parallel to and at an angle from the vertical plane of the reference line.

3,656,265

METHOD OF MAKING AN ABRASIVE BELT

Gus J. Schaffner, Jr., Pittsburgh, Pa., assignor to Schaffner Manufacturing Company, Inc., Pittsburgh, Pa.

Filed Oct. 14, 1969, Ser. No. 866,283

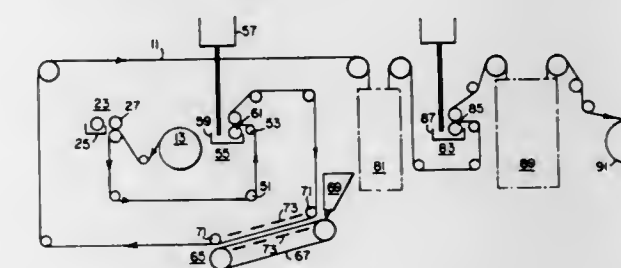
Int. Cl. B24b 1/00

U.S. Cl. 51-295

1 Claim

There is disclosed a coated abrasive belt (17, FIG. 4) whose abrasive-particle grit-size, and/or backing material

and/or adhesive can be determined by a supervisor or the user while the belt is in use from a color pattern (33, 35) on the belt. The pattern may consist of bands (33, 35) of one or more colors along the non-abrasive back of the belt. It may



also include a colored abrasive surface (75, FIG. 5) produced by depositing, during the making of the belt, on the abrasive surface a colored adhesive and/or abrasive particles mixed with a coloring material.

3,656,266

BUILDINGS

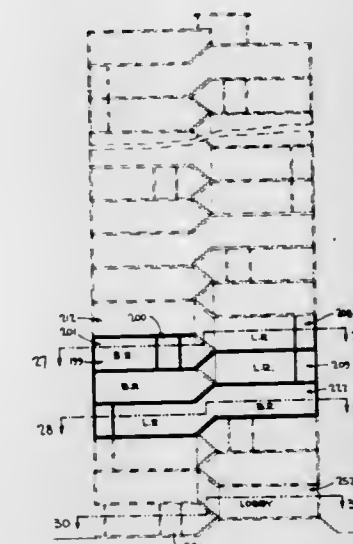
Adolfo Tylus, Washington, D.C., assignor to Alvic Development Corporation, Washington, D.C.

Filed May 7, 1970, Ser. No. 35,484

Int. Cl. E04f 11/00, 17/04

U.S. Cl. 52-30

22 Claims



Townhouse and multi-level buildings are formed by a relatively small number of precast, concrete elements, all of which, except those associated with staircases, are planar. Each building is divided into three sections; two sections are inhabitable while the third section forms a stairwell between the two inhabitable sections. Vertically adjacent inhabitable sections are displaced from each other by one half a story. The stairwell section includes a wall of a vent shaft for plumbing, electrical and heating conduits. In the high rise building, for every 2½ stories, or five inhabitable levels there is a maximum of one party or common corridor. Successive party corridors are horizontally displaced from each other. The third section is topped by a penthouse.

3,656,267

STRUCTURES OF TWO BASIC ELEMENTS

William H. Engle, Huntington, N.Y., assignor to Leslie I. Parker, Poughkeepsie, N.Y.

Continuation-in-part of application Ser. No. 694,901, Jan. 2, 1968, now Patent No. 3,501,876. This application Mar. 23, 1970, Ser. No. 21,687

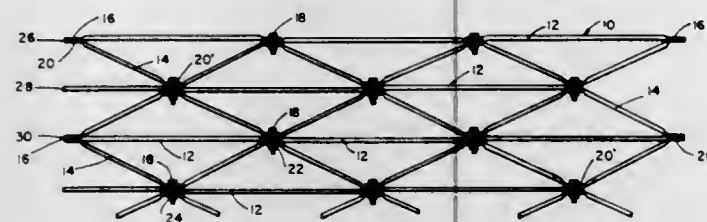
Int. Cl. E04b 7/00

U.S. Cl. 52-86

4 Claims

Structures fabricated of two basic elements comprising a plurality of long tubular frame elements generally arranged in

spaced rows and a plurality of short tubular frame elements angularly disposed between and interconnecting adjacent rows, the said long and short elements being bolted together



to form a plurality of modular sections of the arrangement and configuration necessary to fabricate the construction of the desired final size and shape.

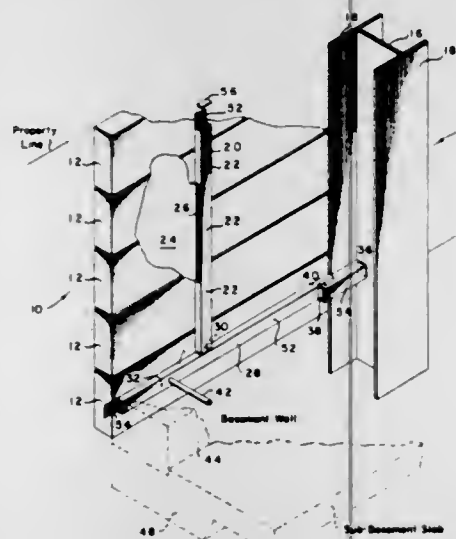
3,656,268

DRAINAGE WALL SYSTEM AND METHOD OF ERECTING SAME

Efrahlm Murati, G.P.O. 2948, Santurce, P.R.
Filed June 23, 1970, Ser. No. 49,059
Int. Cl. E02d 19/04

U.S. Cl. 52-169

20 Claims



A drainage wall system and method of erecting same which may be constructed substantially along property lines without encroachment exteriorly of the property lines and without requiring thick beams of struts within the property lines as are requisite with steel sheet piling or other impermeable cofferdams. A permeable cofferdam is associated with a series of vertical column members and is provided with means for guiding water which seeps therethrough to a drainage system which removes the water and thereby the water pressure from the cofferdam. A reinforced concrete wall is later added without impairing the effectiveness of the drainage system.

3,656,269

SUPPORT STRUCTURE OF FRAME WORK CONSTRUCTION

Klaus Witschel, Grobenzell, and Dieter Schone, Munich, both of Germany, assignors to Mannesmann Leichtbau, GmbH, Munich, Germany

Filed Nov. 9, 1970, Ser. No. 87,895

Claims priority, application Germany, Nov. 12, 1969, P 19 57 913.6

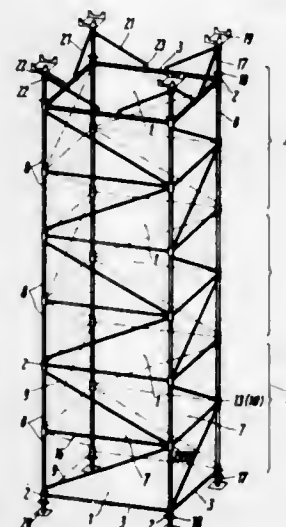
Int. Cl. E04g 1/06

U.S. Cl. 52-638

13 Claims

A support structure of scaffold like frame work construction is assembled from similar, vertical frames disposed

between vertically aligned, polygonal, horizontal frames. Each vertical frame has contour of an isosceles triangle established by three tubes, one serving as base and corner post, being vertically aligned with respective two vertically aligned corners of the horizontal frames. The apex of the tri-



angle is provided with a holder receiving and locked to a collar in the middle of the corner post of another frame. A horizontal brace extends between apex and collar of each vertical frame; spindles extend from the corners of the uppermost and from the lowermost horizontal frames for limited range height adjustment.

3,656,270

STRUCTURAL MEMBER

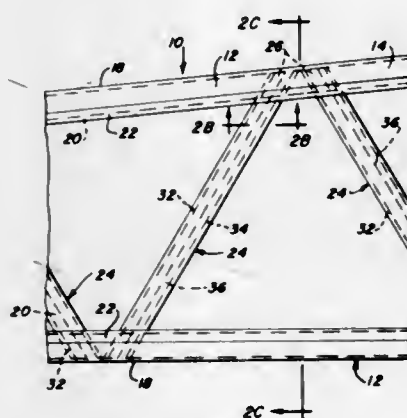
Boris Phillips, Los Angeles, Calif., assignor to United States Steel Corporation

Filed Feb. 18, 1970, Ser. No. 12,373

Int. Cl. E04b 1/38; E04c 3/04

U.S. Cl. 52-693

11 Claims



A structural member is disclosed having a male member of generally U-shaped cross section. The male member is provided with a pair of opposed male webs to provide opposed male contact surfaces. A male flange connects one end of each of the male webs and an external reinforcing flange projects outwardly from the other end of each of the male webs. A female member is adapted to fit inside the male member and is provided with a pair of opposed female webs to provide female contact surfaces. Each female contact surface is adapted to be disposed adjacent a registering male contact surface. An adhesive is disposed between each of the registering male contact surfaces and the female contact surfaces to bond the female member to the male member.

3,656,271

PACKAGING MACHINE

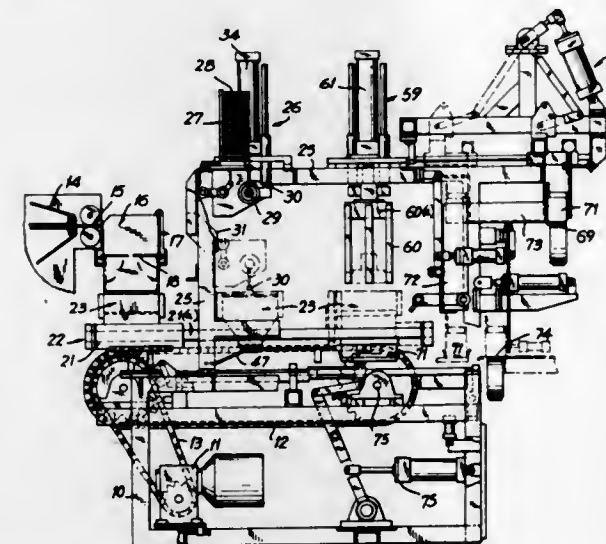
Ronald J. O'Shea, Somerville; Bernd W. Haase, Berkeley Heights, and Albert W. Hawkins, Princeton, all of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Apr. 20, 1970, Ser. No. 30,069

Int. Cl. B65b 63/04

U.S. Cl. 53-21

10 Claims



Apparatus and method are provided for automatically loading a desired quantity of flat, flexible bags into dispensing cartons which comprises, in combination, a stacker mounted adjacent to and aligned with a completed bag dispenser, said stacker having vibration means for automatically collecting a desired number of completed bags in an aligned stack, means for conveying said aligned stack of bags to a carton loading station, means for depositing a stiffening member over a predetermined portion of said aligned stack of bags, means for folding said stack of bags, means for conveying an empty carton from a continuous conveyor of empty cartons to said carton loading station, and means for automatically folding and stuffing said stack of bags into an empty carton at said carton loading station.

3,656,272

BIN FILLING APPARATUS

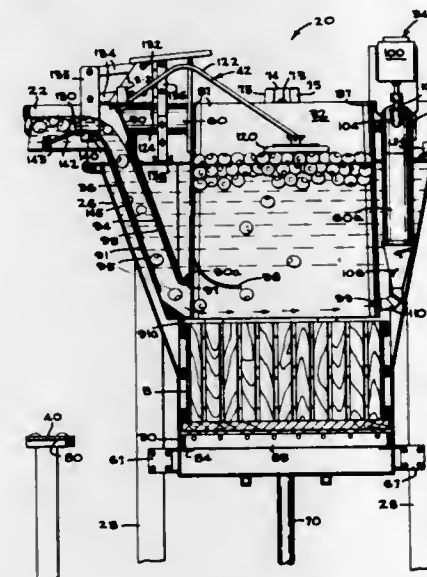
Charles E. Sheetz, Woodstock, Va., assignor to FMC Corporation, San Jose, Calif.

Filed Sept. 30, 1970, Ser. No. 76,867

Int. Cl. B65b 5/06

U.S. Cl. 53-35

22 Claims



A bin filling apparatus wherein an empty bin is moved into position above a submerging tank filled with water. The tank is moved upwardly to totally submerge the bin, and apples are allowed to flow into the tank by means of a flow tube which allows the apples to be delivered beneath the surface

of the water in the tank and above the bin whereby they float upwardly and are collected in a compact nested mass within a fixed fruit collector structure directly overlying the bin. When a sufficient number of apples have been thus collected the tank is lowered, and the collected fruit is deposited in the bin as a single unit without substantial disruption. The full bin is removed and replaced with an empty bin, and the process can then be repeated.

3,656,273

WRAPPING MACHINE

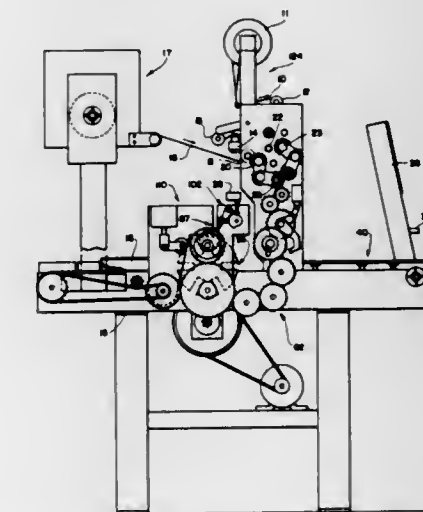
Andrew W. Anderson, West Caldwell; James Alexander, Belleville; Martin E. Leszczynski, Jersey City, and Lester A. Higgins, Montville, all of N.J., assignors to Scandia Packaging Machinery Company, North Arlington, N.J.

Filed Apr. 9, 1970, Ser. No. 26,937

Int. Cl. B65b 57/14

U.S. Cl. 53-59

29 Claims



A wrapping machine is provided having a combination which enables the wrapping machine to be run in a fully automatic condition. The web of wrapping material is joined to a tear strip and subsequently fed to a sheet applying work station where individual wrapper sheets are cut from the web and placed over a package. A cutting means is provided to form a slit configuration in the web of wrapping material. This configuration includes two perforations extending longitudinally with respect to the tear strip on either side thereof and a perforation that crosses the two longitudinal perforations. A moving means including primary pushing means and auxiliary pushing means is used to feed packages at predetermined intervals into the wrapping machine. Sensing means are provided to detect any irregular package feed condition being conveyed by the moving means with a first responsive means functioning to stop the moving of the packages within the machine. A heat sealing means is used in this combination and is operably connected to a second means that is responsive to any shut down condition in the wrapping machine to move the heat sealing means away from any package that is being sealed therewith thereby preventing burning of the package. Each of the specific elements provides a function that overcomes various problems associated with wrapping machines now available in the prior art. There are several individual features set forth in the separate embodiments of this invention.

3,656,274

MACHINE FOR PRODUCING AND FILLING BAGS

Ove Andersen Vind, Aaboulevarden 40 A, 8700 Horsens, Denmark

Filed Apr. 27, 1970, Ser. No. 32,009

Claims priority, application Denmark, Apr. 29, 1969, 2367/69

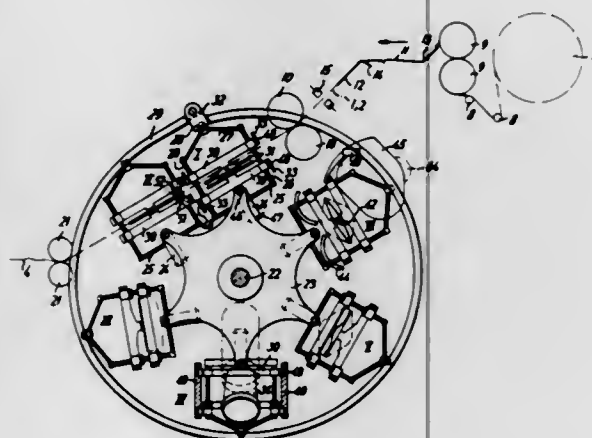
Int. Cl. B65b 1/02, 43/04, 43/26

U.S. Cl. 53-183

8 Claims

A machine for producing bags from two parallel strips of material and for filling a solid or liquid product into the bags.

The strips are welded together to form individual bags which are carried through subsequent stations, including filling and closing stations, suspended on two flexible blades engaging below folded edge zones of the strips. The blades are pulled apart to open the bag mouth in the filling station in which a two-part funnel is introduced into the bag mouth and opened



to clamp the mouth against the flexible blades while the bag is being filled through the funnel. The bags are fed to the closing station with their mouths slightly open so that a rotatable tube may be inserted therein and rotated to twist the bag mouth together while it is held to the tube by suction and the body of the bag is held against rotation.

3,656,275

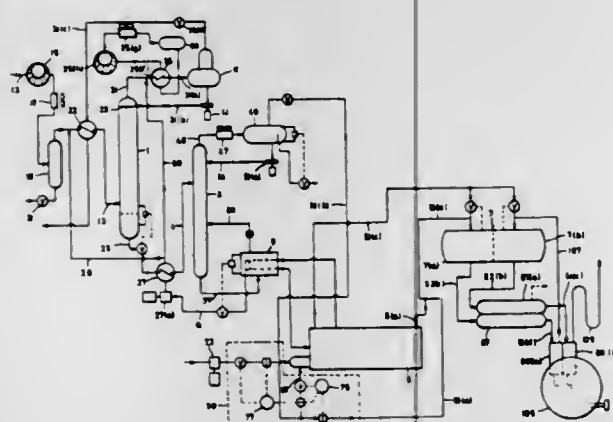
PROCESS FOR THE REMOVAL AND CONCENTRATION OF A COMPONENT GAS FROM A MULTI-GASEOUS STREAM

Wesley L. Hunter, Houston, Tex., assignor to Ashland Oil, Inc., Houston, Tex.

Filed Jan. 20, 1968, Ser. No. 738,701
Int. Cl. B01d 53/14

U.S. Cl. 55-31

8 Claims



A process and related system for the removal and concentration of a component gas from a stream containing a plurality of gaseous components. The process is directed to the removal and subsequent concentration of a gas stream component in which the component exists as a particularly small percentage (as low as 1 percent or less) of the total stream volume. It is especially appropriate for the removal and concentration of organic and inorganic sulphur gases, such as

hydrogen sulphide or sulphur dioxide from effluent acid gas streams. The system is of the regenerative liquid solvent type using an absorber tower and subsequent solvent fractionator. The solvent is injected into the absorber tower where contact is made with the acid gas stream having a component gas, such as the hydrogen sulphide, in relatively small quantity. The component gas is absorbed under closely controlled pressure and temperature conditions. In the case of hydrogen sulphide, the solvent used is preferably N-methyl-2-pyrrolidone which, when saturated is passed to the fractionator column where the hydrogen sulphide is released due to a controlled increase in temperature and reduction in pressure. The hydrogen sulphide is then passed to a separator where free water in the acid stream is accumulated and after which the concentrated hydrogen sulphide is passed to a boiler. There, a portion of the hydrogen sulphide is burnt to sulphur dioxide under controlled conditions. The sulphur dioxide and remaining hydrogen sulphide are then combined in presence of a catalyst and chemically reacted to produce water and commercially high grade elemental sulphur.

3,656,276

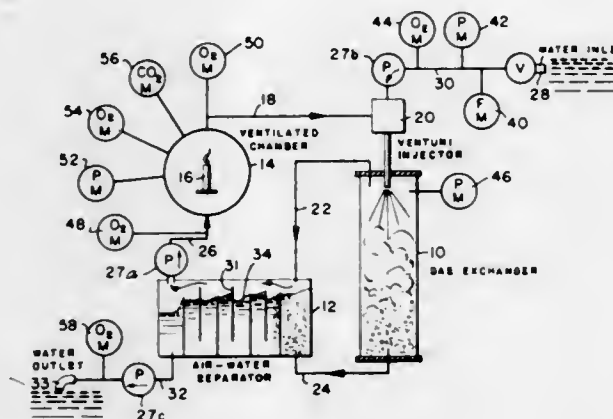
METHOD AND APPARATUS FOR SUPPLYING AIR

Harold P. Vind, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 10, 1967, Ser. No. 608,454
Int. Cl. B01d 19/00; A62b 07/00

U.S. Cl. 55-46

3 Claims



The invention is a method and apparatus for supplying air from water comprising the steps of and elements for any of the following: mixing stale air and water in intimate and agitated contact and then separating the resulting air and water, or bubbling stale air through the water and then removing the resulting air, or boiling the water and then removing the air driven off, or reducing the pressure upon the water and then removing the air given off.

3,656,277

METHOD AND DEVICE FOR GAS CHROMATOGRAPHY

Peter Slingerland, Pijnacker, Netherlands, assignor to Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve Van Nijverheid, Handel en Verkeer, The Hague, Netherlands

Filed Mar. 24, 1970, Ser. No. 22,184

Claims priority, application Netherlands, Mar. 28, 1969, 6904800

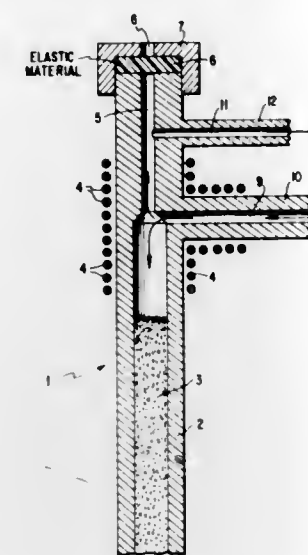
Int. Cl. B01d 15/08

U.S. Cl. 55-67

2 Claims

An improved method and device for gas chromatography in which the ill effect of septum-bleeding is eliminated by al-

lowing a small stream of carrier gas to leak out of the top into the high velocity gas flow passing over and between ad-



section of the column into the atmosphere at a location between the septum and the main stream of carrier gas.

3,656,278

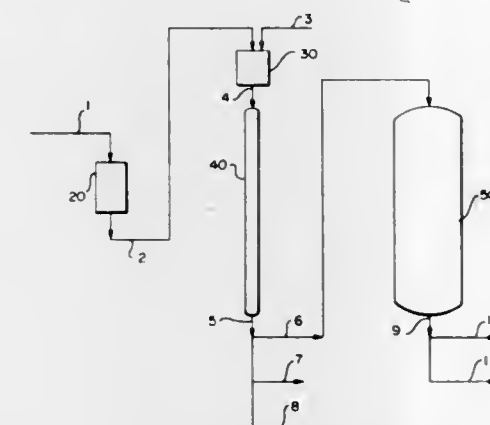
GAS CHROMATOGRAPHIC SEPARATION OF AROMATIC MIXTURES

B. M. Drinkard; Paul T. Allen, and Edward H. Unger, all of Beaumont, Tex., assignors to Mobil Oil Corporation

Filed June 8, 1970, Ser. No. 44,460
Int. Cl. B01d 15/08

U.S. Cl. 55-67

12 Claims



A mixture of C₈ aromatics, ethylbenzene, ortho-xylene, meta-xylene and para-xylene is separated into its component parts by production gas chromatography. The mixture is passed with a carrier in contact with a certain zeolite to separate the para-xylene and ethylbenzene by different sorption rates and the remaining mixture of meta- and ortho-xylene is contacted with a liquid partitioning agent to separate the ortho-xylene and meta-xylene by different sorption rates.

3,656,279

GAS SCRUBBER

Robert L. McIlvaine, Glencoe, and Roger E. Kent, Mount Prospect, both of Ill., assignors to National Dust Collector Corporation, Skokie, Ill.

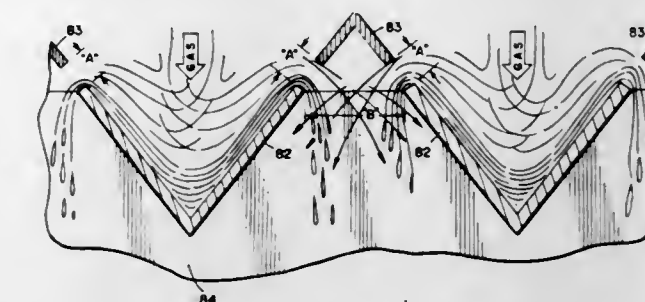
Filed Apr. 17, 1970, Ser. No. 29,497

Int. Cl. B01d 47/00

U.S. Cl. 55-240

13 Claims

A gas scrubber comprising a housing having an inlet and an outlet for gas, and a grid structure for introducing contaminant collecting scrubbing liquid into the gas flow. Said grid structure comprises a plurality of V-shaped, liquid troughs in spaced parallel array, having deflector vanes parallel and above the troughs and means for maintaining a rela-



tively constant level of liquid in said troughs for distribution into the high velocity gas flow passing over and between adjacent troughs. Mechanical separator means is provided for removing contaminated scrubbing liquid from the gas after contaminants have agglomerated in the liquid from the gas.

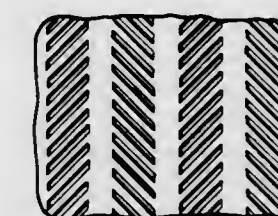
3,656,280

ABSORPTION UNIT

Robert Bruce Perry, Lawrence, Kans., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 27, 1968, Ser. No. 755,681
Int. Cl. B01d 47/00

U.S. Cl. 55-240

1 Claim



An absorption unit for the purification of gases having an improved absorption plate.

3,656,281

WATER SEPARATOR-SUPERHEATER

Parma Nand Bansal, Zurich, and Alois Sonnenmoser, Neuenhof, both of Switzerland, assignors to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland

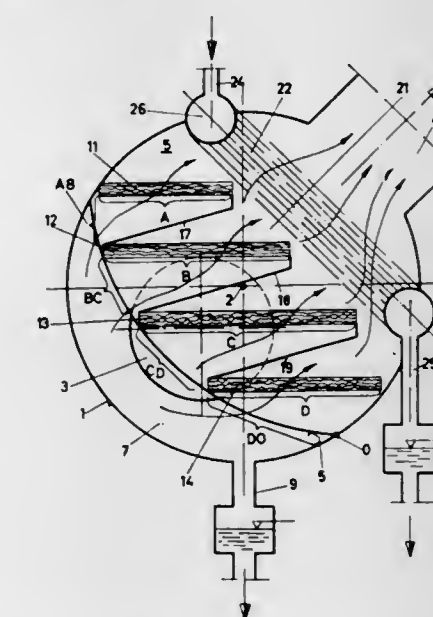
Filed Apr. 30, 1969, Ser. No. 820,599

Claims priority, application Switzerland, June 27, 1968, 9635/68

Int. Cl. B01d 46/12

U.S. Cl. 55-269

6 Claims



A water-separator-superheater structure includes a horizontally disposed casing having a drum-shaped configura-

tion into which wet steam is admitted at the bottom portion of the drum. The wet steam is caused to flow upwardly at an angle through a plurality of horizontally disposed wire netting mattresses arranged in superposed stepped relation which serve to separate out the moisture which drains off through the bottom of the casing, and the dried steam then passes through a tube type superheater to a discharge outlet. The tubes of the superheater between which the dried steam passes are disposed at a steeply inclined angle in order to promote self-draining.

3,656,282

METHOD OF GATHERING CROPS FROM TREES

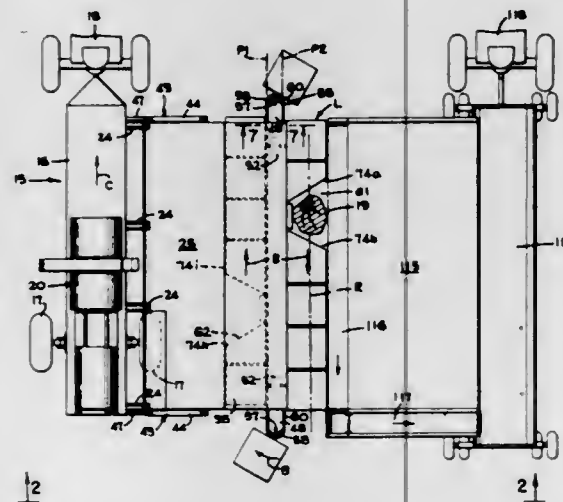
Glen E. Rauth, Winter Park, Fla., assignor to FMC Corporation, San Jose, Calif.

Original application Jan. 29, 1968, Ser. No. 701,273, now Patent No. 3,553,949. Divided and this application Apr. 20, 1970, Ser. No. 29,818

Int. Cl. A01g 19/08

U.S. Cl. 56—1

8 Claims



A method for gathering crops on the run from a row of trees is practiced with apparatus which moves continuously past the trees. A loop of catch frames is provided on the apparatus, the loop having an inner run and an outer run. A gap is provided in the catch frame loop to receive a tree, and the catch frame loop is circulated on the moving apparatus to bring the gap into registration with the tree. The speed of the catch frame loop on the apparatus is maintained equal to the forward speed of the apparatus to hold the gap at the tree until the gap disengages the tree at the rear end of the outer run.

3,656,283

POWER DRIVEN TREE HARVESTING METHOD

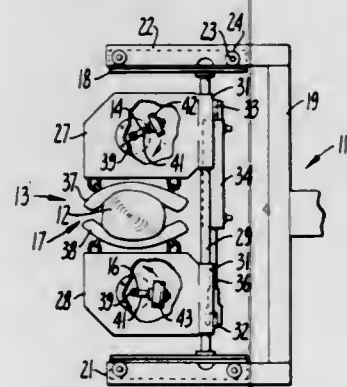
Robert M. Shipley, Cloverdale, Calif., assignor to Kelsey-Hayes Company

Original application Sept. 12, 1968, Ser. No. 759,313, now Patent No. 3,548,578. Divided and this application Aug. 27, 1970, Ser. No. 67,302

Int. Cl. A01g 19/01

U.S. Cl. 56—1

1 Claim



A tree harvesting method which comprises the applying to the tree trunk and substantially normal thereto a power

driven vibratory displacement having a beat of varying frequency and amplitude.

3,656,284

DISC MOWER CONDITIONER

Nigel W. Meek, Aylesbury, and Robert S. Morris, Bicester, both of England, assignors to Sperry Rand Limited, Holborn Viaduct, London, England

Filed May 28, 1970, Ser. No. 41,338

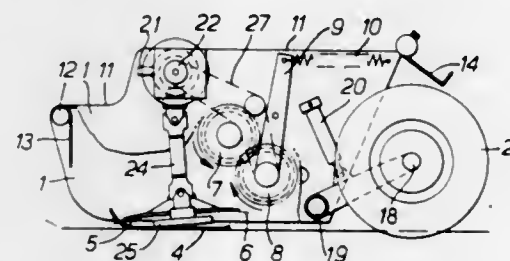
Claims priority, application Great Britain, May 30, 1969,

27,657/69

Int. Cl. A01d 43/00

U.S. Cl. 56—14.5

11 Claims



A combined crop mower and conditioner is disclosed which has a mower bar having at least two disc cutters and a pair of conditioning rolls behind and above the discs with the rotational axes horizontal. The discs and rolls are driven independently of the forward motion of the machine and are relatively positioned so that, in operation, cut crop is propelled by the cutter discs into the intake area of the conditioning rolls. For safety, the cutter bar and conditioning rolls are supported between end plates extending down to ground level, the axle of the machine obstructs the area below the rolls and behind the discs, and a hood, the rear portion of which is hinged to form a baffle plate, extends from above and in front of the discs to behind the rolls. This minimizes the danger from objects, such as stones, being thrown out by the discs.

3,656,285

LAWNMOWER

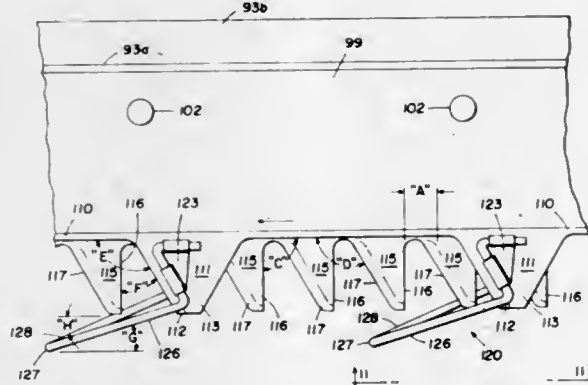
Morris William Carlson, 5403 Northwest Boulevard, Davenport, Iowa

Filed Nov. 6, 1970, Ser. No. 87,485

Int. Cl. A01d 55/24

U.S. Cl. 56—244

22 Claims



A power lawnmower is disclosed employing an endless moving band with integral teeth which cut the grass with a scissors-like action in conjunction with fixed teeth on a forwardly disposed, transverse cutting assembly through which the band passes. A particular feature of the mower is the provision of grass gathering elements which project from the moving teeth and travel therewith. The chief functions of such elements are to bring the grass into the teeth, to retain it there until cut in order to prevent the grass from being knocked down or aside by the moving teeth, and finally to

discharge the clippings rearwardly. Improvements in the design of the moving and fixed teeth are also disclosed as well as foldable side extensions for the mower to increase its cutting width.

3,656,286

MOWING MACHINE

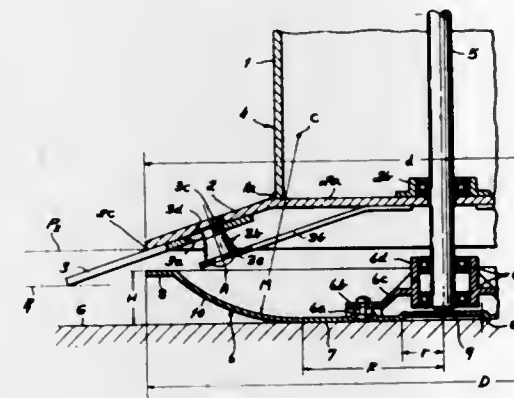
Joseph Glunk, Schiener-Berg-Str. 11, and Heinz Gnadler, Steinerweg 6, both of 7702 Gottmadingen, Germany

Filed Oct. 30, 1970, Ser. No. 85,505

Int. Cl. A01d 55/18

U.S. Cl. 56—294

10 Claims



A mowing machine having at least one mower assembly with rotary blade means driven by a motor or the like and an upright shaft upon which the blade assembly is journaled. The blade assemblies are each supported by an upwardly concave dish-shaped disk or skid having a generally flat surface parallel to the ground in its central region and extending upwardly and outwardly with uniform light curvature. The rim of the dish is bent outwardly in a flange parallel to the ground surface so that the slide or skid is stiffened.

3,656,287

ADJUSTABLE SUPPORT FOR TREE SHAKING MECHANISM

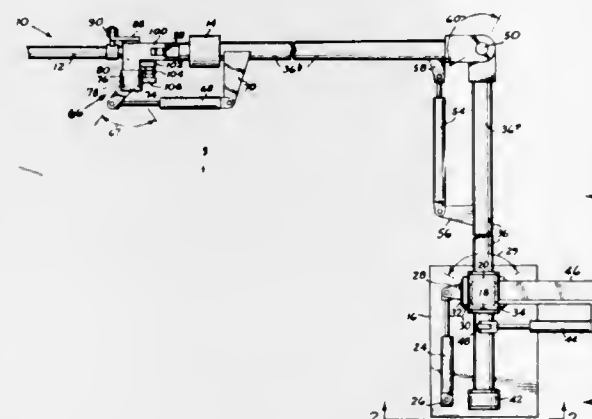
Frank W. Morrison, and Jerry E. Morrison, both of 2408 E. 14th Street, Route 1, The Dalles, Ore.

Filed June 23, 1969, Ser. No. 835,419

Int. Cl. A01g 19/00

U.S. Cl. 56—328 TS

10 Claims



The support of the invention includes a base on which an upright standard is rotatably mounted. Supported on the upright standard and rotatable on its own axis which extends at right angles to the axis of the standard is an elongated arm having an upright axis pivot joint intermediate its ends. The arm is also tiltable relative to the horizontal. Individual fluid operated cylinders are provided to rotate the upright standard relative to the base, to rotate the arm on its own axis, to vary the angular disposition of the two arm sections at their

jointed connection, and to tilt the arm relative to the base. The outer end of the arm has an angular portion on which an upright head is supported including further adjustments for manipulation of a shaker mechanism. Such head has rotatable support on an upright axis and supports a shaker rod for longitudinal or axial movement of the rod, as well as rotating movement of the rod on its own axis. In addition, the shaker rod is supported on the head for tilting adjustment relative to the horizontal. Fluid operated cylinders are employed to rotate the head on its upright axis, to move the rod axially, to rotate the rod on its own axis, and to tilt the rod.

3,656,288

FALSE TWIST TEXTURIZING METHOD AND APPARATUS

Reginald Selby Gilchrist, Welwyn Garden City, England, assignor to The Klinger Manufacturing Company, Ltd., London, England

Continuation-in-part of application Ser. No. 789,653, Dec. 26, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 661,319, Aug. 17, 1967, now abandoned.

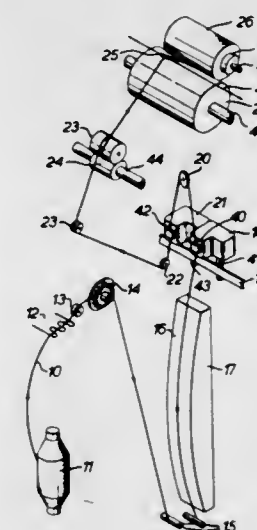
This application Dec. 11, 1969, Ser. No. 884,080

Claims priority, application Great Britain, Sept. 3, 1966, 39,491/66; Dec. 16, 1968, 59,749/68

Int. Cl. D02g 1/02

U.S. Cl. 57—34 HS

17 Claims



Yarn is false twisted first in one sense and then in the opposite sense to produce an essentially zero torque texturized yarn. For this purpose, false twist spindles are provided to twist the yarn in opposite senses.

3,656,289

YARN PIECING APPARATUS REGISTRATION MEANS

James K. Merck, Piedmont, S.C., assignor to Maremont Corporation, Chicago, Ill.

Filed Apr. 22, 1970, Ser. No. 30,768

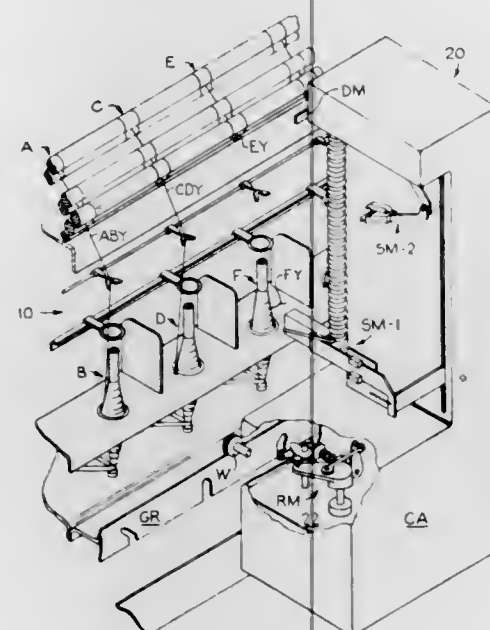
Int. Cl. D01h 9/00, 9/14

U.S. Cl. 57—54

11 Claims

A registration means is disclosed for the alignment of a piecing apparatus with yarn processing stations of a textile machine requiring yarn repair, comprising control cam means which controls the registration engagement of the piecing apparatus with the textile machine by the registration means through provision of a counterbias or holding function, a registration camming means for bringing the apparatus into registration with stations requiring yarn repair and maintaining it there by engagement with the machine in a camming action, and resilient biasing and joining means for joining the control means to the camming means and providing a bias to the camming means for its resilient engagement with the textile machine. Such engagement may be made with camming notches or slots in a guide rail of the machine in register with the stations, or any other suitable way such as with camming projections from the machine. In one embodiment

ment, the camming means may be a cam follower lever arm with a roller for engagement with the machine, and in



another a plunger rod for entry into registration slots in the machine, such as in a guide rail.

3,656,290

CURLING SLEEVE

Pekka Kuussaari, Helsinki, Finland, assignor to Spinner Osakeyhtiö, Helsinki, Finland

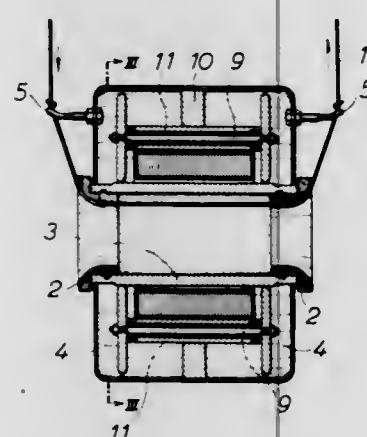
Filed Mar. 31, 1970, Ser. No. 24,236

Claims priority, application Finland, Feb. 19, 1970, 438/70

Int. Cl. D01h 7/92

U.S. Cl. 57-77.4

5 Claims



A curling sleeve for producing false twist on thermoplastic filament passed through the sleeve, the latter having friction rings at one or both ends, and the sleeve constituting the rotor of an electric motor.

3,656,291

CONTROL OF THE MOTION OF A RECIPROCATING MEMBER

Kenneth Andrew Key, Abergavenny, and Clive Williams Hooper, Newport, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation-in-part of application Ser. No. 780,519, Dec. 2, 1968, now abandoned. This application Dec. 16, 1970, Ser. No. 98,718

Claims priority, application Great Britain, Dec. 8, 1967, 55,964/67

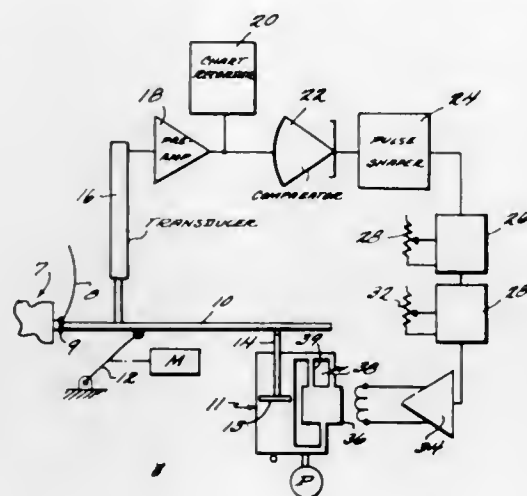
Int. Cl. D01h 13/06

U.S. Cl. 57-156

4 Claims

In a method of operating a yarn traversing mechanism of the kind in which a reciprocating member is driven from a

power source through at least one force-transferring member and in which the motion of the reciprocating member is adapted to be damped by a damping device, the improvement which comprises: detecting the time of zero velocity of the reciprocating member; actuating the damping device at a



point in time between said zero velocity and a point when the increment of velocity of the reciprocating member above the desired velocity is a maximum if no damping is applied; and deactuating the damping device after such a short time that the damping does not cause undesirable distortion of the force-transferring member.

3,656,292

WRIST-WATCH WITH BOTTLE CAP DIAL AND MOVEMENT HOLDER

Zeno Hurt, Moehlin, Switzerland, assignor to AGON Fabrique d'horlogerie Robert Triebold S.A., Mumpf, Switzerland

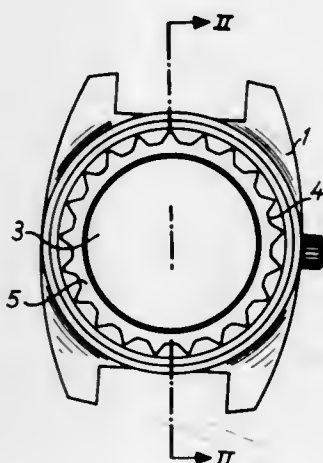
Filed Apr. 2, 1971, Ser. No. 130,719

Claims priority, application Switzerland, Apr. 10, 1970, 5299/70

Int. Cl. G04b 19/06

U.S. Cl. 58-94

2 Claims



A watch comprises a dial formed by a metallic bottle cap carrying an advertising inscription visible through transparent top and middle parts of a watch case. A synthetic material lining in the cap supports a watch movement housed therein.

3,656,293

MARINE TOWING SHACKLE

Archie J. Lowery, Sr., 500 Avenue J, Marrero, La.

Filed Jan. 14, 1970, Ser. No. 2,867

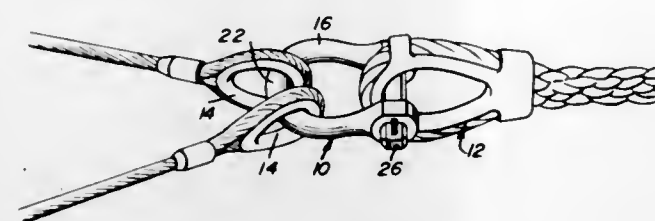
Int. Cl. F16g 15/06

U.S. Cl. 59-86

2 Claims

A U-shaped body including spaced apart generally parallel opposite side legs joined at one pair of corresponding ends by

a generally semi-circular bight portion whose opposite ends merge smoothly into the adjacent leg ends. The legs are slightly convergent toward the other end thereof and include enlarged slightly angulated terminal end portions which



parallel each other. The enlarged terminal ends of the legs are provided with aligned oval bores whose major dimensions extend in the plane of the U-shaped body and a pin which is oval in cross-section is removably secured through the bores.

3,656,294

HYDRAULIC CONTROL DEVICE

Pierre A. Praddaude, Crepy-en-Valois, France, assignor to Societe Anonyme Poclain, Le-Plessis-Belleville, Oise, France

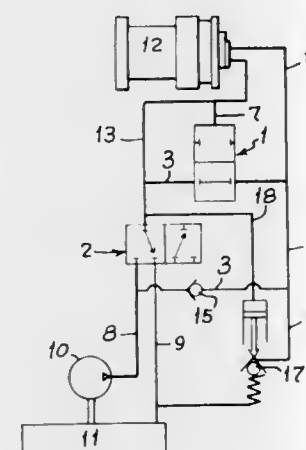
Filed Feb. 7, 1969, Ser. No. 797,594

Claims priority, application France, Feb. 7, 1968, 139019

Int. Cl. F15b 11/08, 13/04

U.S. Cl. 60-1

12 Claims



An hydraulic control device which can be used particularly for the control of a winch driven by an hydraulic motor, having two slide valve distributors, whose slide valves are subjected to the action of a spring to position them in a rest position. The slide valves are each capable of occupying two positions and are coupled to a single operating lever. A first distributor situated in a duct ensures the permanent opening of the duct in the rest position while the second distributor situated in series with the first, is of the reversing device type and places the first distributor in selective communicating with two other ducts connected respectively to a source of fluid under pressure and to a discharge reservoir. The rest position of the second distributor corresponds to the connection of the first with the reservoir. The slide valve of the first distributor is coupled on the one hand to a single acting ram supplied by the fluid conveyed between the first and the second distributor.

3,656,295
HEATING DEVICE FOR A VEHICLE UTILIZING A HOT-GAS ENGINE

Herman Fokker, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Phillips Corporation, New York, N.Y.

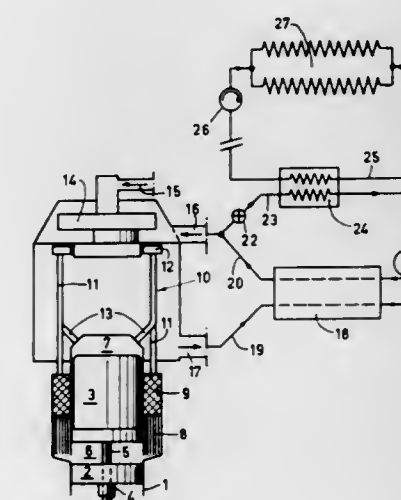
Filed May 27, 1970, Ser. No. 40,872

Claims priority, application Netherlands, June 5, 1969, 6908536

Int. Cl. F03g 7/06; B60h 1/20

U.S. Cl. 60-24

8 Claims



A hot-gas engine having a system for heating a fluid such as water with heat from some of the air that is pre-heated for combustion in the engine's burner, the fluid providing heat via a heat exchanger to the atmosphere.

3,656,296

FLUID PRESSURE INTENSIFIER

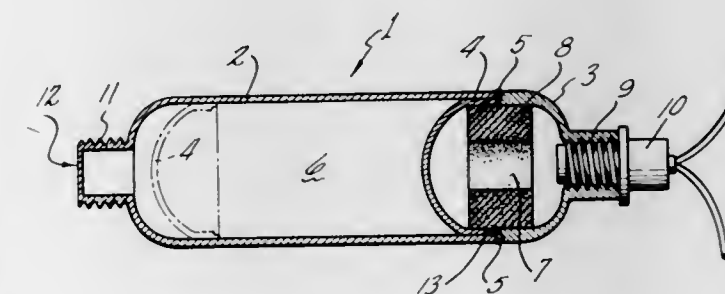
Donald F. Wills, Suffield, Conn., assignor to Pilot Research Corporation, Valdese, N.C.

Filed June 12, 1969, Ser. No. 832,794

Int. Cl. F01b 29/08

U.S. Cl. 60-26.1

10 Claims



A plunger containing a frangible section is secured in a pressure vessel, dividing the vessel into a first and a second compartment. The first compartment contains a compressed gas, and the second compartment contains a solid gas charge to exert a pressure on the plunger and break the frangible section, thus releasing the plunger for axial sliding movement in the vessel to further compress the gas. The plunger is made of a thermally conductive material allowing the heat energy in a second compartment to pass into the first compartment energizing the compressed gas.

3,656,297

COMBUSTION CHAMBER AIR INLET

Jeffrey Keith Monk, Belper, England, assignor to Rolls Royce Limited, Derby, England

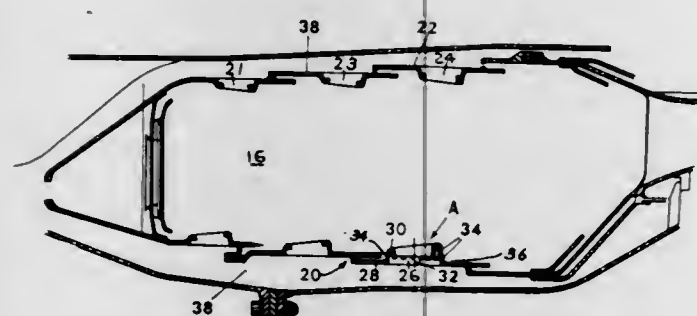
Filed Aug. 28, 1970, Ser. No. 67,959

Claims priority, application Great Britain, Sept. 4, 1969, 43,934/69

Int. Cl. F02c 9/14

U.S. Cl. 60—39.23

5 Claims



An air inlet for a combustion chamber of a gas turbine engine comprises a duct extending into the combustion chamber, the duct having on its innermost end an inwardly directed lip and a plurality of apertures in the wall of the duct adjacent said end. Apertures may also be provided in the junction between the duct and the lip and the end of the inlet having the lip may be inclined at an acute angle to the axis of the combustion chamber.

3,656,298

COMBUSTION APPARATUS

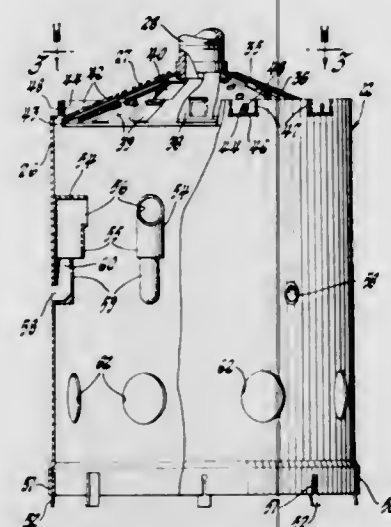
Wallace R. Wade, Sterling Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 27, 1970, Ser. No. 93,019

Int. Cl. F02c 3/00, 7/08

U.S. Cl. 60—39.65

5 Claims



A gas turbine combustion apparatus includes a cylindrical combustion liner with a dome through which primary combustion air is admitted in part. Film cooling air is admitted between the dome and the side wall to flow along the side wall and additional primary combustion air is admitted through mixing devices which mix the air with some combustion products, the resulting mixing being cooled in part by the combustion liner film cooling air. The result is to dilute oxygen at the flame and lower combustion temperatures, and therefore minimize formation of oxides of nitrogen.

3,656,299

HYDROSTATIC TRANSMISSIONS

Jacques Fleury, Paris, France, assignor to Societe Anonyme Automobiles Citroen, Paris, France

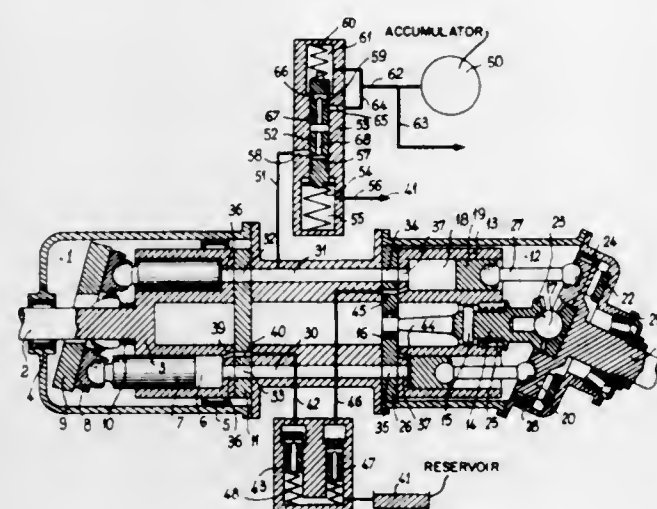
Filed Oct. 2, 1970, Ser. No. 77,403

Claims priority, application France, Oct. 17, 1969, 6935754

Int. Cl. F16d 31/02; F15b 1/02

U.S. Cl. 60—53 A

11 Claims



This hydrostatic transmission comprising a hydrostatic machine normally operating as a generator and at least one hydrostatic machine normally operating as a receiver or load apparatus, these machines being of the barrel-cylinder type comprising distributor plates formed with ports interconnected by high-pressure and low-pressure duct means, is characterized in that at least one of said distributor plates comprises an auxiliary port connected via an auxiliary circuit to a fluid reservoir through the medium of a non-return valve.

3,656,300

METHOD OF CONVERTING NUCLEAR ENERGY TO MECHANICAL ENERGY AND INSTALLATION FOR CARRYING OUT THE METHOD

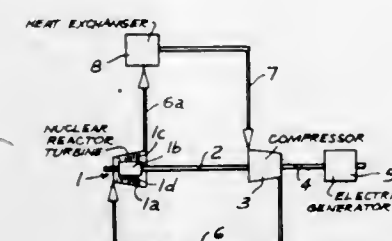
Nils Anders Lennart Wikdahl, Bravallavagen 42, Djursholm, Sweden

Continuation-in-part of application Ser. No. 599,523, Dec. 6, 1966, now abandoned. This application Oct. 11, 1968, Ser. No. 766,740

Int. Cl. F01k 27/00

U.S. Cl. 60—59

14 Claims



A method and an installation for converting nuclear energy to mechanical energy by incorporating fissionable material in at least some of the vanes defining a continuous tortuous duct in a turbine, directing a compressed fluid flow through said duct, extending this fluid flow in at least part of the duct to effect transfer of released nuclear energy to the fluid flow and directing the fluid flow upon the driving vanes of the turbine to effect rotation thereof thereby converting the released nuclear energy to mechanical energy.

3,656,301

COMPENSATED FEEDBACK GAS TURBINE AUGMENTATION CONTROL SYSTEM

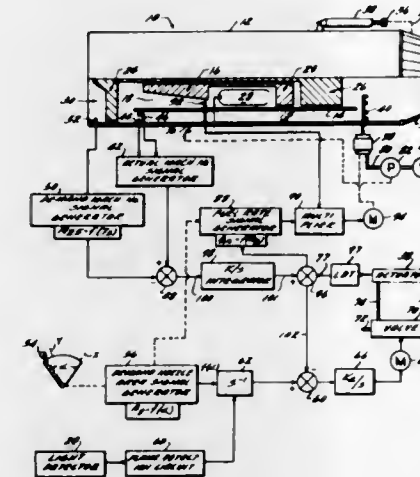
Herbert Katz, Cincinnati, Ohio, assignor to General Electric Company

Filed Nov. 25, 1969, Ser. No. 879,794

Int. Cl. F02k 1/16

U.S. Cl. 60—236

10 Claims



A control system for a gas turbine engine having an augmentor combustion system and a variable area exhaust nozzle. The control system is applicable to both turbofan and to straight turbojet engines. In the turbofan application, a signal generator schedules the exhaust nozzle area as a function of throttle position and augmenter fuel flow as a function of exhaust nozzle area. An error signal generated between desired fan duct mach number and actual fan duct mach number is integrated and applied to both the augmentor fuel rate generator and the exhaust nozzle area generator. In this manner, during steady state operations, the exhaust nozzle position maintains a desired mach number and the throttle lever position maintains augmentor fuel flow rates. During transients, the exhaust nozzle area position controls the augmentor fuel flow. In the turbojet application the fan duct mach number error signal is replaced by a turbine temperature error signal and the system operates essentially as described above.

3,656,302

MULTIPLE JET, AIRCRAFT ENGINE EXHAUST INSTALLATION

Lionel Henry Townend, Farnborough, England, assignor to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

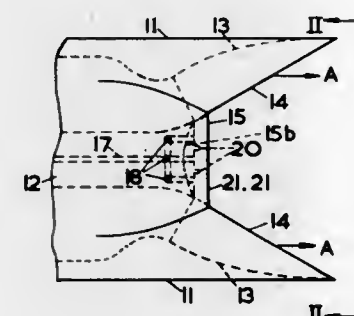
Filed Aug. 11, 1970, Ser. No. 62,989

Claims priority, application Great Britain, Aug. 11, 1969, 40,079/69

Int. Cl. F02k 3/10, 3/12, 1/06

U.S. Cl. 60—261

13 Claims



A multiple jet, aircraft engine exhaust installation comprising at least two engine exhaust nozzles, aircraft structure

joining said exhaust nozzles, means for supplying fuel to be burnt at a region immediately aft of said joining aircraft structure, outlet orifices terminating said exhaust nozzles at exit planes, said exit planes being convergent in the upstream sense, ducts defining an outlet passage for exhaust gases in said nozzles and extending from duct throats within said nozzles to said outlet orifices and wherein said ducts are shaped in accordance with the supersonic Prandtl-Meyer flow theory of supersonic expansion.

3,656,303

COMBUSTION ENGINE POLLUTION CONTROL

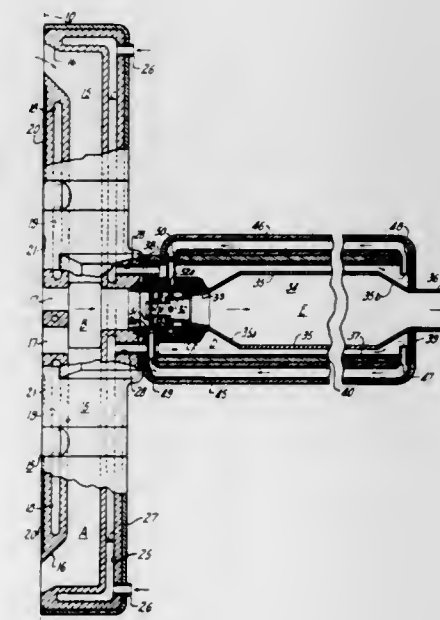
Robert C. La Force, 514 West View Drive, Beaver, Pa.

Filed Apr. 13, 1970, Ser. No. 27,590

Int. Cl. F01n 3/10

U.S. Cl. 60—273

12 Claims



Procedure and apparatus have been developed for utilizing retained heat of hot exhaust gases being discharged from an internal combustion engine and for controlling the temperature of the gases to prevent damage to metal walls, maximize the oxidation of carbons and hydrocarbons, prevent the forming of nitrogen oxides, and promote the breakdown of nitrogen oxides formed in the engine, all before discharging the gases to the atmosphere. A jacketed manifold is employed in combination with a thermal reactor which receives exhaust gases in a central reaction chamber through a connecting venturi aspirator. The jacketing of the manifold is connected to draw-in ambient air into its vacuum space and to flow the air as heated by the manifold in a reverse flow path along the reaction chamber and thence into stages of the venturi aspirator to mix with and supply oxygen to the aspirator proportionately to the speed of operation or load demand of the engine, with the aspirator serving as means for providing a controlled intake of ambient air into the manifold.

3,656,304

ROCKET MOTOR

Edward E. McCullough, Brigham City, Utah, assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed July 19, 1966, Ser. No. 566,330

Int. Cl. F02k 9/04

U.S. Cl. 60—254

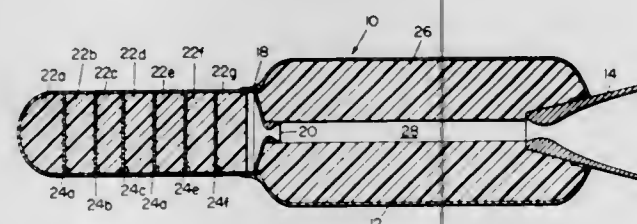
5 Claims

1. A rocket motor comprising:
a motor case having a thrust nozzle mounted on the aft end

thereof;

a plurality of oxygen-rich solid propellant grains tandemly disposed within said motor case;

a plurality of baffles respectively disposed between adjacent end surfaces of said oxygen-rich grains, each of said baffles being formed of a heat-resistant material so that each of said grains can be burned without igniting the adjacent one of said grains forward thereof, and each of said baffles being removable by gas generated by combustion of the adjacent one of said grains forward thereof;



at least one oxygen-deficient solid propellant grain disposed within said motor case between said thrust nozzle and the rearmost of said oxygen-rich grains, said oxygen-deficient grain being formed with at least one longitudinally-extending perforation that communicates with said thrust nozzle and said rearmost oxygen-rich grain; and

igniting means for igniting each of said oxygen-rich grains.

3,656,305

HYDRAULIC COUNTERWEIGHT FOR BOAT ELEVATOR

Jean Aubert, 8 rue La Boettie, Paris, France

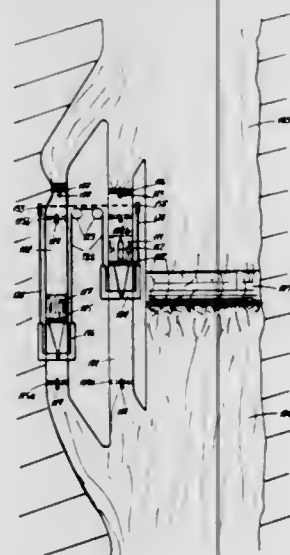
Filed Feb. 18, 1971, Ser. No. 116,338

Claims priority, application Belgium, Feb. 24, 1970, 85576; Feb. 26, 1970, 7006988

Int. Cl. E02c 3/00

U.S. Cl. 61-8

16 Claims



A hydraulic counterweight device for a boat elevator of the "water-slope" type which comprises a navigation and an auxiliary channel disposed between an upstream and a downstream pool. In both channels a mass of water is retained by a movable gate which is pushed up or pulled down the channel by a carriage movable on the banks of the channel, the two carriages being interconnected by cables. The invention provides that the auxiliary channel which is not used to transport boats, has a length substantially equal to that of the navigation channel and a slope which is less than or equal to that of the navigation channel, so that the downstream end of the auxiliary channel is located at a level

which is higher than or the same as the level of the downstream pool.

3,656,306

METHOD OF DEHYDRATING WET SOIL

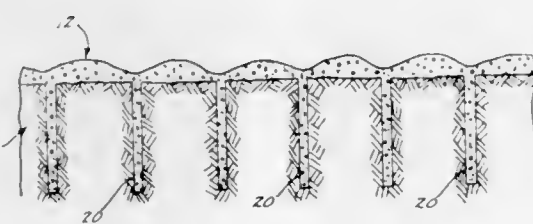
Ervin T. Thorpe, Des Moines, Iowa, assignor to Des Moines Asphalt Paving Company, Des Moines, Iowa

Filed Nov. 16, 1970, Ser. No. 89,627

Int. Cl. E02d 3/12

U.S. Cl. 61-36

8 Claims



The method of dehydrating wet soil by heating aggregate, spreading the heated aggregate on the wet soil to be dehydrated, and then cutting a plurality of slits in the soil to permit the heated aggregate to move into the slits.

3,656,307

SUBSEA FLUID PROCESSING FACILITY

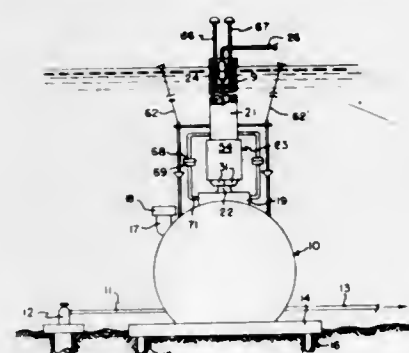
George E. Mott, Metairie, La., assignor to Texaco Inc., New York, N.Y.

Filed June 1, 1970, Ser. No. 42,405

Int. Cl. E02b 1/00

U.S. Cl. 61-63

6 Claims



The invention relates to a subsea installation for removing and processing petroleum products such as crude oil and natural gas. The installation includes an under water facility anchored to the sea floor, holding fluid storage tanks as well as processing equipment. The facility is enclosed within a housing and communicated with a source of raw product by way of one or more subsea well heads which provide a continuous flow thereto. The unit further includes a buoyant mast extending upward therefrom, which mast is pivotally connected to said housing and supports conduits for liquid, gas, and electrical conductors which extend to the water's surface.

3,656,308

SYSTEM FOR JOINING THE LOCK CHAMBERS OF A SUBMARINE AND AN UNDERWATER ENCLOSURE

Francisco M. Serrano, Paris, France, assignor to Compagnie Francaise Des Petroles, Paris, France

Filed Feb. 5, 1970, Ser. No. 8,801

Claims priority, application France, Feb. 5, 1969, 6902512

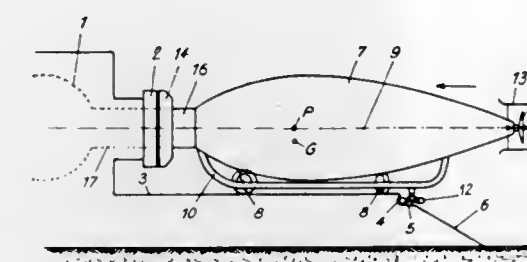
Int. Cl. B63c 11/34; B63g 8/00

U.S. Cl. 61-69 R

9 Claims

An underwater enclosure on the sea bottom has an approach ramp leading to a horizontal submarine landing plat-

form. The edge of the platform forms a circular, toric, lateral guide track, and a lock chamber for entering the enclosure is positioned above the platform. A submarine rides up the ramp on skis until vertical axle wheels in its stern engage the



guide track. Wheels are then lowered from the skis and the submarine is maneuvered on the platform until its lock chamber is aligned with and joined to the lock chamber of the enclosure.

3,656,309

PIPE LAYING METHOD AND APPARATUS

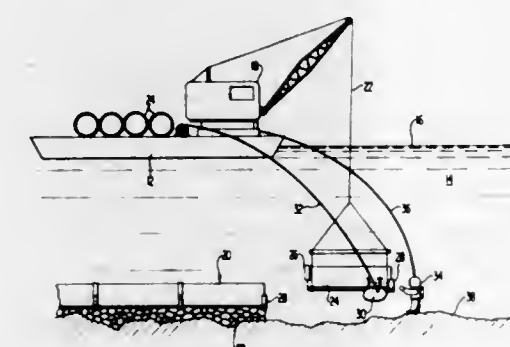
John H. Bultema, 625 Seminole Road, Muskegon, Mich.

Filed Aug. 28, 1970, Ser. No. 67,707

Int. Cl. E01g 3/10

U.S. Cl. 61-72.1

13 Claims



This disclosure relates to a method and apparatus for laying subaqueous pipelines to a specified line and grade by means of inflatable bags which are positioned beneath an end of each pipe section as it is laid in place. The fluid pressure in the inflatable bags is adjusted, preferably by inflating the bags, in order to position each pipe section at a predetermined grade.

3,656,310

METHOD FOR LAYING SUBMARINE PIPELINES

Andre Brun, Hauts-de-Seine; Pierre P. Orieux, Paris, and Louis Le Therisien, Hauts-de-Seine, all of France, assignors to Compagnie Francaise Des Petroles, Societe Anonyme, Paris, France

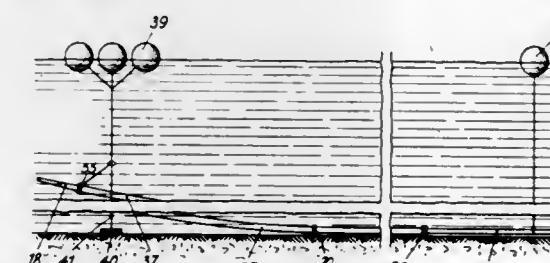
Filed Nov. 13, 1969, Ser. No. 876,411

Claims priority, application France, Nov. 14, 1968, 173675

Int. Cl. F16l 1/00

U.S. Cl. 61-72.3

9 Claims



A method of laying pipes to form an underwater pipeline where pipes are floated to the point of immersion. A mud is

injected into a floating pipe to sink the pipe to a predetermined level for connection with a submerged pipe. The pipe sections are connected by conventional means, and the procedure is repeated until the pipeline is finished. Traction arms and stoppers can be added to the pipe prior to immersion to assist in the laying of the pipeline.

3,656,311

RECTIFICATION BY DIVIDING THE FEED GAS INTO PARTIAL STREAMS

Otto Kaiser, Rodenbach, Germany, assignor to Messer Griesheim GmbH, Frankfurt, Germany

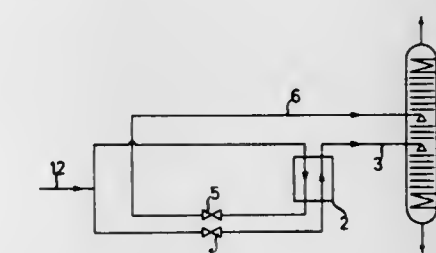
Filed Nov. 13, 1968, Ser. No. 775,402

Claims priority, application Germany, Nov. 15, 1967, P 15 51 607.1

Int. Cl. F25j 3/02, 5/00

U.S. Cl. 62-28

2 Claims



Improved rectification of a feed gas is achieved by dividing the feed gas into two or more partial streams that are then introduced at different levels in the rectification zone.

3,656,312

PROCESS FOR SEPARATING A LIQUID GAS MIXTURE CONTAINING METHANE

Martin Streich, Nieder-Eschbach, Germany, assignor to Messer Griesheim GmbH, Frankfurt, Germany

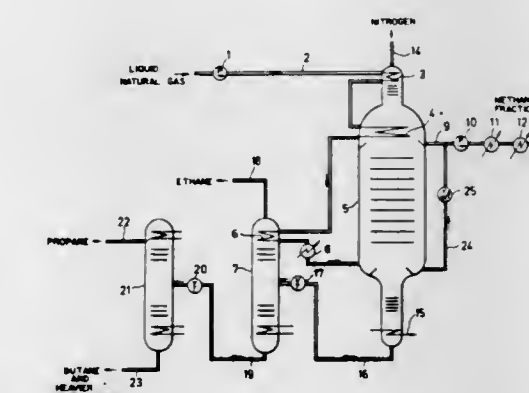
Filed Dec. 16, 1968, Ser. No. 784,102

Claims priority, application Germany, Dec. 15, 1967, P 15 51 609.3

Int. Cl. F29j 3/00, 3/02

U.S. Cl. 62-28

2 Claims



A liquid gas mixture containing methane is pumped at a pressure below the critical pressure of methane through a heat exchanger in the top part of a rectifying column to relieve methane vapor prior to discharge of the mixture into the lower part of the rectifying column, while liquid enriched in higher boiling components of the mixture accumulating at the bottom of the column is heated. The relieved methane withdrawn from the column may be pumped at the pressure desired for its utilization.

3,656,313

HELIUM REFRIGERATOR AND METHOD FOR DECONTAMINATING THE REFRIGERATOR

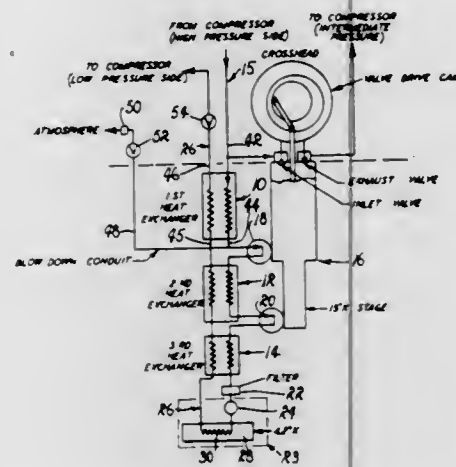
George M. Low, Acting Administrator of the National Aeronautics & Space Administration with respect to an invention of, and Ervin R. Wiebe, 14202 Osborne Street, Panorama City, Calif.

Filed Feb. 5, 1971, Ser. No. 112,999

Int. Cl. F25b 47/00

U.S. Cl. 62-85

3 Claims



For use in a multi-stage refrigeration system an improved heat exchanger of a type having an hermetically sealed housing and including therewithin a pair of chambers defining a pair of concentrically related countercurrent passages extending therethrough. A particular feature of the invention is embodied in a decontaminating system which includes a circuit pneumatically coupled with a given heat exchanger and adapted to vent the heat exchanger to atmosphere and to flush the vented heat exchanger with a gas delivered under pressure and at ambient temperature so that frozen contaminants operatively are melted and simultaneously expelled from the system.

3,656,314

CONTROL APPARATUS FOR A TWO TEMPERATURE REFRIGERATOR

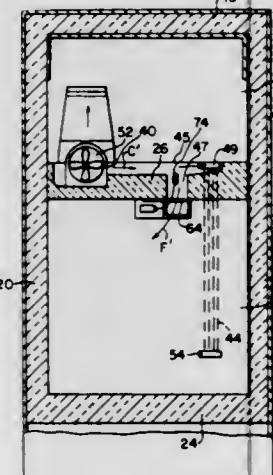
Robert C. Jung, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 10, 1970, Ser. No. 53,964

Int. Cl. F25d 17/06

U.S. Cl. 62-97

11 Claims



A refrigerator is disclosed which is provided with two separate compartments, one being a freezing compartment and the other being a fresh food compartment and with a sin-

gle thermostat and damper arrangement to provide two temperature control within the refrigerator enclosure. The air distribution system includes a conduit disposed in the divider between the freezing compartment and the fresh food compartment and in which the evaporator is situated. Air inlets at the front of the refrigerator provide for the entrance of air from the fresh food and freezer compartment to this evaporator. At the rear of the refrigerator, a fan is disposed for providing for forced circulation of the air flow through the evaporator. A large portion of the air coming off the evaporator is directed through a conduit arrangement back to the freezer compartment to furnish cooling for it, with this compartment receiving approximately 90 percent of the air flow through the evaporator. Joined to the conduit providing cold air to the freezer is a conduit which leads down through the rearward portion of the refrigerator and discharges an air flow around a meat keeper or vegetable crisper contained in the fresh food compartment. A second conduit is also joined to the conduit supplying cooled air to the freezer, with this conduit being provided with a damper arrangement to adjustably maintain the air flow therethrough to the fresh food compartment. A thermostat is disposed adjacent the juncture of the last two mentioned conduits, with this thermostat controlling the operation of the evaporator so as to maintain a substantially uniform cooling temperature in the freezer. The temperature in the fresh food compartment, of course, may be adjustably maintained based on the setting of the aforementioned damper.

3,656,315

COFFEE FREEZE CONCENTRATION APPARATUS

Neophytos Ganiaris, Riverside, N.Y., assignor to Struthers Scientific and International Corporation, New York, N.Y.

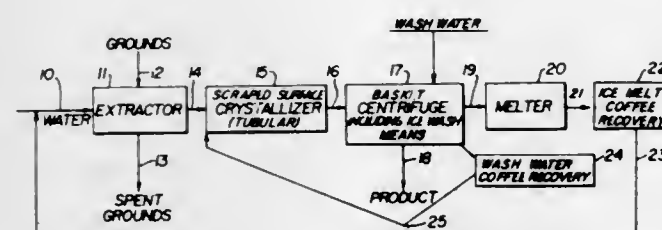
Original application Dec. 8, 1965, Ser. No. 512,365, now abandoned, which is a continuation-in-part of application Ser. No. 321,020, Nov. 4, 1963, now Patent No. 3,283,522, dated Nov. 8, 1966. Divided and this application Sept. 29, 1969, Ser. No. 870,816

Claims priority, application Great Britain, Nov. 25, 1966, 52,925/66

Int. Cl. B01d 9/04

U.S. Cl. 62-124

1 Claim



A system of apparatus is disclosed which concentrates coffee extracts by freeze concentration in which the ice formed in a crystallizer is centrifuged from coffee extract and then is washed in the centrifuge and melted. The washings and melted ice contain dissolved coffee which is recovered.

3,656,316

CREAM COCKTAIL DISPENSER

Arnold H. Stock, Newton, Wis.

Filed July 10, 1970, Ser. No. 53,816

Int. Cl. F25c 7/10

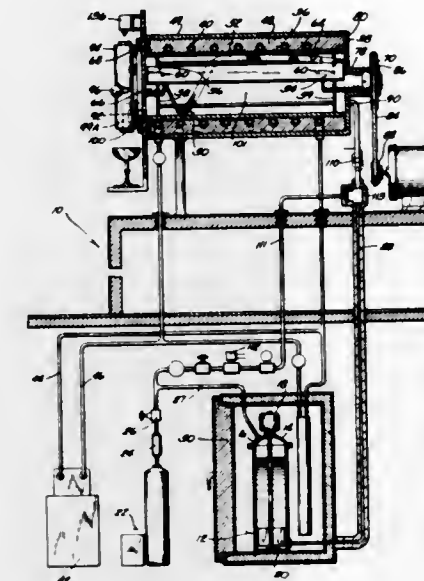
U.S. Cl. 62-306

4 Claims

Disclosed herein is a method and apparatus for preparing and dispensing large quantities of frozen cream cocktails. The apparatus includes a remote mixing and storage chamber

which contains a quantity of custard cream and liquor in preselected proportions. An agitator in the mixing chamber continuously mixes the ingredients which are conveyed by air

Yet another embodiment utilizes wicks woven of ablative material fibers, and extending through the openings in the wall and into the plenum chamber containing the carrier liquid.



pressure to a freezing chamber upon actuation of a dispensing valve. The cream-liquor mix is aerated by an air injector as the mix is conveyed to the freezing chamber.

3,656,317

ABLATIVE SYSTEM

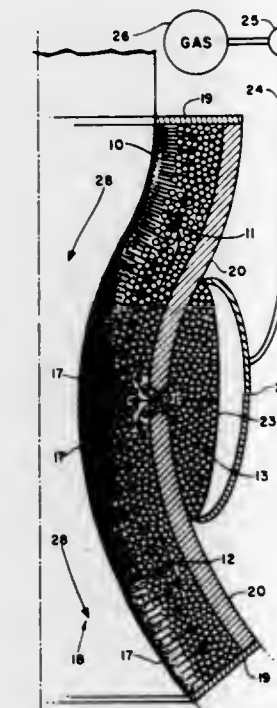
Vernon H. Gray, Bay Village, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed June 17, 1970, Ser. No. 47,063

Int. Cl. F25b 19/00

U.S. Cl. 62-467

10 Claims



A carrier liquid containing ablative material bodies is supplied to a plenum chamber one wall of which has openings therethrough and which wall is exposed to a high temperature environment. The liquid and the bodies pass through the openings in the wall to form a self-replacing ablative surface.

In another embodiment the wall comprises honeycomb layers. Spheres containing ablative whiskers or wads, and a hardening catalyst for the carrier liquid are dispersed in the liquid.

3,656,318

CONSTANT VELOCITY UNIVERSAL JOINTS

Henry Thomas Smith, near Lichfield, and Thomas Hughes Millward, Sutton Coldfield, both of England, assignors to GKN Birfield Transmissions Limited, Erdington, Birmingham, England

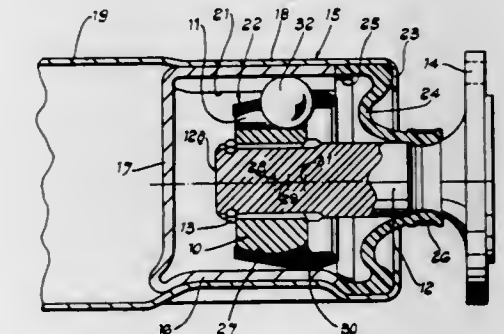
Filed Sept. 9, 1970, Ser. No. 70,867

Claims priority, application Great Britain, Sept. 9, 1969, 44,513/69

Int. Cl. F16d 3/30

U.S. Cl. 64-21

10 Claims



A constant velocity universal joint including an inner member and an outer member with torque-transmitting balls therebetween has an outer member constituted by a tubular metal element shaped to provide the ball tracks and this shaped metal element is contained within and fixed against movement relative to an end portion of a propeller shaft.

3,656,319

APPARATUS FOR CLEANING SMALL PARTS

Hans Schmidbauer, 77 Singen, Hohentwiel, Germany

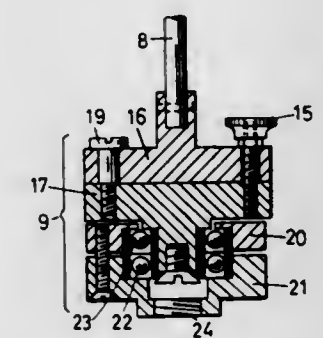
Filed Oct. 21, 1969, Ser. No. 868,127

Claims priority, application Germany, Sept. 5, 1969, P 19 45 027.2

Int. Cl. F16d 3/06

U.S. Cl. 64-23.6

8 Claims



Apparatus for cleaning small parts such as assembled watches, or watch parts in a basket, wherein supporting structure may be adjusted for vibratory or elliptical motion when cleaning assembled watches or circular motion when cleaning parts in a basket. The supporting structure involves a motor driven plate rotatable about its central axis, and a work supporting plate carried thereby and adjustable between a concentric position and an eccentric position.

3,656,320

CLUTCH CONTROLLED DRIVE MECHANISM

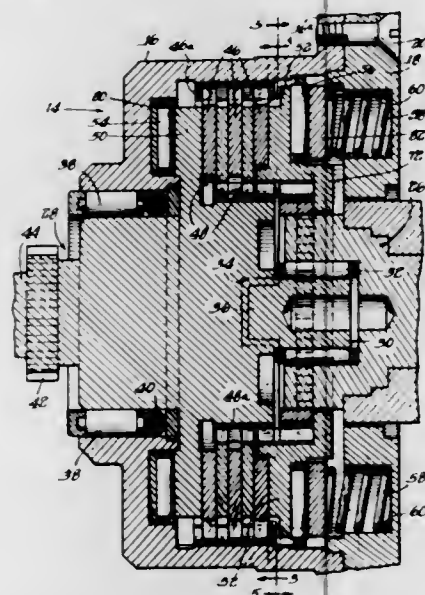
Rudolph J. Belansky, Elmhurst, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed July 13, 1970, Ser. No. 54,437

Int. Cl. F16d 3/10

U.S. Cl. 64-24

21 Claims



The present invention relates generally to clutch controlled drive mechanisms and particularly to a novel, self-contained drive mechanism or unit wherein power transmitted from the input shaft means to the output shaft means is governed through the agency of clutch means. The embodiment of the invention disclosed herein contemplates a self-contained unit comprising a housing, input shaft means and output shaft means rotatably supported in said housing, clutch means in said housing for locking said input and said output shaft means against rotation with respect to the housing, and cam means operable as an incident to a limited degree of relative rotative movement experienced by the input and output shaft means for overcoming the locking effectiveness of the clutch means.

3,656,321

DEVICE FOR CONTROLLING THE JACKS OF JACQUARD MACHINES

Karl Flad, 7411 Undingen, Hauptstrasse 29, Germany

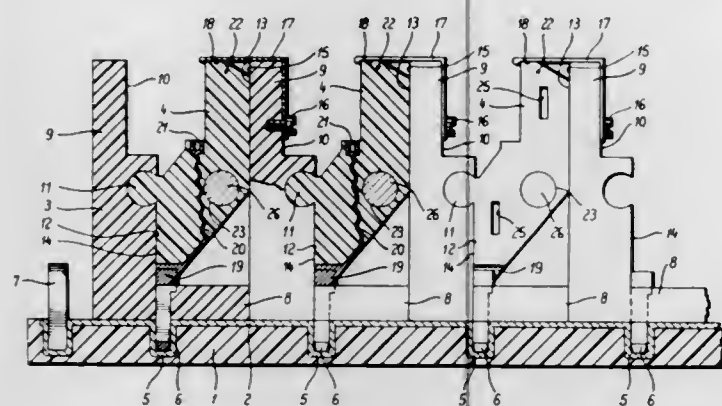
Filed Sept. 30, 1969, Ser. No. 862,332

Claims priority, application Germany, Oct. 7, 1968, P 18 00 793.7

Int. Cl. D04b 15/70

U.S. Cl. 66-75

21 Claims



Knitting machine with needle selecting device enabling the needles to be selected by means of electro-magnets in accordance with a pattern stored in an information carrier including a read-out device for connecting the stored information into electrical signals which are fed to the electro-magnets, wherein the pattern of the total operative width of the knitting machine as provided on the information carrier is displaceable along the width of the machine by displacing a contact bank on said information carrier, the information

carrier including a collector strip for each signal output of the read-out device disposed on a base plate, the collector strips being selectively connected to the contact bank containing individual contacts connected to at least one electro-magnet and being transversely disposed with respect thereto so that the contact bank may be slideably disposed by integral multiples of the collector strip spacing.

3,656,322

STRAIGHT BAR KNITTING MACHINES

Frederick Raymond Challenger, Loughborough; Barry Frederick Swanwick, Melton Mowbray; Cyril Ivan Cotton, Rainworth, and Dennis Gaunt, Mansfield, all of England, assignors to S. A. Monk (Sutton in Ashfield) Limited, Nottingham, England

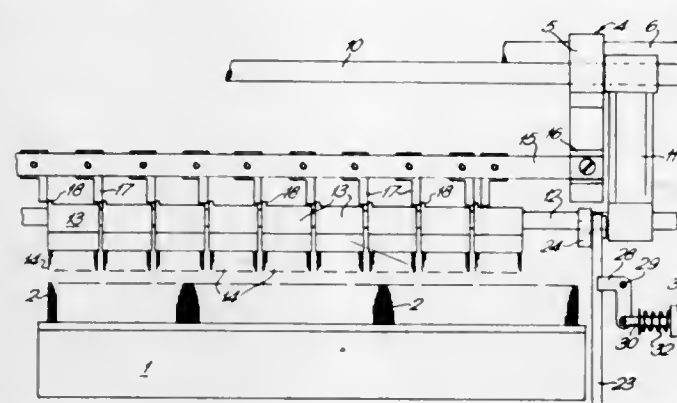
Filed July 6, 1970, Ser. No. 52,259

Claims priority, application Great Britain, July 7, 1969, 34,166/69

Int. Cl. D04b 11/06

U.S. Cl. 66-89

21 Claims



A method and means for loop doubling in straight bar rib to plain knitting machines wherein groups of loop transfer points are movable lengthwise relative to one another to effect spaced doublings throughout the knitting width of a garment piece.

3,656,323

TUBULAR FABRIC ARTICLE AND METHOD FOR MAKING SAME

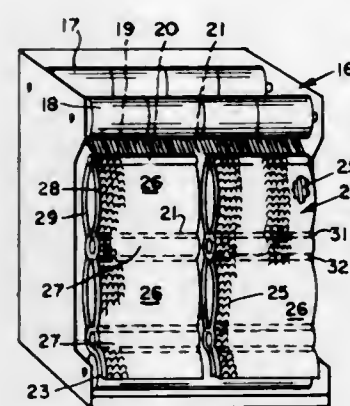
Russell L. Brown, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Jan. 19, 1970, Ser. No. 3,618

Int. Cl. A41b 9/02

U.S. Cl. 66-177

7 Claims



A tubular article which may be a continuous web of successive flat, open-ended tubes of knitted fabric, or a single such open-ended tubular article cut along seam areas from such a web, for example, a tubular warp knitted garment, is provided with cross interlooped, narrow strips on each opposite side of each seam area, the strips being separated by a wider, tubular strip so that when severed from the web along the center line of the tubular strip, the resulting seam will appear to be of the flat, plain type. The narrowness of the cross interlooped strips avoids build-up of excessive yarn tension.

The open-ended tubular article is free of areas of excessive tension variance, especially along the seams, to produce the appearance of a uniform knitted structure throughout.

3,656,324

WARP KNITTED GARMENTS AND APPARATUS AND METHOD FOR MAKING THE SAME

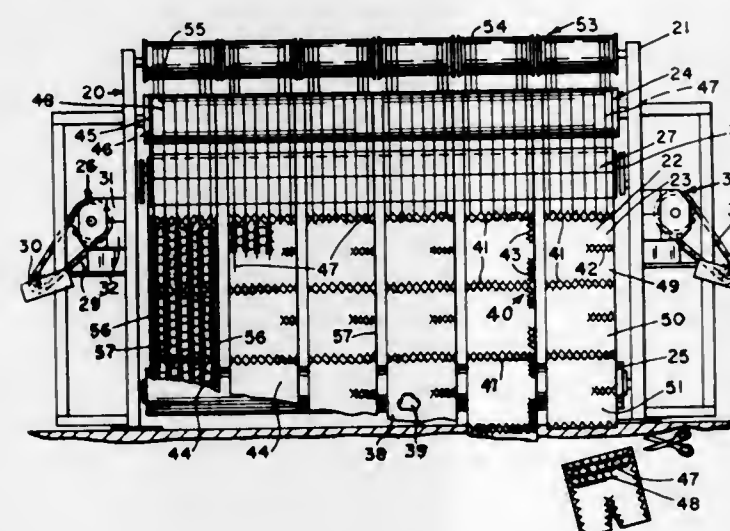
George Edward Jackson, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Nov. 19, 1968, Ser. No. 776,938

Int. Cl. A41b 9/02

U.S. Cl. 66-177

9 Claims



A double needle bar, warp knitting machine, of the Raschel type, produces a continuous, two ply web formed of two superposed, warp knit, single fabrics, cross interlooped along successive course-wise extending strips, spaced apart wale-wise, to form a succession of open ended, course-wise extending tubes. Stretchable-retractive yarns may be provided wale-wise of the tubes so that when the doubled web is severed into individual tubes and the tubes are turned through 90°, the stretchable yarn runs circumferentially of the tube to form a stretchable garment such as a girdle, panty brief, or the like.

3,656,325

APPARATUS FOR WET PROCESSING A CONTINUOUS LENGTH OF MOVING MATERIAL

Fritz Peter, Shrewsbury, Mass., assignor to Rodney Hunt Company, Orange, Mass.

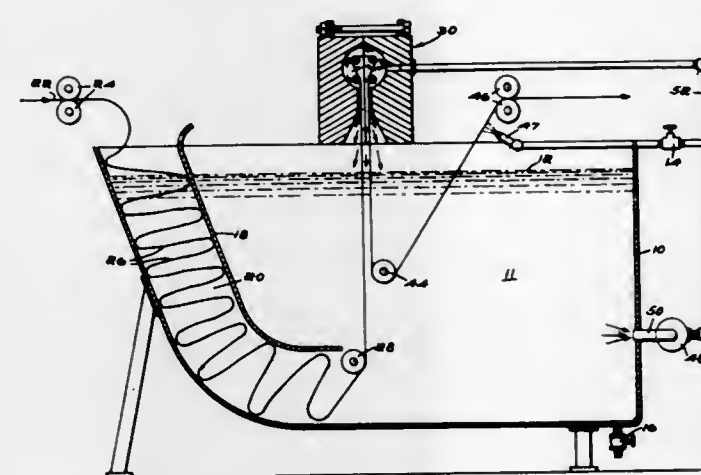
Continuation of application Ser. No. 747,409, June 19, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 657,632, Aug. 1, 1967, now abandoned.

This application Sept. 4, 1970, Ser. No. 69,882

Int. Cl. B05c 3/05, 3/152, 3/176

U.S. Cl. 68-3 SS

8 Claims



An apparatus for subjecting a continuous length of moving material to a fluid treatment. The material is initially soaked

in a bath of processing fluid while in a substantially tensionless condition. Immediately thereafter, the material is guided through a treatment chamber where it is exposed to a high velocity flow of the same processing fluid.

3,656,326

LEATHER-SMOOTHING MACHINE

Yves Grenier, Residence Le Belvedere C4, Volron, France

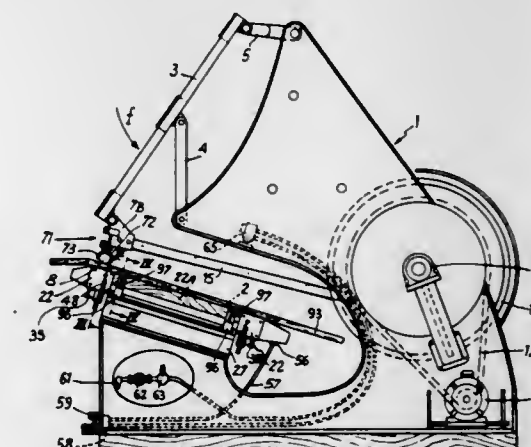
Filed Aug. 5, 1970, Ser. No. 61,279

Claims priority, application France, Sept. 5, 1969, 6930293

Int. Cl. C14b 1/36

U.S. Cl. 69-46

5 Claims



The machine for smoothing leather comprises a frame which supports a table for the reception of the leather to be smoothed and an oscillating arm articulated on levers and the free end of which carries a glass smoothing cylinder which describes a reciprocating movement against the table while the said arm oscillates under the action of a motor drive, in which the guide table is mounted on the frame through the intermediary of guide means which compel the table to move parallel with itself in a direction perpendicular to its own plane, while an inflatable bladder is interposed between the table and a support fast with the frame.

3,656,327

ELECTRICALLY OPERATED DOOR BOLT

Robert Brough Ford, Richmond, and Martin Herbert Lloyd, Addington, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

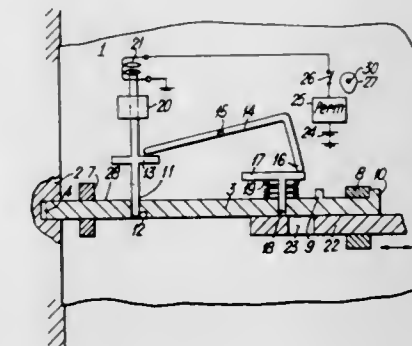
Filed Oct. 27, 1970, Ser. No. 84,390

Claims priority, application Great Britain, Nov. 25, 1969, 57,625/69

Int. Cl. E05b 47/06, 49/02

U.S. Cl. 70-133

8 Claims



A solenoid-controlled door bolt locking mechanism designed for use in conjunction with a rotary permutation arrangement, in which a proper setting of a series of rotary multiconductor wafers comprising the permutation arrangement completes an electrical circuit which enables operation of the locking mechanism. The proper permutation setting

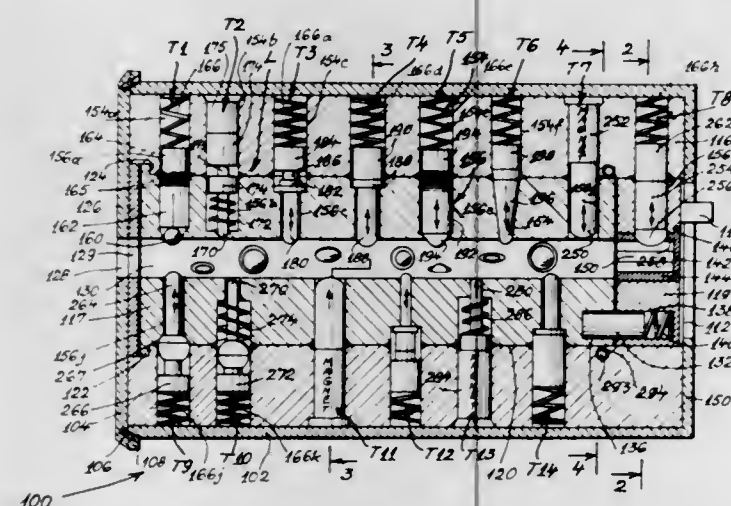
simultaneously causes a solenoid to retract a holding plunger, which rendered the door locking bolt immobile in the locked position, and the rotary control knob of the permutation arrangement to become mechanically coupled to the door locking bolt. A further rotation of the control knob, subsequent to a proper permutation setting, withdraws the locking bolt and, in reverse direction, locks it again.

3,656,328 LOCK ASSEMBLY

Benjamin F. Hughes, Route 1, P.O. Box 120, Morris, Ala.
Filed June 3, 1970, Ser. No. 42,944
Int. Cl. E05b 27/10

U.S. Cl. 70—276

18 Claims



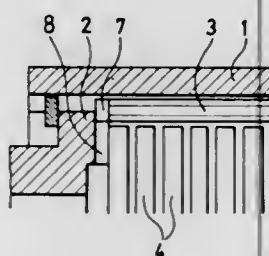
A lock assembly has a stationary barrel. A cylinder having one or more sections is rotatable in the barrel and defines a shear line. Tumbler assemblies in radial bores in the cylinder and barrel are radially and circumferentially spaced. Pins may have different sizes and shapes and may terminate in flat wafer edges exposed to an axial bore in the cylinder. The cylinder receives a key shaft formed with recesses arranged to correspond with the spacing of the tumbler assemblies. Key engaging means is provided at the inner end of the bore in the cylinder to engage an appropriately shaped end of the key shaft. The key shaft may be magnetized to attract magnetic pins of some tumbler assemblies radially into the bore. Radial bores may be countersunk; pins and pin drivers may be ridged and grooved; and spring means can bear tangentially on the cylinder to stabilize it, all to forestall picking of the lock assembly.

3,656,329 GUIDED LOCKING BAR

Into Sinervo, Helsinki, Finland, assignor to Oy Wartsila Ab, Helsinki, Finland
Filed Mar. 28, 1969, Ser. No. 811,366
Int. Cl. E05b 29/00

U.S. Cl. 70—366

5 Claims



A cylinder lock comprises a cylinder housing enclosing a rotatable cylinder and an axially extending locking bar

locking the cylinder with respect to the housing. The locking bar is straight and guided so that it is unable to rotate around its longitudinal axis.

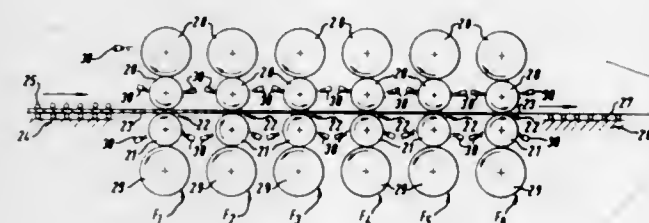
3,656,330 SYSTEM FOR DISTRIBUTING LIQUID OVER A SURFACE

Thomas W. Brown, Diddcot, and John S. Lemlin, Wantage, both of England, assignors to Esso Research and Engineering Company

Filed Feb. 20, 1970, Ser. No. 13,077
Claims priority, application Great Britain, Feb. 28, 1969, 10,778/69

Int. Cl. B21b 37/00, 45/02, 27/10
U.S. Cl. 72—10

26 Claims



Liquid is distributed at a substantially desired uniform rate per unit area on a surface having a dimension which varies in a predetermined manner by projecting at the surface a divergent stream of the liquid from a nozzle which can be moved towards and away from the surface, the rate of supply of liquid to the nozzle being substantially proportional to the distance between the nozzle and the surface. The invention is useful in applying a wear-resisting liquid coating to the rolls of hot metal rolling stand, the chosen rate of discharge being sufficient to mitigate wear of the work rolls without derogating from their performance.

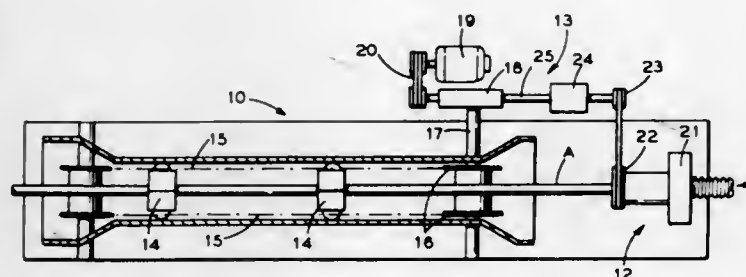
3,656,331 APPARATUS FOR PRODUCING ANNULAR CORRUGATED TUBING

Hubert Kuypers, Bad Nenndorf, and Friedrich Schatz, Langenhagen, both of Germany, assignors to Kabel-und Metallwerke Gutehoffnungshutte Aktiengesellschaft, Hannover, Germany

Filed Mar. 26, 1970, Ser. No. 22,787
Claims priority, application Germany, Mar. 29, 1969, P 19 16 357.6

Int. Cl. B21d 15/06
U.S. Cl. 72—77

7 Claims



Apparatus for continuously forming annular corrugations in moving tubing including a rotatable housing, a die holder adjustably mounted in the housing, and a die mounted in the die holder, wherein the die comprises a ring-shaped member with a helical forming rib on the inner edge thereof.

3,656,332 METAL WORKING

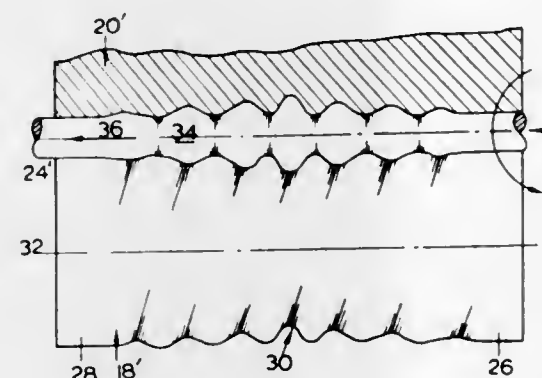
Jacob Marcovitch, Johannesburg, Republic of South Africa, assignor to Rotary Profile Anstalt, Vaduz, Liechtenstein
Filed May 22, 1969, Ser. No. 826,816

Claims priority, application Republic of South Africa, May 27, 1968, 68/3369

Int. Cl. B21d 7/08; B21f 21/00

U.S. Cl. 72—77

4 Claims



This invention relates to methods of working workpieces to improve their characteristics. The invention provides causing a bulge to be formed in the workpiece and to be moved along the workpiece for any desired number of times. The invention is most applicable to methods of rolling processes.

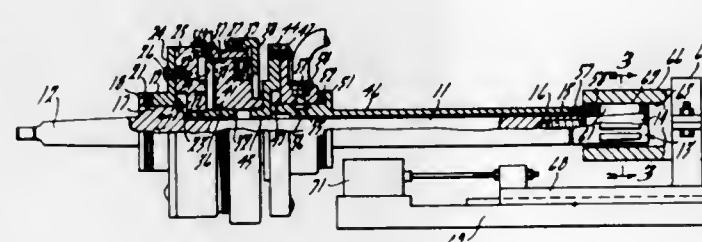
3,656,333 CYLINDRICAL SURFACE FINISHING TOOL

Clemens A. Kruse, Jr., 1718 Waverly, Ann Arbor, Mich.
Filed May 21, 1970, Ser. No. 39,246

Int. Cl. B24b 39/02; B21c 37/30

U.S. Cl. 72—122

8 Claims



The tool of the burnishing type has a cage at the working end of a spindle containing tapered rollers that engage a diverging truncated conical head on the end of the spindle. The opposite end of the spindle has a driven end on which a nonrotatable pressure applying unit is disposed. In one form the unit is a cylinder having a piston therein which exerts pressure on the cage supporting tube and forces the truncated conical rollers downwardly over the conical head and thereby exerts a substantial outward force on the rollers during the burnishing operation. A spring unit may be substituted for the cylinder and piston to apply the force to the sleeve and rollers.

3,656,334 FORGING MACHINE

Horst Schenk, and Rudolf Guse, both of Dusseldorf-Rath, Germany, assignors to Maschinenfabrik Sack G.m.b.H., Dusseldorf-Rath, Germany

Filed Feb. 3, 1970, Ser. No. 8,284

Claims priority, application Germany, Feb. 20, 1969, P 19 08 361.5

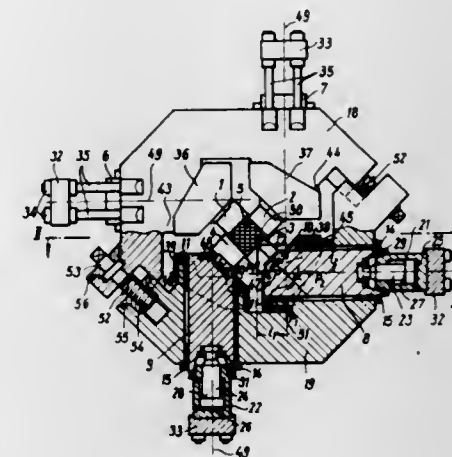
Int. Cl. B21J 13/02

U.S. Cl. 72—399

5 Claims

A forging machine is disclosed for reducing the cross sectional area of a workpiece which is positioned on a forging

axis of the machine, i.e. the direction of travel of the workpiece through the machine. At least three forging saddles are arranged at intervals around the forging axis for applying a lateral thrust generally towards the forging axis. Each forging



saddle has associated with it a driving mechanism for imparting a thrust to the saddle and an axially guided sliding plunger which transmits the thrust from the driving mechanism to the saddle and which has its axis inclined to the axis of the saddle.

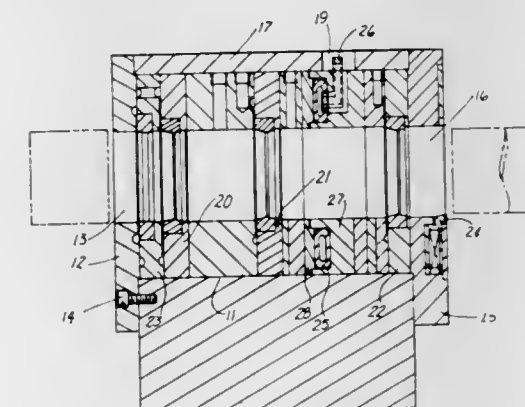
3,656,335 WALL IRONING TOOL PACK

Elton G. Kaminski, Sidney, Ohio, assignor to The Strolle Corporation, Sidney, Ohio
Continuation-in-part of application Ser. No. 26,356, Apr. 7, 1970, now abandoned. This application June 24, 1970, Ser. No. 49,219

Int. Cl. B21d 22/28

U.S. Cl. 72—349

12 Claims



A wall ironing tool pack in which one or more ironing dies or rings are held in a holder and clamped by means of a pressure ring. In setting up, the tool pack components and a pressure ring are stacked in the desired relationship in a holder with the ring not pressurized. A can or other cylindrical object is wall ironed through the tool pack with just enough pressure in the pressure ring to hold the components in position while permitting slip along the interfaces thereof for alignment. When alignment has been achieved, pressure on the pressure ring is increased to retain the components in alignment with each other and with the punch. The pressure ring permits a change in the length of the tool pack caused by heating or cooling, while retaining the alignment of the pack.

3,656,336

APPARATUS FOR FORMING AND QUENCHING PLATE SPRINGS

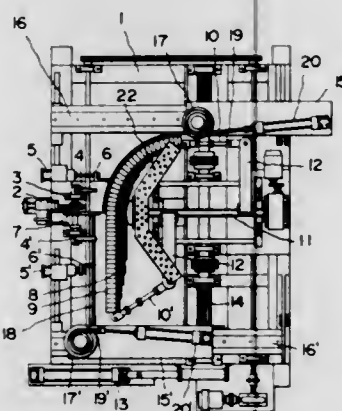
Shozo Eguchi, 36, 2 Chome, Sakurayama-Cho, Showa-Ku, Nagoya-Shi, Japan

Filed May 1, 1969, Ser. No. 820,786

Int. Cl. B21d 7/10, 7/16

U.S. Cl. 72—397

2 Claims



A spring forming and quenching apparatus in which an array of blocks in sliding contact relationship on a stack of leaf springs is deformed against a stationary member to provide a shaping surface for the hot workpiece which is fed by arms to this surface. A flexible wire, tensioned between a pair of sheaves, retains the workpiece against the surface while quenching liquid is sprayed from nozzles within the blocks and behind the wire against the spring from both sides thereof.

3,656,337

SCALE CALIBRATION CHECKING DEVICE

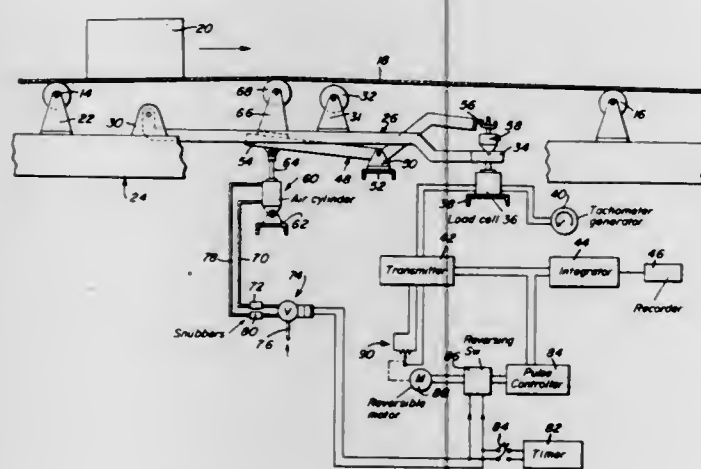
Ralph R. McDonald, Carlsban, N. Mex.

Filed Jan. 19, 1971, Ser. No. 107,734

Int. Cl. G01c 25/00; G01g 19/52, 23/00

U.S. Cl. 73—1 B

10 Claims



A pivoted scale beam type of weighing device senses the weight of articles traveling on a continuously moving conveyor belt. The conveyor belt is periodically displaced upwardly from the weighing device during test intervals to check calibration by simultaneously removing the load of the conveyor from the weighing device while transferring a reference weight thereto. The weighing device is automatically adjusted during each test interval if there is a deviation from a proper reference reading.

3,656,338

DEVICE AND METHOD FOR SAMPLING MOLTEN METAL

William J. Collins, 7005 Madison Street, Merrillville, Ind.

Continuation-in-part of application Ser. No. 38,700, May 19, 1970. This application Aug. 6, 1970, Ser. No. 61,625

Int. Cl. G01n 1/12, 25/04

U.S. Cl. 73—17 R

52 Claims



A molten metal sampling apparatus and method of the type in which a sample receiving means is positioned in the end of a cardboard tube intended to be dipped into a body of molten metal. The molten metal after disintegrating an external protective cap flows through a tortuous path and divides into two passageways before solidifying in a receiving chamber to form a solid sample. One receiver in each sampling device is provided with a temperature measuring means so that the temperature changes of the sample may be measured.

3,656,339

GLOW DISCHARGE DETECTOR

Chandramani Narain, Croydon, England, assignor to The British Oxygen Company Limited, London, England

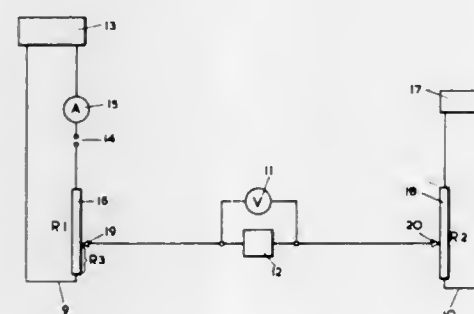
Filed Jan. 21, 1970, Ser. No. 4,580

Claims priority, application Great Britain, Jan. 22, 1969, 03,599/69

Int. Cl. G01n 31/08; H01j 17/26

U.S. Cl. 73—23.1

11 Claims



The invention relates to an electrical glow discharge detector for detecting small amounts of gaseous impurity in a gas, having a pair of electrodes in a fluid-tight chamber provided with a constant bore capillary tube inlet. The sensitivity of the detector is improved by applying across the electrodes a power source capable of both supplying a low, sensitive, discharge voltage and a high discharge starting voltage to restart the discharge if the sensitive voltage should permit it to fail.

3,656,340

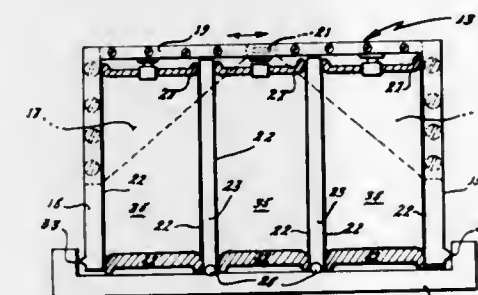
CELL PRESSURE-SENSING BATTERY CASE

James V. Ball, Sunnyvale, Calif., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Sept. 22, 1970, Ser. No. 74,345

Int. Cl. G01b 7/18

U.S. Cl. 73—88.5 R



A pressure-sensing means for use with a battery case structure having a plurality of juxtaposed cells positioned therein. A strain gauge means is attached to one structural member of the battery case such that a pressure build-up in any one or more of the cells produces a corresponding tension force in the structural member thereby indicating the highest pressure developed in the cells.

3,656,341

METHOD AND APPARATUS FOR TESTING RESILIENT OBJECTS FOR FLAWS

Gunter Jansen, Bergisch-Neukirchen, and Hans Kling, Cologne-Lindenthal, Germany, assignors to Goetzwerke Friedrich Goetze AG, Burscheid, Germany

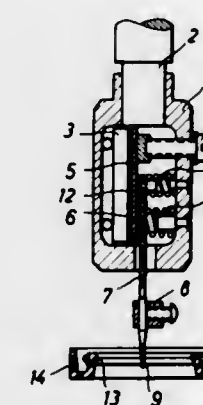
Continuation-in-part of application Ser. No. 651,459, July 6, 1967, now abandoned. This application Mar. 11, 1970, Ser. No. 18,613

Claims priority, application Germany, July 6, 1966, G47,360

Int. Cl. G01n 27/82

U.S. Cl. 73—104

16 Claims



Flaws are located in the surface of a resilient material by moving a probe member across the surface and detecting variations in the position of the probe member which are caused by variations in friction between the probe member and the surface. The probe member is mechanically coupled to a piezoelectric transducer which translates variations of friction between the probe member and the resilient surface into variations of electrical potential. For testing shaft sealing rings, a pair of expansion rollers are mounted on either side of the probe member to radially expand the sealing ring where it is contacted by the probe member and therefore to enlarge any faults therein so that they will be easier to detect.

3,656,342

WATER WAVE FOLLOWER

Mart Peep, and Ronald J. Flower, both of Baltimore, Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed Dec. 9, 1970, Ser. No. 96,515

Int. Cl. G01w 1/00

U.S. Cl. 73—170 R

5 Claims



A hydraulically operated, electronically controlled servomechanism wave follower to hold anemometers at fixed distances above the water surface to measure the wind field close to the surface. A wave probe mounted on the wave follower senses the water level, relays this data to an electrical control network which operates on a servo valve, enabling hydraulic fluid to raise or lower the wave probe and anemometer to the desired height.

3,656,343

APPARATUS FOR PROCESSING CURED TIRES

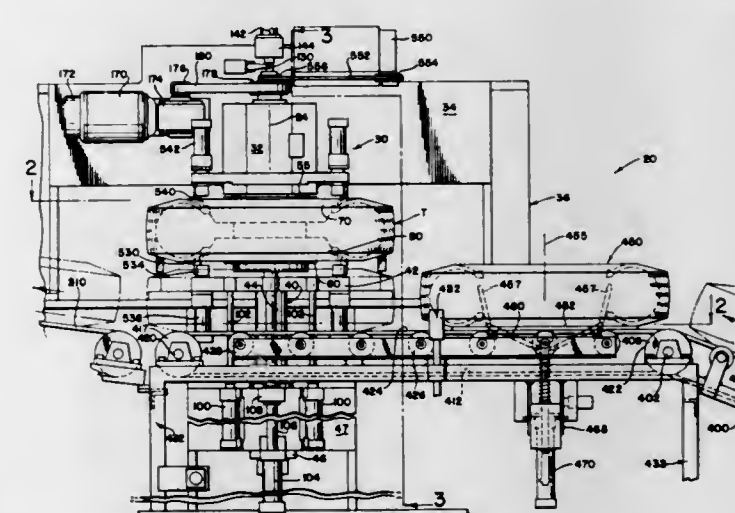
William D. Braden, Stow; Richard P. Marshall, Tallmadge; Richard J. Greenhorn, Stow, and Arnold S. Buser, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 2, 1970, Ser. No. 7,489

Int. Cl. G01m 17/02

U.S. Cl. 73—146

10 Claims



Apparatus for processing tires, in particular for discovering anomalies therein comprising means for chucking, inflating, and rotating a tire thereon about a vertical axis, means for operating on the tire chucked by moving a load roll to apply a radial load to the tire. The roll is mounted on a deflectable yoke secured on a carriage movable to and away from the tire. Means supporting the tire first prelocates and centers the tire, then moves the tire into coaxial registry with the chucking means.

3,656,344

LOGGING RADIAL TEMPERATURE DISTRIBUTION WITHIN A WALL

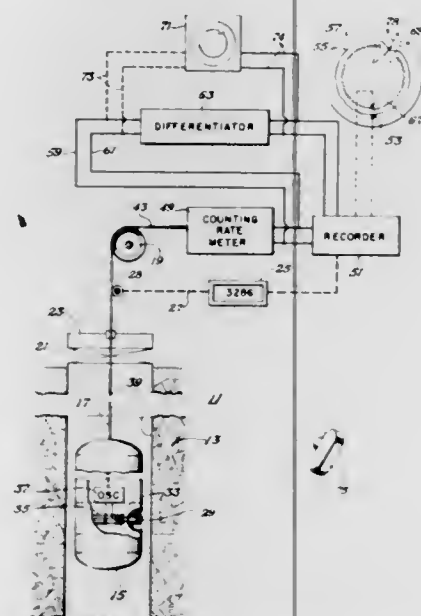
Earl Johns, Fort Worth, Tex., assignor to Gearhart-Owen Industries, Inc., Fort Worth, Tex.

Filed Nov. 20, 1970, Ser. No. 91,294

Int. Cl. E21b 47/024, 47/06

U.S. Cl. 73-154

21 Claims



Method of and apparatus for logging temperature in a well bore penetrating subterranean formations characterized by rotating a directional temperature sensor radially about the longitudinal axis of a temperature logging tool traversing the well bore; and displaying and recording a function representative of the temperature distribution sensed by the temperature sensor as it is rotated radially. Also disclosed are specific and preferred embodiments in which a direction indicating means is incorporated into the system to indicate the direction of anomalies sensed by the temperature sensor; one function is differentiated to produce a differential function of increased sensitivity which is also displayed; and the logging tool is simultaneously traversed while the temperature sensor is being rotated to effect a log of a greater interval of the well bore.

3,656,345

AUTOMATIC FREE-FALL OCEANOGRAPHIC TEMPERATURE PROBE

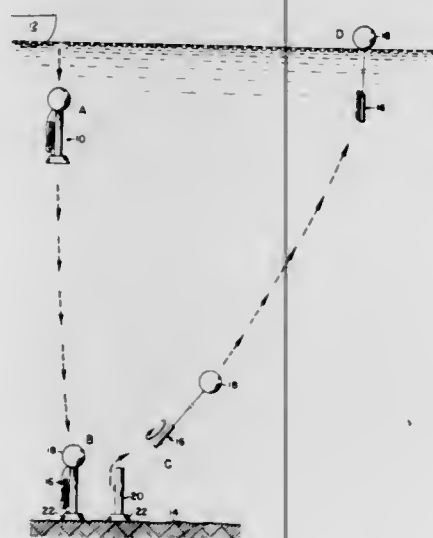
Carey Ingram, 3634 Oleander Drive, San Diego, Calif.

Filed Oct. 23, 1970, Ser. No. 83,570

Int. Cl. G01w 1/00

U.S. Cl. 73-170 R

10 Claims



An oceanographic temperature probe which can be jet-tisoned from vessels at sea for free-fall descent to a desired

water depth on the ocean floor. After a predetermined lapse of time a float is released from a disposable stand which causes the operation of a reversing thermometer and its return to the surface with the float for recovery.

3,656,346

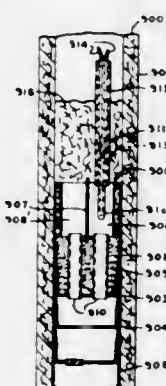
DEVICE AND METHOD FOR SAMPLING MOLTEN METAL

William J. Collins, 7005 Madison Street, Merrillville, Ind. Continuation-in-part of application Ser. No. 810,230, Mar. 25, 1969, now abandoned, which is a continuation-in-part of application Ser. No. 713,640, Mar. 18, 1968, now abandoned. This application Aug. 5, 1970, Ser. No. 61,257

Int. Cl. G01n 1/12

U.S. Cl. 73-354

18 Claims



A molten metal sampling device of the type incorporated in the end of a cardboard manipulating tube. A series of nested and perforated cups provide a tortuous entrance through a lower chamber passageway. A receiving chamber communicates with the lower chamber via a pair of passageways. In one embodiment the receiving chamber is divided by a partition into two secondary chambers. A thermocouple may be fixed in one of these secondary chambers to monitor the cooling of the metal sample as it solidifies.

3,656,347

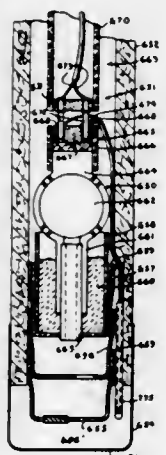
DEVICE AND METHOD FOR SAMPLING MOLTEN METAL

William J. Collins, 7005 Madison Street, Merrillville, Ind. Continuation-in-part of application Ser. No. 713,640, Mar. 18, 1968, which is a continuation-in-part of application Ser. No. 391,654, Aug. 24, 1964, now abandoned, and 590,829, Oct. 31, 1966, now Patent No. 3,415,124, and 649,764, May 12, 1967, now Patent No. 3,415,125, Continuation of application Ser. No. 810,287, Mar. 25, 1969, now abandoned. This application June 24, 1970, Ser. No. 49,576

Int. Cl. G01n 1/12

U.S. Cl. 73-354

28 Claims



The invention involves utilizing a device which is adapted to be dipped into a bath of molten metal for obtaining a sample and the temperature thereof for analysis.

3,656,348

PRESSURE MEASURING DEVICES OF THE ELECTRICAL COUNTERBALANCING FORCE BALANCE TYPE

Pierre Claude Bertrand, Pau-Billere, France, assignor to Compagnie des Compteurs, Paris, France

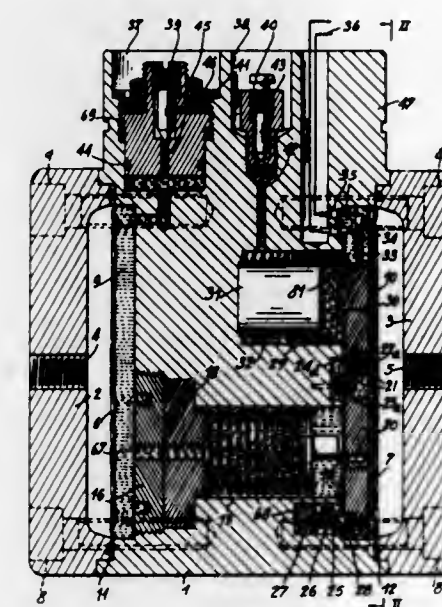
Filed July 28, 1970, Ser. No. 58,802

Claims priority, application France, Aug. 11, 1969, 6927550

Int. Cl. G01l 9/10

U.S. Cl. 73-398 R

7 Claims



The improvements brought to force balance pressure measuring devices include a measurement unit, a measurement bellows, two flexible diaphragms, a liquid filling the interval between the diaphragms and an electrical force balance set into a proof chamber.

3,656,349

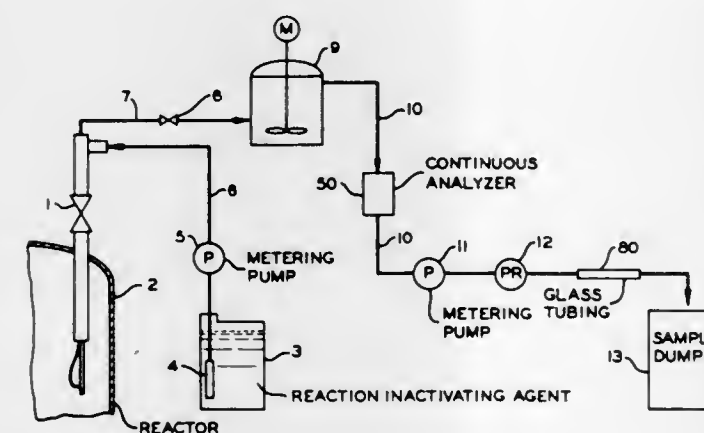
REACTION CONTROL AND SAMPLING APPARATUS

Henry R. Collins, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company Original application Mar. 22, 1965, Ser. No. 441,675, now abandoned. Divided and this application Aug. 25, 1969, Ser. No. 870,747

Int. Cl. G01n 1/14

U.S. Cl. 73-421 B

5 Claims



A sampling system including sample probes for withdrawing and inactivating samples obtained from a reacting mixture with a reaction inactivating agent includes means for injecting inactivating agent into the sample during withdrawal without injecting inactivating agent into the reactor itself.

3,656,350

DEVICE FOR SAMPLING MOLTEN METAL

William J. Collins, 7005 Madison Street, Merrillville, Ind. Continuation-in-part of application Ser. No. 713,640, Mar. 18, 1968, now abandoned. This application May 19, 1970, Ser. No. 38,700

Int. Cl. G01n 1/12

U.S. Cl. 73-425.4 R

47 Claims



A molten metal sampling apparatus and method of the type in which a sample receiving means is positioned in the end of a cardboard tube intended to be dipped into a body of molten metal. The molten metal after disintegrating an external protective cap flows through a tortuous path and divides into two passageways before solidifying in a receiving chamber to form a solid sample.

3,656,351

PIPETTE

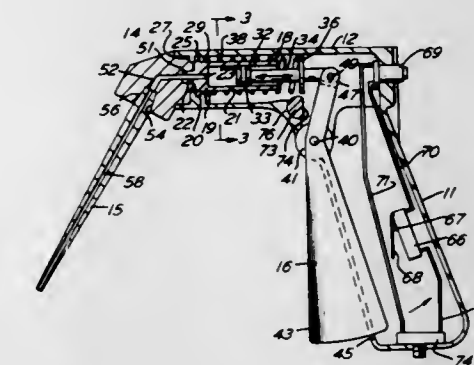
Earl F. Raczak, Southampton, Pa., assignor to Bio/Data Corporation, Norristown, Pa.

Filed June 25, 1970, Ser. No. 49,685

Int. Cl. G01n 1/14

U.S. Cl. 73-425.6

3 Claims



A pipette having a piston grip with a downwardly and outwardly directed nozzle to be inserted into a vessel containing the liquid. The pipette includes a trigger-actuated plunger for raising and discharging liquid therefrom.

3,656,352

IMPACT MONITORING APPARATUS

George M. Low, Acting Administrator of the National Aeronautics and Space Administration in respect to an invention of, and Leland O. Mortensen, 1465 B. North Glassell, Orange, Calif.

Filed Dec. 2, 1970, Ser. No. 94,374

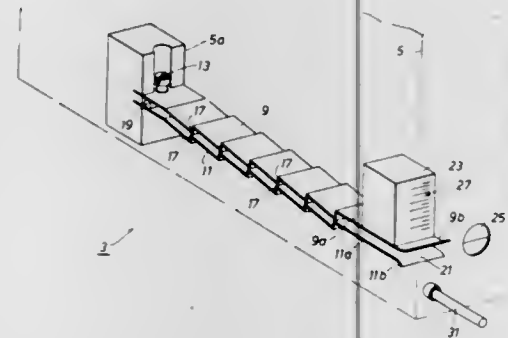
Int. Cl. G01p 15/04

U.S. Cl. 73-492

10 Claims

An impact monitoring apparatus for indicating and recording the magnitude of force imposed in a specific direction on

a particular axis of interest comprising two parallel saw-tooth leaf springs mounted in cantilever fashion one above the other. The upper leaf spring supports at its free end a designated mass. Upon experiencing a force or shock along the axis of interest the free ends of the springs are deflected



so that the saw-tooth portions thereof mechanically engage and lock into one another. Movement of the upper spring is amplified by the mass thereon. Engagement of the springs occurs along a length from the free end, the extent of engagement being proportional to the magnitude of the force experienced.

3,656,353

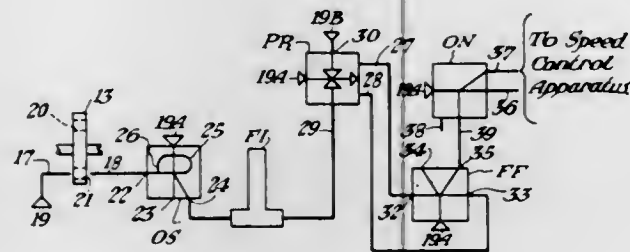
VEHICLE SPEED SENSOR

Edward H. Bell, Hunterdon County, N.J., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Dec. 8, 1969, Ser. No. 882,873
Int. Cl. G01p 3/26

U.S. Cl. 73-493

3 Claims



Vehicle speed sensing apparatus in which vehicle movement is first translated into rotary motion by a sprocket wheel and chain arrangement which is engaged by the moving vehicle. A pressurized fluidic stream, specifically air, is pulsed by passage through slots in one sprocket wheel. The resulting fluid pulses are received by a collector tube and fed into a fluidic one-shot multivibrator unit for shaping into a succession of uniform duration pulses whose frequency varies directly in response to the varying speed of the vehicle. These pulses are converted into a time average pressure signal which is compared with a preselected bias pressure representative of a desired vehicle speed. The proportional output of this comparison actuates a fluidic flip-flop unit to its first or second condition as the vehicle speed is greater or less than, respectively, the desired speed. A first condition signal from the flip-flop actuates an OR-NOR gate to its OR condition and the resulting output signal may be used to actuate other apparatus to control the vehicle speed.

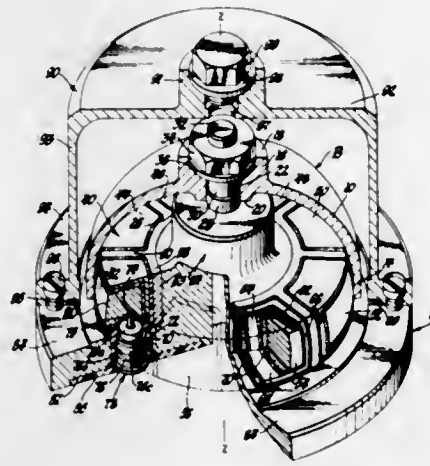
3,656,354 BELL GYRO AND IMPROVED MEANS FOR OPERATING SAME

David D. Lynch, Greendale, Wis., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 6, 1969, Ser. No. 864,019
Int. Cl. G01c 19/56

U.S. Cl. 73-505

10 Claims



A bell-like high-Q member for detecting motion of a platform about an axis and having a lip capable of sustaining therein a vibration pattern having alternately and equi-angularly spaced nodal and anti-nodal regions of radial vibration when the lip is exercised radially. Pickoff electrodes located at regions nodal in the absence of rotation about the axis detect radial vibrations developed thereat due to the effects on the vibrations pattern of the rotation about the axis. Forcer electrodes located at other regions nodal in the absence of rotation are connected in circuit with the pickoff electrodes to null such radial vibrations.

3,656,355

ENGINE STARTER HAVING MEANS FOR HOLDING SAME IN A CRANKING POSITION

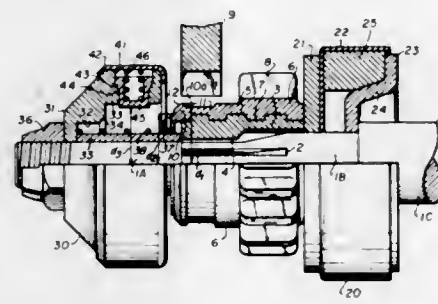
Tsuyoshi Matsumoto, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 26, 1970, Ser. No. 22,994

Claims priority, application Japan, Mar. 28, 1969, 44/27646
Int. Cl. F02n 15/06

U.S. Cl. 74-7 B

9 Claims



An engine starting device is provided with holding means for holding a rotationally driven pinion in engagement with a ring gear of the engine to be started. The holding means comprises a translatable and rotatable barrel member having connected thereto the pinion and a pawl. A detent is slidably mounted in a radial extending hole provided in a fixed support member and cooperates with the pawl to maintain the pinion in mesh with the engine ring gear until the engine is started.

3,656,356

CONTINUOUS GEAR-TYPE SPEED VARIATOR

Lino Gubbiotti, Perugia, Italy, assignor to Italtvariatori Perugia S.r.l., Perugia, Italy

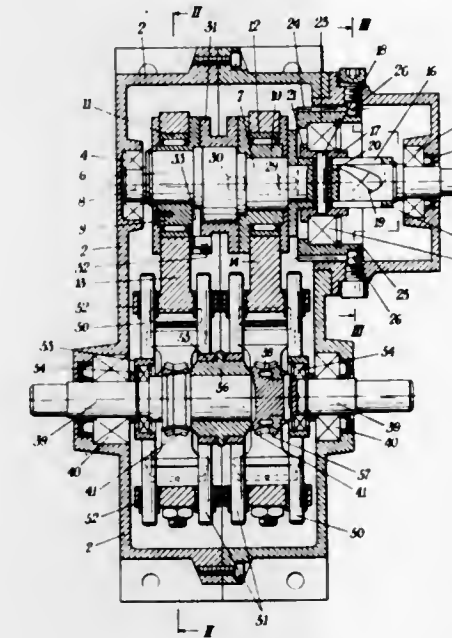
Filed Apr. 17, 1970, Ser. No. 29,603

Claims priority, application Italy, Apr. 24, 1969, 32,509 A/69;
Apr. 3, 1970, 49,741A/70

Int. Cl. F16h 21/12, 29/04

U.S. Cl. 74-63

16 Claims



A continuous gear-type speed variator characterized in comprising eccentric means for transforming the rotational movement of the input shaft into a reciprocational movement having a continuously variable amplitude, means participating of said reciprocating movement and carrying on each side of the driven shaft at least one endless screw, at least one helical gear ring rigid with the driven shaft, always engaged with the two endless screws, and means for rendering said endless screws alternately rigid with said reciprocating means so as to drive said gear ring like a rack in the stroke towards a direction of said reciprocating means, and capable of rotating, so as to passively follow the movement of said gear ring in the stroke towards the opposite direction of said reciprocating means.

3,656,357

SHAFT FEEDING APPARATUS

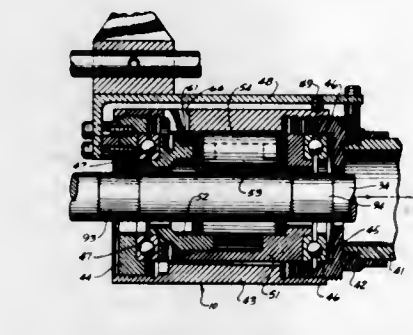
Harry L. Corwin, 3341 Wood Terrace, Los Angeles, Calif.

Filed Dec. 29, 1969, Ser. No. 888,600

Int. Cl. F16h 27/02

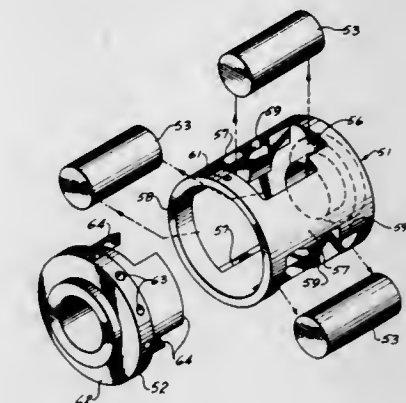
U.S. Cl. 74-89

10 Claims



An apparatus particularly useful for expanding ends of tubing for attachment to a tube sheet or the like is described. A

conventional tube expander comprising a hollow cage with swaging rollers fits within the tube and a rotating tapered mandrel within the expander cage causes the cage and rollers to rotate and also spreads the rollers radially against the tube wall as the mandrel advances, thereby enlarging the portion of tubing adjacent the rollers. The mandrel is connected to a rotatable cylindrical shaft that is surrounded by a plurality of drive rollers having their axes skewed relative to the shaft axis, and contained within a fixed housing for slowly advancing the shaft in response to its rotation and withdrawing the



3,656,358

LINEAR POSITIONING DEVICES AND THE LIKE

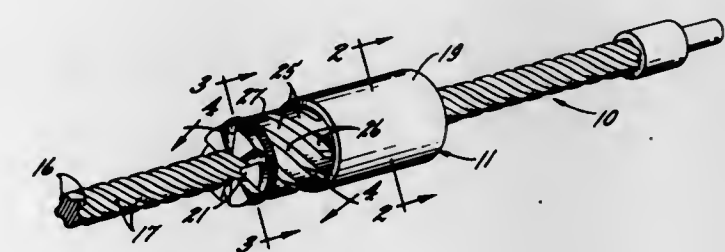
Norman L. Kopp, Beloit, Wis., assignor to Warner Electric Brake & Clutch Company, South Beloit, Wis.

Filed May 19, 1970, Ser. No. 38,792

Int. Cl. F16h 27/02, 29/02

U.S. Cl. 74-89.15

8 Claims



A collar telescoped over and adapted to be translated back and forth relative to an elongated rod includes cantilevered fingers which are resiliently wedged into angularly spaced grooves formed in the rod to preload the collar onto the rod and to prevent rotational play from developing between the two. In one embodiment, the collar is telescoped onto a rod in the form of a splined shaft while, in another embodiment, the collar is a nut which is threaded onto a screw with multiple threads.

3,656,359

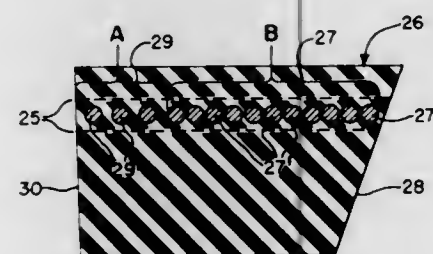
ASYMMETRIC BELT CONSTRUCTION

Marvin L. Dorf, and Leo C. Barnell, both of Lincoln, Nebr., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Dec. 21, 1970, Ser. No. 99,950
Int. Cl. F16g 5/00, 1/22; F16h 55/22

U.S. Cl. 74-234

18 Claims



A flexible, resilient belt of asymmetrical cross-section including opposite side wall portions, one of which is inclined at a larger angle than the other and a stress zone having an unequal stress-resisting capacity across the width of the belt with the greater stress-resisting capacity being concentrated in the area of the stress zone adjacent to the side wall portion having the larger angle. The belt is particularly useful in variable speed V-belt drives.

3,656,360

POLYURETHANE BELTS

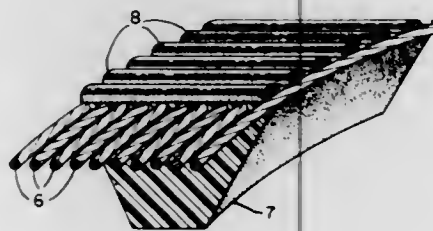
Sidney R. Fix, Lincoln, Nebr., assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of application Ser. No. 722,917, Apr. 22, 1968, now abandoned. This application Jan. 17, 1969, Ser. No. 805,925

Int. Cl. F16g 5/14

U.S. Cl. 74-234

7 Claims



A cured polyurethane composition prepared by mixing a particulate polyfluorohydrocarbon resin with a liquid polyurethane prepolymer and curing the said prepolymer with a curing agent. The cured polyurethane composition has utility in power transmission belts and particularly power transmission belts of the V-type, and other relatively flat-type belts which operate in conjunction with pulleys or sprockets and are subject to relatively severe flexing during their operation.

3,656,361

SILENT CHAIN-TRANSMISSION APPARATUS

Shoichi Honda, Tokyo, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed July 28, 1970, Ser. No. 58,964

Claims priority, application Japan, July 29, 1969, 44/59319

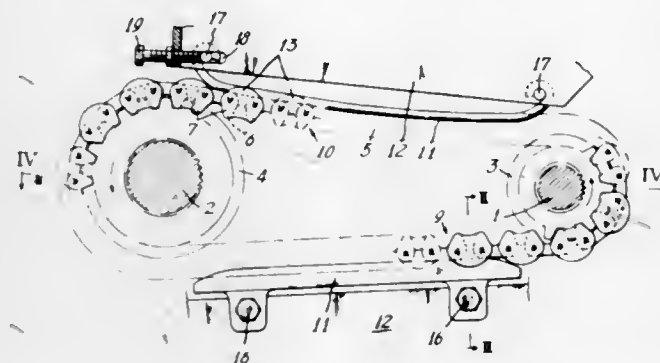
Int. Cl. F16h 7/18; F16g 13/02

U.S. Cl. 74-240

9 Claims

A silent chain drivingly couples the sprockets on two spaced transmission shafts. The chain includes teeth for engaging the sprockets and link plates which straddle the

sprockets. Guide rails are provided between the sprockets and either the rails or the link plates have portions which permit longitudinal displacement of the chain while preventing lateral movement thereof. One of the sprockets can be provided in splined engagement with its shaft to provide for automatic adjustment of its position.



ing lateral movement thereof. One of the sprockets can be provided in splined engagement with its shaft to provide for automatic adjustment of its position.

3,656,362

MOTION-CONVERTING GEARING

Hans Buchsteiner, deceased, Lindenstrasse 16, 7344 Gingen/Fils (by Renate Buchsteiner, executrix); Bruno Bernhardt, Jurastrasse 47, 7411 Reutlingen-Betzlingen, and Hubert Kowalski, Untere Schloss-Strasse 36, 7071 Alfdorf, all of Germany

Filed Nov. 9, 1970, Ser. No. 87,885

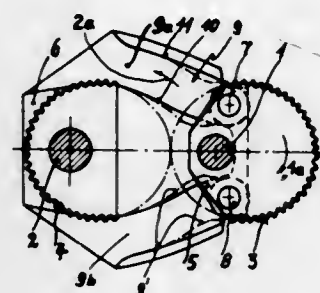
Claims priority, application Germany, Nov. 8, 1969, P 19 56

250.6

Int. Cl. F16h 35/02

U.S. Cl. 74-393

6 Claims



A gearing for converting a constant rotation of its drive shaft to an intermittent rotation of its driven shaft, in which the driven shaft may be stopped and positively locked during each complete revolution of the drive shaft for any predetermined period which may last from a momentary stop to one amounting to a considerable angular distance of each revolution of the drive shaft. The transition from the stopped position to the normal speed of the driven shaft occurs very gradual and without jerks, the locking action upon the driven shaft is attained without any additional locking means, and the entire gearing is of a very simple and inexpensive construction.

3,656,363

APPARATUS FOR PRODUCING INTERMITTENT MOTION

Paul Defontenay, Gourg La Reine, France, assignor to Redex Societe Anonyme, Ivry (Seine), France

Filed Sept. 29, 1969, Ser. No. 861,809

Claims priority, application France, Sept. 30, 1968, 168224

Int. Cl. F16h 35/02

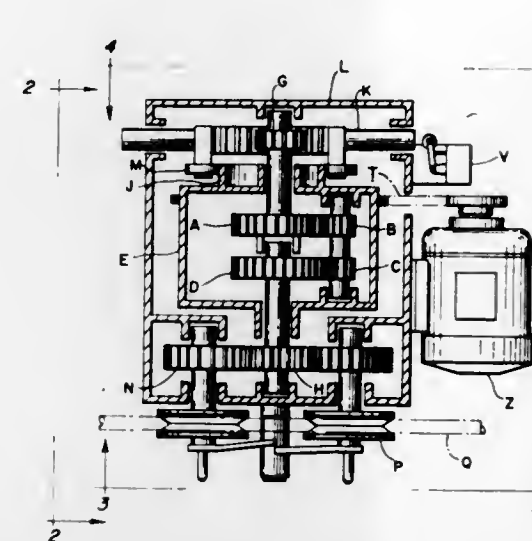
U.S. Cl. 74-394

7 Claims

Intermittent movement of a work piece is produced from a rotary motor which drives the case of a differential. A cam integral with the differential case drives a gear rack slider

having a pinion which drives one sun gear of the differential. Another sun gear of the differential is coupled to the first sun gear by planet gears. Output drive rollers are gear driven

intermediate spherical portion universally pivotally mounted in a dome portion of a conventional gearbox, one spherical end extending from the gearbox into the cup-shaped extremity and the other spherical end extending into the gearbox for



from the shaft of the second sun gear. A switch actuated by the slider may be employed to control an external machine or to control the operation of the motion producer itself.

3,656,364

RACK AND HOLDER

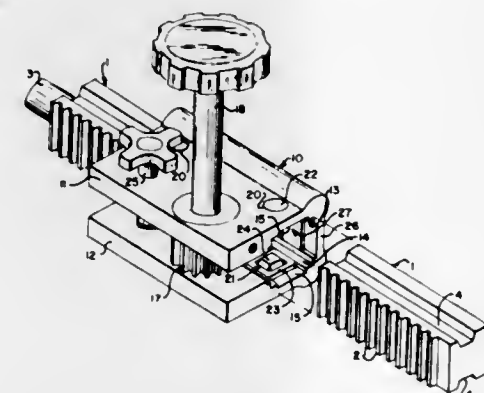
H. Edward Cable, Thornburg, and John A. Cable, Moon Township, both of Allegheny County, Pa., assignors to Weld Tooling Corporation

Filed Dec. 2, 1970, Ser. No. 94,388

Int. Cl. F16h 1/04

U.S. Cl. 74-422

2 Claims



An improved rack and rack holder for cutting and welding torches, etc. wherein the rack includes a pair of tapered grooves throughout its length and the rack includes a pair of tapered elements cooperatively engaging said grooves.

3,656,365

GEARSHIFT CONTROL ARRANGEMENT

Lutz W. Kussmann, Russelsheim, Hesse, Germany, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 19, 1970, Ser. No. 90,954

Claims priority, application Germany, Jan. 13, 1970, P 20 01

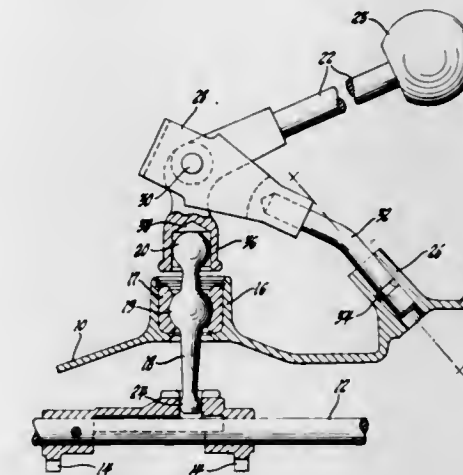
261.7

Int. Cl. G05g 9/02

U.S. Cl. 74-473 P

3 Claims

A manual shift arrangement including a gearshift lever pivotally mounted on a pin and having a cup-shaped lower extremity, a connector lever having spherical ends and an in-



pivotal engagement with conventional shift forks, and a rotatably mounted bent rod member connected by a yoke to the shift lever adjacent the pin to provide transverse pivotal movement of the gearshift lever.

3,656,366

COLLAPSIBLE STEERING COLUMN

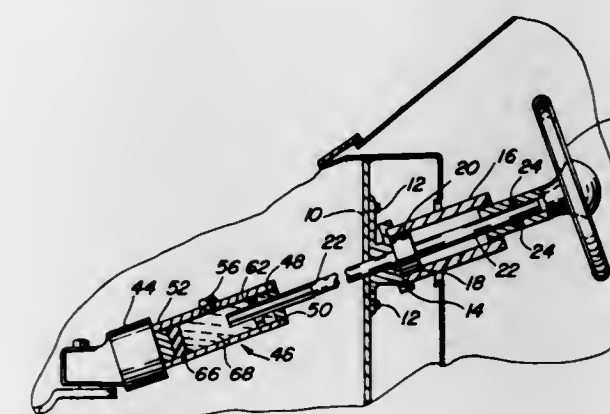
Leonard A. Somero, Thayer Road, New Ipswich, N.H.

Filed Feb. 1, 1971, Ser. No. 111,179

Int. Cl. B62d 1/18

U.S. Cl. 74-492

4 Claims



A collapsible steering column for connecting an automotive steering wheel with the automotive steering actuating mechanism includes a cylindrical shaft having the steering wheel attached at one end and a disengageable support bearing engaging a transverse groove on the shaft. The opposite end of the shaft is formed into a hexagonal cross section which is positioned through a mating hexagonal opening in a hydraulic cylinder. Within the hydraulic cylinder, and attached to the end of the shaft there is a hydraulic piston having pressure relief holes through the piston to permit the flow of hydraulic fluid through the holes when the piston is moved. The opposite end of the hydraulic cylinder is operably attached to the steering actuating mechanism of the automobile so that rotational movement of the steering wheel, shaft and cylinder is converted by the steering actuating mechanism to impart steering force to the linkage attached to the front wheels of the automobile. When a predetermined force is applied to the steering wheel in a direction essentially parallel to the shaft, the disengageable support bearing disengages from the transverse groove on the shaft permitting the shaft and steering wheel to slide away from the driver. The hydraulic cylinder and piston act as a

cushioning shock absorber as the shaft and piston slide through the cylinder.

3,656,367

SAFETY STEERING FOR MOTOR VEHICLES

Karl Wilfret, Gerlingen-Waldstadt, and Bela Barenyi, Maibingen Wurttemberg, both of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

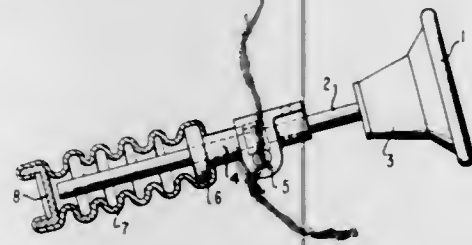
Filed Jan. 23, 1970, Ser. No. 5,288

Claims priority, application Germany, Jan. 23, 1969, P 19 03 255.4

Int. Cl. B62d 1/18

U.S. Cl. 74-492

10 Claims



A safety steering for motor vehicles in which the steering spindle together with the outer steering column is able to pivot about a vehicle cross-axis under the influence of a force that exceeds the force acting on the steering wheel during normal operation; a plastically deformable deformation member is secured at the lower end of the outer column which in case of an impact of the driver against the steering wheel, is extended by the steering spindle projecting out of the outer column.

3,656,368

BICYCLE HANDLE BAR

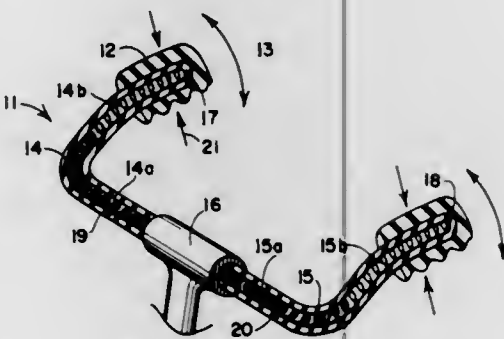
Joseph Martin Schroeder, 520 Porter Street, Glendale, Calif.

Filed July 6, 1970, Ser. No. 52,242

Int. Cl. B62k 21/14

U.S. Cl. 74-551.3

1 Claim



A bicycle handle bar comprises resilient material such that it may be flexed up and down by a rider so that the rider will exercise his arms as well as his legs when riding the bicycle.

3,656,369

REPLACEABLE PATTERN CAM FOR SEWING MACHINES

James W. Momberg, Somerville, N.J., assignor to The Singer Company, New York, N.Y.

Filed Jan. 6, 1971, Ser. No. 104,407

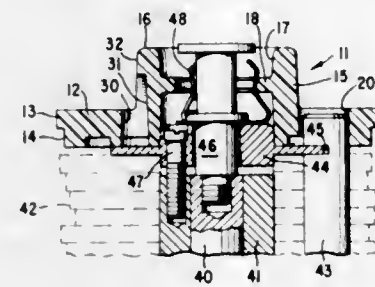
Int. Cl. F16h 53/00

U.S. Cl. 74-567

2 Claims

An exchangeable sewing machine pattern cam unit including a cam disk portion and having a raised hub providing a finger grip. The unit is fabricated in a two-part mold separable axially of the pattern cam disk. The raised hub is formed

with a plurality of radial indentations which terminate short of the upper extremity of the hub leaving segmented lips which enhance the operator's grip on the cam unit hub. This advantageous cam hub formation is attained by the method



of providing core pins in an ordinary two-part mold which core pins project through the cam disk portion of the cam unit into position for defining the radial indentations in the hub portion of the cam unit.

3,656,370

CAM ASSEMBLY HAVING MULTIPLE CAMS WITH INTEGRAL CAM POSITIONING MEANS THEREON

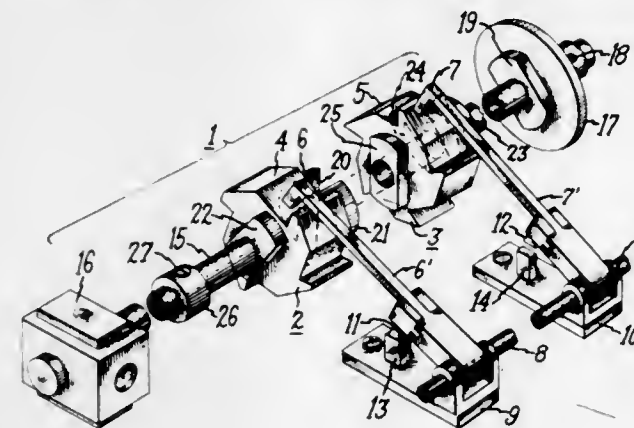
Austin F. Wilson, Rochester, N.H., assignor to General Electric Company

Filed July 2, 1970, Ser. No. 52,019

Int. Cl. F16h 54/04

U.S. Cl. 74-568 R

8 Claims



A cam assembly having a plurality of separate cam members mounted on a single drive shaft is provided with detent means that are operable to align the cam members in a predetermined angular displacement relative to one another, and maintain that displacement during operation of the assembly. The detent means on each cam member are substantially identical so that any given pair of cam members or a suitably mated replacement cam member may be operatively interlocked in the desired predetermined angularly displaced relationship without requiring further alignment procedures. In one embodiment of the invention, a unique cam-shift member is provided for readily changing the relative angular displacement between adjacent cam members without requiring these members to be removed from a drive mechanism on which they are mounted.

3,656,371

POWER TRAIN CONTROL SYSTEM

Robert H. Schaefer, Westfield, Ind., assignor to General Motors Corporation, Detroit, Mich.

Original application Nov. 27, 1968, Ser. No. 779,502. Divided and this application Aug. 3, 1970, Ser. No. 60,315

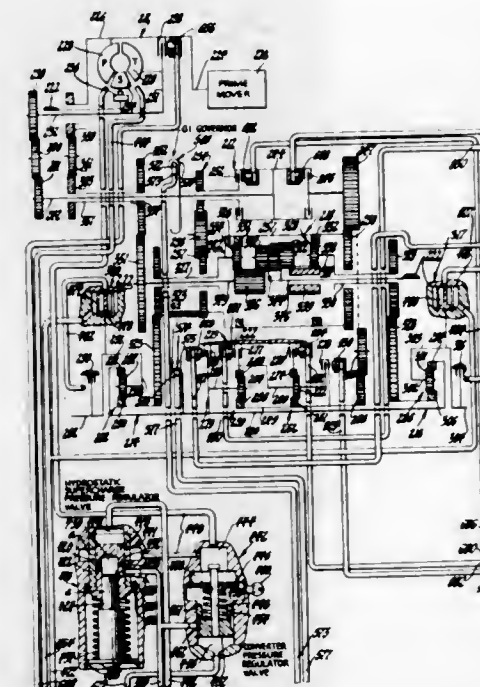
Int. Cl. F16h 47/08; B60k 21/02

U.S. Cl. 74-645

3 Claims

A control system is shown for a multispeed forward and reverse track-laying vehicle power train, the control system

having a manual forward and reverse control for effecting manual shifts between forward and reverse, a manual drive range control and an automatic drive range control for effecting manual and automatic drive range shifting operation and a steering control for effecting steering operation. The manual forward and reverse control provides selection between forward and reverse drive in the lowest drive range and prevents such shifting by the operator in all of the higher drive ranges. The manual drive range control provides selection between the drive ranges with the selected drive range being established immediately on an upshift and by speed governed automatic shifting operation on a downshift. The automatic drive range control provides automatic shifting using separate speed controlled upshift biases, an engine torque demand controlled upshift inhibiting bias and an engine torque demand controlled downshift bias. Both the manual forward and reverse control and the manual drive range control are electrically activated and in the event there is an interruption in electrical power, the directional drive selected by the manual forward and reverse control is maintained while the range control if under manual control is automatically conditioned for automatic control to maintain power train control. A sequence control is effective to disen-



gage the range drive to the load in the lowest drive range during shifting between forward and reverse to provide for engagement of the directional drive under no-load conditions. The steer control operates on a hydrostatic unit to control steering by controlling hydrostatic pump displacement while assuring straight vehicle no-drift motion when there is no steer demand. The controlling force effecting this pump displacement control is varied according to hydrostatic pump output to meet the varying steer load demands in both directions of steer. There is also provided a stroke or pump displacement limiter for limiting pump displacement regardless of the steer demanded by the operator to prevent pump overload. Hydrostatic system pressure is controlled by a pressure relief control in accordance with engine torque demand and vehicle speed to both prevent overloading of the hydrostatic pump and limit the degree of steer bias. The steer control signals the range control to inhibit automatic range shifting during steering operation. The hydrodynamic torque converter in the power train has a lockup drive which is normally disengaged on range shifting and is held engaged during low speed operation in each range to provide for utilization of vehicle momentum to provide power for steering while preventing engine stall.

3,656,372

TRANSMISSION CONTROL

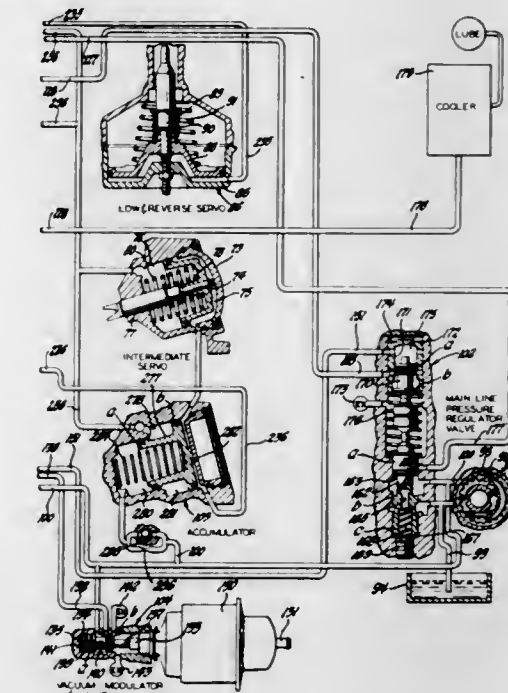
Howard E. Chana, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 8, 1970, Ser. No. 44,247

Int. Cl. B60k 21/02; F16d 67/04

U.S. Cl. 74-869

3 Claims



An automatic transmission control having a single accumulator with a single piston for smoothing the establishment of a plurality of transmission drives.

3,656,373

CONTROL SYSTEM FOR AN AUTOMATIC TRANSMISSION

Tetsuo Shimosaki, No. 556, Shimomachiya, Kabe-cho, Asagun, Shiroshima, Japan

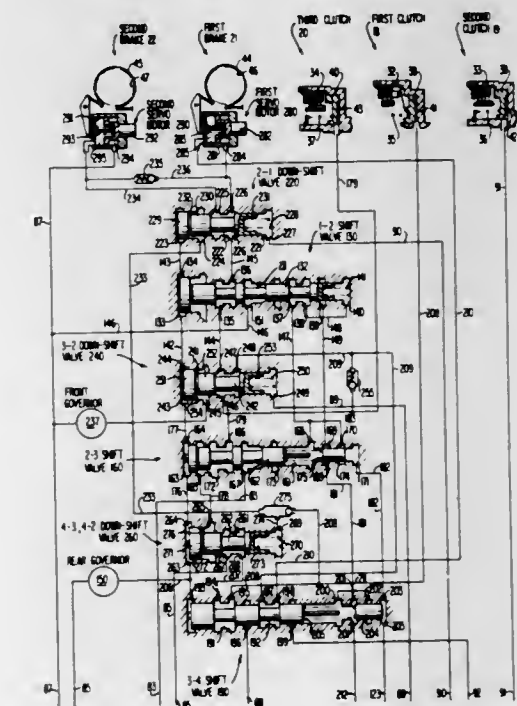
Filed Oct. 30, 1969, Ser. No. 872,627

Claims priority, application Japan, Oct. 31, 1968, 43/79508; 43/79511

Int. Cl. B60k 21/02

U.S. Cl. 74-869

3 Claims



A control system for an automatic transmission for an automotive vehicle having a drive shaft, a driven shaft, means

for providing low, intermediate, and high speeds between said shafts and including a plurality of friction members, a fluid source for supplying a fluid pressure to said respective friction members, a high speed shift valve, a low speed shift valve, and a timing valve. This control system provides a high efficiency control of the down-shifts of the transmission.

3,656,374

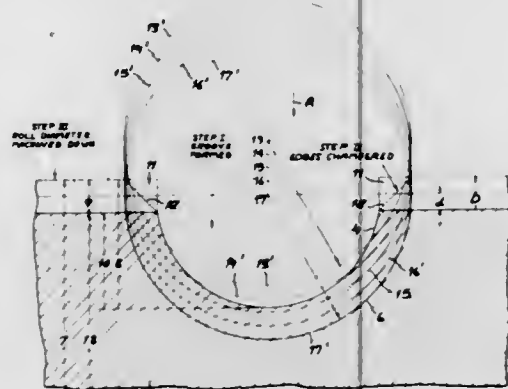
METHOD OF MILLING AND HOBBIING ROLLS FOR THE MANUFACTURE OF RODS

Ernst Bock, deceased, late of Peine, Germany (by said Ingeborg Bock, administratrix), assignor to Iseder Hutte, Peine, Germany

Filed Feb. 26, 1970, Ser. No. 14,518
Int. Cl. B21k 21/00

U.S. Cl. 76-101 R

7 Claims



A deep circumferential groove is formed around a roll. The edges of this groove are chamfered, and threading formations are hob milled into the base and walls of the groove so that the mill teeth are not chipped away by impact with sharp edges of the groove. Thereafter the roll is machined down to eliminate the chamfers and reduce the diameter to the desired size. The thread-like formations in the groove of the rolls produce concrete reinforcement and like rods with helical thread-like ribs.

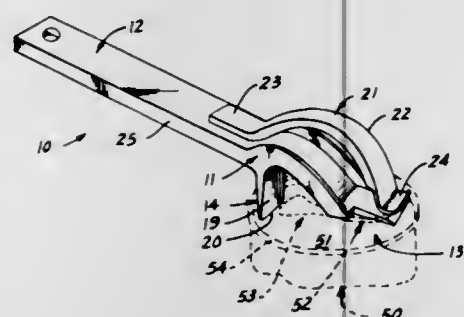
3,656,375
OPENER

Joe A. Reed, 515 East 10th Street, and John D. Reed, 123 Womack, both of Borger, Tex.

Filed May 4, 1970, Ser. No. 34,337
Int. Cl. B67b 7/00

U.S. Cl. 81-3.46

3 Claims



An opener for removing the ring and tear-away closure element from the top of a can. The opener includes a nose portion for insertion through the ring, a handle or gripping portion opposite the nose, and a depending fulcrum member disposed between the nose and handle so that the nose portion engages the ring and tears away the closure as the opener is rotated about the fulcrum. A retaining member is provided on the opener to catch and retain the ring and closure element after removal from the can.

3,656,376

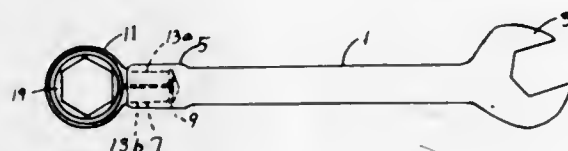
FRICTION CLUTCH DEVICE

Theodore A. Campbell; Martin R. Stebbins, and Jonathan W. Peelle, all of Colorado Springs, Colo., assignors to Rotoloc Corporation, Colorado Springs, Colo.

Filed Mar. 26, 1970, Ser. No. 22,887
Int. Cl. B25b 13/00; F16d 11/06

U.S. Cl. 81-58

15 Claims



A clutch device includes a cylindrical driven member surrounded by an annular driving member formed with a radial arm, the driving member being radially split along the axis of the arm. The arm extends into a cavity in an actuating member of the same width as the expanded arm whereby, by moving the actuating member to a position wherein the axis of the cavity is disaligned from the axis of the arm, the arm and the annular member will be compressed at their juncture to cause the annular member to frictionally grip the driven member. The clutch is embodied in a ratchet-action wrench in place of the usual ratchet mechanism in which the cylindrical drive member is a head rotatably mounted within an annular driving member or body formed with an elongated radial arm, and is radially split axially of the arm. The arm fits into an elongated axial cavity in the end of an elongated shank member, the width of the cavity being sufficient to accommodate the arm with the split open so that by moving the shank member to a position disaligned from the arm, the opposite side of the cavity will engage opposite ends of the arm, compressing the body to close the split and frictionally engage the head.

For retaining the arm in the shank cavity, the extremities of the expanded arm and the base of the cavity are wider than the mouth of the cavity, and for retaining the head in the body, both are formed with opposed annular grooves in which a split wire ring is seated.

3,656,377

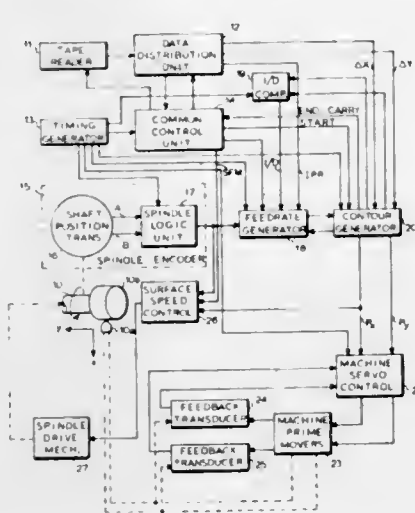
SURFACE SPEED CONTROL OF SPINDLE-RELATED NUMERICAL CONTROL SYSTEM

Marion Kosem, Willoughby Hills, Ohio, assignor to Allen-Bradley Company, Milwaukee, Wis.

Filed July 10, 1969, Ser. No. 840,641
Int. Cl. B23b 1/00

U.S. Cl. 82-1 C

4 Claims



In a numerical control system having apparatus for controlling feedrate as a function of spindle speed (angular velocity), a spindle encoder provides a train of basic feed

pulses at a frequency f_s as a function of spindle speed. Surface speed of a cutting tool over a workpiece is controlled to a value programmed in linear units where the spindle provides relative rotary motion between the tool and the workpiece by multiplying the frequency f_s by the absolute command position of the tool along an axis perpendicular to the axis of rotation of the spindle, and comparing the resulting product with a train of pulses at a frequency that is a function of programmed surface speed. Any difference drives a bidirectional counter in a direction corresponding to the sign of the difference. A digital-to-analog converter couples the output of the bidirectional counter to a spindle drive mechanism to bring the actual surface speed into agreement with the desired surface speed.

3,656,378

METHOD OF MANUFACTURE

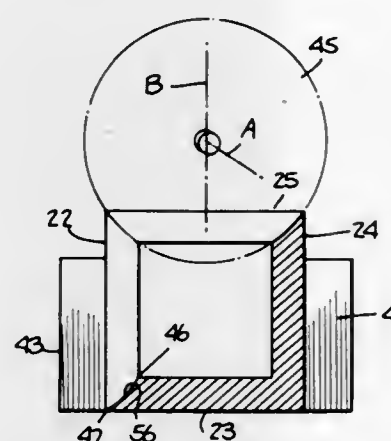
Ariel R. Davis, P.O. Box 61, New Holland, Pa.

Original application Nov. 12, 1968, Ser. No. 784,979, now abandoned. Divided and this application Dec. 17, 1970, Ser. No. 99,110

Int. Cl. B23d 45/00

U.S. Cl. 83-1

10 Claims



A tubular aluminum member is extruded in a rectangular shape and cut to a given length. The four walls of the tubular member are successively cut by a circular saw to form a portion of the tubular member into a generally spiral shape winding with terminal portions at each end. The member is treated to form an insulating layer on the surfaces of the member including the facing sides of the winding to form an inductive winding for passing current. The winding may be compressed and one set of edges treated for engagement by current taps to produce a variable voltage and current device.

3,656,379

METHODS OF CUTTING LAMINATED STRIP MATERIAL

Martin Ronald Newton Clark, Ickenham, England, assignor to Vandervell Products Limited, London, England

Filed July 20, 1970, Ser. No. 56,286
Claims priority, application Great Britain, Oct. 22, 1969, 51,835/69

Int. Cl. B26d 3/06, 9/00

U.S. Cl. 83-5

5 Claims



A method of cutting a laminated strip of material having soft and hard layers in which a groove is cut in the soft layer

3,656,380

CUTTING PRESS HAVING IMPROVED MEANS FOR HANDLING CUT PRODUCTS

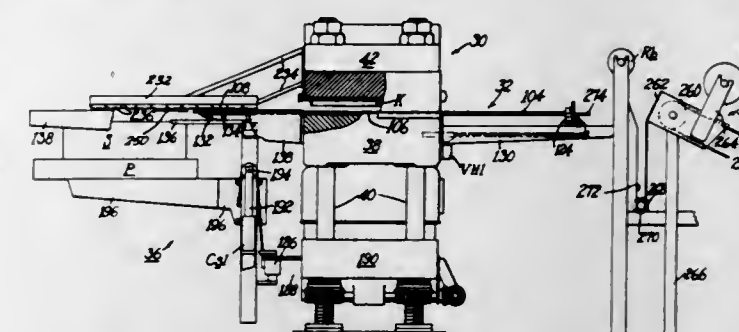
David F. Creffield, Bristol, England, assignor to USM Corporation, Boston, Mass.

Original application Nov. 14, 1967, Ser. No. 682,953. Divided and this application Apr. 27, 1970, Ser. No. 48,568
Claims priority, application Great Britain, Nov. 16, 1966, 51,259/66

Int. Cl. B65h 29/34

U.S. Cl. 83-96

7 Claims



A cutting press having a beam and a bed arranged for relative movement of approach and separation is provided with improved means for handling the cut product. The product handling means includes an improved separator means comprising separator elements and a plurality of independently yieldable support elements disposed above a table for receiving the cut product to urge separation of the cut product along cuts made by the press to lay the cut product on the table.

3,656,381

COMPOUND DIE FOR PUNCHING SHEET MEMBERS FROM CIRCULAR BLANKS IN PUNCH PRESSERS WITH VERTICAL DISPOSITION OF BLANKING PLANES

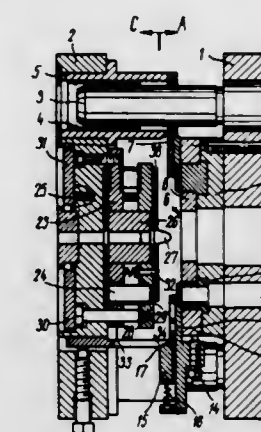
Vitaly Konstantinovich Gilev, proezd, 65, kv. 16.; Volf Nakhimovich Evzlin, ulitsa Chapayeva, 102, kv. 53.; Gennady Nikolaevich Kamalov, prospekt Kirova, 30, kv. 57.; Rafael Tevosovich Sarkisov, ulitsa dga-Nematully, 20a, blok 3, kv. 28.; Ernst Arakelovich Stephanian, ulitsa Druzhby Molodezhi, 2, kv. 36., and Rustam Makhmud Ogly Shakhmaliev, prospekt Nefti, 24, kv. 8., all of Baku, U.S.S.R.

Filed Oct. 31, 1969, Ser. No. 872,872

Int. Cl. B26d 7/02

U.S. Cl. 83-133

2 Claims



Compound dies for punching sheet members from circular blanks in punch presses with a vertical disposition of the blanking planes. The compound die has a movable plate provided with punches, a lifter for removing a completed member and a means for centering the blank relative to the

female die. The female die is arranged on a stationary plate the lower portion of which is provided with supports for holding the blank on the stationary support. The stationary plate has a device for holding the blank against the face of the female die comprising at least two movable holder. These holders are positioned in the blanking plane in opposite relationship and along an axis perpendicular to the direction of movement of the blank.

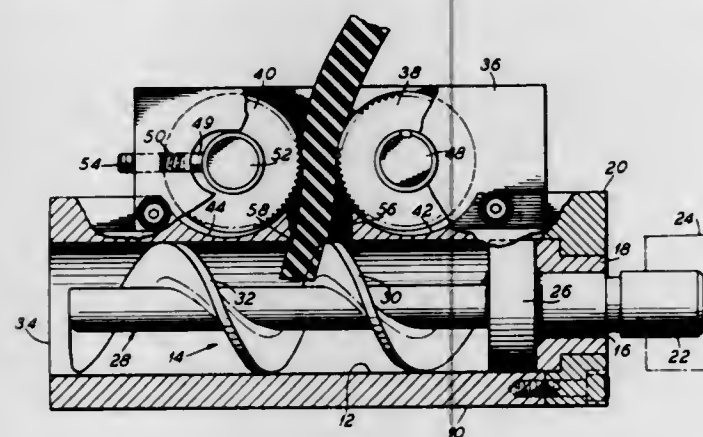
3,656,382

RUBBER OR PLASTIC FEEDER-CUTTER

Charles A. Cyphers, Mt. Gilead, Ohio, assignor to Sund-Borg Machines Corporation, Tremont, Ohio
Filed Aug. 28, 1970, Ser. No. 67,721
Int. Cl. B26d 9/00

U.S. Cl. 83-150

6 Claims



Apparatus for cutting strips or rope-like lengths of material, especially rubber, or rubber-like plastic material, or plastic having a rubber like consistency, into discrete, shorter lengths for subsequent working.

3,656,383

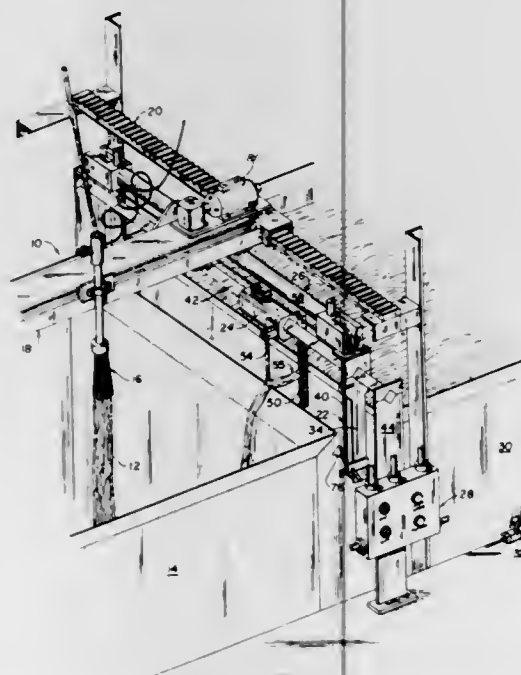
APPARATUS FOR AUTOMATICALLY CUTTING CONNECTING TOW OF CONTINUOUS FILAMENTARY MATERIAL BETWEEN TOTE BOXES

Merton L. Dibble, and Edward A. Morehead, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 9, 1970, Ser. No. 88,004
Int. Cl. B26d 7/10

U.S. Cl. 83-167

12 Claims



Apparatus for automatically cutting a connecting tow of continuous filamentary material that extends between tote boxes that are in loading and off-loading positions, respec-

tively. The connecting tow is engaged and consequently is held by a member attached to a carriage that moves between the tote boxes, and is guided and moved to an electrically energized heat severing device that is located to one side of the path along which the tote boxes move, whereupon the connecting tow is cut by the heat severing device and one of the cut ends is caused to drop into the tote box that is in loading position.

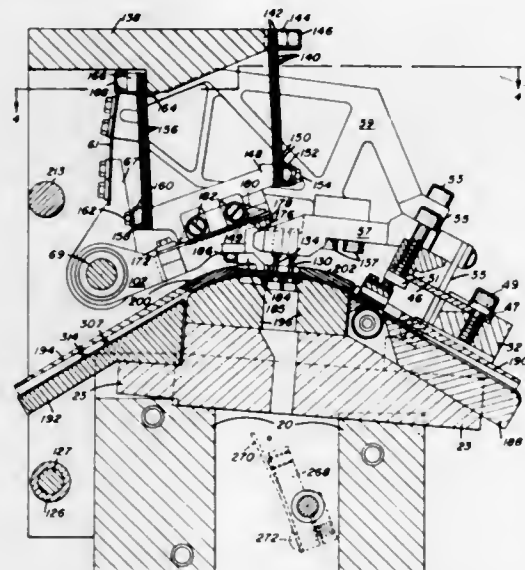
3,656,384

INTERMITTENT HIGH SPEED PERFORATOR

Jasper S. Chandler, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed May 27, 1970, Ser. No. 40,951
Int. Cl. B26d 5/22, 7/16; B26f 1/02

U.S. Cl. 83-228

14 Claims



An intermittent film perforator capable of operating at a shuttling and punching rate up to 12,000 perforations per minute, having a design life of 16,000 hours, and readily adapted to perforate different film formats and film widths. The heart of the perforator is a novel film shuttling mechanism having a cam and follower design which is subject to a minimum of wear and which is resiliently mounted so that it can be tuned to reduce the load of the bearings of the drive therefor.

The perforator is provided with an automatic threading mechanism which will thread unperforated film to and through the punch mechanism and to the shuttle mechanism, thus eliminating the necessity of temporarily splicing the ends of a new film to the end of an expiring film or providing the end of a new film with perforations to insure its being handled by the perforator. This automatic threading mechanism intermittently advances the film to the punch and shuttle mechanism by intermittently frictionally engaging the same and advancing it in increments substantially equal to the perforation pitch and the advancing stroke of the shuttle mechanism.

Both the novel shuttle mechanism and the automatic threading mechanism of the perforator are not limited to use in perforators but can be used independently to intermittently feed motion picture film through a motion picture camera or a motion picture projector with little or no modification.

3,656,385

APPARATUS FOR MACHINE FORMING EXTRUDED PLASTIC SIDING

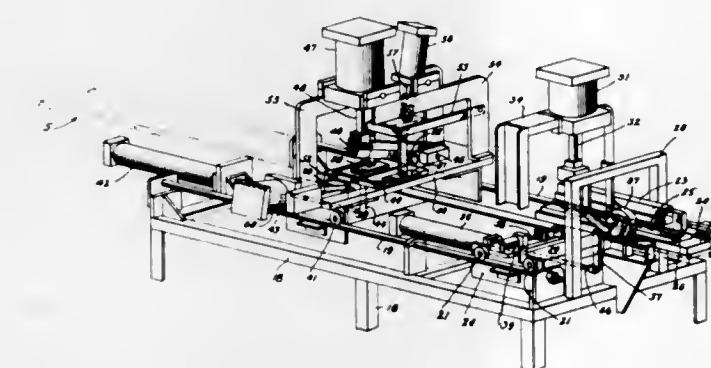
Sol B. Kimbrell, McPherson, Kans., assignor to Certain-Teed Products Corporation, Ardmore, Pa.
Filed Mar. 10, 1970, Ser. No. 18,157
Int. Cl. B26d 9/00

U.S. Cl. 83-290

8 Claims

Equipment is provided for machine forming, e.g., cutting off, punching, and the like, extruded siding formed of resin

materials. A plurality of punch blades are mounted in a linear series for punching nail holes in the hanger edge of the siding, and a cut off knife and notching punches are mounted



on a carriage and provide for cut off of lengths of the siding and for notching out portions of the hanger and butt edges, to facilitate overlapping of the siding upon installation.

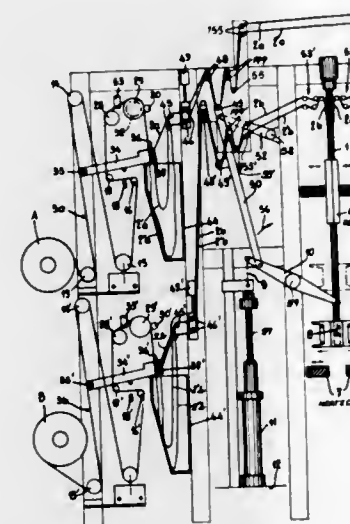
3,656,386

DEVICE FOR DRAWING PARALLEL STRIPS WITH UNIFORM TENSION

Jean-Charles Roussel, Rhone, France, assignor to Societe Anonyme Thimonnier & Cie, Rhone, France
Filed July 17, 1970, Ser. No. 55,764
Claims priority, application France, July 18, 1969, 6923640
Int. Cl. B26d 7/00

U.S. Cl. 83-367

10 Claims



A wide web of heat-sealable plastic material, continuously unwound from a supply roll, is slitted longitudinally into a plurality of parallel strips which are entrained by a motor-driven traction roller and are allowed to hang in slack loops about one or more horizontal bars carried on the free end of a sensing lever, being then fed past an intermittently operating clamp and a drawing mechanism to an output stage where they pass through a set of friction rollers or rods and are periodically pulled forth for shaping into envelopes sealed about materials discharged from respective dispensers. With the drawing mechanism intermittently picking up the slack of the loops, the length of the shortest loop controls the position of the sensing lever which, on swinging beyond an upper or a lower limit, coacts with one of two stops to accelerate or retard the drive motor, thereby maintaining a proper average feed rate.

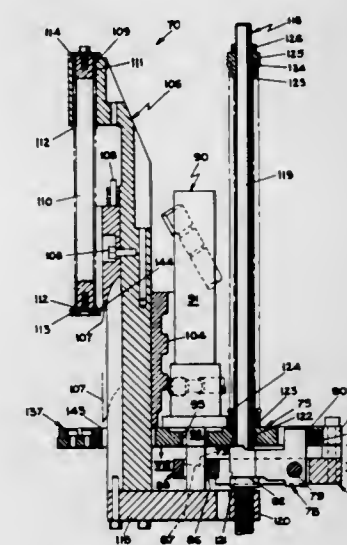
3,656,387

CORNER CUTTER MACHINE

Donald D. Wark, Grand Haven, Mich., assignor to The Challenge Machinery Company, Grand Haven, Mich.
Filed May 27, 1970, Ser. No. 40,893
Int. Cl. B26d 11/00

U.S. Cl. 83-374

13 Claims



A corner cutting machine particularly adapted for rounding the corners on stacks of paper or the like employing first and second cutting tools, one such tool being slidable with respect to the other such that it slides from the non-operative position with respect to the stack to an operative position upon initiation of the cutting or shaping sequence. Means are provided for locking the movable tool in operative position with respect to the stack during the period when it is actually performing the cutting or shaping operation.

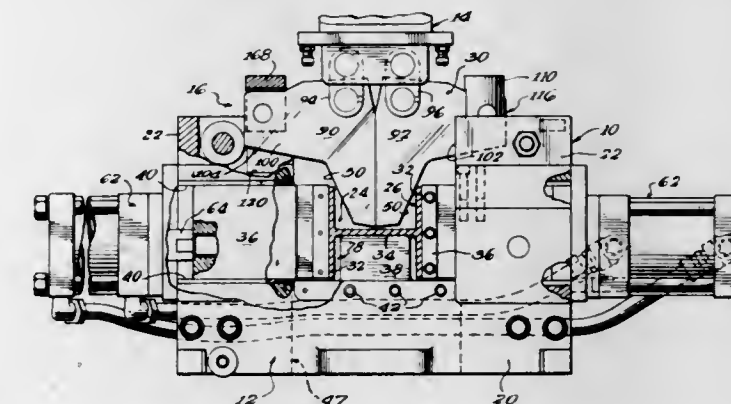
3,656,388

I-BEAM CUTTING MACHINE

Raymond L. Valente, Kankakee, Ill., assignor to Manco Manufacturing Co., Bradley, Ill.
Filed Feb. 12, 1970, Ser. No. 10,807
Int. Cl. B26d 7/02; B23d 23/00

U.S. Cl. 83-456

4 Claims



Shearing apparatus for an I-beam or other similar channel-like structures. Said apparatus is comprised of a frame which supports a fluid operated ram arrangement and various elements which define stationary die blades. Shear blade means are connected with said ram for reciprocal movement, said shear blade means being co-operable with the stationary die blades to effect severing of the I-beam. The shear blade means are defined by a pair of blade members which are in effect mirror image parts. The respective blade members are mounted for pivotal movement relative to the ram and to each other in an outward direction transverse to the axis of the said I-beam. Accordingly, during the severing operation,

said members will force the flange portions of the I-beam outwardly to prevent inward curling thereof.

3,656,389

REED CONTACT SHEAR

Walter Eckstein, Asperg, and Roland Klotz, Marbach, both of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

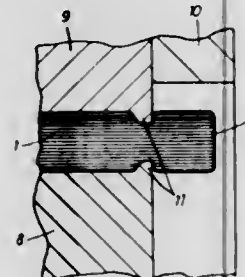
Filed Sept. 10, 1969, Ser. No. 856,768

Claims priority, application Germany, Sept. 25, 1968, P 17 89 029.8

Int. Cl. B23d 33/08

U.S. Cl. 83—465

2 Claims



A reed contact is formed from sheet metal by means of a punching operation. The end of the contact is designed so that any burrs resulting from the punching extend away from the contact surface into a kerf-shaped recess.

3,656,390

LOCATING TABLE

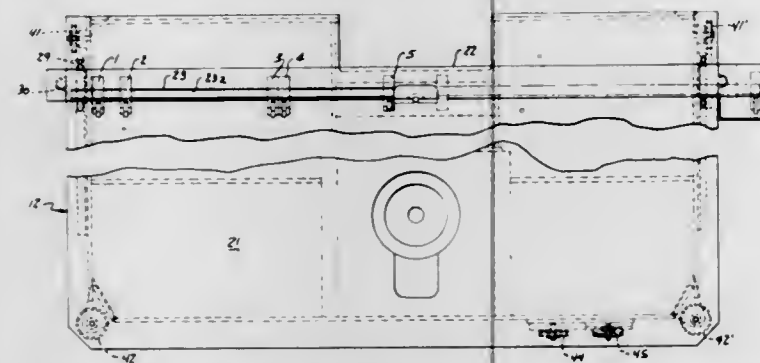
Peter C. Hochstatter, Rockford, Ill., assignor to Roper Whitney, Inc., Rockford, Ill.

Filed Oct. 12, 1970, Ser. No. 79,749

Int. Cl. B26d 7/16

U.S. Cl. 83—468

15 Claims



A punch press is provided with a locating table having a back gage with a plurality of drop stops mounted thereon. The back gage is adjustably mounted on the table by an endless cable arrangement which is clamped to opposite ends of the back gage. A handle is secured to the cable at the front of the table and carries a detent which selectively engages a plurality of adjustable stops. The back gage is repositioned by raising the detent and moving the handle and detent into engagement with another stop.

3,656,391

SHEARING APPARATUS WITH WORKPIECE-VIEWING MEANS

Paul Von Arx, Geiterkinderstrasse 31, ch 4450, Sissach, Switzerland

Filed Feb. 20, 1970, Ser. No. 13,081

Claims priority, application Switzerland, Jan. 19, 1970, 668/70; Feb. 26, 1969, 3119/69

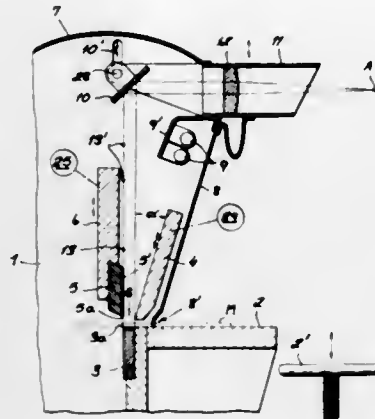
Int. Cl. B26d 7/00

U.S. Cl. 83—521

9 Claims

A shearing apparatus wherein a portion of a workpiece which projects over a table edge is sheared off by a generally vertically reciprocable blade while the workpiece is held

firmly against the table by a clamping element. A viewer affords the operator an enlarged view of the workpiece in the gap between the clamping element and the blade. The viewer has a high-intensity light source which directs a beam of light



at the workpiece in the gap and a reflector and lens arranged to direct to the operator the light reflected by the workpiece. A translucent screen can be provided to afford the operator a picture-like view regardless of his position.

3,656,392

PUNCHING MACHINE

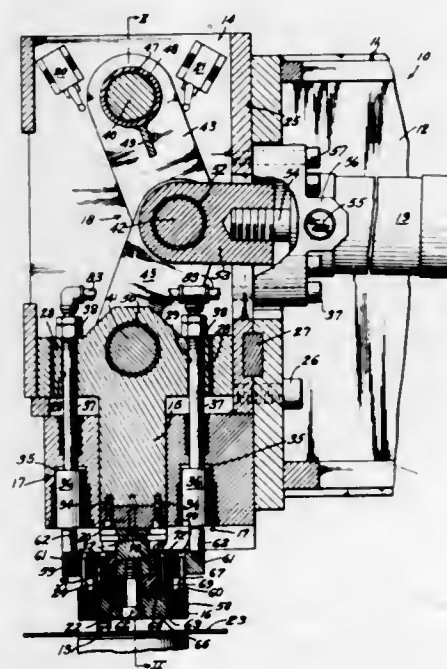
Alexander Krynytzky, West Seneca, N.Y.; Arthur K. Schott, Greensboro, N.C., and Otto Hoffmann, Tonawanda Township, Erie County, N.Y., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Original application Nov. 14, 1966, Ser. No. 596,384, now Patent No. 3,529,502. Divided and this application May 25, 1970, Ser. No. 41,142

Int. Cl. B26d 5/12, 5/18

U.S. Cl. 83—530

6 Claims



A punching machine has a C-frame, which thus has a lower die-supporting arm, and an upper arm to which is detachably secured a module, removable as a unit, which module includes a rigid head which supports a ram, a toggle linkage secured to the head and ram, and a hydraulic actuator secured to the head and toggle linkage. A key between the head and upper arm serves to locate the module and to transfer reactive thrust therebetween.

3,656,393

CARBIDE SAW BLADE LOCKING DEVICE

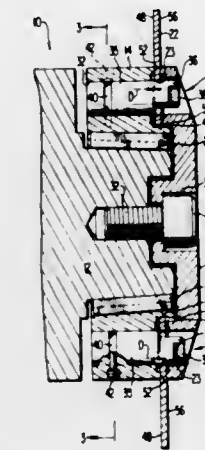
Willy J. Goellner, Rockford, Ill., assignor to Paramount Textile Machinery Co., Chicago, Ill.

Filed June 19, 1970, Ser. No. 47,830

Int. Cl. B26d 1/28

U.S. Cl. 83—666

16 Claims



A method and apparatus for driving a saw blade and for positively locking the saw blade to the nose of a spindle which will minimize backlash between the blade and spindle. Further, a method and apparatus for locking a saw blade to a driving spindle which will permit rapid replacement of a defective or worn cutting tool. A driving spindle is provided with at least one driving and locking pin having a cam nose which is designed to engage the inner periphery of an aperture in a saw blade and positively lock the saw blade to the driving spindle.

3,656,394

PUNCH CONFIGURATION

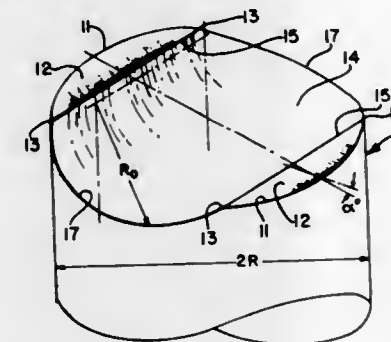
Homer W. McCutcheon, Seattle, Wash., assignor to Tally Corporation, Seattle, Wash.

Filed Aug. 10, 1970, Ser. No. 62,333

Int. Cl. B26f 1/14

U.S. Cl. 83—689

14 Claims



Punch configuration in which the geometry of the face involves planar surfaces which angle inwardly on opposed edges of the punch face. The angled planar surfaces terminate on a straight line and are interconnected by a grooved circular surface. As designed the punch configuration is symmetrical and the angles of the planar surfaces as well as the radius of the grooved cylindrical surface are calculated to require the least amount of punch force.

3,656,395

GUITAR CONSTRUCTION

Charles H. Kaman, Simsbury, Conn., assignor to Kaman Corporation, Bloomfield, Conn.

Filed June 8, 1970, Ser. No. 44,202

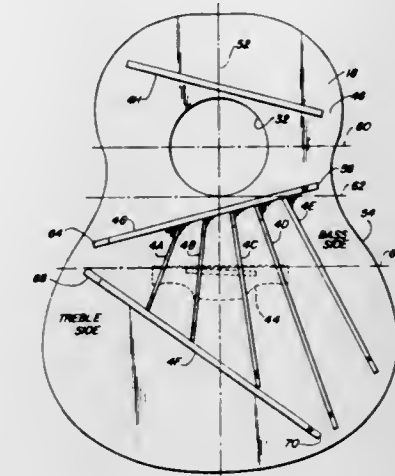
Int. Cl. G10d 1/08, 3/00

U.S. Cl. 84—267

22 Claims

A guitar includes a body comprised of a one-piece curved bowl of fiberglass material forming the back and sides of the body and a flat wooden soundboard forming the top of the

body. A unique arrangement of braces secured to the interior surface of the soundboard causes it to be tuned to a large



number of different frequencies over the fully frequency and produces a full rich sound when the instrument is played.

3,656,396

PROTECTIVE FASTENER HEAD

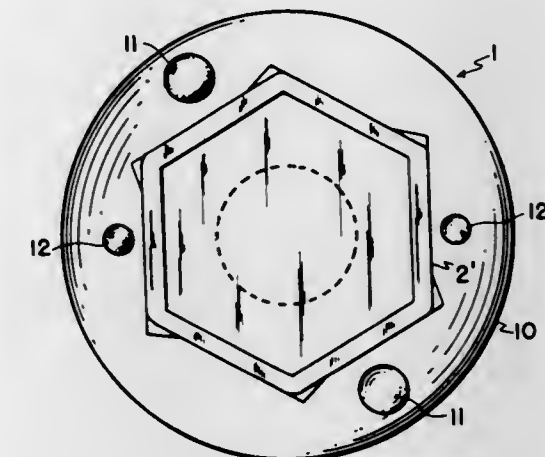
Charles E. Gutshall, Ellwood City, Pa., assignor to Textron, Inc., Providence, R.I.

Filed Aug. 5, 1970, Ser. No. 61,058

Int. Cl. F16b 23/00, 35/00

U.S. Cl. 85—9

4 Claims



A fastener having a head such as a hex head in which each side of the head is formed of two obtusely intersecting plane surfaces in which the line of intersection is positioned adjacent the leading edge of each corner which receives the turning torque from a driving tool. The head can terminate in a washer base having a plurality of embossments spaced there around and in line with the bottom contacting surf

3,656,397

BOLT HEAD CONFIGURATION

Arthur G. Kudelko, Glenside, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa.

Filed Nov. 28, 1969, Ser. No. 880,612

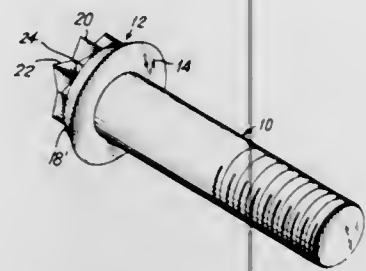
Int. Cl. F16b 23/00, 35/00

U.S. Cl. 85—9

11 Claims

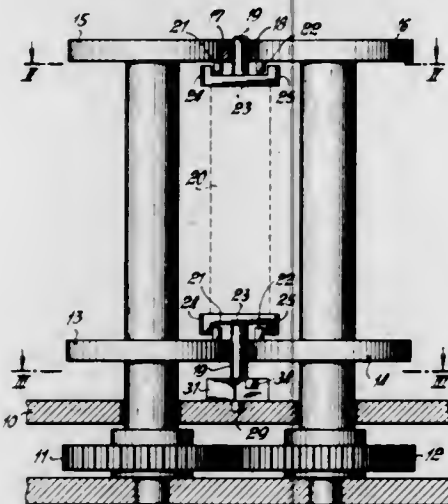
A bolt comprising a threaded shank portion and a head member having an optimum strength to weight configuration. The head member comprises a planar base section projecting radially outwardly from the shank portion and an inclined shoulder extending upwardly from the planar base section and inwardly toward the outer periphery of an upward extension of the shank portion. A wrenching configuration is

formed on the head and extends downwardly from a plane defined by the intersection of the inclined shoulder, if ex-



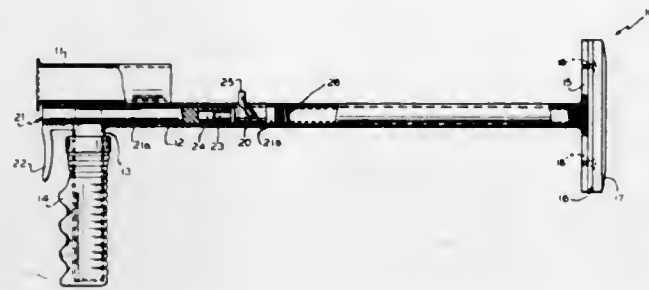
tended, and an extension of the outer periphery of the shank portion.

3,656,398
DEVICE FOR TRANSFERRING THE BOBBIN OF A BRAIDING MACHINE BETWEEN TWO ADJACENT FLYER WHEELS
 Reiner Strangfeld, Oldenburg, Germany, assignor to August Herzog Maschinenfabrik, Oldenburg, Germany
 Filed Sept. 22, 1970, Ser. No. 74,409
 Claims priority, application Germany, Sept. 23, 1969, P 19 47 976.6
 Int. Cl. D04c 3/20
 U.S. Cl. 87-37 4 Claims



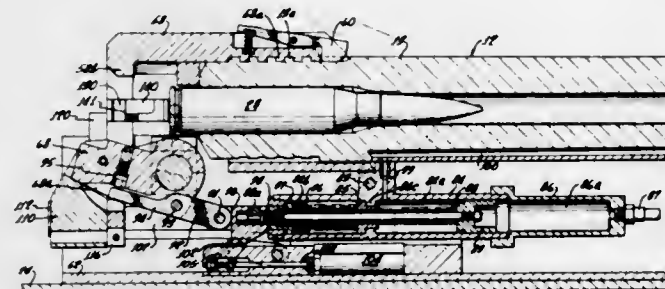
A device for transferring the bobbin of a braiding machine between two adjacent flyer wheels of the type in which a double gripper arm is provided for retaining the bobbin, which double gripper arm has retaining claws which engage behind projections arranged on each of the flyer wheels and in which the longitudinal axis of which gripper arm extends through the axis of the bobbin, in which the surfaces of the retaining claws which engage behind the projections are curved to form a radius which corresponds to the radius of turn of these surfaces about the longitudinal axis of the bobbin, the double gripper arm being rotatable relative to the flyer wheel carrying the bobbin, such that one retaining claw engages with one projection, the rotation effecting the locking or unlocking being controllable such that the transfer region extends across a specific region of the path in advance and after the point of transfer with a uniformly accelerated change in the speed of rotation from the speed of rotation of the transferring flyer wheel to the speed of rotation of the receiving flyer wheel.

3,656,399
STOCK AND TRIGGER MECHANISM FOR LINE THROWER
 Orrin W. Hill, Turin, N.Y., assignor to Hall Ski-Lift Company, Inc., Watertown, N.Y.
 Filed Aug. 31, 1970, Ser. No. 68,381
 Int. Cl. F41f 1/00
 U.S. Cl. 89-1 G 2 Claims



A line thrower, of the type firing a blank cartridge to propel a projectile fitting over the end of the gun barrel for carrying the end of a light line, has a rearwardly projecting pistol grip with a spring biased firing pin therethrough. A shoulder stock attachment therefor has a tubular receiver for the launcher pistol grip and a trigger mechanism therein enabling the launcher to be fired with one hand. A tube extending to a shoulder pad slideably contains a two part trigger bolt which is spring biased forward. The bolt front portion has a pendant trigger secured thereto forward of a downwardly projecting hand grip secured to the tube. The rear bolt portion is axially aligned with the front portion but is secured rotatably thereto and has a radially projecting sear pin normally projecting upward through a slot in the tube, the pin end being adapted to engage the forward surface of a nut at the end of the launcher firing pin when it is drawn back. The slot extends angularly to the tube axis so that when the trigger bolt is drawn rearwardly the rear bolt portion is rotated by the sear pin being cammed laterally to release the firing pin firing the launcher.

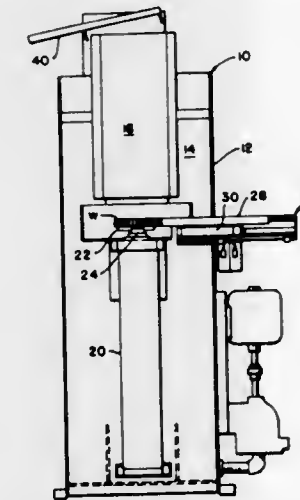
3,656,400
AUTOMATIC GUN BREECH MECHANISM HAVING LATCHES TO HOLD THE BREECH BLOCK OPEN
 Eugene M. Stoner, and John P. Foote, both of Port Clinton, Ohio, assignors to Oberlikon-Buehrle Holding AG, Zurich-Oberlikon, Zurich, Switzerland
 Filed Mar. 18, 1970, Ser. No. 20,615
 Int. Cl. F41d 5/12, 11/12; F41f 11/00
 U.S. Cl. 89-138 25 Claims



A reciprocating barrel is provided with a breech ring supporting a breech block for vertical and rotatable movement between open and closed positions of the firing chamber. The breech block is mounted on a pin having semi-circular end portions which are positioned within slots in the breech ring which control the vertical and rotational movement of the breech pin carrying the breech block. An actuator operated by explosion gases opens and closes the breech block. Breech latches hold the breech block in its open posi-

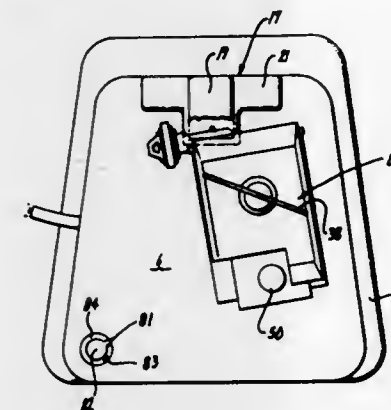
tion, and ejector slides operated by the breech block serve to lock the latches so as to hold the breech block in the open position. The ejector slides are engaged by an incoming round of ammunition to release the latches and the breech block to allow the actuator to close the breech block for the next firing cycle.

3,656,401
POT BROACHING MACHINE
 Joseph A. Psenka, Bloomfield Hills, Mich., assignor to Lear Siegler, Inc., Santa Monica, Calif.
 Filed Mar. 5, 1970, Ser. No. 16,747
 Int. Cl. B23f 5/28
 U.S. Cl. 90-10 4 Claims



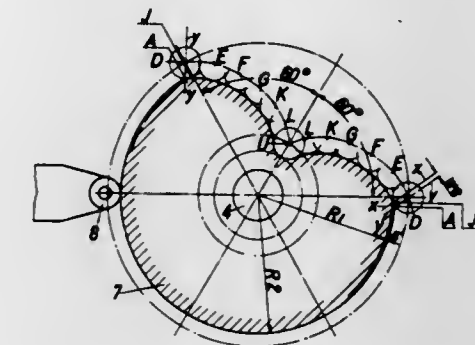
A machine for broaching external gears comprising a frame, a pot broaching tool positioned with its axis vertical at the upper portion of the frame, a piston and cylinder device with its axis vertical located directly beneath the pot broach. The gear blank is positioned directly above a work support carried by the piston and is pushed upwardly through the pot broach to a position of clearance above. The cutting teeth of the broach are of course directed downwardly and each cutting tooth has a chip receiving space directly beneath it into which chips are formed during the broaching operation and from which chips are displaced for downward discharge.

3,656,402
KEY CUTTING DEVICE
 George F. French, 820 Arlington Ave., Berkeley, Calif.
 Filed Mar. 23, 1970, Ser. No. 21,581
 Int. Cl. B23c 1/16
 U.S. Cl. 90-13.05 5 Claims



A device for duplicating a pattern key from a key blank including a cutting member, a planar surface mounted adjacent the cutting member, a guide member adapted for engagement with the pattern key, key holding means holding the pattern key in parallel face to face registration with the blank stock key and having a surface in sliding contact with the planar surface for movement of the stock key against the cutting member and the pattern key against the guide member.

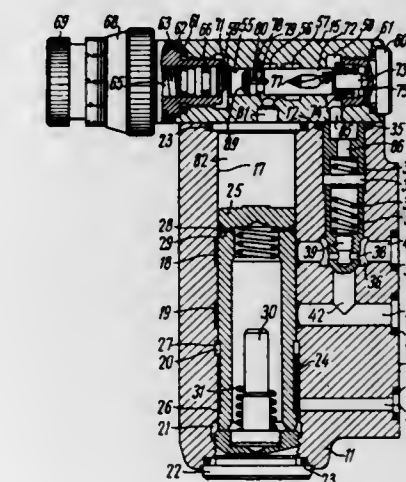
3,656,403
CONTROL ARRANGEMENTS FOR AN AUTOMATIC MACHINE TOOL
 Alfred Schmermund, 5820 Gevelsberg, Postfach 144, Germany
 Filed Oct. 8, 1970, Ser. No. 79,161
 Claims priority, application Great Britain, Oct. 23, 1969, 52039/69
 Int. Cl. B23c 1/16 4 Claims



This invention relates to a control arrangement for an automatic machine tool having a pair of identically profiled parallel master plate cams which are mounted on a movable carrier with their profiles reversed with respect to each other. The profile of a selected one of the master cams is sensed by a main follower which is coupled to control means for controlling a milling tool operating on a rotating workpiece. An auxiliary cam is rotated with the workpiece and an auxiliary follower co-operating with the auxiliary cam is coupled to the carrier to control the displacement thereof. At least one end portion of the profile of the selected master cam is linear and disposed parallel to the direction of displacement of the carrier, whereby the displacement of the selected master cam when the main follower is in contact with a linear portion of the profile thereof does not result in displacement of the main follower.

Alternatively, the pair of master cams are replaced by a single reversibly mountable master cam.

3,656,404
HYDRAULIC TIME RELAY FOR HYDRAULIC SYSTEMS
 Boris Yakovlevich Landenzon, Moskovsky prospekt, 238, kv. 1, and Rafail Alexandrovich Filatov, ulitsa Girshmana, 18, kv. 8, both of Kharkov, U.S.S.R.
 Continuation of application Ser. No. 822,616, May 7, 1969, now abandoned. This application Mar. 9, 1971, Ser. No. 122,547
 Int. Cl. F01b 29/04; F15b 21/02
 U.S. Cl. 91-38 2 Claims



A hydraulic time relay for hydraulic systems with a throttle plug installed so that it can move to and fro along its axis.

3,656,405

PRESSURIZED MEDIUM MOTOR

Karl Klinkhammer, Bielefeld, Germany, assignor to Gebr. Dickertmann Hebezeugfabrik A.G., Bielefeld, Germany

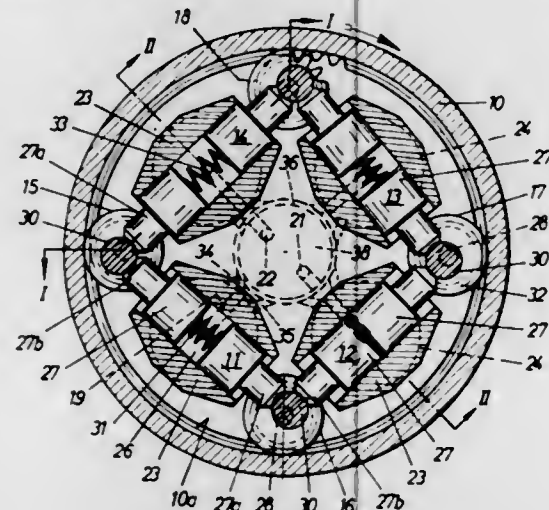
Filed Nov. 10, 1970, Ser. No. 88,446

Claims priority, application Austria, Nov. 11, 1969, A 10578/69

Int. Cl. F01b 15/00, 7/02

U.S. Cl. 91-176

8 Claims



A pressurized medium motor comprising a housing, a plurality of opposed pivotally mounted piston and cylinder units in the housing and adapted to be successively supplied with pressurized medium, each unit acting on eccentric drive means geared positively or non-positively with the housing, the opposed piston and cylinder units with the eccentric drives forming a polygon having a substantially constant circumference with varying side lengths, with an adjacent pair of units each having one piston end acting on a common eccentric part of an eccentric drive, each such unit being provided with at least one passage acting as a supply or discharge means for the pressurized medium, the said passage(s) being alternately connected automatically to pressure and exhaust passage, the said pressure and exhaust passages being connected in turn to all the units.

3,656,406

CONTROL APPARATUS FOR DOUBLE-ACTING HYDRAULIC CYLINDER AND PISTON ASSEMBLY

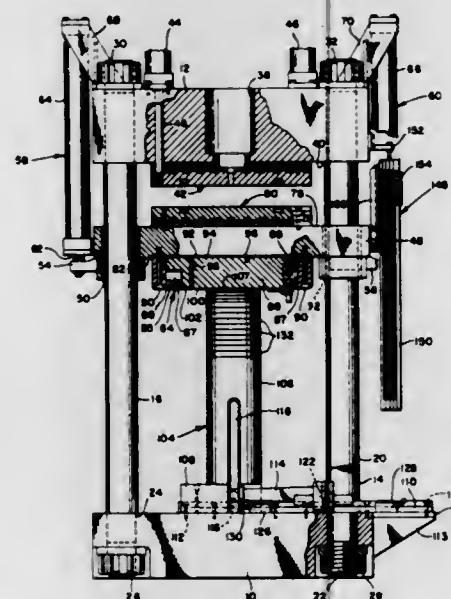
James R. Mercer, Akron, Ohio, assignor to McDowell-Wellman Engineering Company, Cleveland, Ohio

Filed Feb. 1, 1971, Ser. No. 111,328

Int. Cl. F15b 15/22

U.S. Cl. 91-401

7 Claims



A safety vent valve or poppet valve assembly for a double-acting hydraulic cylinder, having duplex, opposed coaxial

valve poppets closing a valve bore through the piston, and having a means to open the valve bore when the piston has moved beyond its working limits to provide a channel to vent fluid under predetermined excessive pressure. The venting of fluid under pressure when the piston has moved beyond its normal working stroke substantially reduces the force exerted by the piston upon the restraining machine member.

3,656,407

RADIAL PISTON PUMP

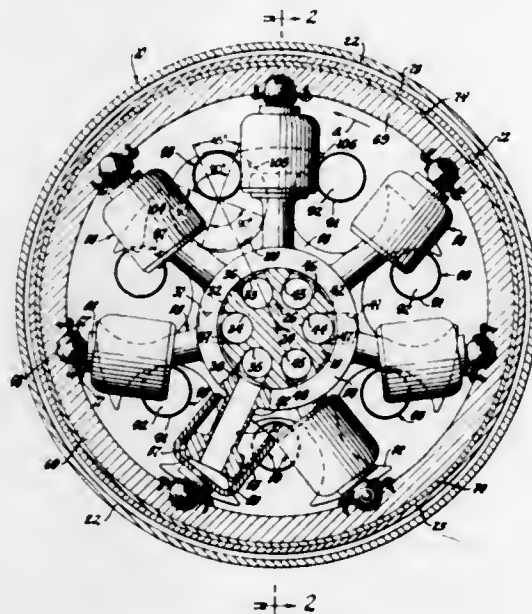
Gilbert K. Hause, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed June 1, 1970, Ser. No. 42,263

Int. Cl. F01b 13/06

U.S. Cl. 91-490

26 Claims



A hydrostatic pump or motor having a fixed pintle and a spider having radial pistons fixed thereon and rotatably mounted on the fixed pintle. Each piston has a spherical head cooperating with a cup like cylinder supported in an annular bearing ring which is rotatably mounted on an axis eccentric to the spider axis. The spider and ring are driven at the same speed by a pin and cam drive. In one embodiment, the power shaft directly drives the ring which drives the spider through a pin and cam mechanism for rotation at the same speed. In another embodiment, the power shaft directly drives the spider which drives the ring through a pin and cam mechanism. The pin and cam drive mechanism has a pin with a rotary bearing thereon fixed to one of the spider or ring, and the other has a circular cam with relieved portions at the radially inner and outer portions of the circular cam located between each pair of pistons. Each cup cylinder member is mounted on the ring by a universally pivoted stud or by a cylindrical caged roller bearing having limited movement relative to the cup member cooperating with the base of the cup member to provide free sidewalls for uniform expansion. The cup members have fluid supported sleeves to limit expansion. The pintles may have an enlarged eccentric portion to support the spider and a reduced portion so the rotary housing can be rotatably mounted on two small diameter bearings of the same size.

3,656,408

VARIABLE DISPLACEMENT MECHANISM

Robert M. Fox, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 9, 1970, Ser. No. 88,062

Int. Cl. F01b 13/04

U.S. Cl. 91-500

8 Claims

A variable displacement mechanism for use as a prime mover, pump or compressor having a frame supporting a pair

3,656,410

SPARK ADVANCE/RETARD CONTROL SERVO FOR AN INTERNAL COMBUSTION ENGINE

William E. Trower, Hullbridge, England, assignor to Ford Motor Company, Dearborn, Mich.

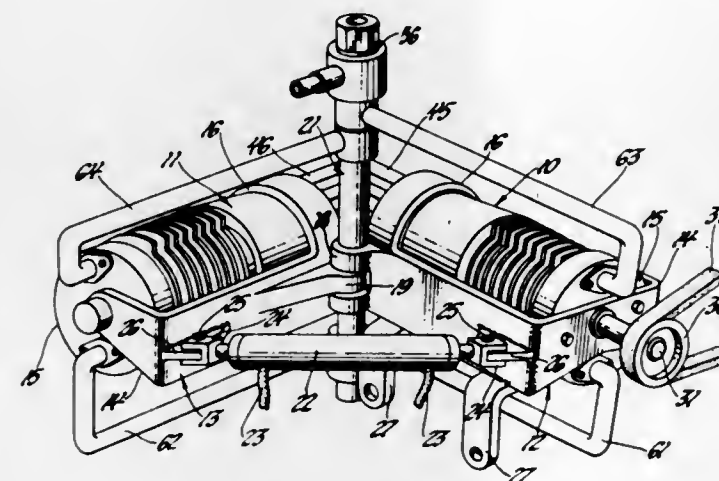
Filed July 17, 1970, Ser. No. 56,988

Claims priority, application Great Britain, Jan. 6, 1970, 551/70

Int. Cl. F01b 19/00

U.S. Cl. 92-49

4 Claims



with corresponding pistons of the other cylinder barrel to permit reciprocating motion of the pistons and transfer or torque between these pistons and the rotatable cylinder barrels during rotation and between the rotating cylinder barrels and a shaft fixed to one of the cylinder barrels.

3,656,409

TILTING HEAD AXIAL PISTON HYDRAULIC MACHINES

Jean Ulrich Thoma, Bellevulvez 23, Zug, Switzerland, and Renzo Galdabini, Via Ivrea 1, Gallarate, Italy

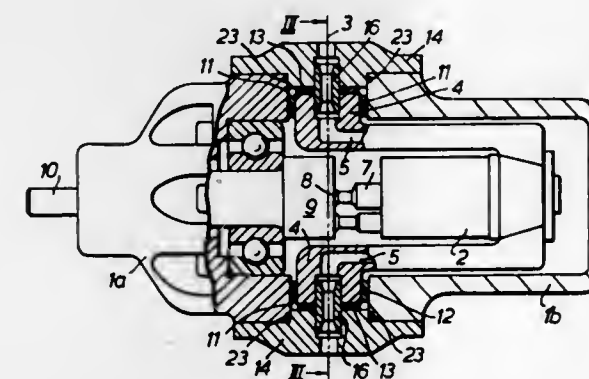
Filed Mar. 5, 1970, Ser. No. 16,860

Claims priority, application Switzerland, Mar. 5, 1969, 3760/69

Int. Cl. F01b 13/04

U.S. Cl. 91-504

4 Claims



An axial piston hydraulic pump or motor of the tilting head type, including a tilting body supporting a rotary cylinder block containing the individual pistons, and mounted for tilting movements about a transverse tilting axis in order to vary the capacity of the machine. The tilting head is provided with hollow trunnions mounted in bearings in a split casing, each bearing being located partly in one casing section and partly in the other.

3,656,411

TELESCOPIC PROPS

Karl Heinz Plester, Altlunen, and Heinz Hessel, Flaesheim, U. Hatern, both of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Westfalia, Germany

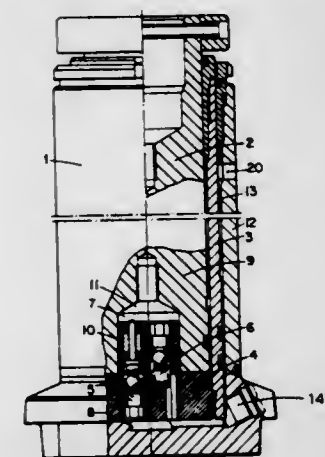
Filed Oct. 10, 1969, Ser. No. 865,355

Claims priority, application Germany, June 21, 1969, P 19 31 627.9

Int. Cl. F01b 7/20; F15b 13/02

U.S. Cl. 92-51

1 Claim



A telescopic prop with an outer member and first and second concentric inner members which inner members are disposed within said outer member and are longitudinally displaceable. The first inner member is extendable and retractable hydraulically whereas the second inner member is extendable hydraulically but retractable non-hydraulically. Each inner member has a piston facing a chamber chargeable

with hydraulic pressure fluid and two spring-biased non-return valves are operably disposed between the chambers, one valve opening in a direction between the chamber associated with the piston of the first inner member and the chamber associated with the piston of the second inner member and the other valve opening in the opposite direction.

3,656,412

VARIABLE COMPRESSION RATIO PISTON

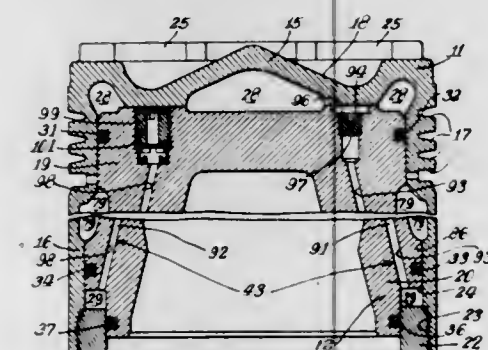
Harry L. Wilson, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind.

Filed July 28, 1969, Ser. No. 845,413

Int. Cl. F15b 21/04; F02b 75/04, 75/36

U.S. Cl. 92-82

15 Claims



A variable compression ratio piston for an internal combustion engine comprising a body member connected to an engine crankshaft by a connecting rod, and a crown member relatively movable with respect to the body member so as to vary the compression ratio and clearance volume of a cylinder of the engine in which the piston operates. Movement of the crown member is caused by inertia forces and is controlled by admission and exit of oil through passages contained in the member to and from two chambers formed between the members. On relative movement of the members the volumes of the two chambers change, one volume increasing and the other volume decreasing for the same movement. For the same relative movement of the members, the change in volume for the respective chambers differs. Oil is supplied to the chambers preferably from a single supply passage and exits from the chambers through preferably a single pressure relief passage. Oil is supplied to and discharged from one of the chambers to the other chamber by means of an interconnecting passage, and this passage is capable of greater flow of oil in one direction than in the other direction. The different changes of volume for the two interconnected chambers enable the piston to be held in position by a hydraulic link between the chambers.

3,656,413

FLUID-OPERATED SERVOMOTOR

Giorgio Eggstein, San Remo, Italy, assignor to Ernst Heinkel Aktiengesellschaft, Stuttgart-Zuffenhausen, Germany

Continuation-in-part of application Ser. No. 707,734, Feb. 23, 1968, now abandoned. This application Dec. 24, 1969, Ser. No. 888,090

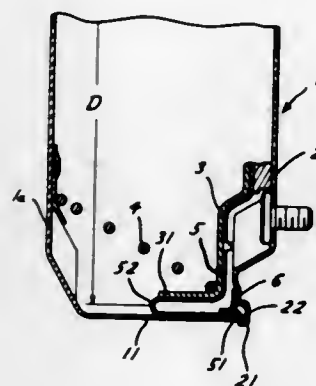
Int. Cl. F01b 19/00; F16j 3/00

U.S. Cl. 92-98 D

8 Claims

Pneumatic servomotor which operates the master cylinder in a vehicle brake applying apparatus comprises a two-piece cylinder for a piston and a diaphragm. The beaded marginal portion of the diaphragm has a maximum diameter which

equals the internal diameter of the cylindrical wall of the cylinder and is sealingly clamped between the sections of the



cylinder. Each section has lugs which are bent over the other section to hold the sections together.

3,656,414

PISTON ASSEMBLY FOR PUMPS, MOTORS AND THE LIKE

Hans-Jorg Muller, Surth, Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Germany

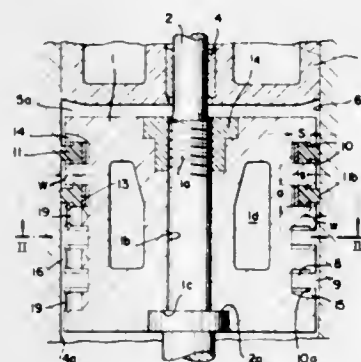
Filed June 9, 1970, Ser. No. 45,091

Claims priority, application Germany, June 11, 1969, P 19 29 630.1

Int. Cl. F16j 9/06, 9/08, 9/20

U.S. Cl. 92-249

4 Claims



A dry-running piston assembly, e.g., for compressor pistons, in which the piston is slidable with slight clearance in a cylinder and is formed with at least one groove confronting the wall of the cylinder and receiving a wear-type (e.g., self-lubricating) piston ring. The piston ring is biased outwardly into contact with the wall of the cylinder and is provided with shoulders engageable with shoulders of the groove to prevent further outward displacement of the ring beyond a predetermined wear condition. The ring may be composed of polytetrafluoroethylene or another low-friction or self-lubricating material.

3,656,415

METHOD AND APPARATUS FOR FORMING BAGS

Corey T. Hook, Jr., Green Bay, Wis., assignor to FMC Corporation, San Jose, Calif.

Filed Aug. 5, 1969, Ser. No. 847,587

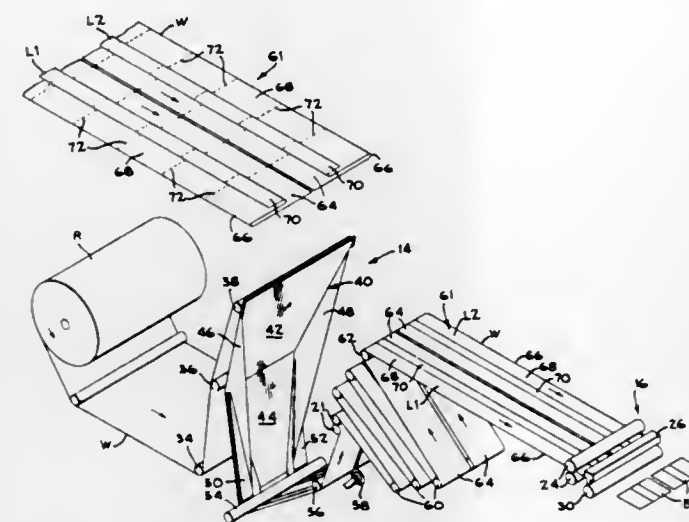
Int. Cl. B31b 1/18, 1/42, 49/04

U.S. Cl. 93-13

10 Claims

A bag forming method, and a bag forming machine including a fixed plow having guide and folding surfaces for a mov-

ing web to symmetrically fold the sides of the web and preceding the side seaming device for feeding blanks to the latter and a device following the side seaming device for



product all the folds necessary to form, when the web is later sealed and severed, two side by side lanes of finished bags.

3,656,416

BOX BLANK FOLDER

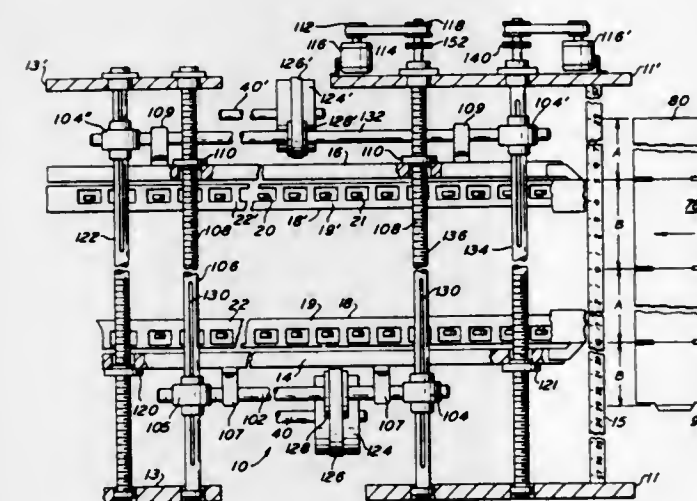
Theodore Baum, Mount Laurel, N.J., assignor to Harris-Intertype Corporation, Cleveland, Ohio

Continuation-in-part of application Ser. No. 745,889, July 18, 1968, now Patent No. 3,572,221. This application Oct. 5, 1970, Ser. No. 77,788

Int. Cl. B31b 1/36

U.S. Cl. 93-52

9 Claims



A machine is disclosed for folding box blanks along a fold line and interconnecting the end panels of the box blank by gluing or taping. Means are provided to permit simultaneous adjustment of longitudinally extending box blank contact members, said plates, and conveyor supports for the box blanks so that optimum position for folding of the blank may be achieved.

3,656,417

APPARATUS FOR PRODUCING CARTONS

John W. Scully, Raynham, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

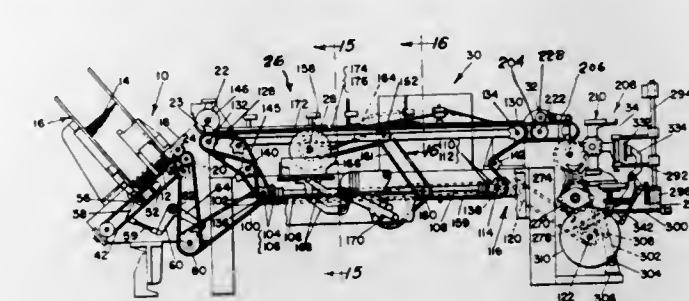
Filed Apr. 3, 1969, Ser. No. 813,172

Int. Cl. B31b 1/36, 1/62, 1/78

U.S. Cl. 93-52

1 Claim

Apparatus comprising a side seaming device adapted to fold a prescored carton blank along two score lines and to provide an adhesively secured side seam to form a flat tube. The apparatus also includes a carton blank feeding device



reverse folding the flat tube along the remaining two score lines.

3,656,418

WELD-ON RESTORING CAPS FOR SELF-POWERED COMPACTORS

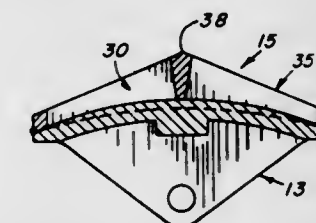
Kenneth V. Lutz, 19782 Glen Brae Drive, Saratoga, Calif.

Filed Nov. 23, 1970, Ser. No. 91,817

Int. Cl. F01c 19/26

U.S. Cl. 94-50 PR

4 Claims



A restoring cap for attachment to a worn tamper cap of a compaction roller which restores the worn tamper cap to its original shape and dimension comprising a casting with a tamping surface having end portions and a ridge portion intermediate of and parallel with the end portions; side walls extending from the ridge portion toward the end portions angularly with decreasing depth; and a lower wall contoured to conform to the shape of a worn tamper cap.

3,656,419

VIBRATORY ROLLER

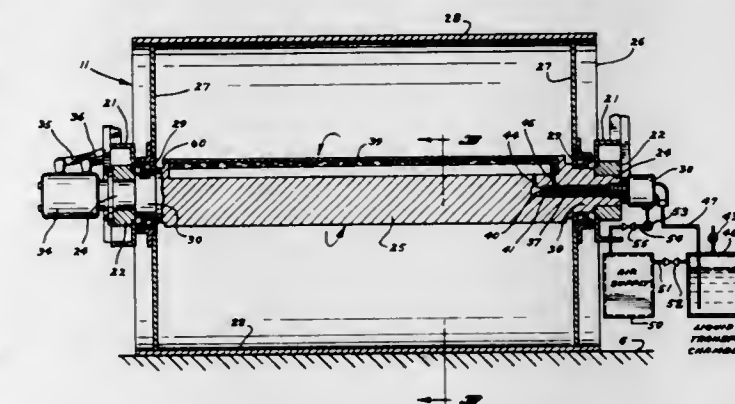
Melvin H. Boone, Fridley, Minn., assignor to American Hoist & Derrick Company, Minneapolis, Minn.

Filed Apr. 1, 1969, Ser. No. 811,811

Int. Cl. E01c 19/28

U.S. Cl. 94-50

2 Claims



A vibratory roller with an earth compacting drum having an axially balanced shaft which is journaled in the drum and power driven for rotation relative to the drum. The shaft carries a hollow chamber which is offset eccentrically from the axis thereof and which extends substantially the entire length

of the shaft. Means are provided for admitting liquid to and discharging it from the chamber so that the amplitude of vibration of the shaft might be varied at any selected speed of rotation of the shaft.

3,656,420

ELECTRIC DRIVING DEVICE FOR A CAMERA

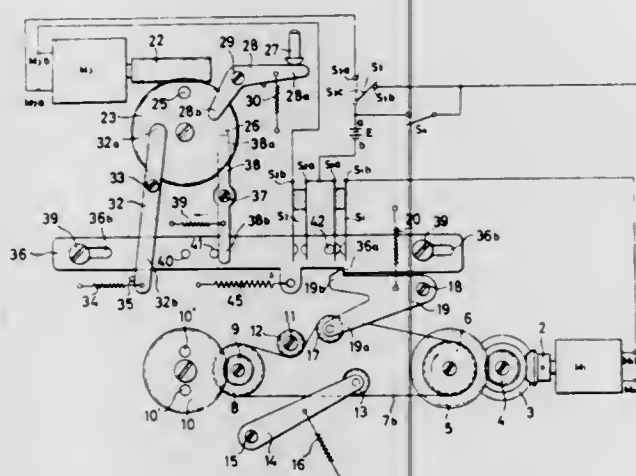
Hiroshi Aizawa, and Mitsutoshi Ogiso, both of Kawasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 22, 1970, Ser. No. 30,880

Claims priority, application Japan, Apr. 30, 1969, 44/33962
Int. Cl. G03b 17/44, 19/04

U.S. Cl. 95—31 EL

14 Claims



According to an embodiment of the electrical drive disclosed, a first drive motor winds the film in the camera and a second drive motor operates the shutter. A control mechanism includes member movable between one position in which the mechanism actuates the first drive motor and a second position in which the mechanism actuates the second drive motor. A manually operable switch in the mechanism starts the second motor and enables it for actuation. The control mechanism responds to the completion of operation of the second motor for moving the member to the first position. A resilient detector detects increases in exertion of the first motor beyond a given value and causes the mechanism to move the control member from the first position to the second position. The mechanism disables the switch from starting the second motor when the member is in the first position.

3,656,421

VIEWFINDER OPTICAL SYSTEM

Hisanori Ataka, Kawasaki, Japan, assignor to Kabushiki Kaisha Ricoh

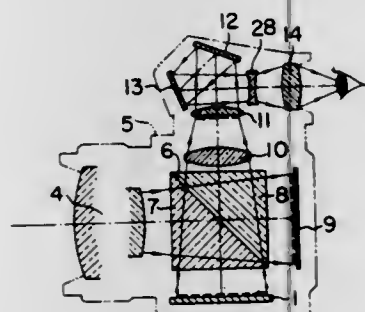
Filed Feb. 26, 1970, Ser. No. 14,289

Claims priority, application Japan, Feb. 28, 1969, 44/15572

Int. Cl. G03b 19/12

U.S. Cl. 95—42

5 Claims



A viewfinder optical system comprising a semi-transparent mirror disposed backwardly and obliquely of an image form-

ing lens, an image forming plane and a directional or reflexive screen disposed at conjugated positions with respect to said semi-transparent mirror and an optical system for viewing through said semi-transparent mirror an image formed upon said directional or reflexive screen.

3,656,422

DRIVING MECHANISM FOR COMPONENTS OF OPTICAL SYSTEM

Karl-Gunter Hess, Waldlaubersheim; Paul Himmelsbach, and Otto Thomas, both of Bad Kreuznach, all of Germany, assignors to Jos. Schneider & Co. Optische Werke Kreuznach, Bad Kreuznach, Germany

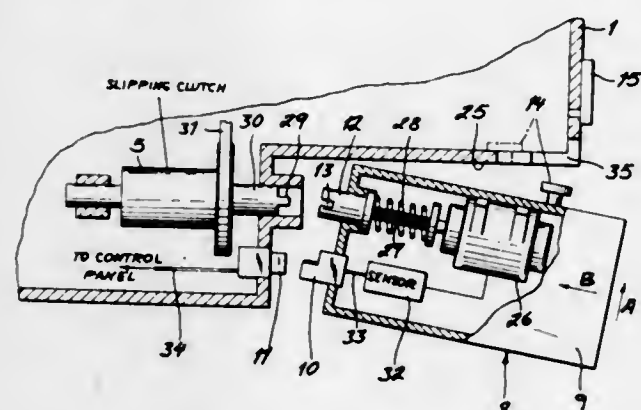
Filed Jan. 5, 1970, Ser. No. 602

Claims priority, application Germany, June 12, 1969, P 19 29 759.7

Int. Cl. G03b 3/10

U.S. Cl. 95—45

9 Claims



A television camera with two camming cylinders for the focusing of its objective and for the variation of its focal length (zoom effect) has two identical driving units removably attached to its housing, each unit including an electric motor in a prismatic casing with a motor shaft and an electric connector projecting from one end of the casing. Upon emplacement of the casing on the camera housing, the motor shaft engages a transmission shaft leading through a slipping clutch to the respective camming cylinder; at the same time an electric connection is established from the motor to zooming and focusing controls on the camera or on a remote panel.

3,656,423

TRUCK CAB ROOF VENTILATOR

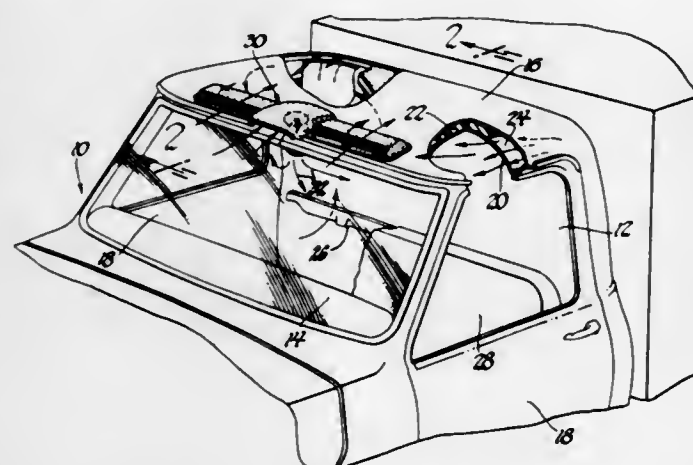
Robert C. Anthony, Clarkston, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1970, Ser. No. 93,584

Int. Cl. B60h 1/24

U.S. Cl. 98—2.15

3 Claims



In preferred form a ventilator for a vehicle passenger compartment having spaced outer and inner roof panels defining an exhaust flow path therebetween. Inlet and outlet openings

through the outer roof panel are enclosed by a housing which includes an air scoop for directing air through the inlet opening into the passenger compartment. A rotary valve member in the inlet opening controls air flow into the passenger compartment and simultaneously a gear on the rotary member actuates a slide valve which opens and closes the outlet openings. An exhaust air flow path extends from an opening adjacent the rear of the passenger compartment, between the inner and outer roof panels to the outlet openings in the outer roof panel.

3,656,424

MEAT INJECTION TENDERIZATION APPARATUS AND METHOD

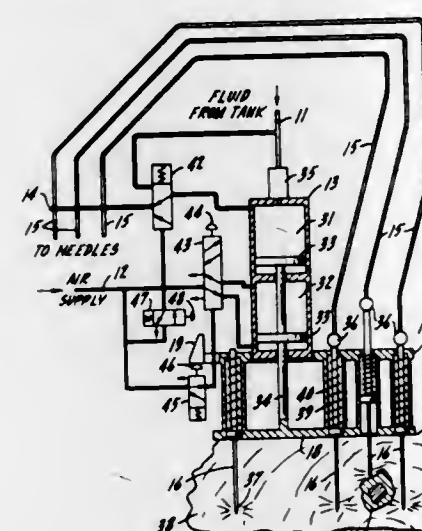
Clifford E. Evanson, Highland Park, Ill., assignor to Baxter Laboratories, Morton Grove, Ill.

Filed Nov. 10, 1970, Ser. No. 88,439

Int. Cl. A23I 3/34

U.S. Cl. 99—256

5 Claims



An air-powered, hand-operated meat injection tenderization unit having means for receiving enzyme solution from a storage supply and for delivering measured quantities of the enzyme solution under low pressure through a gang of hollow needles which can be injected into the meat carcass.

3,656,425

ELECTROMAGNETIC ACTUATING MEANS FOR PRINT HAMMER

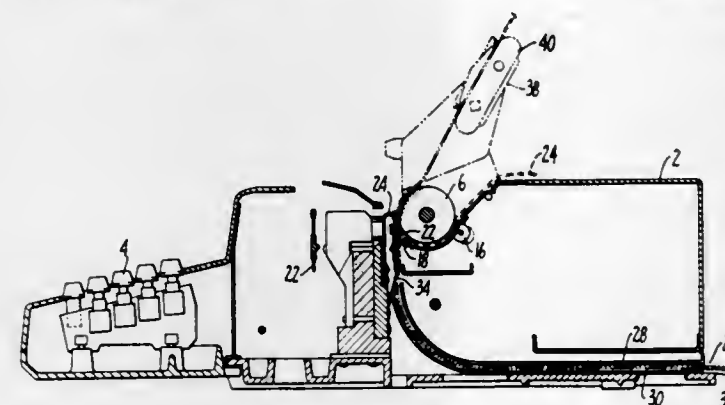
Ronald T. Albo, and John Pastrone, both of Los Gatos, Calif., assignors to Information Printing Systems Corporation, Santa Clara, Calif.

Filed Mar. 20, 1970, Ser. No. 21,436

Int. Cl. B41j 9/38; H01f 7/04

U.S. Cl. 101—93 C

4 Claims



An impact printer in which characters moving on an endless chain are struck on-the-fly by print hammers to print

the characters on paper. The print hammers are springs supported in flexed conditions by a permanent magnet, and the springs are released by applying an electrical signal to a coil which creates a magnetic field balancing the permanent magnet. Special supports provide different effective lengths for the spring in the cocked and printing positions.

3,656,426

APPARATUS FOR PRINTING ALPHANUMERIC AND BINARY CODE MARKINGS AND COMPARISON MEANS THEREFOR

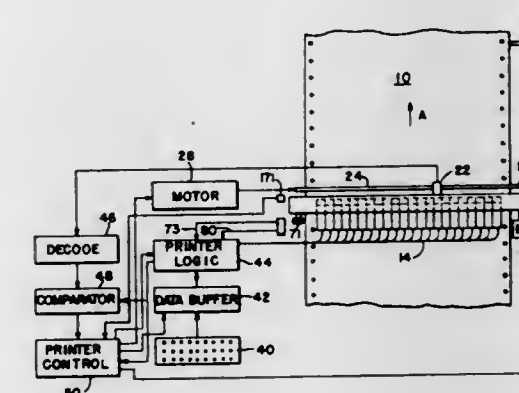
John T. Potter, Plainview, N.Y., assignor to Potter Instrument Company, Inc., Plainview, N.Y.

Filed May 8, 1969, Ser. No. 823,054

Int. Cl. B41j 3/51; H04I 1/00; G06k 15/02

U.S. Cl. 101—93 C

8 Claims



An information printing and storage system in which a printer prints alphanumeric characters and a self-clocking code pattern on paper or card stock. A transducer scanning the printed lines senses the code pattern and provides an electrical output signal representative of the information imprinted.

3,656,427

PRINT CONTROL SYSTEM FOR HIGH SPEED PRINTERS

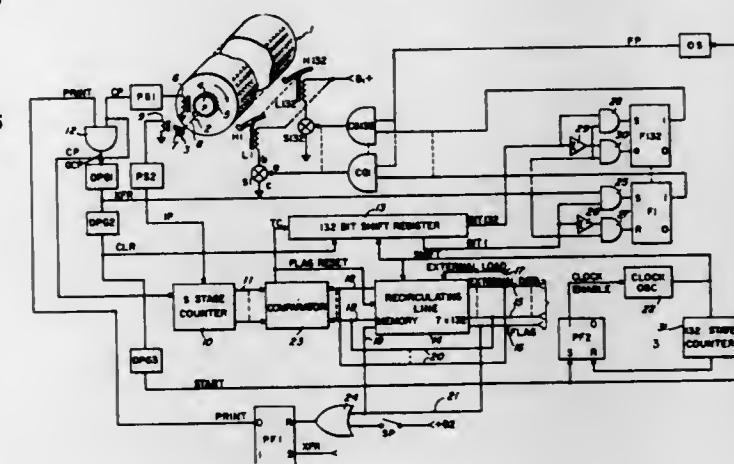
John J. Foley, West Acton, Mass., assignor to Data Printer Corporation, Cambridge, Mass.

Filed Sept. 8, 1970, Ser. No. 70,222

Int. Cl. B41j 1/34, 9/10; G06s 7/02

U.S. Cl. 101—93 C

10 Claims



A print control system for line printers of the type including a recirculating line memory adapted to be loaded with digital signals representing the characters to be printed on the line, in which the character pulses each program a search of the memory for a different associated character, and load

a first register with print signals for each column for which that character is to be printed. A second register is loaded with the contents of the first register representing the results of the previous search, before the scan begins. The second register controls a series of gates, one for each print hammer driver, that are enabled by a single timing pulse following and synchronized with the character pulse. The gate outputs actuate those hammers in parallel that have been selected by the contents of the second register.

3,656,428

METHOD OF SCREEN PRINTING

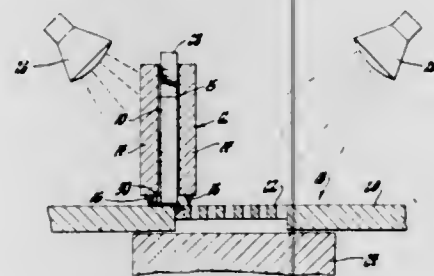
George A. Duncan, Kokomo, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed June 15, 1970, Ser. No. 46,115

Int. Cl. B41J 13/00; B41m 1/12

U.S. Cl. 101-129

1 Claim



The material to be applied by a screen printing technique is mixed with a thermoplastic vehicle which is solid at room temperature and melts at a predetermined elevated temperature. The material is formed into a slab which is then pressed against a screen surface. The screen is heated enough to melt a portion of the slab and the molten material is then forced through the screen by a squeegee.

3,656,429

ROLLER IMPRINTER FOR POCKET CREDIT CARD

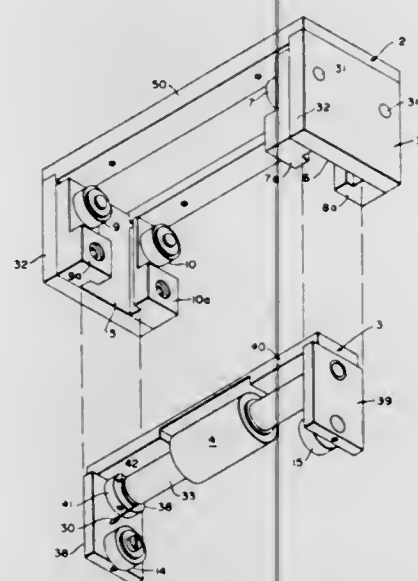
John Ramsey Bradford, Falmouth, Maine, and William Gerry Goodwin, West Peabody, Mass., assignors to Magnacheck Corporation, Marblehead, Mass.

Filed Nov. 2, 1970, Ser. No. 85,947

Int. Cl. B41f 3/20

U.S. Cl. 101-269

6 Claims



A hand-operated roller-platen type imprinting apparatus for imprinting an inserted business document form-set containing an MICR carbon sheet with machine-readable MICR code from an inserted printing plate such as a credit card containing the MICR code in relief. The roller platen is car-

ried by a carriage over a flat printing bed and is eccentrically mounted therein to assume a printing position during the printing printing stroke and an upper nonprinting position during the return stroke. Rollers on the carriage engage the underside of the bed so that the vertical spacing of the roller platen is fixed during the printing stroke. The carriage is carried in a handle which is also independently mounted by rollers on the bed. The carriage is free to move vertically in the handle so that variations in the force applied to the handle will not affect the spacing of the roller platen.

3,656,430

LABEL PRINTING AND DISPENSING TOOL

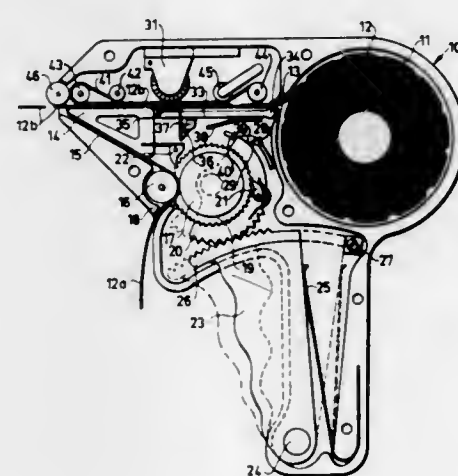
Sture A. B. Olsson, Traneredsvagen 17 A, Vastra Frolunda, Sweden

Filed Oct. 10, 1969, Ser. No. 865,258

Int. Cl. B41J 7/70; B32b 35/00; B41j 1/08

U.S. Cl. 101-288

2 Claims



A label printing and dispensing tool has a spring biased striker which is initially set and thereafter released in response to the dispensing operation to press a label of a label tape against a printing mechanism for printing such label before dispensing it from the tool.

3,656,431

DEVICES FOR CLEANING WIPING CYLINDERS IN A PRINTING APPARATUS

Gualtiero Giori, Lausanne, Switzerland, assignor to De La Rue Giori S.A., Lausanne, Switzerland

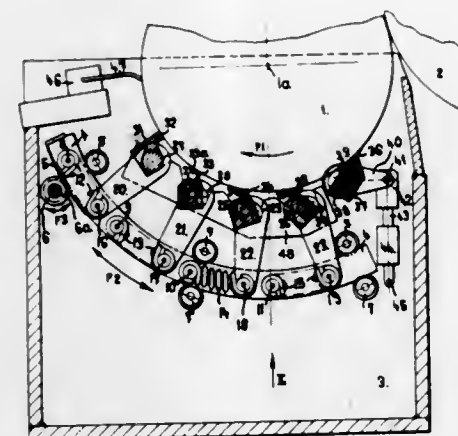
Filed May 22, 1970, Ser. No. 39,608

Claims priority, application Switzerland, May 23, 1969, 7900/69

Int. Cl. B41f 9/16

U.S. Cl. 101-425

8 Claims



A device for cleaning a rotatable wiping cylinder of a printing apparatus comprises a receptacle for cleaning fluid adapted to operatively receive a portion of the periphery of

the wiping cylinder, and a scraper mounted for movement between a first position in which it engages the periphery of the wiping cylinder and a second position in which it is spaced from the periphery of the wiping cylinder. A plurality of scrapers and a brush are provided downstream of the scraper in the direction of rotation of the wiping cylinder for engaging the periphery of the wiping cylinder.

3,656,432

GRANULAR AMMONIUM PERCHLORATE PROPELLANT

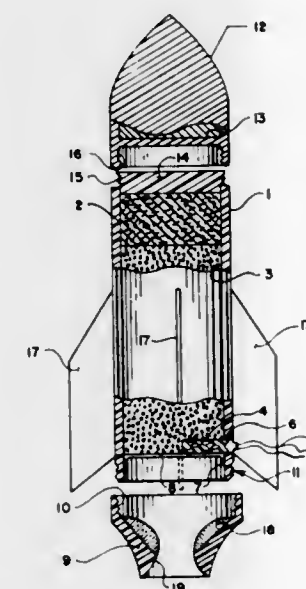
Elmer Ellsworth Hackman, III, Hockessin, Del., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed May 26, 1969, Ser. No. 827,700

Int. Cl. F42b 15/00; C06d 1/04

U.S. Cl. 102-34

3 Claims



Granular ammonium perchlorate having a particle size of -40 to -50 mesh is packed to a bulk density of from about 1.0 to 1.5 g/cc in a rocket motor casing restricted to maintain a chamber pressure in the range of from about 100 to about 2,000 psia and is used as the sole source of propellant gases for propelling a rocket. A flame similarly provided may be used for other pyrotechnic applications.

3,656,433

METHOD FOR REDUCING SHOT DISPERSION

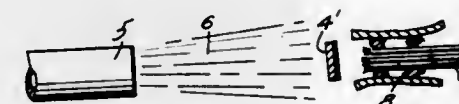
Arthur E. Thrallkill, Bel Air, and Herbert N. Lewis, Harve de Grace, both of Md., assignors to The United States of America as represented by the Secretary of the Army

Filed Oct. 13, 1969, Ser. No. 865,838

Int. Cl. F42b 7/00

U.S. Cl. 102-42 C

1 Claim



A viscoelastic matrix is utilized to hold flechettes or other types of small missiles or shots in a unitary projectile form until the unit emerges from the gun barrel and until it has substantially passed through the blast region area. This reduces scattering of the missiles.

3,656,434

SHOTGUN SHELL WITH METAL CAP

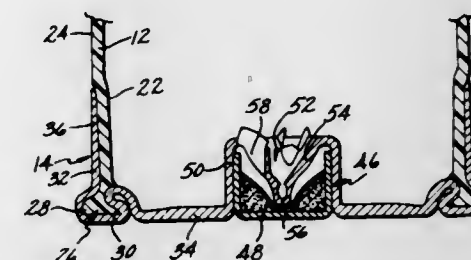
Roger J. Curran, Stratford, Conn., assignor to Remington Arms Company, Inc., Bridgeport, Conn.

Filed May 26, 1969, Ser. No. 827,819

Int. Cl. F42b 5/30, 7/06

U.S. Cl. 102-43 P

12 Claims



A shotgun shell having a metal cap made from sheet metal. The metal cap includes an annular fold which provides a strong cap to body attachment and an integrally formed primer pocket and anvil. The basewad can be eliminated in order to make extra volume available within the shell for additional propellant and/or projectile load.

3,656,435

DIRECTIONAL DISPENSING GRENADE WITH EXTERNALLY OPEN, INTEGRALLY-FORMED AND INTERNALLY CLOSED, PROPELLANT-CHARGE WELL AND INTERNAL FRUSTO-CONICAL MATERIAL DISCHARGE GUIDING SURFACE

Irwin R. Barr, Lutherville, and Robert W. Schnepfe, Timonium, both of Md., assignors to AAI Corporation, Cockeysville, Md.

Original application Dec. 4, 1967, Ser. No. 699,277, now

Patent No. 3,512,480, which is a continuation of application

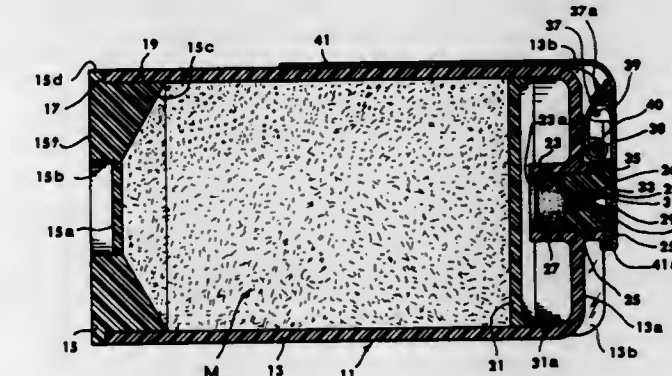
Ser. No. 593,101, Mar. 31, 1966, now abandoned. Divided

and this application Oct. 24, 1969, Ser. No. 868,992

Int. Cl. F42b 27/00

U.S. Cl. 102-64

7 Claims



A directional dispensing grenade is disclosed having a canister, a portion of which has a substantially constant cross-sectional bore area with an obturating piston disposed therein that is adapted to be propelled through the canister. The open bore end of the canister is closed with a cap extending across the open bore end and a frusto-conical surface slopes inwardly from the bore wall to a blow-out disc formed integrally with the end closure cap. Between the piston and the end cap is a charge of powder material to be dispensed which, when the piston exerts a force against it, causes the disc to be blown out and is expelled through the resulting blowout orifice in the end cap. In the opposite end of the canister is an integrally formed, internally protruding and internally closed but externally open propellant-charge well with a rupturable bottom. The well contains an ignitable propellant-gas-generating charge which is effectively sealed therein by a cap inserted into the well which has a percussion

primer and a fuze disposed therein that are adapted to ignite the propellant-gas-generating charge to produce a propellant gas which will rupture the bottom of the well and propel the piston through the canister. The striking surface of the percussion primer is externally exposed and adapted to be struck by the firing pin of a resiliently biased hammer which is mounted between two parallel ribs and is normally prevented from striking the percussion primer by a handle and a safety pin which releasably retain the hammer in a resiliently biased, cocked position.

3,656,436

PNEUMATIC GROUND TRANSPORTATION SYSTEM
Lawrence K. Edwards, 301 Santa Lita Avenue, Palo Alto, Calif.

Filed Feb. 5, 1970, Ser. No. 8,863
Int. Cl. B61b 13/10

U.S. Cl. 104-138

10 Claims



A gravity-vacuum ground transportation system in which a vehicle is propelled as a free piston through ducts from station to station along the route of the system, each duct having an entrance valve at its end at a first station, an exit valve at its end at the next station, and a pressure regulator valve in communication with a common manifold, and in which the pressure regulator valve and the opening and closing of the entrance and exit valves are controlled to control the passage of the vehicle from station to station in a manner such that the passenger carrying portion of the vehicle is immersed in atmospheric pressure air at all times.

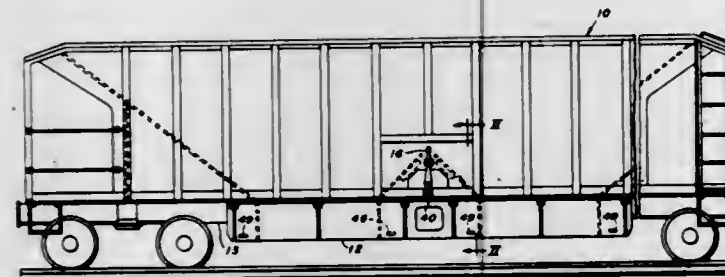
3,656,437

HOPPER CAR DOOR ACTUATING MECHANISM
Roland T. Kuzmicki, Birmingham, Ala., assignor to United States Steel Corporation

Filed Mar. 24, 1970, Ser. No. 22,302
Int. Cl. B61d 7/08, 7/18, 7/28

U.S. Cl. 105-240

10 Claims

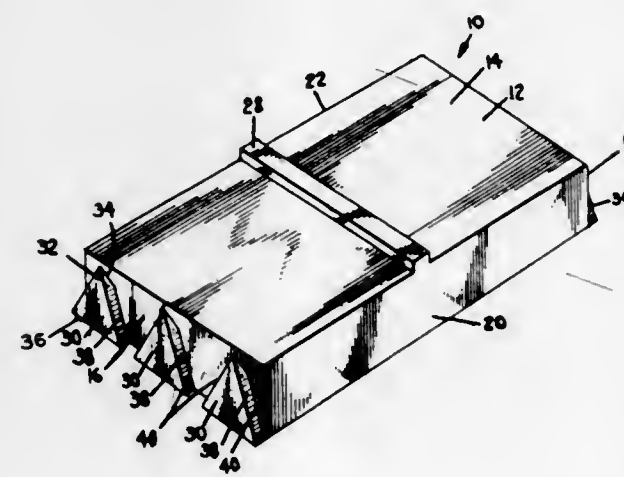


A hopper door operating and locking apparatus for bottom-opening containers, which is especially suited for use in railroad hopper cars. The locking apparatus is a vertically movable frame which, when in the raised position, allows the operating apparatus to open and close the doors, and when in the lowered position, prevents the operating apparatus from opening the doors.

3,656,438
PLATFORM FOR TRANSPORTING FOUNDRY MOLDS
Harry F. Buckner, 3665 Pondue, Dearborn, Mich.
Filed Oct. 9, 1970, Ser. No. 79,396
Int. Cl. B61d 11/02

U.S. Cl. 105-355

2 Claims



An improved platform for carrying foundry molds on a car featuring triangularly shaped diverters on the ends of the platform which direct the overflow of molten metal on the top of the platform away from the car hitch and the tracks on which the car travels.

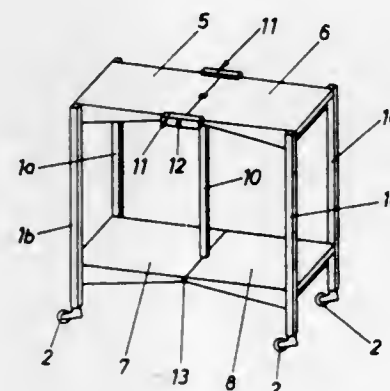
3,656,439

TILTING TABLE

Heinz Domin, Espelkamp, Germany, assignor to Firma Bremshey & Co., Solingen-Ohligs, Germany
Filed Oct. 9, 1969, Ser. No. 865,004
Int. Cl. A47b 3/08

U.S. Cl. 108-113

7 Claims



A folding table which comprises two table-tops disposed on top of each other. At least four columns are disposed at the corners of the table-tops, and the latter are pivotally connected with the columns. Each table-top comprises two table-top halves foldable towards each other, to define upper table-top halves and lower table-top halves. A folding axle of the table-top halves extends in a plane between the columns. A coupling rod connects the upper table-top halves with the lower table-top halves, and the coupling rod extends in the plane of the folding axles of the table-top halves and at a distance from the lateral edge of the table-top halves.

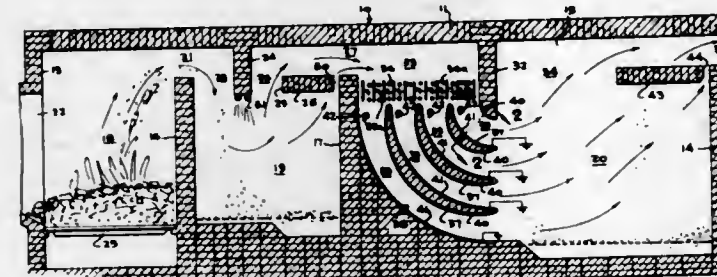
3,656,440
INCINERATOR HAVING MEANS FOR TREATING COMBUSTION GASES

Jerry Grey, New York, N.Y., assignor to Morse Boulger, Inc., Corona, N.Y.

Filed Oct. 26, 1970, Ser. No. 83,711
Int. Cl. F23g 5/00

U.S. Cl. 110-8 R

26 Claims



An incinerator generally including a combustion chamber, a flue, means for conducting combustion gases emanating from the combustion chamber to the flue, the conducting means including passage means for imparting a curved motion to the combustion gases, means disposed in the passage means for producing a plurality of electrostatic fields including a plurality of sets of spaced electrodes, each set of electrodes producing an electrostatic field through which a portion of the gases traverse, and means disposed either upstream relative to the means for producing a plurality of electrostatic fields, or in conjunction therewith, for ionizing the combustion gases, whereby contaminants including solids and gaseous molecules entrained in the combustion gases will be ionized by the ionizing means and subjected to cooperating centrifugal, electrostatic and gravitational forces as the gases traverse through the passage means to remove the contaminants from the combustion gases.

3,656,441

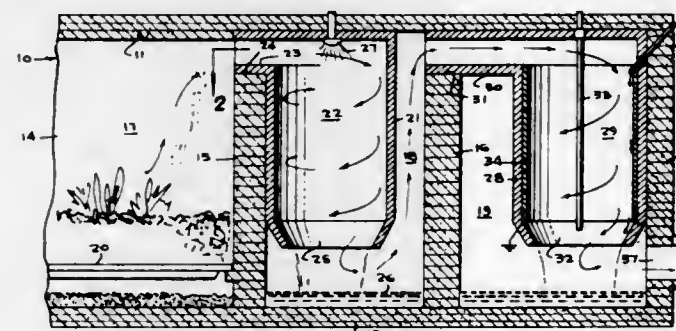
INCINERATOR

Jerry Grey, and Auram B. Zanft, both of New York, N.Y., assignors to Morse Boulger, Inc., Corona, N.Y.

Filed Oct. 26, 1970, Ser. No. 83,713
Int. Cl. F23g 5/00

U.S. Cl. 110-8 R

20 Claims



An incinerator generally including a combustion chamber, a flue and an apparatus intercommunicating the combustion chamber and the flue, for removing solid and gaseous contaminants from the combustion gases emanating from the combustion chamber and discharged through the flue into the atmosphere, the apparatus comprising a first stage separator defining at least one cylindrical chamber having a tangentially disposed inlet communicating with the combustion chamber, an outlet longitudinally spaced from the inlet and means for applying a film of liquid-washing medium on the interior wall thereof, and a second stage separator defining at least one cylindrical chamber having a tangentially disposed inlet communicating with the outlet of the first

mentioned chamber, an outlet longitudinally spaced from the inlet thereof and communicating with the flue, means for applying a film of liquid-washing medium on the interior wall thereof and means for producing an electrostatic field between a locus with the chamber and the interior wall thereof, of sufficient strength to produce a corona discharge for ionizing solid and gaseous contaminants contained in the gases traversing therethrough whereby the contaminants will be subjected to combined centrifugal, electrostatic and gravitational forces to cause the contaminants to be diverted into contact with the film of liquid-washing medium and be removed therewith.

3,656,442

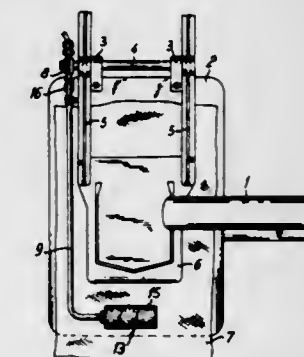
DEVICE FOR WITHDRAWING SEWN WORKPIECES FROM A SEWING MACHINE

Gunther Hagemeyer, Leopoldshöhe, and Eberhardt Hennig, Bielefeld, both of Germany, assignors to Kochs Adlermaschinen Werke AG, Bielefeld, Germany

Filed Apr. 21, 1970, Ser. No. 30,511
Int. Cl. D05b 27/10

U.S. Cl. 112-214

5 Claims



A device for withdrawing sewn workpieces from a sewing machine comprising a rotatable roll having a nonslipping coating. The device is carried by a pneumatic motor arranged within the roll and carried by a tubular rod. Control means are provided for lifting and lowering the roll, to bring it in contact with the workpiece and to admit the pneumatic motor to drive the roll for withdrawing the sewn workpiece.

3,656,443

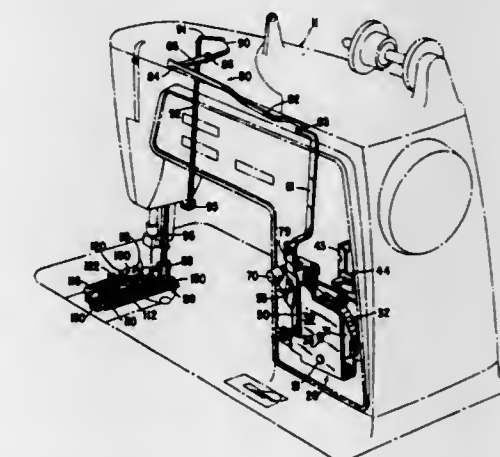
BUTTON HOLING SYSTEM FOR HOUSEHOLD SEWING MACHINES

Roger J. Ross, Roselle, N.J., assignor to The Singer Company, New York, N.Y.

Filed Nov. 4, 1970, Ser. No. 86,926
Int. Cl. D05b 3/24, 29/12

U.S. Cl. 112-77

6 Claims



A controlling device for a buttonholing mechanism in a household sewing machine in which a member having unique construction enabling it to travel in synchronism with the work fabric is linked to a buttonholing unit in the sewing

machine to influence the length of the buttonhole. Provision is made for inserting a button in the traveling member for automatically setting the device to influence formation of a buttonhole having a length suitable to accommodate the button. A novel interrelationship between the parts is provided so that an immediate response is attained by the buttonholing unit to signals from the traveling member and as a result buttonholes of very small lengths and circular eyelets may be produced using this mechanism.

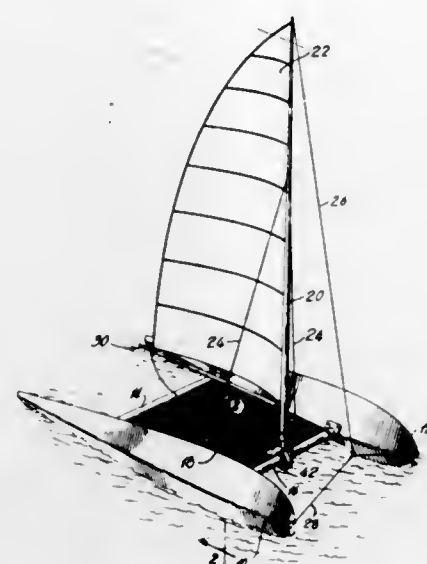
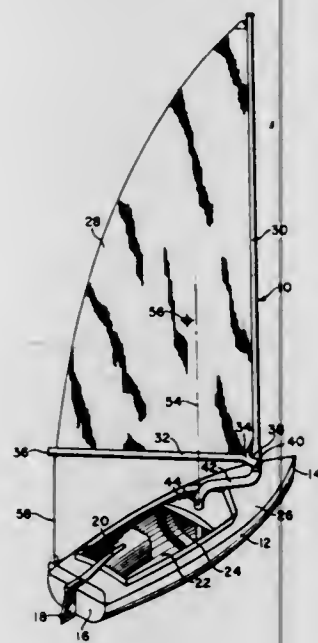
3,656,444

SAILBOAT RIGGING

Kenneth E. Kratz, P.O. Box 356, Westport, N.Y.
Filed June 3, 1970, Ser. No. 42,999
Int. Cl. B63h 9/00, 9/04

U.S. Cl. 114—39

15 Claims



easily relocated to permit operation of the boat in the upright and in the inverted position.

3,656,446

METHOD OF CONSTRUCTING A SHIP

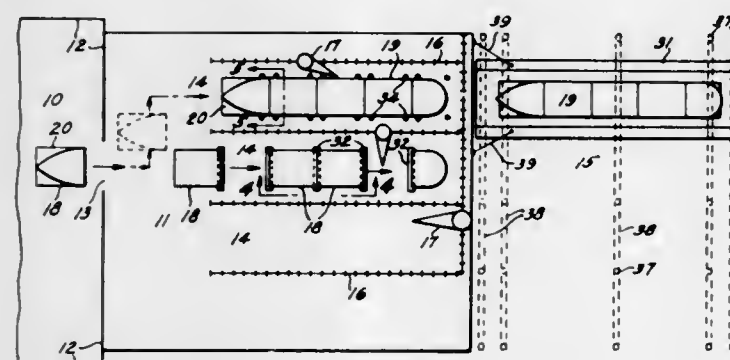
John J. Heffernan, Joppa, Md., assignor to Bethlehem Steel Corporation

Filed Mar. 31, 1970, Ser. No. 24,273

Int. Cl. B63b 3/02

U.S. Cl. 114—77 R

3 Claims



A sailboat in which a vertical mast is pivotally mounted upon the hull for free swinging movement about a vertical axis of rotation located aft of the mast and toward the center of the sailboat to maintain the distance between the center of effort of the sail and the axis of rotation small and to maintain the horizontal distance between the center of effort and the center of the sailboat small and relatively unchanged regardless of the orientation of the sail. In a gaff-rigged sailboat, the boom and the gaff are fixed against rotation upon the mast so that the mast is subjected to torsion between the boom and the gaff and resiliently biases the gaff and the boom into a common plane.

3,656,445

MULTI-HULLED BOAT

Henry Padwick, 3210 Forest Hill, Apt 104, 247, Montreal, Quebec, Canada

Filed Oct. 1, 1969, Ser. No. 862,803

Int. Cl. B63h 9/04

U.S. Cl. 114—39

8 Claims

A boat comprising two or more hulls and a deck structure interconnecting said hulls at a point approximately midway between the top and the bottom of each hull so as to permit such boat to float and operate effectively when inverted and

In constructing and launching a ship, a construction area and a way area, both lying in the same horizontal plane, are provided. Sections of the ship are made in the construction area. Each section rests on a gas cushion support pallet. While so supported, the sections are moved to the way area where they are joined together to form the ship. From the way area and while still supported on the gas cushion support pallets, the ship is moved horizontally to a drydock which is ballasted and rests on an underwater supporting structure. The drydock is then deballasted, moved from its position above the supporting structure, and ballasted. The ship is then floated out of the drydock.

3,656,447

DRIFTING MINE SELF PROTECTION SYSTEM

Millard T. Sniffin, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed Dec. 3, 1970, Ser. No. 94,811

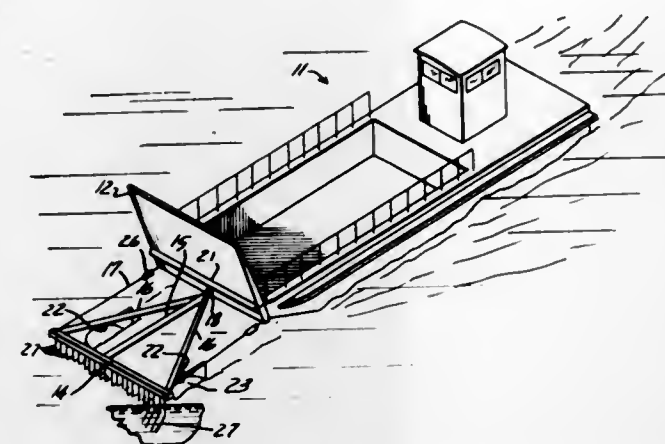
Int. Cl. B63g 9/00

U.S. Cl. 114—240 R

10 Claims

This invention discloses a system to protect bow loading small craft from floating mines. The invention is characterized by a rake like fender held in front of the craft with

vertically disposed mine engaging members depending downwardly into the water from a horizontal member. The fender is held to the front of the craft by a ball hitch and guy



wires in such a manner that the action of the bow ramp is unobstructed. Further, the unit may be quickly removed from the craft to permit normal on and off loading of cargo.

3,656,448

COLLAPSIBLE BOAT ANCHOR

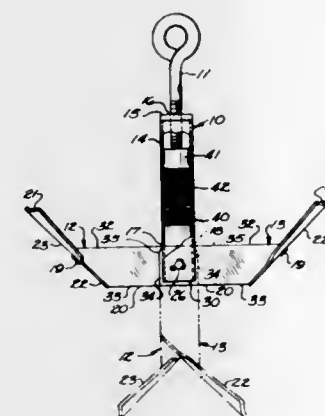
Robert Lorraine Farnsley, New Albany, Ind., assignor to Aaron D. Sallee, Seymour, Ind.

Filed Sept. 9, 1969, Ser. No. 856,936

Int. Cl. B63b 21/44

U.S. Cl. 114—208 A

2 Claims



This anchor includes a hollow spring-loaded shank having an adjustably connected line attachment bolt at one end and a pair of collapsible anchor flukes pivotally connected at the other end. The spring-loading mechanism includes an interior compression spring engaging a plunger at the anchor end of the shank. The anchor flukes are in cam engagement with the plunger, and include a common pivot pin about which the anchor flukes are rotated from an open to a collapsed position under the application of a predetermined load.

3,656,449

PROPELLING MEANS FOR A DREDGE

Herbert W. Mead, Springport, Mich.

Filed June 1, 1970, Ser. No. 42,311

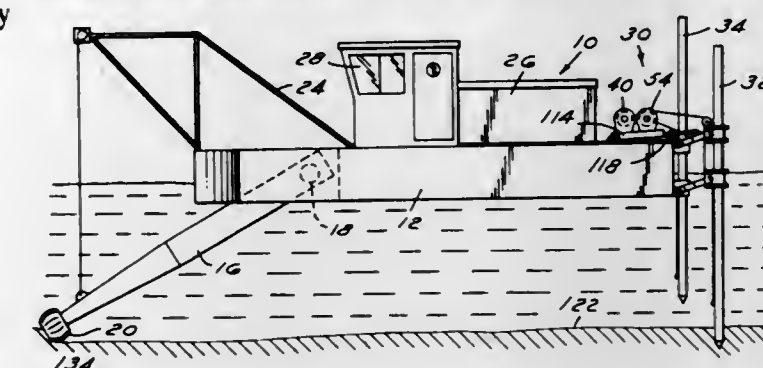
Int. Cl. B63b 21/56; B63h 15/00

U.S. Cl. 115—9

8 Claims

The propelling means comprises two vertically slidable spuds mounted on the stern of a dredge. One of the spuds is a holding spud and is used to prevent drifting of the dredge when the other spud is being manipulated to propel the dredge forwardly. The other spud is a working spud and is used as an anchoring pivot point when imbedded in the bottom of a body of water to permit taking a cut. The working spud is disengaged from the bottom of a body of water after a

cut has been taken and is shifted towards the stern of the dredge. It is then re-imbedded in the bottom of the body of



water whereupon the holding spud is removed. Power means then cause the dredge to be propelled forwardly, pushing off from the working spud.

3,656,450

FLUID PROPULSION MECHANISMS

James A. Farman, Esher, Surrey, England, assignor to Dunlop Holdings Limited, London, England

Filed Aug. 14, 1969, Ser. No. 850,003

Claims priority, application Great Britain, Aug. 20, 1968, 39,680/68

Int. Cl. B63h 1/34

U.S. Cl. 115—63

10 Claims



Fluid propulsion mechanism, for example, a marine craft propulsion mechanism, a pump or turbine, comprising a drivable impeller for partial immersion in the fluid. The impeller is substantially free of transverse fluid thrust formations and utilizes the friction between the fluid and the impeller for the transference of kinetic energy therebetween. The impeller has formed in a fluid-contacting surface thereof a groove into which fluid can enter, the depth of the groove being equal to or greater than the width thereof.

3,656,451

FLAT FACE TAPE SCALE INDICATOR

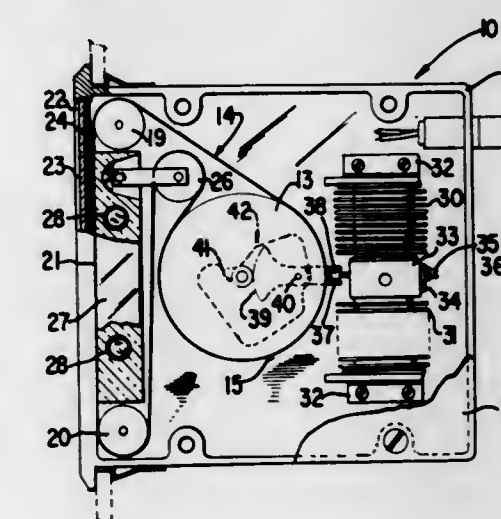
Jerry L. Raznov, Philadelphia, and Donald E. Warren, Quakertown, both of Pa., assignors to Ametek, Inc., New York, N.Y.

Filed May 15, 1970, Ser. No. 37,522

Int. Cl. G01h 19/12

U.S. Cl. 116—70

1 Claim



An indicator tape is supported by idler pulleys in a flat position in front of a flat viewing window and is attached to a

rotatable drum actuated by an amplifying linkage connected to a condition responsive means such as a Bourdon tube or diaphragm means for sensing a condition. The tape may be either endless or may have its other end attached to a spring-loaded return drum. The linkage connection between the bellows and the drum includes a zero adjustment and a range adjustment. A light transmitting plastic block is positioned behind the tape at the viewing window and is provided with cavities in which are mounted lights to illuminate the block and tape.

3,656,452

TEMPERATURE SIGNALING DEVICE

George G. Kilewer, Fresno, Calif., assignor to Dun-Rite Manufacturing Corporation

Original application Apr. 23, 1969, Ser. No. 818,540, now Patent No. 3,559,615. Divided and this application June 15, 1970, Ser. No. 46,272

Int. Cl. G01k 11/06

U.S. Cl. 116-114.5



A torsion loaded indicating member encased within a tubular housing is released from a first orientation for rotational movement to a second orientation upon the attainment of a predetermined temperature. A fusible element is confined between the indicating member and the housing to restrain the number for movement until the element fuses at the predetermined temperature.

3,656,453

SPECIMEN POSITIONING

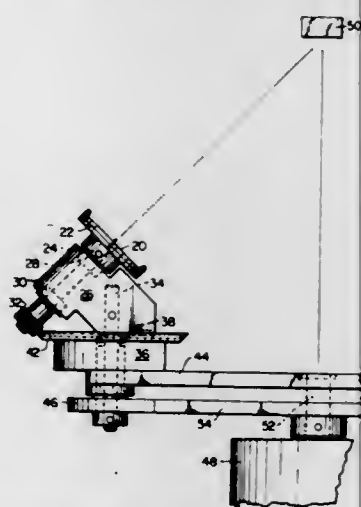
Anastasios J. Tousimis, Rockville, Md., assignor to Brodynamics Research Corporation, Rockville, Md.

Filed Aug. 7, 1969, Ser. No. 848,299

Int. Cl. C23c 13/08

U.S. Cl. 118-48

21 Claims



An individual specimen positioner and a system for vacuum deposition of metal to prepare a specimen for observation by a scanning electron microscope. A number of specimens are held and positioned simultaneously, each posi-

tioned by an identical specimen positioner. Each specimen positioner has a grip for the specimen. The grip is mounted to a base through an angled shaft which is mounted on bearings to rotate the grip. The base is integrally connected to a vertical shaft, the axis of which extends through the center of gravity of the specimen. The vertical shaft is mounted on bearings to permit it to rotate the base. The vertical shaft is driven from a single motor which drives all of the several positioners in the same way. Perpendicular to the vertical shaft is a stationary crown gear. The angled shaft is positioned at a 45° angle with the horizontal, which in one position of rotation points that shaft directly at the evaporation source on a path which extends through the center of gravity of the specimen. The end of the angled shaft carries a pinion which meshes with the crown gear and thereby rotates the specimen through the action of the angled shaft as the specimen is also rotated by the vertical shaft. Rotation around the angled shaft is at more than five times the angular velocity of the rotation around the vertical shaft.

3,656,454

VACUUM COATING APPARATUS

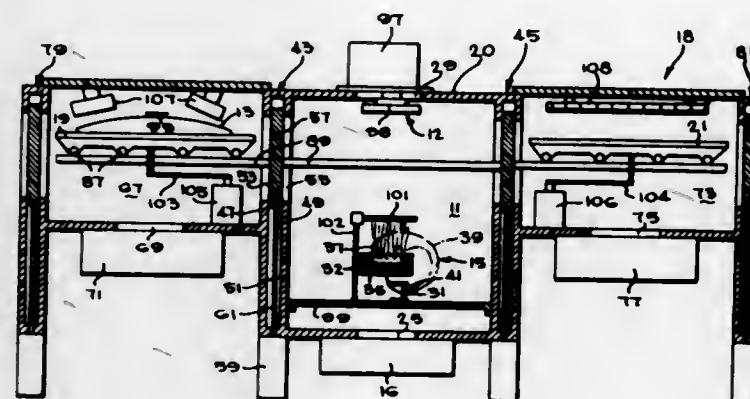
Robert L. Schrader, Castro Valley, Calif., assignor to Air Reduction Company, Incorporated, New York, N.Y.

Filed Nov. 23, 1970, Ser. No. 92,359

Int. Cl. C23c 13/08

U.S. Cl. 118-49

7 Claims



Vacuum coating apparatus is described wherein substrates to be coated supported on a substrate holder are moved into and from a coating chamber through ingress and egress vacuum locks, and wherein the coating chamber is maintained under continuous vacuum. A substrate holder support carriage is disposed in each of the respective vacuum locks, means reciprocate each carriage between its associated vacuum lock and the coating chamber and further means is operable to remove or deliver a substrate holder with respect to said carriages.

3,656,455

METHOD AND APPARATUS FOR IMPREGNATING MOVING PAPER WITH MOISTURE

Tamotsu Watanabe, Room 606 Marunouchi Building, Marunouchi, Chiyoda-ku, Tokyo, Japan

Original application Sept. 19, 1968, Ser. No. 760,815.

Divided and this application Aug. 26, 1970, Ser. No. 66,972

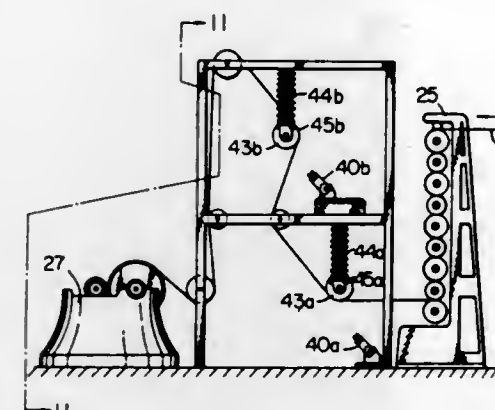
Int. Cl. B05b 5/02

U.S. Cl. 118-630

9 Claims

Electrostatically impregnating sprayed liquid particles onto a moving sheet of paper. An attracting electrode, electrically insulated from ground, is maintained at a high potential. A predetermined number of spray nozzles are connected to a liquid supply source maintained at ground potential, and these spray liquid onto the moving paper while the paper is

moved along the electrode, the nozzles and electrode being microswitch permits delayed operation of the second solenoid, allowing automated flushing. Power may be supplied to on opposite sides of the paper. The nozzles are spaced from



the electrode, and they are arranged in parallel across the paper so as to cover the full paper width with liquid particles. the apparatus by either batteries or standard household current.

3,656,456

APPARATUS FOR INDICATING AND MEASURING ANIMAL ACTIVITY

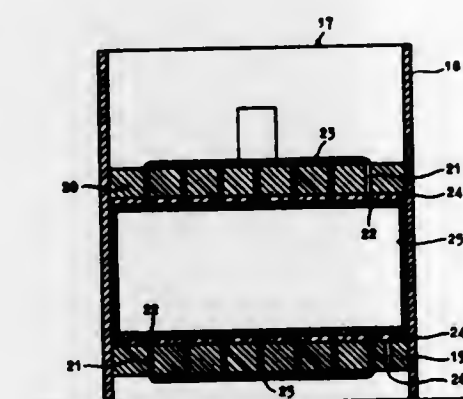
Karl Adolf Lennart Stigmark, Bildsnidarevagen 2, 245 00, Staffanatorp; Nils Ingvar Jonsson, Silvas Grand 4, 240 20, Furulund; Jan Wilhelm Lofqvist, Winstrupsgatan 7, 222 22, and Hakan Christian Mikael Stenram, Warholms vag 8 B, VIII, 223 65, both of Lund, all of Sweden

Filed Sept. 11, 1970, Ser. No. 71,316

Int. Cl. A01k 29/00, 1/00; G01n 29/00

U.S. Cl. 119-1

8 Claims



An apparatus for indication of moving activity of animals which are disposed in closed space in which at least one of the walls is provided with a number of small capacitor plates which form at least one capacitor in a balanced bridge. When the animals move the dielectric constant of this capacitor is affected and an unbalance voltage is obtained in the bridge. The variations of this voltage are indicated in an indicator connected to the bridge via a derivating network.

3,656,457

TOILET FOR HOUSEHOLD PETS

James Houston, 520 East 137th Street, Bronx, N.Y.

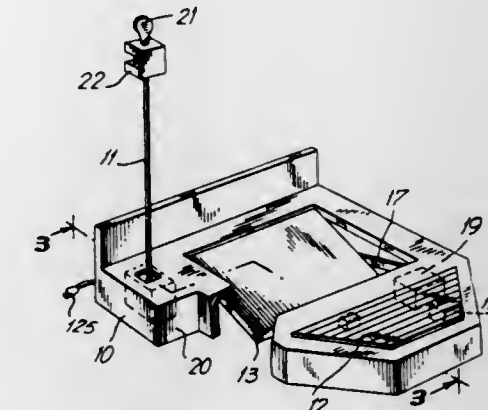
Filed Sept. 24, 1970, Ser. No. 75,185

Int. Cl. A01k 31/04, 29/00

U.S. Cl. 119-1

5 Claims

An apparatus for detachable securement to an existing conventional toilet bowl in a bathroom consisting of a body support structure having disposed on its top surface a pressure-sensitive switch activating a first solenoid, connected to a trap door mobilized when the pet steps on the switch. Included in the apparatus is a second solenoid, responsive to the door's closing, having an extended arm for detachable coupling to the flush handle of the existing bowl. A



3,656,458

MOLLUSC CLIP

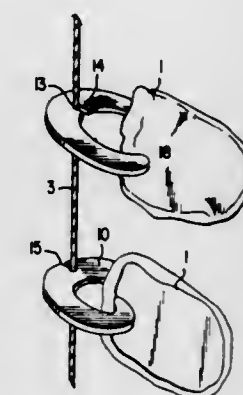
Douglas Larry Marcus, and Clifford L. Sayre, Jr., both of 1415 Ladd Street, Silver Spring, Md.

Filed June 23, 1970, Ser. No. 49,096

Int. Cl. A01k 61/00

U.S. Cl. 119-4

10 Claims



A clip for securing clutch material for the intensive farming or raft culture of sessile molluscs such as the oyster. The clip provides an opening for receiving and holding the clutch material. The clip is also provided with a keyhole shaped opening for receiving a supporting line whereby the clip and clutch material is attached thereto.

3,656,459

EXCREMENT RECEPTACLE DEVICE FOR ANIMALS

Louis Missud, 61-15 43rd Avenue, Woodside, N.Y.

Filed Mar. 30, 1970, Ser. No. 23,798

Int. Cl. A01k 23/00

U.S. Cl. 119-95

12 Claims

An animal excrement receptacle device with a disposable portion. A flexible resilient conduit tube is adapted to be held at the anal region, and below the tail, of an animal, a flexible bag or collector being attached to and extending rearwardly from the bag, the front of the tube supporting a combination pad and closure member which is attached to the front of the bag. The pad is of soft deformable material and is provided with a drawstring for compactly contracting it and bringing it and the attached portion of the bag into a closure position within the tube. The tube itself is detachably secured to a harness, the tube together with the bag being disposable. The upper and side portions of the conduit tube are adapted to flex with the movement of the animal's tail

and body; but when the tail is raised in the act of defecation, the resilient tube assumes its full undistorted shape, thereby



providing a passageway of maximum proportions for the feces.

3,656,460

SMOG CONTROL DEVICE FOR INTERNAL COMBUSTION ENGINE

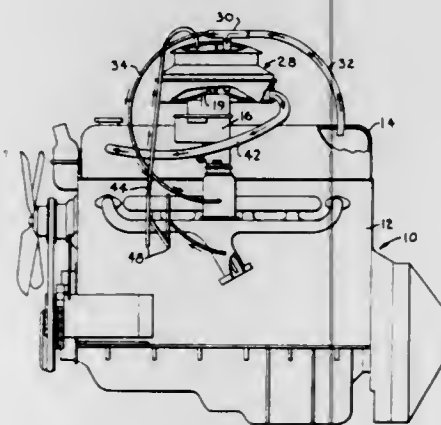
Joe E. Rogers, Waverly, Kans.

Filed Sept. 17, 1970, Ser. No. 73,146

Int. Cl. F02f 9/02

U.S. Cl. 123-41.86

8 Claims



A smog control device for an internal combustion engine utilizes a first conduit which communicates the engine crankcase with the suction head of the engine to draw gases accumulating in the crankcase from the latter when the suction head is maximized. A second conduit which communicates the engine crankcase with the air passage leading into the engine draws gases accumulated in the crankcase from the latter in response to the flow of air through the air passage. A third conduit communicates the engine crankcase with the atmosphere to supply a flow of fresh air to the crankcase whenever gases are flowing through either of the first or second conduits to thereby prevent any vacuum or crankcase pressure balance in the engine. The conduits are arranged to

cooperate in maintaining a perfect pressure balance in the engine at all times without the need for any valves or other moving parts. To promote the efficient combustion of fuel and thereby further reduce the accumulation of gases in the engine crankcase, a fuel additive in the form of burned exhaust gases is introduced into the engine at the inlet of the air passage. This additive also permits the engine to run on unleaded gasoline, further reducing air pollution from the engine.

3,656,461

SAFETY MECHANISM FOR VALVE ROCKERS

Udo Renger, 318 Wolfsburg, Bonhoefferstrasse 3, and Peter Thauer, 3181 Neuhaus, Am Seeterich 9, both of Germany

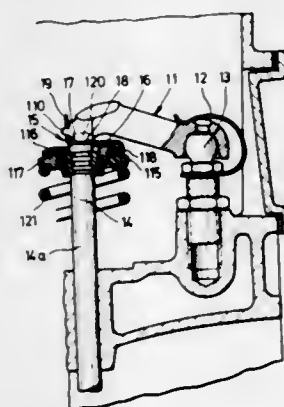
Filed June 15, 1970, Ser. No. 45,967

Claims priority, application Germany, Feb. 26, 1970, P 20 08 944.5

Int. Cl. F01l 1/18, 3/10

U.S. Cl. 123-90.42

10 Claims



Safety mechanism for an individually fulcrummed rocking lever of a valve control, mounted at one end on a ball, especially for internal combustion engines, wherein a holder is mounted on the upper end of the valve shaft in such a manner as to axially lock and to prevent the lateral swinging of the rocking lever relative to the valve shaft.

3,656,462

GAS SAVING AND ANTI-POLLUTION DEVICE

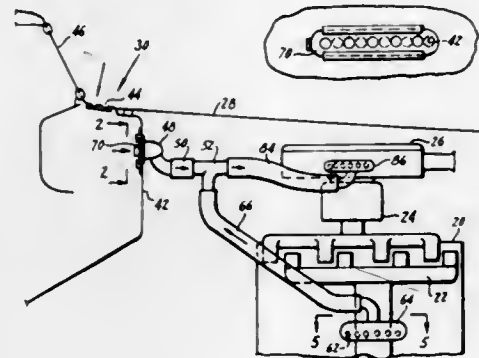
Ferrall W. Bailey, Route 2, Kirklin, Ind.

Filed Oct. 7, 1970, Ser. No. 78,852

Int. Cl. F02m 31/08, 31/14

U.S. Cl. 123-122 D

3 Claims



A hot air passageway from the exhaust manifold, an adjustable cold air passageway from the vehicle interior, a T connection for mixing the cold and hot air of both passageways, and a passageway connected to the air cleaner of a carburetor bringing the air mixture thereinto.

3,656,463

PURGING VOLATILES FROM GASOLINE STREAM

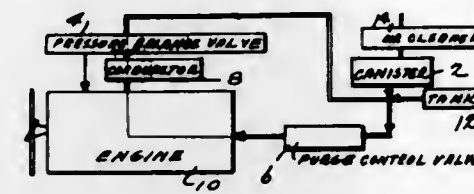
Marion F. Kranc, Bethel Park, Pa., assignor to Pittsburgh Activated Carbon Company, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 632,626, Apr. 21, 1967, now abandoned, Original application June 8, 1967, Ser. No. 655,973, now abandoned. Divided and this application Feb. 13, 1970, Ser. No. 11,276

Int. Cl. F02m 19/00

U.S. Cl. 123-136

9 Claims



An evaporative loss control device (ELCD) for automobiles is modified to provide a variable purging air rate and thereby improve the efficiency of the ELCD.

3,656,464

FUEL INJECTION NOZZLE AND SYSTEM

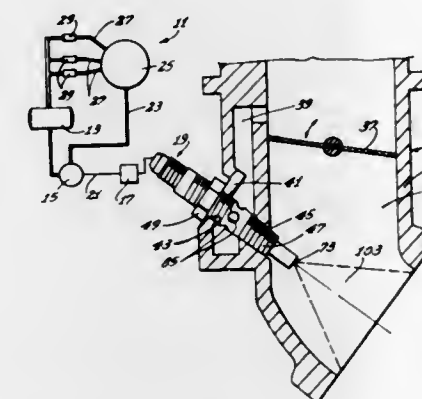
Stuart G. Hilborn, Laguna Niguel, Calif., assignor to Fuel Injection Engineering Company, South Laguna, Calif.

Filed Mar. 30, 1970, Ser. No. 23,572

Int. Cl. F02m 45/12

U.S. Cl. 123-139 BF

19 Claims



A fuel injection nozzle having a passage extending therethrough and terminating at one end in an outlet. An atomizing device is positioned in the passage adjacent the outlet. The nozzle is preferably mounted on an intake manifold of an engine at such an angle that it directs the fuel into the manifold in the same direction as the air flowing through the manifold. The nozzle controls the shape of the spray pattern so that the cross sectional configuration of the spray pattern generally conforms to the cross sectional configuration of the manifold.

3,656,465

INTAKE AIR HEATER FOR AN AIR-COMPRESSING INJECTION INTERNAL COMBUSTION ENGINE

Gerhard Frankle, Grunbach Kreis, Waiblingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 28, 1970, Ser. No. 84,633

Claims priority, application Germany, Oct. 29, 1969, P 19 54 497.9

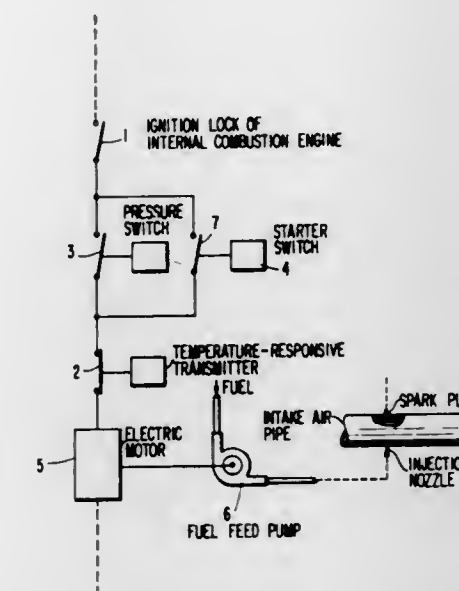
Int. Cl. F02m 31/04; F02n 17/00

U.S. Cl. 123-179 H

9 Claims

A suction air heater for an air-compressing injection-type internal combustion engine which includes a spark plug and fuel injection nozzle arranged in an air suction pipe and an

electric motor driving a fuel pump; an oil pressure switch controlling the operation of the heater is provided in the internal combustion engine which assures that energy is supplied to the electric motor when the engine is running; a tem-



perature-dependent switch is series-connected with the oil pressure switch for selectively opening or closing the circuit of the electric motor while a starter switch may be connected in parallel with the oil pressure switch.

3,656,466

FASTENER ELEMENT AND ASSEMBLY

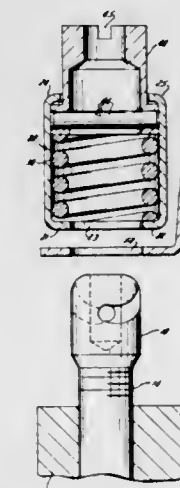
Theodore Dzus, Jr., West Islip, N.Y., assignor to Dzus Fastener Co., Inc., West Islip, N.Y.

Continuation-in-part of application Ser. No. 850,399, Aug. 15, 1969, now abandoned. This application Jan. 28, 1971, Ser. No. 110,529

Int. Cl. A44b 17/00

U.S. Cl. 123-198 E

16 Claims



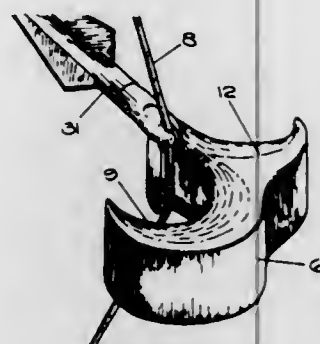
A fastener element adaptable for use with a stud shank element. One of the elements is provided with a spiral cam slot and the other of tee elements is provided with a pin mounted thereon. The fastener element includes a sleeve and a housing movably positioned in the sleeve. The pin extends diametrically across one of the elements and is supported by that element. A spring is mounted in the sleeve and abuts the housing so that when the sleeve is positioned about the stud shank and the housing compressively engages the spring while the fastener element is axially rotated, the position of the pin within the cam slot will be shifted to couple the fastener element and shank together.

3,656,467

BOW STRING DRAWING AND RELEASE DEVICE
Dale F. Halter, 2825 Bryn Maur Avenue, Hayward, Calif.
Continuation of application Ser. No. 41,495, May 28, 1970,
now abandoned. This application Jan. 15, 1971, Ser. No.
106,907

Int. Cl. F41d 19/00, 19/14

U.S. Cl. 124-35



A hand held bow string drawing and release member having a notch formed for engagement with and drawing of the bow string, a finger engaging portion formed for drawing the bow string to a stable bow tensioned position with the use of a single finger, and another finger engaging portion positioned to provide a trigger release of the bow string upon squeezing down on the several finger portions. The finger engaging portion used in drawing the string is aligned with the notch in such a way that the mid-point of this portion will be directly behind the notch while the bow string is being drawn by a single finger.

3,656,468

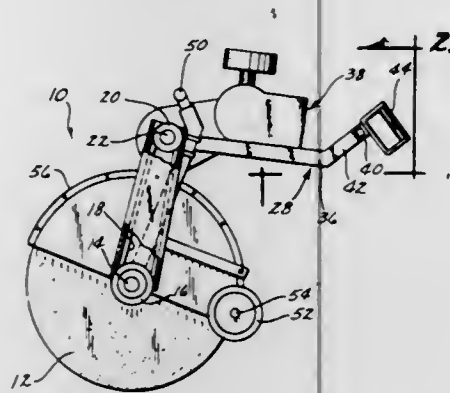
MASONRY SAW

David P. Welden, North Indiana Avenue, Iowa Falls, Iowa
Filed May 4, 1970, Ser. No. 34,000

Int. Cl. B24b 23/00; B28d 1/04

U.S. Cl. 125-13

3 Claims



A masonry saw having an engine mounted on one leg of an L-shaped frame with the saw blade being connected to the other leg. A pair of depth wheels are mounted on a guard on the blade and provide a pivot axis for moving the saw between an at rest position and an operational position. The engine is located on the frame in such a position that it will tend to maintain the blade in cutting contact with the work piece in the operational position and in the at rest position maintain the blade out of engagement with the work piece. A modified saw includes a blade remote from the engine and on the opposite side of a frame connected to the engine such that the blade which is misaligned approximately 5° will cut flush against a work piece without interference by any of the structure of the saw equipment.

3,656,469
AIR-CIRCULATION APPARATUS FOR SELF-CLEANING OVEN AND THE LIKE

Anton Ladislaus Jung, Herborn, and Erhard Ledwon, Guntersdorf, both of Germany, assignors to Burger Eisenwerke Aktiengesellschaft, Herborn, Germany

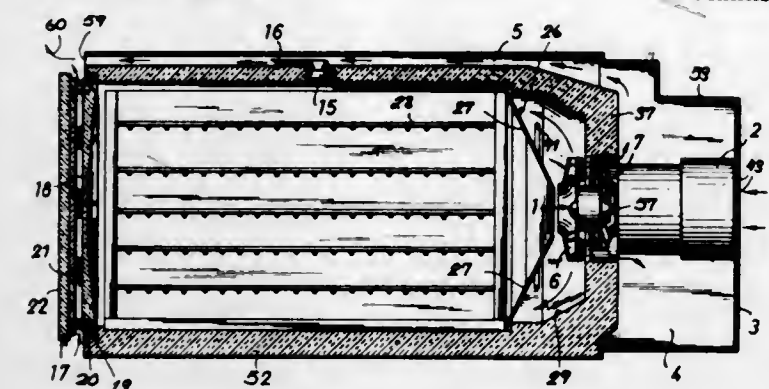
Filed May 25, 1970, Ser. No. 40,127

Claims priority, application Germany, July 17, 1969, P 19 36 324.7

Int. Cl. A21b 1/00; F24c 15/32

U.S. Cl. 126-21 A

12 Claims



An electric motor mounted in a compartment adjacent an oven or other food-treatment chamber carries a pair of centrifugal fans, one in the chamber and one in the compartment. Each fan has on each axial face an array of radially extending vanes or blades. The two central arrays of vanes confronting each other flank the outlet of a conduit open at its inlet to the ambient atmosphere so that air is drawn in through the conduit, then drawn axially in both directions, into the chamber and into the compartment, and then expelled radially to form a gas barrier at this opening. The vanes turned toward the motor draw cooling air in over this motor and the vanes directed into the chamber circulate the gases therein. The fans are rotationally coupled together only by a few angularly spaced bolts, in the cooling-air stream, surrounded by sleeve-like insulating spacers, to prevent heat conduction back to the motor.

3,656,470

BASE ASSEMBLY FOR MOBILE HOME FURNACE

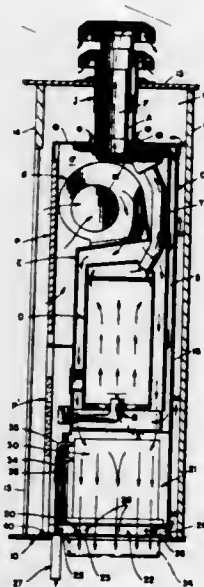
James C. Goodglon, and Armond L. Blossom, both of Wichita, Kans., assignors to The Coleman Company, Inc., Wichita, Kans.

Filed Mar. 2, 1970, Ser. No. 15,642

Int. Cl. F24h 3/00, 9/02

U.S. Cl. 126-110 AA

6 Claims



A base assembly for a downflow mobile home furnace provides an upper compartment for an air cooling coil, and a

smaller base compartment, connecting duct means extending through the lower compartment and providing a perimetric space therearound. Make-up air chute means is positionable to extend downwardly from a selected side of the perimetric space, and the casing around the space provides openings for the make-up air to exit and flow upwardly around the sides of the casing as installed in an alcove or closet. Preferably, the assembly also includes a floor plate slidably receiving the casing and extending inwardly to provide the air chute mounting means on a plurality of sides thereof. The refrigerant tube means can extend through the base compartment selectively along any side thereof, the make-up air duct means terminating at the bottom of the base compartment, thereby permitting the refrigerant tubes to run over the top of the air chute if necessary.

3,656,471

GLAZING UNIT

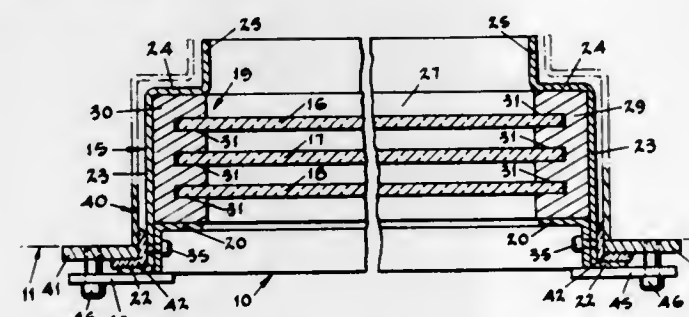
Albert W. Olson, Toledo, Ohio, assignor to Libbey-Owens-Ford Company, Toledo, Ohio

Filed Dec. 31, 1969, Ser. No. 889,519

Int. Cl. F23n 7/00

U.S. Cl. 126-200

1 Claim



A glazing unit that provides desired transparency for viewing operations being carried out at elevated temperatures within a tunnel-like enclosure while preventing objectionable heat loss and protecting an observer of such operations. It includes a special mounting that permits ready installation and removal of the viewing surfaces for cleaning.

3,656,472

INSTRUMENT FOR THE PARENTERAL PENETRATION OF A NEEDLE

Pierre Ben Moura, 5, Cote St.-Martin, Nay, France

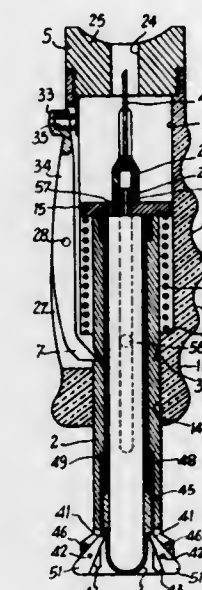
Filed Apr. 8, 1970, Ser. No. 26,678

Claims priority, application France, Apr. 15, 1969, 6911540

Int. Cl. G05g 17/00

U.S. Cl. 128-2 R

9 Claims



The apparatus comprises a body having a configuration such that it may readily be gripped in one hand; a support

which is mounted for rectilinear sliding motion within the said body; a container which is detachably mounted within the sliding support; a hollow needle which is connected to the said container and adapted to communicate with the interior of this latter and means adapted to cause the sliding support to carry out a movement of displacement within the body in the direction of forward motion of the hollow needle at high speed and with sufficient force to ensure penetration of the needle into the organ considered.

3,656,473

MEDICAL DATA PROCESSING

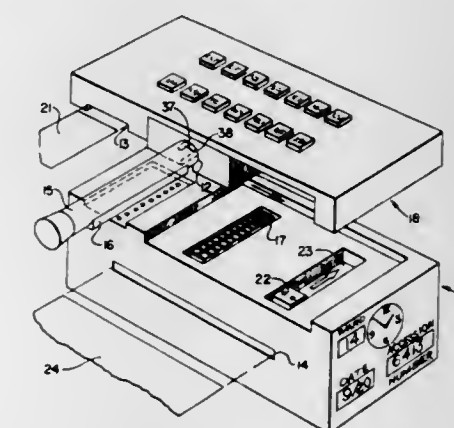
Lester A. Sodickson, Waban, Mass., and Martin J. Rubin, Chevy Chase, Md., assignors to American Science & Engineering, Inc., Cambridge, Mass.

Filed Aug. 28, 1969, Ser. No. 853,649

Int. Cl. A61b 10/00

U.S. Cl. 128-2 R

8 Claims



A test tube bearing a label for receiving identifying marks is keyed into a label marking unit in the presence of the patient. Unique patient identification information is transcribed from his charge plate or wrist bracelet. Specimen description information and processing directions generated by keyboard, automatic modules, or auxiliary cards are also encoded on the label. Such cards may also receive the identification information. The label is decoded in keyed reading units in the laboratory and the indicated procedures performed. The identification information is read at process junctures and transcribed automatically to additional aliquot containers as required to maintain positive identification of the specimen.

3,656,474

METHOD AND APPARATUS FOR MEDICAL DIAGNOSIS

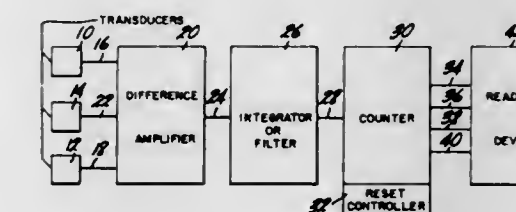
Elwood M. Gentry, and Arnys Clifton Lilly, Jr., both of Richmond, Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Aug. 22, 1969, Ser. No. 852,260

Int. Cl. A61l 5/00

U.S. Cl. 128-2.1 R

10 Claims



A method for quantitative observation of body functions expressed in muscular activity is disclosed along with ap-

paratus for implementing the method in respect of both active and inactive subjects, particularly for observing coughing. The method involves the derivation and compound differencing of signals indicative of contraction of a common activated muscle, and the counting of compound difference signals. In the case of active subjects, the method provides for suppression of counting of compound difference signals where same are not indicative of the occurrence of the body function under observation.

3,656,475

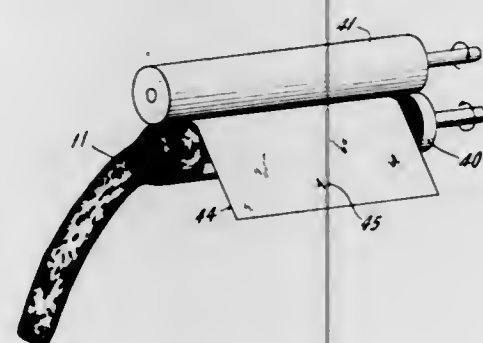
ORTHOPEDIC CAST AND PROCESS FOR APPLYING SAME

James R. Hanrahan, Jr., 45 Sturges Road, Fairfield, Conn.
Continuation-in-part of application Ser. No. 811,766, Apr. 1, 1969, now abandoned. This application Mar. 5, 1970, Ser. No. 16,907

Int. Cl. A61f 5/04

U.S. Cl. 128-90

16 Claims



Process for applying a novel lightweight, X-ray transmissive orthopedic cast to an injured member in a convenient manner and in an amount of time less than conventional casts. A tubular knitted fabric base sleeve is drawn over the portion of the member being treated. An inert, impermeable barrier layer is provided thereover to space said base sleeve from an outer tubular knitted fabric sleeve which is drawn over said base sleeve. The out sleeve is impregnated, at least at its surface, with a liquid composition capable of setting in a rapid manner to form a rigid resin, the setting of said resin rendering said outer sleeve rigid.

3,656,476

POLYMERIC STRUCTURES

Frederick Bernard Swinney, Wyoming, Mich., assignor to Polymer Corporation, Sarnia, Ontario, Canada
Continuation of application Ser. No. 581,179, Sept. 22, 1966, now abandoned. This application Feb. 3, 1970, Ser. No. 12,481

Claims priority, application Canada, Feb. 16, 1966, 952364
Int. Cl. A61f 05/04

U.S. Cl. 128-90

8 Claims

Orthopedic structures are prepared by forming an envelope of a defined material in a flexible form around a body member, heat-softening and uniting the adjoining portions of the envelope, and allowing the envelope to harden at reduced temperature. The defined material is a composition based on a crystalline high molecular weight polymer of a conjugated diolefinic compound; preferably the crystalline polymer is trans-1,4 polyisoprene.

3,656,477

ORTHOPEDIC CAST

Bobby E. Thomas, 225 Calle Margarita, Tucson, Ariz., and Edward W. Maki, 3536 S. Mission Road, Tucson, Ariz.
Filed Apr. 20, 1970, Ser. No. 30,167

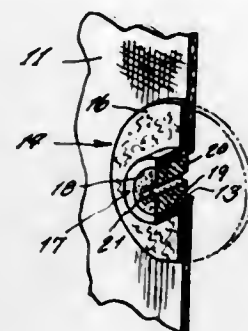
Int. Cl. A61f 5/04

U.S. Cl. 128-91 R

1 Claim

An orthopedic or medical cast, the device comprising a stockingette having a series of air vent units secured thereto,

the air vent units being arranged in staggered relationship along rows, and each air vent unit being of a height



equivalent to the thickness of plaster of paris placed around the outer side of the stockingette.

3,656,478

INFUSION MONITOR UTILIZING WEIGHT DETECTING MEANS

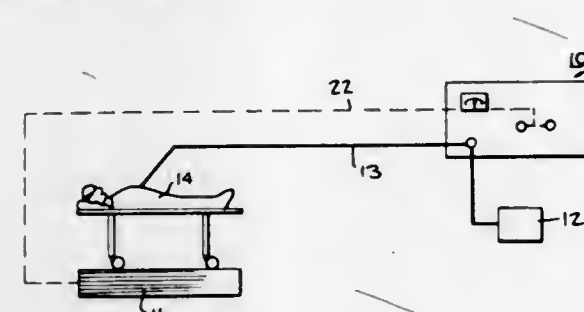
Burt L. Swersey, Hartsdale, N.Y., assignor to Brookline Instrument Company, Elmsford, N.Y.

Filed Apr. 13, 1970, Ser. No. 27,772

Int. Cl. A61m 05/00

U.S. Cl. 128-214 E

15 Claims



The infusion monitor is adapted to operate at a high speed or a low speed in dependence upon a variable characteristic of the patient, such as weight. If during infusion, the weight of the patient deviates from a preset value the infusion monitor speed is changed. For example, with the infusion monitor operating at the normal low speed, if the weight decreases, the infusion monitor is switched to the high speed. When the weight subsequently returns to the preset value, the infusion monitor switches back to the low speed.

3,656,479

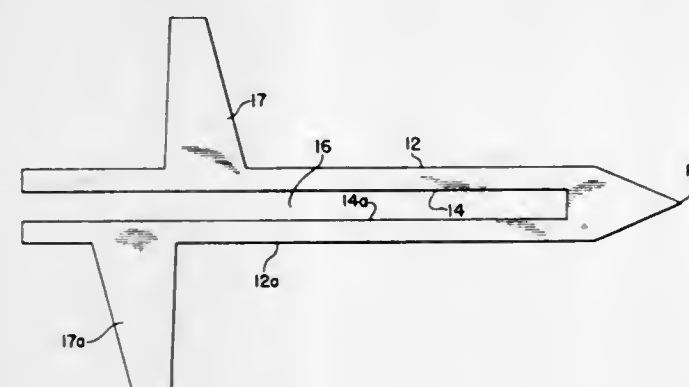
DETACHABLE GUIDE NEEDLE

James A. Huggins, 8501 W. Higgins Road, Racine, Wis.
Filed Feb. 19, 1970, Ser. No. 12,650

Int. Cl. A61m 5/00

U.S. Cl. 128-214.4

4 Claims



A detachable hollow guide needle assembly for piercing body portions, such as tissues, muscles, veins, to locate a

flexible catheter tube in the selected body portion for withdrawing or introducing fluids relative thereto, and which includes a metal tubular needle point at one end with portions extending rearwardly on opposite sides of a longitudinal slot having the edges thereof joined by plastic material making up the hollow assembly for receiving the catheter tube and the plastic material serving to permit complete removal of the assembly from the body inserted catheter tube.

3,656,480

SYRINGE

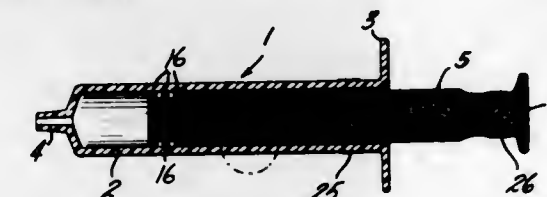
Jeanette Lois Rubriclus, New York, N.Y., assignor to Harry H. Leveen, Brooklyn, N.Y.

Filed June 17, 1969, Ser. No. 834,020

Int. Cl. A61m 05/22

U.S. Cl. 128-218 P

3 Claims



A lightweight syringe is provided having a plastic foam plunger. The plunger is of unitary construction made of a plastic foam material and dimensioned so as to fit in the syringe body whereby the plastic foam material forms a resilient compression seal. The syringe can be disposed of after single use, or can be sterilized and reused, at the option of the user.

3,656,481

MAGNETIC OPHTHALMIC INSTRUMENT FOR EYE THERAPY

Richard A. Ness, 714 South Mills, Fergus Falls, Minn.

Filed Aug. 1, 1969, Ser. No. 846,709

Int. Cl. A61m 31/00

U.S. Cl. 128-260

26 Claims



An ophthalmic instrument for manipulating magnetically attractable objects against the eyeball comprising a shank terminating at least at one end in a terminal portion which is flat and magnetic, said terminal portion having a blunt tip, whereby said instrument can be used to insert or remove magnetically attractable objects against the eyeball by attraction of said objects to said flat and magnetic terminal portion(s) of said instrument. One terminal portion of a preferred instrument comprises a curved arm member.

3,656,482

APPLICATOR FOR DISPENSING SUBSTANCES

Joseph Sunnen, Ladue, Mo.

Filed Jan. 19, 1970, Ser. No. 3,634

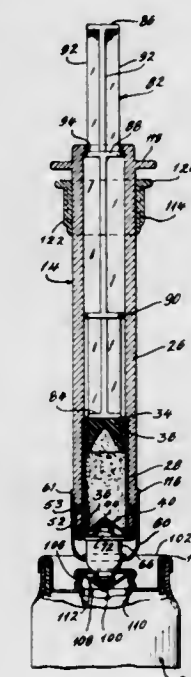
Int. Cl. A61m 31/00

U.S. Cl. 128-261

8 Claims

Improvements in an applicator for dispensing substances including pressurized substances and substances in a foam or

foam-like condition including an applicator for discharging such substances wherever needed including into body cavities or elsewhere including a tubular holder partially open at one end and a tubular applicator including a tubular housing adapted to be positioned in the holder, said housing having normally closed valve means at one end male operator means on the applicator constructed to cooperate with means formed on the partially closed end of the holder when pressed thereagainst to open the valve means and permit dispensing of the contents thereof, said operator means being



constructed to engage the valve means and also to cooperate with normally closed female-type valve means on an aerosol container to establish communication between the inside of the aerosol container and the inside of the applicator housing during filling and charging of the application, and a piston slidably and sealably positioned for movement in the applicator in a direction to permit material from the aerosol container to flow into the applicator during filling and charging and to be moved in the opposite direction during a dispensing operation when the applicator is positioned in the tubular holder.

3,656,483

INTRAUTERINE MEDICATOR

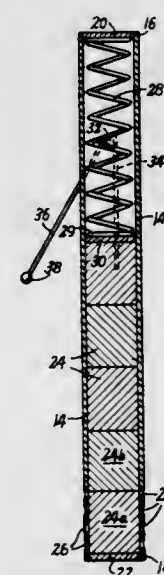
Harry Rudel, New York, N.Y., assignor to Biological Concepts, Inc., New York, N.Y.

Filed Jan. 15, 1970, Ser. No. 3,137

Int. Cl. A61m 31/00

U.S. Cl. 128-264

12 Claims



An intrauterine medicator and method for local application of medication to the uterus. The medicator includes a

perforated tube containing a supply of medication; apparatus for maintaining medication adjacent the perforations for distribution to the uterine wall, and apparatus resiliently retaining the device in the uterus.

3,656,484 FILTER

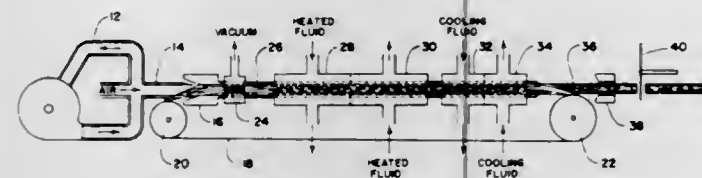
John D. Roberts; John D. Ellenberg, and Charles H. Ketih, all of Charlotte, N.C., assignors to Celanese Corporation, New York, N.Y.

Filed Nov. 13, 1968, Ser. No. 775,390

Int. Cl. A24b 15/02; A24d 01/04; A24f 07/04

U.S. Cl. 131-267

3 Claims



Aerosol filters, particularly cigarette filters, are formed from short synthetic fibers containing a bonding agent by confining a random array of said fibers having an orientation predominantly transverse to the longitudinal axis of said filter in an area having the desired configuration and activating the bonding agent to form a coherent article.

3,656,485 METHOD OF AND APPARATUS FOR VIEWING THE INTERIOR OF THE BLADDER THROUGH A SUPRAPUBIC INCISION

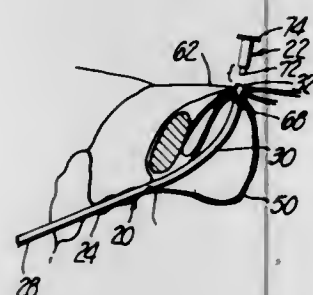
Jack R. Robertson, 1451 Refugio Road, Santa Ynez, Calif.

Filed Apr. 27, 1970, Ser. No. 32,028

Int. Cl. A61m 25/00

U.S. Cl. 128-349 R

6 Claims



A method of and an instrument for locating a suprapubic incision into the bladder and for inserting a viewing unit through the incision into the bladder. A telescope for viewing the interior of the bladder is insertable therein through the viewing unit. The viewing unit may be left in place for later viewing of the interior of the bladder therethrough, and may be sutured to the abdominal wall. Also, a retention catheter may be inserted into the bladder through the viewing unit.

The insertion instrument is elongated and terminates in a curved distal portion insertable through the urethra into the bladder to bring the distal end of the instrument into engagement with the anterior wall of the bladder in register with the suprapubic area of the abdominal wall. The instrument is provided with a longitudinal passage therethrough from its proximal end to a point adjacent but spaced from its distal end, and has a lateral opening therein at the distal end of the passage. With the distal end of the instrument in engagement with the anterior wall of the bladder, the bladder is inflated

with a suitable fluid through the passage and the lateral opening in the instrument. Then, the aforementioned incision is made through the abdominal wall and the anterior wall of the bladder in register with the distal end of the instrument. The distal end of the viewing unit is then connected to the distal end of the insertion instrument, and the distal ends of these devices are then inserted into the bladder through the incision. Subsequently, the distal end of the viewing unit within the bladder, and the insertion instrument is then withdrawn through the urethra, leaving the viewing unit in place for insertion of a telescope therethrough for viewing the interior of the bladder.

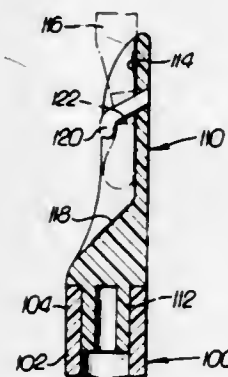
3,656,486 INSTRUMENT FOR INSERTING A SUPRAPUBIC CATHETER

Jack R. Robertson, 1451 Refugio Road, Santa Ynez, Calif.
Continuation-in-part of application Ser. No. 297, Jan. 2, 1970. This application Apr. 8, 1970, Ser. No. 26,727

Int. Cl. A61m 25/00

U.S. Cl. 128-349 R

3 Claims



An instrument having a curved distal portion insertable through the urethra into the bladder to bring the distal end of the instrument into engagement with the anterior wall of the bladder in register with the suprapubic area of the abdominal wall. After inflating the bladder with a suitable fluid through a longitudinal passage in the instrument and a lateral opening in the curved distal portion thereof, an incision is made through the abdominal wall and the anterior wall of the bladder in register with the distal end of the instrument, which then emerges outwardly through the incision. The distal end of the instrument is provided with a recessed catheter engaging means engageable with a tip portion of the catheter and adapted to insert the tip portion of the catheter into the bladder through the incision. Thereafter, the instrument is disengaged from the catheter within the bladder and is then withdrawn from the bladder and the urethra, leaving a portion of the catheter within the bladder. The catheter is then inflated to retain it within the bladder.

3,656,487 ELECTRONIC DEMAND HEART PACEMAKER WITH DIFFERENT PACING AND STANDBY RATES

David H. Gobel, St. Paul, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Continuation-in-part of application Ser. No. 832,706, June 12, 1969, now abandoned. This application Jan. 7, 1970, Ser. No. 1,178

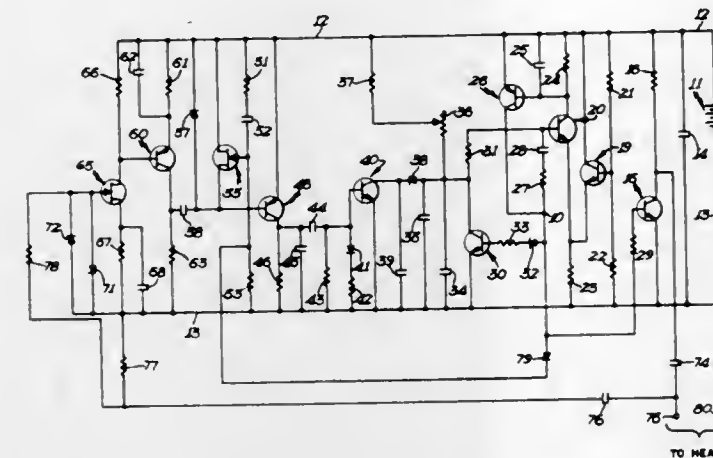
Int. Cl. A61n 1/36

U.S. Cl. 128-419 P

20 Claims

A demand type heart pacer which provides electronically generated stimulating pulses to the heart at a first frequency

in the continued absence of natural heartbeats, but which inhibits output pulses once the natural heart rate exceeds the first frequency, and allows the heart to beat naturally at any rate above a second, lower frequency before again providing



stimulating pulses, thereby creating a different standby frequency. The pacer also reverts to a third frequency in a non-demand type operation in the presence of an interfering electrical noise pattern.

3,656,488 TURNOVER SHAKER

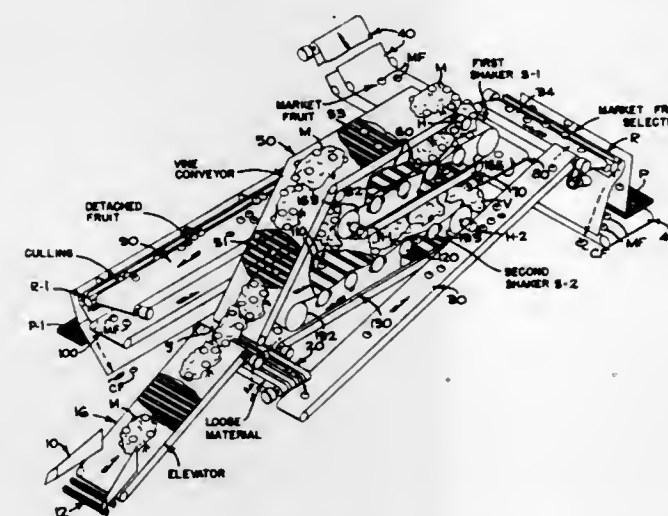
Ferdinand J. Dumanowski, Sunnyvale; William G. Malley, San Jose, and David W. Cayton, Cupertino, all of Calif., assignors to FMC Corporation, San Jose, Calif.

Filed July 29, 1970, Ser. No. 59,268

Int. Cl. A01d

U.S. Cl. 130-30 A

16 Claims



Tomatoes or the like are removed from a mass of vines and tomatoes by advancing and shaking the mass to detach some of the fruit, dropping the mass while turning it over, advancing the inverted mass along a second path in a direction opposite that of the first path while further shaking the inverted mass for detaching additional fruit. These steps are carried out on endless shaking conveyors that are oscillated by rotating kicker bar assemblies. An undershaker conveyor is disposed beneath the lower reach of each of the shaker conveyors and runs in the direction of that reach. The lower shaker conveyor extends past the delivery end of the upper shaking conveyor for facilitating the turning over action between the shakers. Sickie bars are provided at the delivery end of each shaker conveyor for cutting up vines and preventing them from being picked up by their associated undershaker conveyors.

3,656,489 METHOD OF TREATING TOBACCO SMOKE TO ELIMINATE METAL CARBONYL CONTENT THEREOF

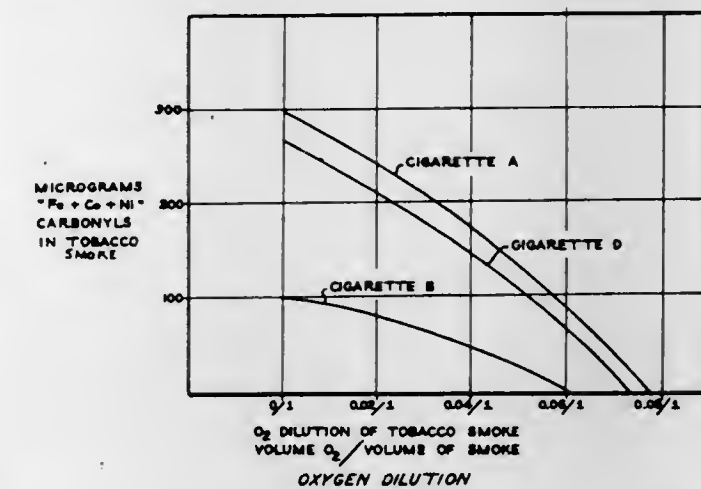
Eldon Stahly, 2813 Deirfield Drive, Ellicott City, Md.

Continuation-in-part of application Ser. No. 765,589, Oct. 7, 1968, now Patent No. 3,473,535, which is a continuation-in-part of application Ser. No. 303,929, Aug. 22, 1963, now abandoned. This application Aug. 26, 1969, Ser. No. 853,055

Int. Cl. A24b 15/02

U.S. Cl. 131-9

9 Claims



A method is disclosed for determining and introducing the amount of oxygen required to be added to tobacco smoke from conventional smoking devices to deliver a smoke free of metal carbonyls. The required increase in percent oxygen in the smoke depends in part on the content of transition metals in the unsmoked tobacco, and in part on the carbon monoxide content of the tobacco smoke, and is calculated to be equal to the product of the logarithm of the ppm of "iron + cobalt + nickel" and 4 log (percent carbon monoxide in the smoke) divided by a constant.

Specifically, the amount of oxygen added is calculated from the formula $O = \log M \times 4 \log \% CO/K$, wherein O is the increase in the percent oxygen in the smoke, M is the iron, cobalt and nickel content in parts per million in the unsmoked tobacco, % CO is the per cent carbon monoxide in the smoke and K is 3.13 but not exceeding that calculated from this formula wherein K is 1.90.

ERRATUM

For Class 131-267 see:
Patent No. 3,656,484

3,656,490 HAIR ROLLER CONTAINING HAIR DRYING EXPEDITING MATERIAL

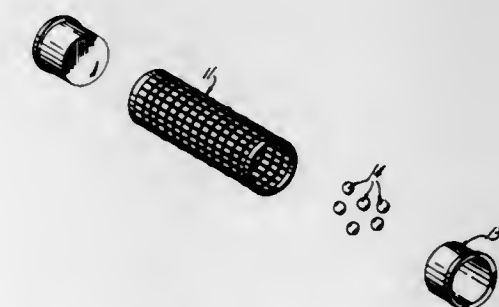
Edward Grossman, 311 Glenwood Avenue, Leonia, N.J.

Filed Sept. 21, 1970, Ser. No. 74,064

Int. Cl. A45d 2/02

U.S. Cl. 132-39

21 Claims



A porous hair roller containing hair drying expediting material, said material comprising a combination of a clay and a silicate.

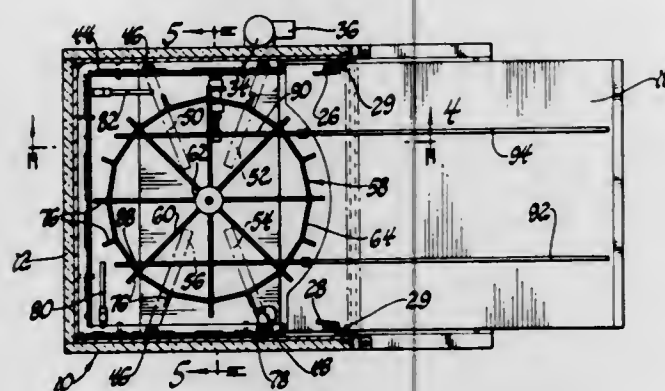
3,656,491

CLEANING MACHINE WITH TURNTABLE TROLLEY ALIGNMENT MEANS

Thomas B. Ballard, 25550 Mulberry Drive, Southfield, Mich.
Filed Feb. 18, 1970, Ser. No. 12,350
Int. Cl. B08b 3/02

U.S. Cl. 134—56 R

25 Claims



A cleaning machine including a front opening cabinet or housing having an upper cleaning chamber and a lower fluid reservoir and a fluid pumping system for transferring fluid from the reservoir to the cleaning chamber through a system of fluid conduits. Operation of the pumping system simultaneously sprays hot cleaning fluid over the objects to be cleaned, rotates a turntable supporting the objects, and operates a latch mechanism to free the turntable for rotation from a predetermined working position. Sediment collection devices may be disposed in the reservoir.

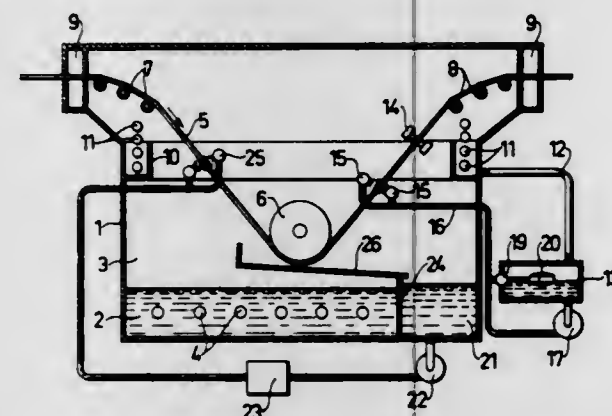
3,656,492

APPARATUS FOR STEAM DEGREASING

Kurt Anders Holm; Rune Einar Hansson, both of Skoghall, and Bengt Gunnar Berglund, Hammaro, all of Sweden, assignors to Uddeholms Aktiebolag, Uddeholms, Sweden
Filed Mar. 20, 1970, Ser. No. 21,237
Int. Cl. B08b 3/02, 15/00

U.S. Cl. 134—64

3 Claims



Oily articles are degreased by being immersed into the vapour of a boiling solvent, such as trichloroethylene. Immediately after the articles have entered into said vapour they are exposed to a powerful jet of oily solvent. Said oily solvent jet removes foreign particles adhering to the surface of the articles.

3,656,493

SCREEN WASHING APPARATUS

James A. Black, 13700 Sparta N.W., Kent City, Mich., and Harry Russell Farwell, 129 Ann Street, Cedar Springs, Mich., assignors to James A. Black, Kent City, Mich., by said Harry Russell Farwell

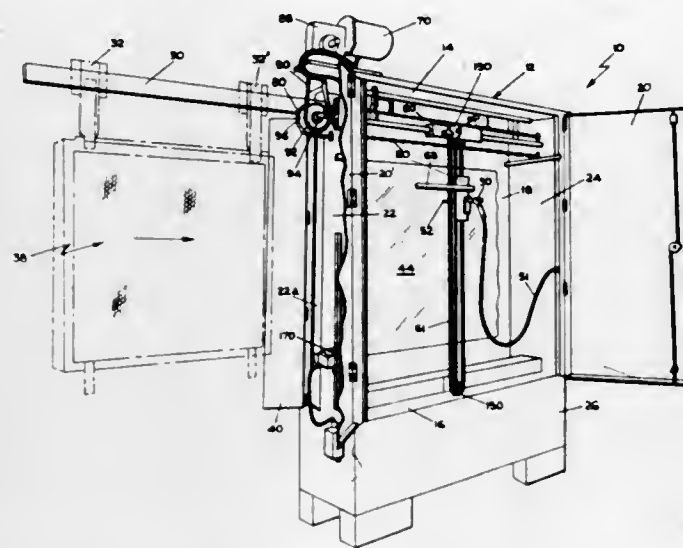
Filed Sept. 11, 1969, Ser. No. 857,163
Int. Cl. B08b 3/02, 11/02

U.S. Cl. 134—113

3 Claims

Screen stencil washing apparatus with an enclosure cabinet having screen loading means extending between the exterior

and the interior of the cabinet, the cabinet containing a washing gun support means advanceable across the area of the screen by controlled bidirectional movement using two inter-related conveyance means, one in one dimension and the other transversely thereto, the one having a sweeping



movement and the other an incremental advancement. Lighting means is arranged to allow visual inspection upon completion of the washing cycle, through access doors. The washing gun is removable from its support means for manual washing of any local areas.

3,656,494

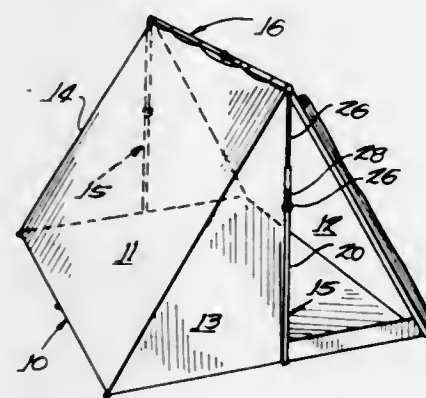
ADJUSTABLE TENT POLE

Cecil J. Cornett; Glen D. Dolton, and John R. Kurtyka, all of Wichita, Kans., assignors to The Coleman Company, Inc., Wichita, Kans.

Filed May 11, 1970, Ser. No. 36,300
Int. Cl. A45f 1/16, F16l 27/12

U.S. Cl. 135—15 PQ

5 Claims



An improved adjustable tent pole is provided of the kind utilizing telescoping tubes, which are releasably interlocked by a slot and key assembly, the outer tube being provided with a single slot through which the key extends for selective engagement with a plurality of longitudinally spaced notches of the inner tube. In the improvement, the key receiving slot of the outer tube is located at a sufficient distance from the end of the outer tube so that the outer tube fully covers the notches of the inner tube whenever any of the notches are in alignment with the slot of the outer tube. The outer tube also provides an elongated sight window overlying only the central portion of the notches as the tubes are telescopically adjusted. In a preferred embodiment, the locking and key means is in the form of an integral ring member of resilient plastic material, the ring member being split on the opposite side from the key providing portion so that the ring can be temporarily expanded to a diameter where the key is withdrawn from the slot. The key member is made more readily expandable by making it thicker adjacent the key and tapering its thickness towards the split.

3,656,495

FLUIDIC DEVICES

Carl Anders Noren, Fasanvagen, Ektorp, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

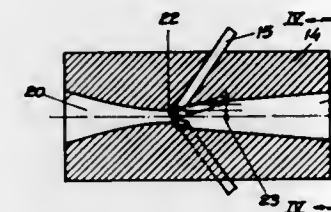
Filed Aug. 19, 1969, Ser. No. 851,195

Claims priority, application Sweden, Aug. 26, 1968, 11434/68

Int. Cl. F15c 1/08

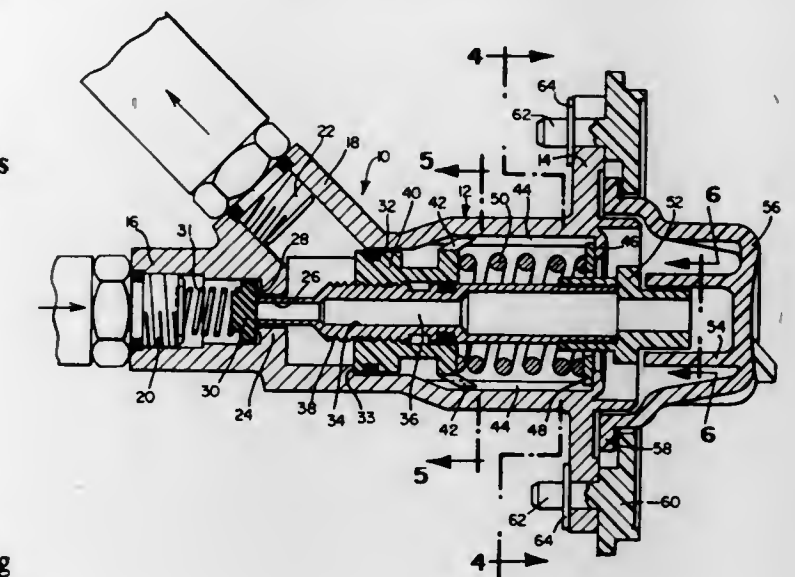
U.S. Cl. 137—81.5

9 Claims



A fluidic device without moving parts consists of a housing having a venturi shaped main passage which has one or more secondary passages branched-off from the minimum section of the venturi and which form an acute angle with the outlet portion of the main passage. The cross section area of the venturi increases suddenly downstream of the branch-off point.

pressed piston or the like. Inside end of stem unseats valve from high pressure inlet to admit flow up to set pressure, and



an excessive downstream pressure build-up backs stem off its seat on valve to permit pop off through stem.

3,656,498

BALL VALVE

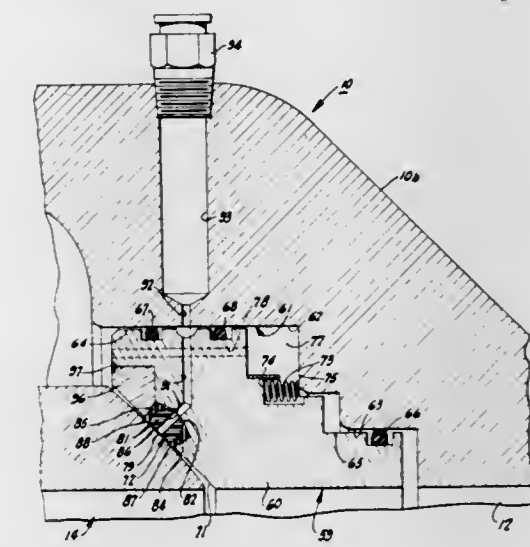
Marvin H. Grove, and Kee W. Kim, both of Houston, Tex., assignors to M & J Valve Company, Houston, Tex.

Filed Jan. 4, 1971, Ser. No. 103,642

Int. Cl. F16k 5/22

U.S. Cl. 137—246.22

8 Claims



A valve of the ball type having a ported rotatable valve member (i.e., valve ball) within a valve body, and a sealing assembly which provides a seal between the body and the valve member. The sealing assembly includes a metal ring having non-metallic resilient sealing means which contacts the valve working surface of the valve ball. The fluid pressure areas of the sealing assembly are such that line pressure for flow in either direction does not cause the seal between the sealing means and the valve member to be broken. The ring is fitted and guided within the valve body in such a manner as to prevent cocking. The non-metallic resilient sealing means carried by the metal ring provides a double seal on two concentric areas, and ducts permit communication with the space between such sealing areas from the exterior of the body. Preferably only one sealing assembly is employed, and this is located in that portion of the body which is integral with the main portion of the body, whereby the remaining welded-on body part may be applied in the final phases of manufacture without disturbing the alignment of the valve member or injury to the sealing assembly.

3,656,497

PRESSURE REGULATOR

Hugh Clifford Brown, Thomaston, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn.

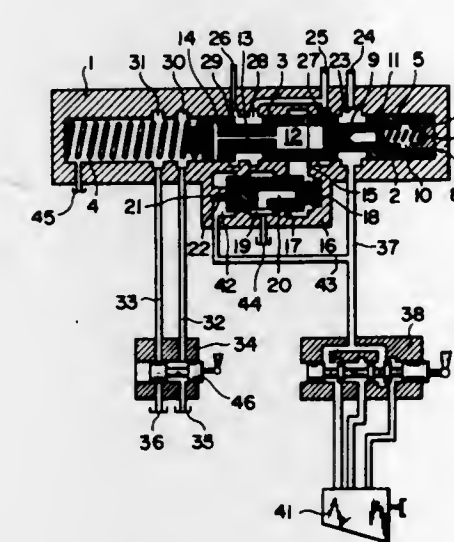
Filed Oct. 9, 1970, Ser. No. 79,468

Int. Cl. F16k 31/363

U.S. Cl. 137—116.5

2 Claims

Pressure regulator has a threaded tubular control stem which when turned adjusts its position relative to spring-



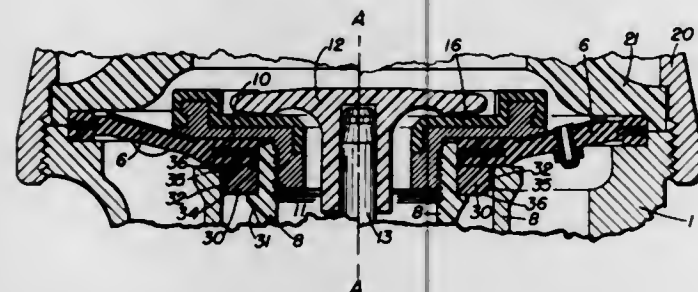
3,656,499

ADJUSTABLE QUIET REFILL HEADS FOR FLUSH VALVES

Axel B. Nelson, Mount Prospect, and Roman F. Spacko, Darien, both of Ill., assignors to Sloan Valve Company
Filed Feb. 3, 1971, Ser. No. 112,296
Int. Cl. F16k 31/145

U.S. Cl. 137-270

11 Claims



A diaphragm type flush valve having a depending guide in the valve barrel is equipped with a ring shaped refill head adjacent the valve seat to quiet the water flow and to regulate the amount of water to different plumbing fixtures.

3,656,500

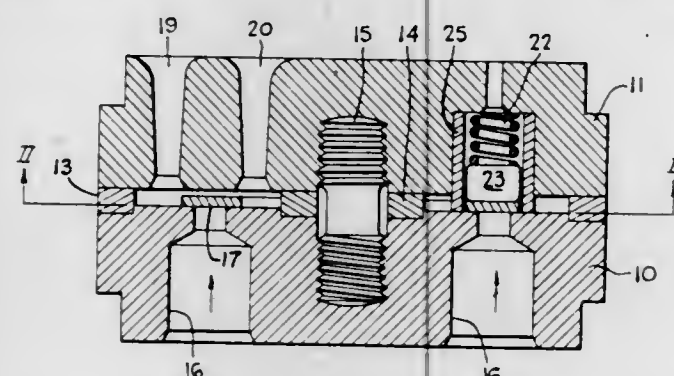
CHECK VALVE

Thomas E. Mayer, Sr., Tonawanda, and George Yokota, Amherst, both of N.Y., assignors to Worthington Corporation, Harrison, N.J.

Filed May 18, 1970, Ser. No. 37,979
Int. Cl. F16k 15/08

U.S. Cl. 137-271

9 Claims



A check valve having a generally cylindrical valve chamber with a valve seat surface at one radial wall of the chamber and spring recesses at the opposite radial wall of the chamber. An annular plate seats against the valve seat surface and coil springs in the recesses bear against the annular plate valve to bias it to closed position. Teflon sleeve members in the spring recesses contain the springs and have notched ends which straddle the annular plate and thus locate it centrally of the valve structure. The notches have a depth to permit opening and closing movement of the plate and the sleeves are self-lubricating with respect to the plate edges, the springs disposed within the sleeve, and cylindrical members between the coil springs and the plate and slidable in the sleeves.

3,656,501

VALVE-OPERATOR ASSEMBLY WITH ALIGNMENT AND LOCKING MECHANISM

Ervin A. Buchta, Katy, Tex., assignor to FMC Corporation, San Jose, Calif.

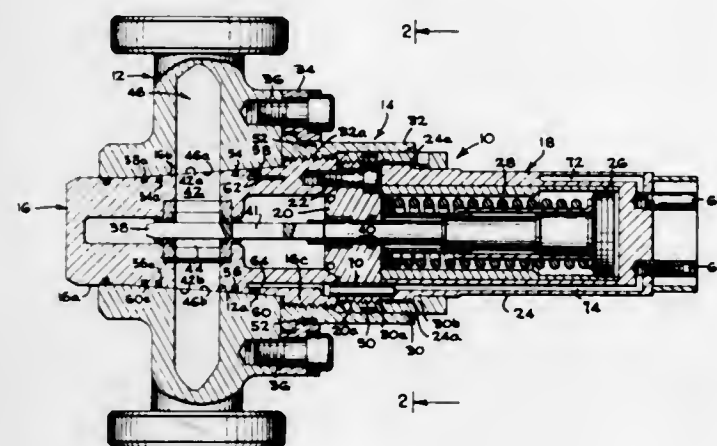
Filed May 26, 1970, Ser. No. 40,657
Int. Cl. F16k 31/46

U.S. Cl. 137-315

8 Claims

A valve and operator assembly with a mechanism for aligning the valve's flow passage coaxially with the flow passage

of the housing in which the valve is positioned, and for locking the valve to the housing in the aligned position. The valve has a generally cylindrical body with a portion that is tapered to correspond to a tapered cavity in the housing, and an externally threaded portion for cooperation with an internally threaded drive nut rotatably secured to the housing to



properly position and lock the valve in the cavity. The centerline of the valve's tapered portion is offset from the centerline of the threaded portion, and the centerline of the housing cavity is likewise offset from the drive nut's centerline, so that the drive nut can be threaded onto the valve body only when the valve is properly oriented in the housing.

3,656,502

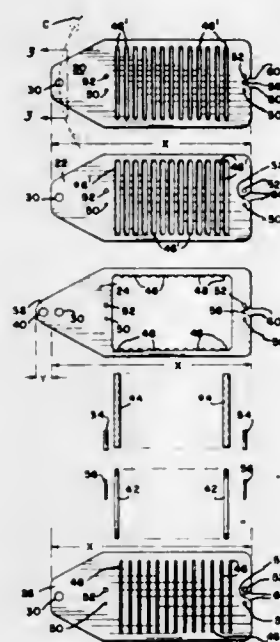
FLUID CONTROL VALVE

Frank D. Howe, Painted Post, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed July 7, 1970, Ser. No. 52,821
Int. Cl. F16k 51/00

U.S. Cl. 137-327

5 Claims



The valve is of the flat, channel, check-type; its guide plate has an extending tab portion which can be grasped, the tab providing means by which the whole valve can be withdrawn from and inserted into the valve-using machine. This obviates any need to dismantle the machine to gain access to the valve.

The valve includes a position orientating beveled slot in the valve seat and plates to facilitate proper installation of the valve, and teflon coating on the seat and plates, the latter providing a gasketing surfacing and to facilitate cleaning.

3,656,503

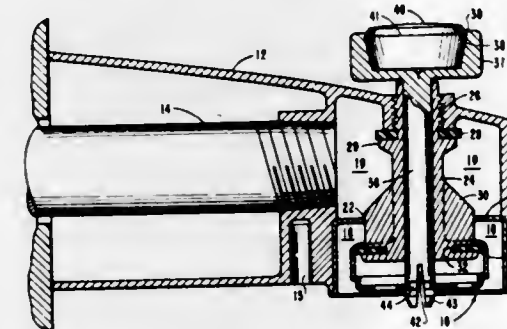
FLUID CONTROL VALVE

Irving A. Ward, 2709 La Cuesta Avenue, Hacienda Heights, Calif.

Filed May 11, 1970, Ser. No. 36,265
Int. Cl. F16k 51/00

U.S. Cl. 137-359

8 Claims



A diverter valve is provided which in a preferred embodiment has an outlet chamber which communicates with a water supply. A seat within the chamber has a central aperture through which water flows to the tub when the valve is open. The valve is closed by moving the restricted mouth of a cup against the seat where water pressure against the restricted mouth holds it in place. Standing water drains through holes in the bottom of the cup which are sealed by a flexible seal attached to a fixed post when the water pressure exceeds a selected amount. The absence of moving parts on the high pressure side of the seat and a pressure compensation feature keep the valve action smooth and uniform, regardless of water pressure.

3,656,504

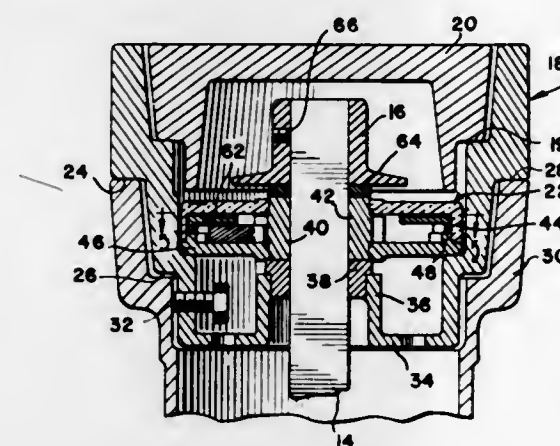
BURIED VALVE POSITION INDICATOR

George F. Topinka, Oak Brook, Ill., assignor to Henry Pratt Company

Filed Feb. 27, 1970, Ser. No. 15,056
Int. Cl. F16k 1/28, 37/00

U.S. Cl. 137-363

6 Claims



A valve position indicator for buried valves having a rotatable operator shaft extended to ground level. A pipe upright is positioned about the operator shaft and extends to ground level. An indicator housing is non-rotatably mounted in the pipe near ground level and a bearing engages the housing and the operator shaft for transferring side loads from the shaft through the housing to the pipe. A self-contained, sealed indicating gear box unit is slidably mounted over the upper end of the extended operator shaft, with a driving gear rotatably coupled with the operator shaft. The gear box has an outer portion coupled with the housing, locking the gear box non-rotatably to the housing. The gear box unit has an interior indicia carrying gear movable circumferentially about the gear box less than 360° for multiple turns of the

3,656,505

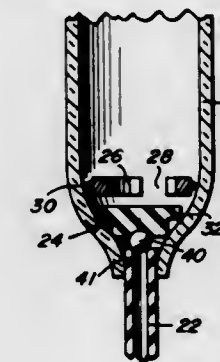
AUTOMATIC CUT-OFF FOR INTRAVENOUS EQUIPMENT

Ellen M. O'Brian, 221 Bilmarsan Drive, Biloxi, Miss.

Filed May 6, 1970, Ser. No. 34,998
Int. Cl. F16k 31/18

U.S. Cl. 137-399

5 Claims



A valve assembly is positioned in the drip chamber of a conventional intravenous container and includes a steel flotation ball which seals the chamber orifice when the intravenous liquid in the container is expended. A floatation plug floats above the ball and serves as a hold-down means for clamping the ball against the orifice when the fluid is almost expended. In order to prevent the ball and plug from floating to an upper portion of the drip chamber, a retaining ring is fastened near the orifice end of the chamber. The valve assembly goes into operation when the last few drops of intravenous fluid remain at the drip chamber orifice.

3,656,506

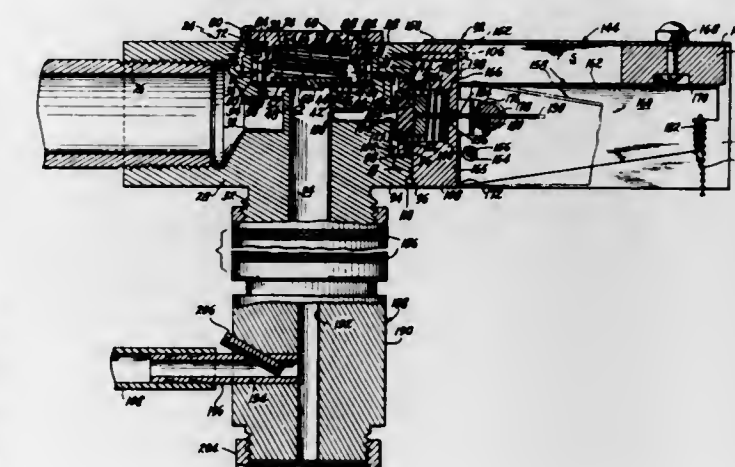
FLOW PROPORTIONING DEVICE AND MAGNETICALLY OPERATED VALVE THEREFOR

Dennis E. Jackson, and Francis R. Rustin, both of Springfield, Mo., assignors to Naremc Inc., Springfield, Mo.

Filed June 17, 1970, Ser. No. 46,860
Int. Cl. F16k 31/34, 31/56

U.S. Cl. 137-414

13 Claims



A device for blending measured amounts of stock solution into drinking water for fowl and livestock, including a magnetically operated, instantly responsive water supply valve. The supply valve includes flow control means and a pilot valve for controlling the same, the pilot valve being operated by a lever arm having a float suspended therefrom. A magnet

holds the lever arm in a first position until the float places sufficient pull thereon to overcome the magnetic attraction, whereupon the arm instantly changes to a second position and operates the pilot valve to open the flow control means. When the liquid level rises sufficiently to ease the pull of the float, the magnet snaps the lever arm back to its first position, thus instantly closing the supply valve.

3,656,507

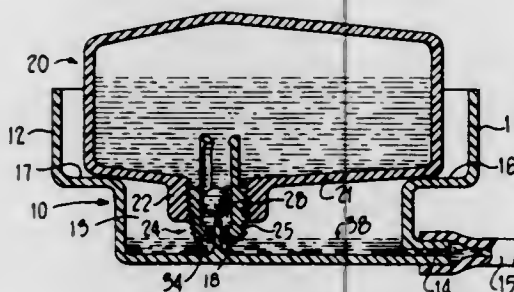
LIQUID LEVEL CONTROL SYSTEM

Leonard S. Martinez, San Leandro, Calif., assignor to The Singer Company, Friden Division, New York, N.Y.
Filed Aug. 6, 1970, Ser. No. 61,552

Int. Cl. G05d 9/00

U.S. Cl. 137-454

3 Claims



A reservoir from which liquid may flow at a metered rate with the liquid normally maintained at a predetermined level. The liquid is supplied to the reservoir by a top-mounted container having a downwardly extending internally threaded neck into which a liquid level control valve assembly is threaded. The valve assembly cooperates with an upwardly extending protrusion mounted on the reservoir bottom to allow liquid to flow from the container to the reservoir. The liquid level in the reservoir may be adjusted by varying the vertical position of the control valve assembly.

3,656,508

WATER VALVE FOR ROCK DRILLS

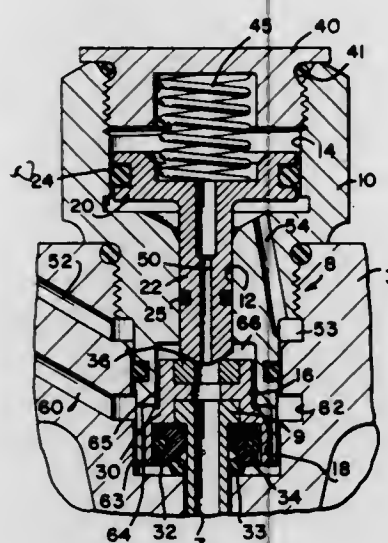
Ronald R. Boychuk, and Sigmund I. Slettemoen, both of Sudbury, Ontario, Canada, assignors to Canadian Ingersoll-Rand Company Limited, Montreal, Quebec, Canada

Filed June 15, 1970, Ser. No. 46,418

Int. Cl. F16k 31/14

U.S. Cl. 137-495

6 Claims



A water valve for an air operated rock drill for controlling the flow of water from a water supply passage to the water feed tube of the drill. The valve is designed to prevent the water pressure from exceeding the air pressure. The valve includes a piston which is acted on by air under pressure to be

opened to permit the flow of water from the supply passage to the feed tube. A passage in the valve piston permits the flow of water from the water feed tube to the side of the valve piston opposite from the side which is acted on by the air pressure. If the water pressure exceeds the air pressure, the piston will be moved toward a closed position to prevent the flow of additional water from the supply into the water tube until such time as the water pressure is reduced to a point below that of the air pressure.

3,656,509

AUTOMATIC TONER FEEDING DEVICE FOR ELECTRONIC COPYING MACHINES

Hideo Yasu, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

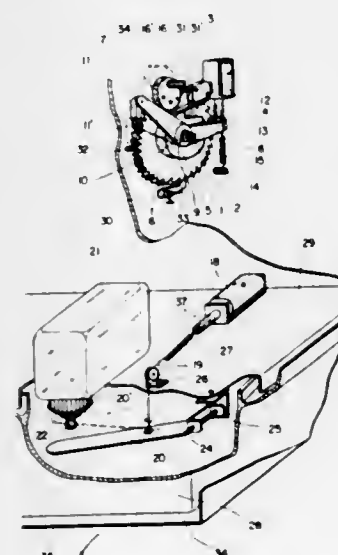
Filed Jan. 29, 1971, Ser. No. 110,907

Claims priority, application Japan, Feb. 5, 1970, 45/12077

Int. Cl. B67d 508

U.S. Cl. 137-560

2 Claims



An automatic toner feeding device for electronic copying machines which adds a certain amount of the toner each time a certain number of copying paper sheets are developed. A gear turns in response to the processing of the copying paper, and a toner feeding valve means is actuated at a certain angular position of the gear for adding the toner into a developer tank. The initial angular position of the gear is manually controllable.

3,656,510

FLUIDIC SEQUENCE CONTROLLER

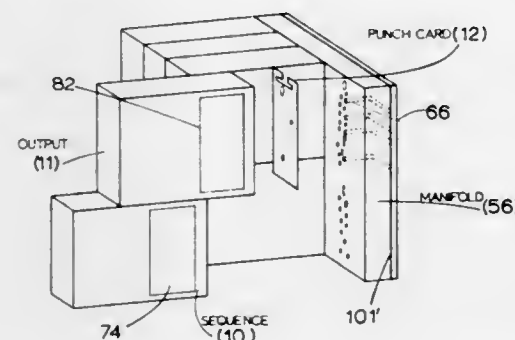
Hans-Dieter Kinner, Duxbury, Mass., assignor to The Foxboro Company, Foxboro, Mass.

Filed Dec. 30, 1969, Ser. No. 889,210

Int. Cl. F15c 1/10

U.S. Cl. 137-608

25 Claims



A sequencing controller, pure fluid device. Modular construction, highly flexible in the nature and complexities of its applications. Uses program punch card forms, fixed with

respect to input and output. Operates on the basis of sensor response to actual situation in controlled process or energy. Coincidence device compares controller output and sensor response. Selective sequence station repeater. Multiple manifold unit and punch card structure between sequence and output modules. Plug-in modules, input and output fluidic circuit boards and punch cards readily replaceable, and process or energy sensors flexible in application.

3,656,511

CONTROL APPARATUS FOR AUTOMATIC WATER FLUSHING SYSTEMS

Graham Frank Hood, 2 Halls Road, Biddulph, Stoke-on-Trent, England

Filed Aug. 17, 1970, Ser. No. 64,287

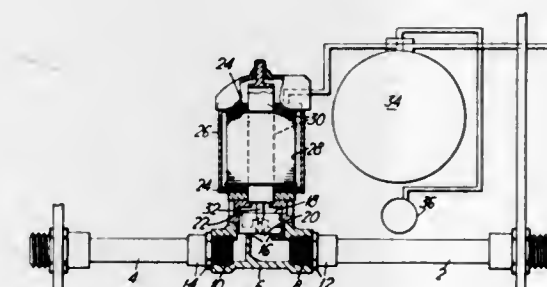
Claims priority, application Great Britain, Aug. 21, 1969,

41,698/69

Int. Cl. E03b

U.S. Cl. 137-624.11

1 Claim



The flow of water to a system comprising one or a number of automatically operated flushing cisterns is subject to the control of apparatus fitted on a pipe line leading from a water supply main to the flushing system, the control apparatus comprising a passage through which the water must flow on its way from the main to the system, a valve controlling the flow through the passage, a spring acting to hold the valve normally in an open position, a solenoid device which when energized acts to overcome the action of the spring and close the valve, thereby shutting off the flow of water to the system, and a timing device programming the energization of the solenoid device and governing the periods when the valve will be closed and the water supply to the system shut off, so as to obviate waste of water by unwanted automatic flushing action during off periods.

3,656,512

MIXING VALVE

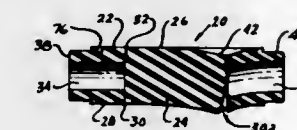
James H. Countryman, 3324 Trillon Road, Dayton, Ohio
Continuation of application Ser. No. 796,511, Feb. 4, 1965,
now abandoned. This application Nov. 9, 1970, Ser. No.

88,227

Int. Cl. F16k 11/02

U.S. Cl. 137-625.4

33 Claims



A deformable valve member having two spaced fluid inlet passageways has an arcuate exit passageway, selected portions of which are opened in response to a deforming force applied to the valve member. Embodiments of one- and two-piece valve members are disclosed.

Also disclosed are two single lever faucet constructions embodying a valve member and deforming means therefor.

3,656,513

METHOD OF MANUFACTURING CONTAINER BODIES FROM COMPOSITE STRIP MATERIAL; CONTAINER BODY BLANKS AND CONTAINER BODIES

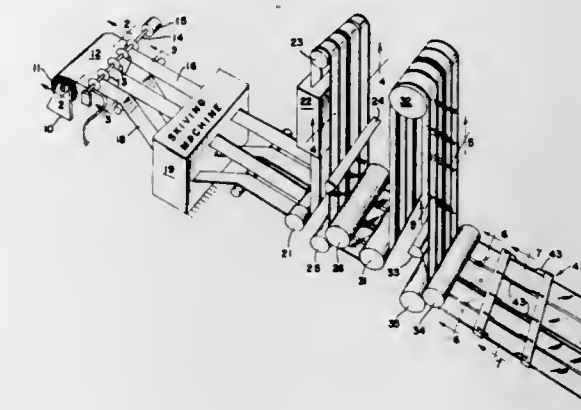
Raymond J. Evans, Hinsdale, and George L. Reinhardt, Oaklawn, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Oct. 31, 1966, Ser. No. 590,658

Int. Cl. F16l 9/16

U.S. Cl. 138-141

22 Claims



This disclosure relates to a method of manufacturing composite strip material for use in fabricating container bodies by providing a length of strip material having opposite surfaces terminating at parallel side marginal edges, longitudinally severing the strip material to form parallel severed marginal edges, encapsulating the now severed strip material with the thermoplastic material adhering to itself through a space between the severed marginal edges and outboard of the side marginal edges, and longitudinally severing the thermoplastic material in general alignment with said space.

3,656,514

HIGH RELIABILITY JOINT FOR MANUFACTURE OF PIPE

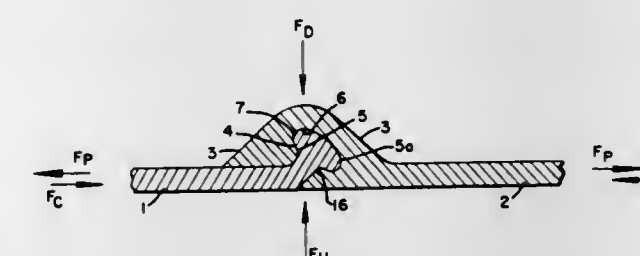
Robert Stickney Kafka, Maitland, Fla., assignor to Julian C. Renfro, Winter Park, Fla., a part interest

Filed Sept. 18, 1968, Ser. No. 773,682

Int. Cl. F16l 13/02

U.S. Cl. 138-166

6 Claims



This invention relates to a novel joint particularly well suited for use in the continuous and rapid manufacture of high pressure pipe, tubing or the like. The pipe so manufactured may be made in a wide range of diameters and helix angles, with my novel joint possessing sufficient mechanical strength that unraveling of the pipe joint simply will not occur. For pipes to be manufactured for use underwater or underground, or to carry particularly high pressure, I may additionally utilize brazing material on a continuous basis along the joint, thus assuring against porosity, even under high stress conditions.

3,656,515 SHAPED TUBE

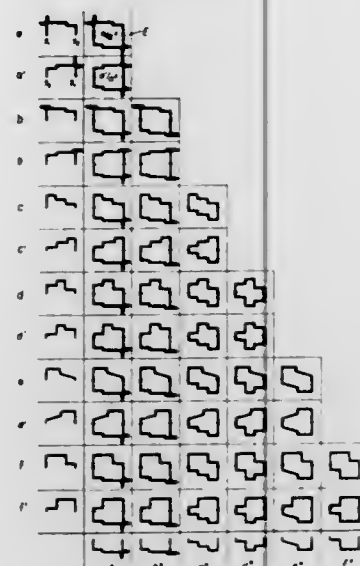
Alfred Wogerbauer, and Rudolf Strasser, both of Linz, Austria, assignors to Vereinigte Österreichische Eisen-und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed June 2, 1970, Ser. No. 42,735

Claims priority, application Austria, June 6, 1969, A 5360/69
Int. Cl. F16I 9/22

U.S. Cl. 138—171

6 Claims



The improvement is in the field of shaped tubes made of component sections joined by butt-welding. A wide variety of shapes including non-symmetrical forms, is rendered feasible according to the invention which provides a shaped tube comprising two component sections having equidistant legs and joined along their facing leg ends by butt-weld seams applied in a common plane on opposite sides of said tube, wherein at least one of the four legs welded together in pairs is differing in length from at least one of the other legs.

3,656,516 METHODS OF AND APPARATUS FOR UNWINDING A HELICALLY WOUND ELONGATED BODY

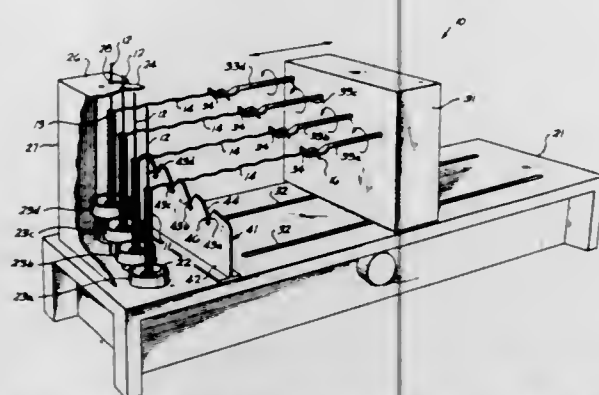
Edwin C. Hardesty, Perry Hall, Md., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Aug. 31, 1970, Ser. No. 68,376

Int. Cl. B21f 7/00

U.S. Cl. 140—149

15 Claims



A mandrel having a telephone cord coiled thereon is mounted vertically and rotatably with one end of the cord attached to a spindle mounted rotatably on a reciprocally movable carriage. The carriage is moved relative to the mandrel to uncoil the cord and successive sections of the cord are moved axially horizontally and generally perpendicular to a stationary plate positioned between the mandrel and the carriage at the same time the axis of the cord is moved transversely vertically so that portions of the cord adjacent to the other end thereof are moved into, and pulled through, a slot formed in the plate. Simultaneously, the ends of the cord are twistingly rotated relative to each other to reverse the

direction of the helical coil. As the other end of the cord is disengaged from the mandrel, the last few convolutions of the cord spring together and expand radially on the mandrel side of the plate until the other end of the cord engages a pair of spaced pins attached to the mandrel-side of the plate on opposite sides of the slot. The pins retain the last few convolutions of the cord on the mandrel-side of the plate, and the cord is maintained strung between the spindle and the plate to facilitate removal by an operator.

3,656,517 POWDER FILLING MACHINE AND METHOD

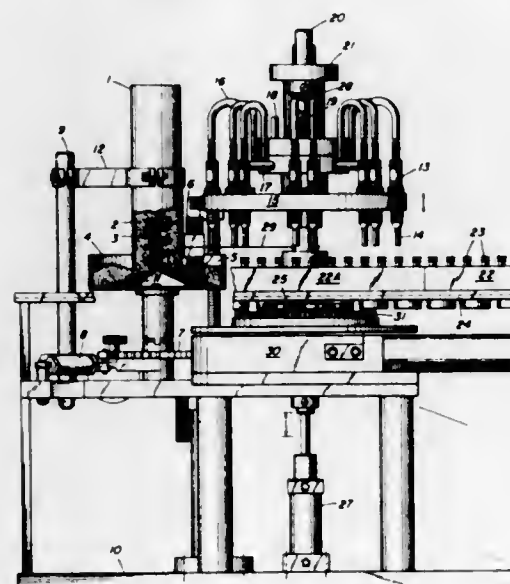
Arthur Sinclair Taylor, Spring Valley, and Elsworth Roland Sandhage, Pearl River, both of N.Y., assignors to Perry Industries Incorporated, Hicksville, L.I., N.Y.

Filed Oct. 20, 1966, Ser. No. 588,202

Int. Cl. B65b 1/16

U.S. Cl. 141—1

10 Claims



A powder filling machine as described in which the powder is introduced into a large vessel, its surface smoothed and the powder raked. The intermittent turntable is provided which can both lower and raise measuring chambers and also move them to different stations one of them being over containers to be filled. In one station the measuring chambers are lowered into the powder and vacuum sucks each full. The chamber provided with a screen so that powder cannot be sucked out of the chamber, a small excess is sucked beyond the bottom of the chamber which is open. The chamber then moves across a string or wire which scrapes off the excess powder. Then the chamber is moved to another station over a container to be filled, lowered in contact with it and connected to gas under pressure which blows the contents of the chamber into the container. The container is advanced bringing another container into loading position and the operations described above are repeated. When loading powder which is explosive or hazardous all metal to metal contact is avoided.

3,656,518 METHOD AND APPARATUS FOR MEASURING AND DISPENSING PREDETERMINED EQUAL AMOUNTS OF POWDERED MATERIAL

Theodore F. Aronson, Glen Cove, N.Y., assignor to Perry Industries, Inc., Hicksville, N.Y.

Filed Mar. 27, 1967, Ser. No. 626,083

Int. Cl. B65b 1/16

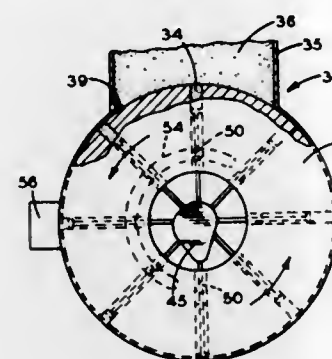
U.S. Cl. 141—1

31 Claims

Measuring and dispensing equal predetermined amounts of powdered material with a measuring chamber having a piston means movably mounted therein for movement between a retracted loading position and a protracted discharging position. The head of the piston means is formed of a porous

material which is pervious to a gaseous medium, but impervious to the powder to be measured and dispensed. Charging of the measuring chamber with a measured amount of powdered material is attained by drawing a vacuum on the chamber when the piston is displaced to a retracted loading position. Dispensing of the measured powder charge from the measuring chamber is attained by effecting displacement of the piston toward a protracted discharging position to push the measured charge of powder in front of the piston out of the measuring chamber. Positive separation of the measured charge from the end of the piston head is attained by applying a force of positive fluid pressure on the end of the piston head in the protracted position to dislodge the powder charge therefrom.

This invention further contemplates the inclusion of a means and step for effecting additional compaction of the



powder charge of evacuated density within the chamber prior to the ejection of the powder charge therefrom. This is attained by positioning the chamber charged with a measured amount of powder at evacuated density adjacent an anvil means, and thereafter effecting displacement of the piston a predetermined amount with controlled pressure to compress the powder charge at evacuated density between the piston head and the anvil means to form a compacted powder slug. The ejection of the compacted powder slug is attained by further advancing the piston head to a protracted or ejected position relative to the chamber, and blowing the slug from the piston head by applying a pulse of positive fluid pressure to the end of the porous piston head.

This invention further contemplates various means for enhancing the doctoring of any excess powdered material from the end of a measuring chamber during a vacuum filling or charging operation to assure completely accurate predetermined measurement on each charging operation.

3,656,519 AUXILIARY TOOL DEVICE

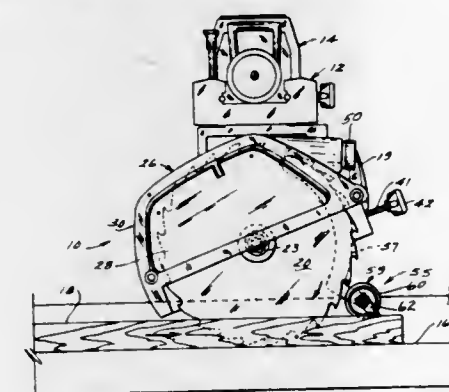
James L. Stackhouse, Florissant, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed May 6, 1970, Ser. No. 35,152

Int. Cl. B27g 19/04

U.S. Cl. 143—159 C

13 Claims



An auxiliary tool device for power driven saw is provided which includes a tool holder carrying a rotatable spreader

and pivotal anti-kickback pawls. The holder is mounted to one side of the saw cover and adjustably movable along an arc of a circle having a center at the axis of the saw blade to maintain the spreader and pawls spaced the same distance from the saw blade for each adjusted position thereof.

3,656,520 POWER TOOL AND AUTOMATIC FEED THEREFOR

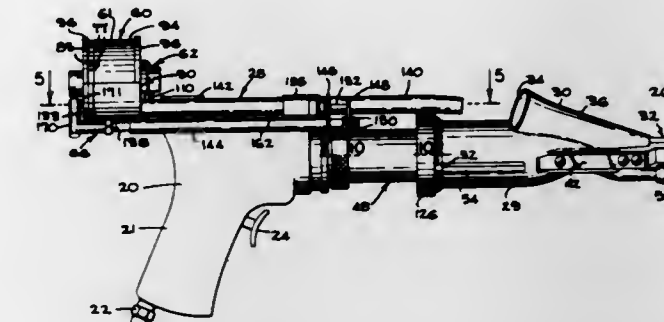
Giorgio Caffa, Genoa, Italy, assignor to FMC Corporation, San Jose, Calif.

Filed Mar. 30, 1970, Ser. No. 23,637

Int. Cl. B25b 23/04

U.S. Cl. 144—32

22 Claims



A pneumatic power screwdriver has a removable screw filled magazine operably mounted thereon so that screws therein retained are mechanically dislodged one at a time and pneumatically advanced to a chuck assembly forwardly of the screwdriver head. The screw magazine is rotatably driven by a ratchet wheel so that every time a screw is inserted into a work surface the magazine is rotated by an incremental amount to a position whereby an adjacently positioned screw can be advanced on the next screwing operation. The chuck assembly is mounted on the screwdriver for reciprocating movement so that when it is desired to drive a screw into a work surface, the chuck assembly can retract relative to the body of the screwdriver allowing the screwdriver head to protrude therethrough in workable engagement with the screw retained by the chuck assembly.

3,656,521 POWER CHISEL

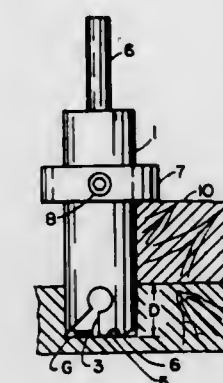
John F. Czerniewicz, 337 Foch Boulevard, Mineola, N.Y.

Filed June 30, 1970, Ser. No. 51,205

Int. Cl. B27g 13/00; B27c 5/10

U.S. Cl. 144—219

4 Claims



A laterally movable motor driven cutting tool adapted to cut grooves of predetermined depth. The cutting means has a tubular cutting end with a plurality of curved inwardly extending cutting blades formed in said tubular cutting end. Each cutting blade has a cutting spur on its outside edge. A depth adjusting ring and guide means are provided to control the depth and shape of the groove.

3,656,522

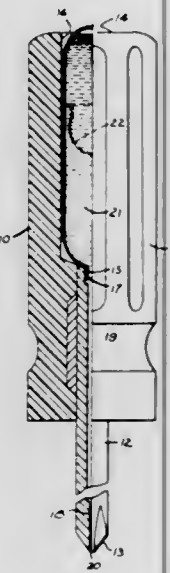
SCREWDRIVER WITH NON-SLIP BIT COATING MEANS
Bjorn Rafnar Ingimarsson, C/O Bjorn Alrmotive Company,
Chehalis, Wash.

Filed Oct. 2, 1970, Ser. No. 77,611

Int. Cl. B25b 15/02; C09k 3/14

U.S. Cl. 145-50 A

5 Claims



A tool for manually turning a threaded fastener. The example shown is a screwdriver having an integral supply of abrasive fluid stored within its handle. A supply passage extends through the axial tool shank in communication with the fluid supply and leads to an outlet orifice at the operative tip of the tool. By selectively discharging abrasive material at the tip while engaging a fastener such as a screw or similar member, one can effectively increase the frictional engagement between the tool tip and the fastener and thereby permit the application of greater torque without slippage of the tool.

3,656,523

LEVERAGE OPERATED SCREWDRIVER

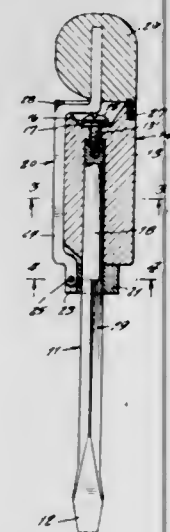
Andrew T. McGee, 222 Beach 138th Street, Belle Harbor,
N.Y.

Filed July 14, 1970, Ser. No. 54,704

Int. Cl. B25g 1/00

U.S. Cl. 145-61 L

2 Claims



A screwdriver implement, the tool including a straight shank, one end of the shank being flattened to be receivable within a screwdriver slot the other end of the shank having a handle secured thereto, and sidewardly pivotable lever for

leverage purpose being movable between a position parallel to the shank and a position at right angle thereto, wherein the handle is rotatable on the shank when the lever is at right angles to the shank.

3,656,524

STABILIZER ASSEMBLY

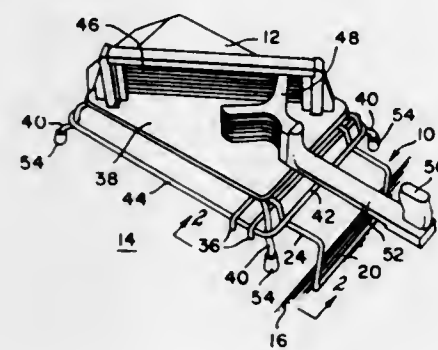
Clayton E. Giangullo, Skyline Drive, Malvern, Pa.

Filed Feb. 18, 1970, Ser. No. 12,372

Int. Cl. B26d 3/26; B23g 3/02

U.S. Cl. 146-1 R

1 Claim



A stabilizer assembly for removably securing a tomato slicing machine or other platform device to a surface, the stabilizer assembly including sections for engaging a wall that lies in a plane generally perpendicular to the plane of the surface upon which the platform device is situated, the assembly further including a straight run and an inclined run which meet in an engaging pocket that receives a portion of a reinforcing bar that is a part of the platform device, with the inclined run then terminating in arms to which is attached at least one cross-rod that has one or more fingers that embrace another portion of the reinforcing bar of the platform device.

3,656,525

EGG SEPARATOR

Everett E. Goodart, 1059 Greenfield Avenue, El Cajon, Calif.

Substitute for application Ser. No. 744,005, July 11, 1968,

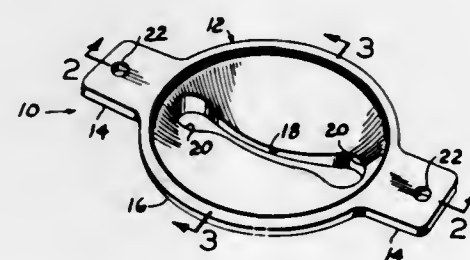
now abandoned. This application Aug. 11, 1970, Ser. No.

63,032

Int. Cl. A47j 43/14

U.S. Cl. 146-2 D

2 Claims



An upwardly open part-spherical egg shell contents receiving receptacle is provided, in its bottom portion, with an elongated albumen passing and egg yoke retaining slot terminating at its respective ends in a teardrop-shape.

3,656,526

APPARATUS FOR SEPARATING SEEDS FROM CITRUS FRUIT

Wilber C. Belk, Lakeland, and Charles T. Mulford, Auburndale, both of Fla., assignors to FMC Corporation, San Jose, Calif.

Filed Sept. 10, 1970, Ser. No. 70,972

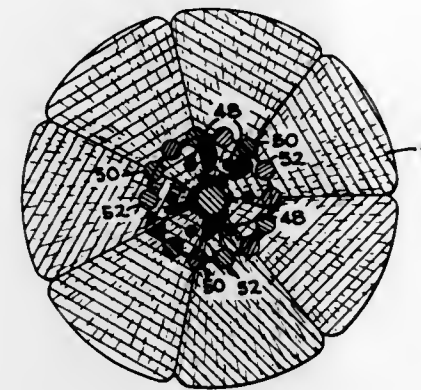
Int. Cl. A23n 3/00

U.S. Cl. 146-3 N

14 Claims

Seeds are separated from whole citrus fruit, which has been peeled and is retained in a static position, by inserting

around the central core thereof in the region of the fruit seeds a plurality of circumferentially spaced stationary pinching fingers and a plurality of circumferentially spaced oscillating pinching fingers interspaced between the station-



ry fingers. The oscillating pinching fingers are oscillated in arcuate paths toward and away from the adjacent stationary fingers to pinch the fruits seeds therebetween and thereby separate them from the meat segments of the fruit.

3,656,527

MULTILANE FRUIT PEELING SYSTEM

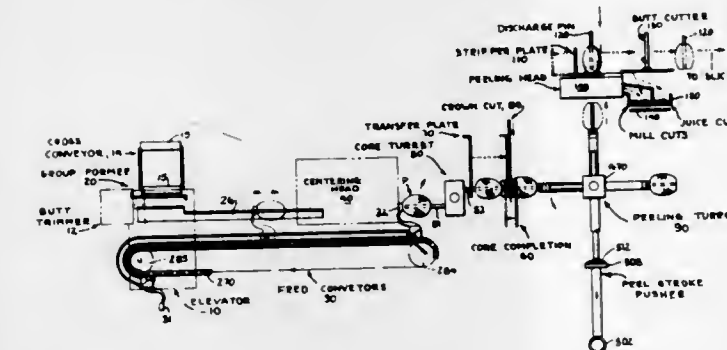
Leslie Vadas, Los Gatos, and Robert W. Drake, San Jose, both of Calif., assignors to Castle & Cooke, Inc.

Filed July 13, 1970, Ser. No. 54,528

Int. Cl. A23n 3/12, 7/00

U.S. Cl. 146-238

25 Claims



Four pineapples are contour peeled simultaneously fed from a single file elevator conveyor feed system. To accomplish this, the pineapples are picked up from the elevator conveyor, spaced in groups of four and dropped through sliding trap door onto chutes in a group former. The four pineapples are picked up by the pusher fingers of four parallel feeder conveyors and advanced through centering heads. The feeder conveyors then force the four pineapples onto core pins of four core turrets having oppositely projecting core pins.

The core turrets index 180° and shift axially to present the cored pineapples to four peeling turrets on the same axis. The coring is completed on the core turrets after which the cored pineapples are transferred to peeling pins on the core turrets and the crowns of the pineapples are cut off.

Each of the four peeling turrets has four peeling pins spaced at 90°. The peeling turrets index in 90° steps and bring pineapples beneath peeling heads above the turrets. The pineapples are pushed through the peeling heads from below for contour peeling after which the pineapples are carried across butt end trimmers for disposition by slicing or other processing stations.

3,656,528

PULPING AND FINISHING APPARATUS

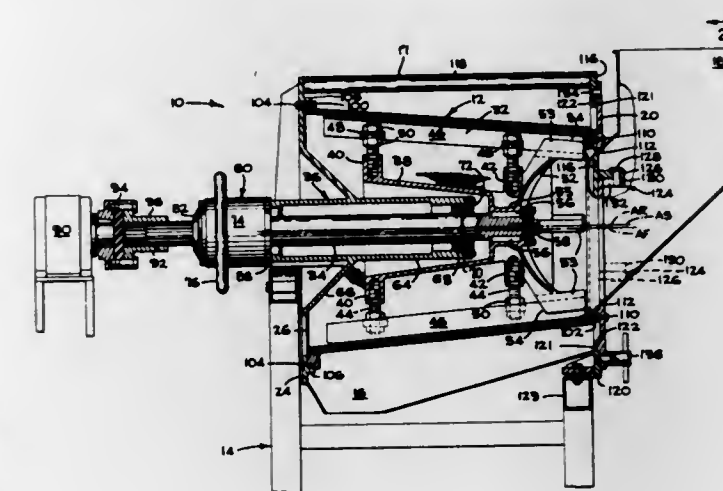
Samuel A. Mencacci, Antwerp, Belgium, assignor to International Machinery Corporation S.A., St. Nikolaas-Waas, Belgium

Filed Feb. 19, 1970, Ser. No. 12,554

Int. Cl. A23n 3/00

U.S. Cl. 146-174

11 Claims



A pulping and finishing apparatus having a frame and a frusto-conical screen which is perforated at least in its lower portion, and which has a driven frusto-conical rotor therein. The rotor is journaled in a cantilever bearing assembly which extends inwardly of the screen from its large end. An end plate is pivotally mounted on the frame at the small end of the screen and may be pivoted between a normally closed position and an open position for ease in removing the screen for cleaning or replacement. The screen may be adjusted to place the screen axis either concentric with the rotor axis or eccentric relative thereto. The rotor may also be adjusted so as to affect axial movement of the rotor within the screen during operation thereby varying the spacing between the rotor blades and the screen.

3,656,529

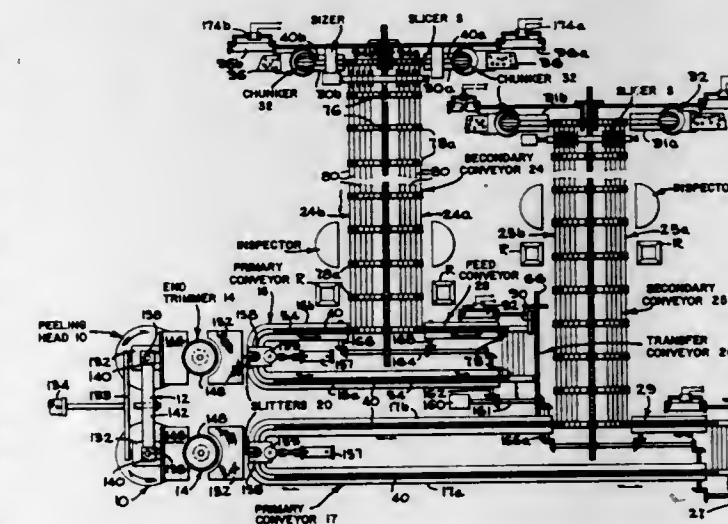
PROCESSING OF CONTOUR PEELED FRUIT HALVES
Leslie Vadas, Los Gatos, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Sept. 5, 1969, Ser. No. 855,520

Int. Cl. A23n 3/12; B26d 3/26

U.S. Cl. 146-224

22 Claims



Pineapples are cored, contour peeled, trimmed and sliced in half. The halves are immediately guided along different paths by guide ribs fitting the core recesses, and are inspected and sliced while being conveyed along their respective paths.

3,656,530 COMPOUNDING FLUOROCARBONS AND METHOD OF USING SAME

Theodore A. Evans, Akron; Robert M. Meck, and Joseph E. Thibodeau, both of Cuyahoga Falls, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Dec. 19, 1968, Ser. No. 785,388

Int. Cl. B64d 37/02; B60p 3/22; B65d 389/00
U.S. Cl. 150—0.5 7 Claims

This invention relates to a composition of a fluorocarbon and a curative belonging to the class of organic peroxy compounds, organic amines and Schiff's base with 1 to 25 parts of an alkaline earth metal oxide and 1 to 50 parts of red iron oxide, and further relates to the use of this composition on a polyamide fabric to form containers, and to said containers.

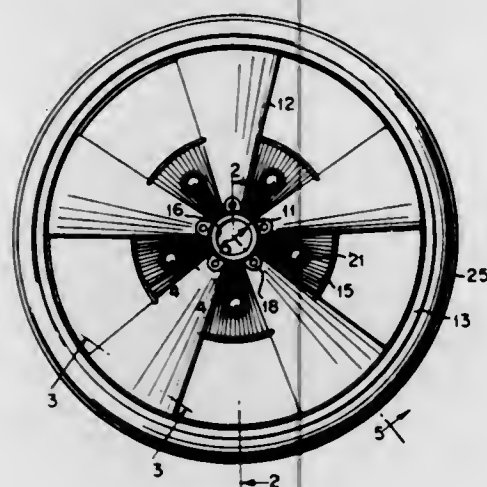
3,656,531 WHEEL FOR A VEHICLE

Sherwood B. Ross, Woodmere, and William J. Kreizel, Hewlett, both of N.Y., assignors to Chain Bike Corporation, Rockaway Beach, N.Y.

Filed Feb. 10, 1970, Ser. No. 10,244
Int. Cl. B60b 9/26, 5/02

U.S. Cl. 152—8

5 Claims



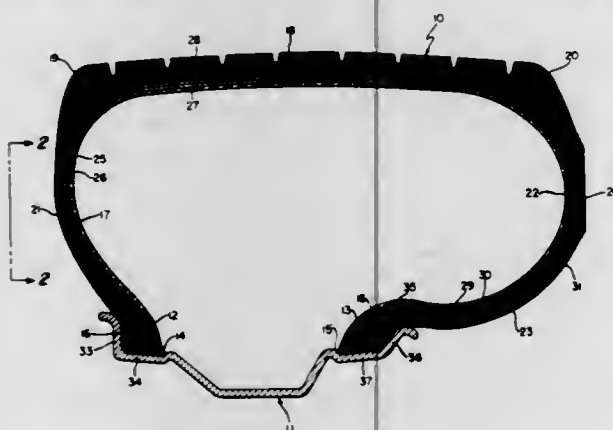
A central hub and concentrically spaced rim, and spokes extending radially between the hub and rim and being internally hollow.

3,656,532 ASYMMETRIC TIRE

Charles W. Roberts, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Dec. 22, 1969, Ser. No. 887,246

U.S. Cl. 152—353

20 Claims



A pneumatic tire having a substantially cylindrical tread portion the centerline of which is offset axially with respect

to a pair of bead portions and having a portion of one sidewall only extending primarily in the axial direction outwardly of and from one bead member.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawing and the following detailed description.

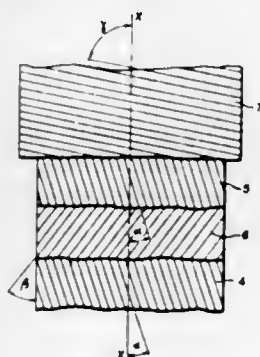
3,656,533 MULTI-MATERIAL BREAKERS IN RADIAL TIRES

Carlo Barassi; Giuseppe Lugli, and Mario Mezzanotte, all of Milan, Italy, assignors to Industrie Pirelli S.p.A., Milan, Italy

Filed Sept. 17, 1970, Ser. No. 73,112
Claims priority, application Italy, Oct. 4, 1969, 22947 A/69
Int. Cl. B60c 9/18

U.S. Cl. 152—361

4 Claims



A breaker structure for radial tires includes two or more strips of textile material in which the cords are inclined at a selected angle in one direction relative to the mid-circumferential plane, at least one strip compression-resistant material between the textile strips and in which the cords are inclined in an opposite direction to the textile cords, and an additional strip of compression-resistant material disposed radially outwardly of the aforesaid strips.

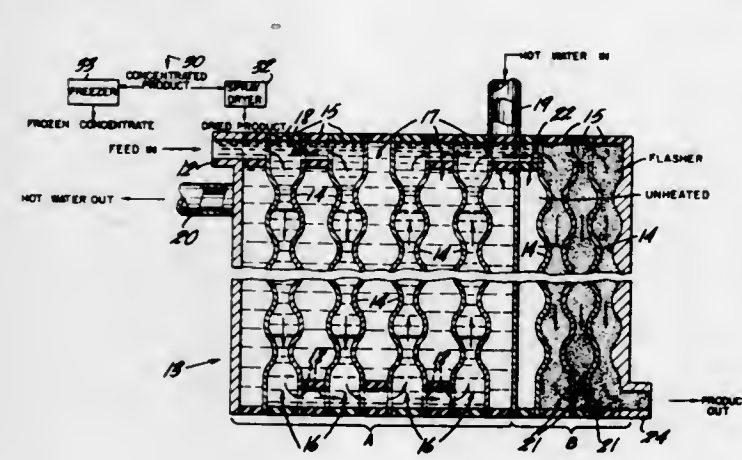
3,656,534 CONCENTRATION BY CONTINUOUS FLASH EVAPORATION

Kenneth Lindsay Bain, Sevenoaks, and Douglas Leslie Leonard, London, both of England, assignors to Parkson Corporation, Fort Lauderdale, Fla.

Filed Oct. 29, 1969, Ser. No. 872,075
Claims priority, application Great Britain, May 6, 1969, 23,135/69
Int. Cl. B01d 1/28, 1/00; A23b 5/02; A23i 1/08; B01d 1/16; A23

U.S. Cl. 159—47

10 Claims



In the embodiments of the invention described herein, a liquid such as gelatin or an egg constituent having heat

degradation or fouling tendencies is concentrated by passing it through a plate-type heater while maintaining sufficient pressure to prevent boiling and keeping the temperature of the liquid below the temperature at which the liquid thermally degrades or tends to foul the heating surfaces. The heated liquid is thereafter passed through an unheated portion of the plate heater at reduced pressure, allowing vapor to form, and creating a homogeneous mixture of concentrated liquid and vapor. The concentrated liquid is extracted in a separator, and in the case of egg, may be frozen or spray dried.

3,656,535 CONSUMABLE ELECTRODE MELTING USING A CENTRIFUGAL CAST ELECTRODE

Joseph W. Tommaney, Valencia, Pa., and Francis L. Muscatell, Loudonville, N.Y., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Nov. 5, 1970, Ser. No. 87,335
Int. Cl. B22d 27/02, 13/00

U.S. Cl. 164—52

13 Claims

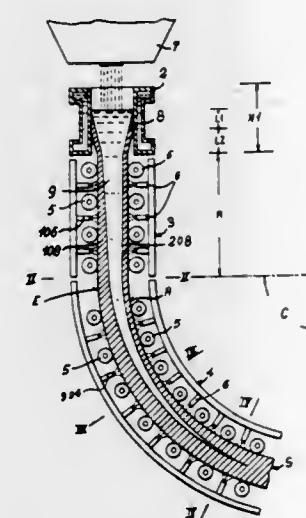
A method for producing a metal ingot, which comprises the steps of: centrifugally casting metal into a consumable electrode; arranging the consumable electrode within a consumable electrode furnace structure; connecting the consumable electrode to a power supply; melting the consumable electrode in a protective environment by passing electrical current between it and a second electrode; and casting the molten metal into an ingot.

3,656,536 METHOD FOR COOLING THE CAST STRAND IN CURVED-GUIDE CONTINUOUS CASTING PLANTS

Piero Colombo, 27 Via Leopardi, Udine, Italy
Filed Nov. 26, 1969, Ser. No. 880,101
Claims priority, application Italy, Nov. 28, 1968, 7495 A/68
Int. Cl. B22d 11/12

U.S. Cl. 164—89

1 Claim



ing cooling, while passing through the straight as well as the curved guide path, that side of the metal which is to form the side of greater radius of curvature more intensively than the opposing side to form a crust of greater thickness, while maintaining an intensity of cooling in the region of the straight guide path section approximately 3 to 7 times greater than the intensity of cooling in the curved guide path section, thereby strengthening the cast metal, and thereafter, after deflection of the cast metal into the curved guide path and while the core is still molten, reversing the differential cooling so as to apply a cooling of greater intensity on the side of the lesser radius of curvature, whereby the solidified crusts along all sides of the cast metal assume substantially the same thickness and the cast metal assumes a symmetrical shape at a point prior to complete solidification.

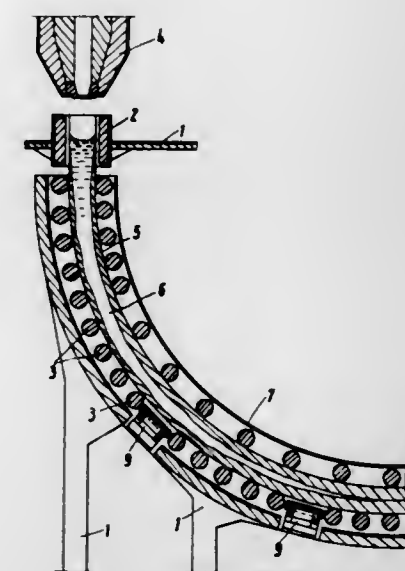
3,656,537 APPARATUS FOR PRODUCING CONTINUOUSLY CAST SECTIONS WITH AGITATION OF THE LIQUID CORE

Axel Von Starck, Remscheid-Luttringhausen, Germany, assignor to AEG-Eltherm GmbH, Remscheid-Hasten, Germany

Filed Aug. 11, 1970, Ser. No. 62,794
Claims priority, application Germany, Dec. 12, 1969, P 19 62 341.7

U.S. Cl. 164—251

5 Claims



A method and apparatus for continuously casting metal which is poured in molten form into an open ended mold where a thin exterior shell forms about a liquid core and the resulting casting continuously exists from the mold. In order to inhibit the formation of dendrite and other crystals and also concentration of impurities at the center, the cooling casting, after exiting from the mould, moves past a traveling field inductor which generates a traveling electromagnetic field having a component normal to the direction of movement of the casting, this field causing the liquid interior of the casting to be agitated.

3,656,538 FLEXIBLE STARTER BAR

Quin Shen Yu, Forest Hills Borough, Pa., assignor to United States Steel Corporation
Filed Dec. 30, 1970, Ser. No. 102,586
Int. Cl. B22d 11/08

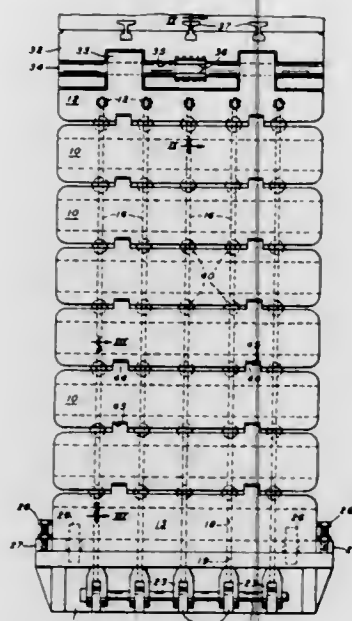
U.S. Cl. 164—274

8 Claims

In the continuous casting of molten steel into a mold having a vertical casting space, from which the cast metal is passed as a molten core surrounded by a peripheral crust on into a curved guide path section, the improvement compris-

A flexible starter bar for use in the continuous-casting of metals. The bar includes a series of blocks and flexible metal

strands connected to the block at the head end of the bar and



3,656,539

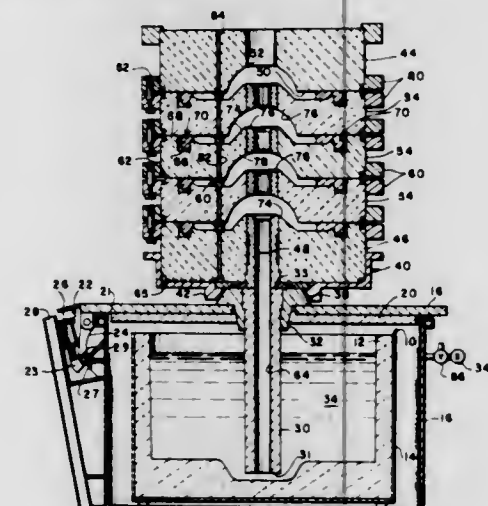
APPARATUS FOR CASTING MOLTEN METAL

Ellis J. Zickefoose, Elmhurst, Ill., assignor to Amsted Industries Incorporated, Chicago, Ill.

Filed Jan. 29, 1969, Ser. No. 794,974

Int. Cl. B22d 17/06, 27/14

U.S. Cl. 164-309



Molten metal is forced upwardly by bottom pressure casting through an ingate and into the casting cavity of a mold having a dam to retain the metal in the cavity after the ingate has been drained. The mold is preferably formed from separable graphite cope and drag sections and may include an outer cast iron chill ring to impart the desired outer contour to the casting with accuracy. A plurality of such molds may be stacked and filled in one pouring operation.

3,656,540

METHOD OF AND SYSTEM FOR DISSIPATING THE HEAT GENERATED BY ELECTRONIC CONTROL DEVICES IN CRYOGENIC INSTALLATIONS

Helmut Henrici, Rodenkirchen, Germany, assignor to Linde Aktiengesellschaft, Holtrielskreuth, Germany

Filed Nov. 18, 1969, Ser. No. 877,761

Claims priority, application Germany, Nov. 18, 1969, P 18 09 770.6

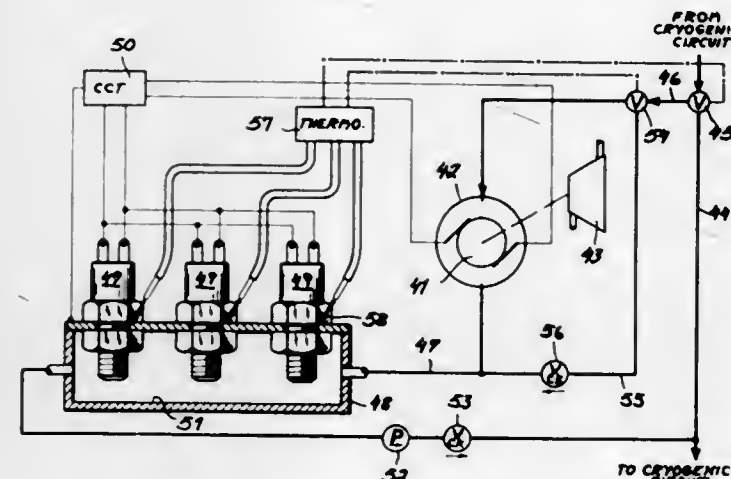
Int. Cl. F25b 29/00

U.S. Cl. 165-1

12 Claims

A method of and a system for dissipating the heat produced by electronic components, especially motor-con-

trol thyristors (silicon-controlled rectifiers) used in motor-control circuits in cryogenic installations. A part of the cooled fluid circulated in the installation is diverted from its circulation or displacement path and used to cool the power thyristors which are employed in frequency inverters and like



electronic circuitry used to control the speeds of compressor motors of such installations. The thyristor may be mounted in vaporizer or evaporator of the cryogenic installation which preferably is a refrigeration unit or system for the low-temperature rectification of air or other gas mixtures.

3,656,541

VEHICLE AIR CONDITIONING SYSTEM

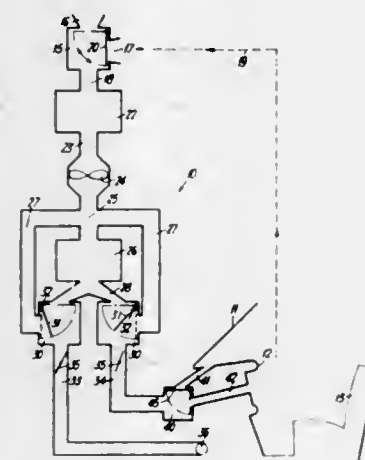
John Cadden Coyle, Wybunbury, near Nantwich, and Derrick Coulson, Wistaston, both of England, assignors to Rolls-Royce Limited, Derby, England

Filed Jan. 21, 1971, Ser. No. 108,424

Int. Cl. F25b 29/00

U.S. Cl. 165-16

16 Claims



The invention concerns a vehicle air conditioning system comprising an air intake, a refrigerant evaporator, a heater and a heater by-pass conduit, first and second outlet ducting for separately conveying air to respective outlets in the upper and lower parts of the vehicle interior respectively, air-mixing means associated with each said outlet ducting and which is automatically settable to feed to the said outlet ducting air which has passed through the evaporator and selectively through the heater and the heater by-pass conduit, settable mass flow regulating means in each said outlet ducting, air temperature sensing means adapted to measure the air temperature in the respective outlet ducting, the ambient temperature, and the temperature inside the vehicle, and adapted automatically to control the air-mixing means and the mass flow regulating means, means for closing the outlet of the second outlet ducting and diverting the entire output of the system to the first outlet ducting, and a manual device for varying the setting of the said sensing means.

3,656,542

VENTILATING SYSTEM FOR COMPARTMENTED BUILDINGS

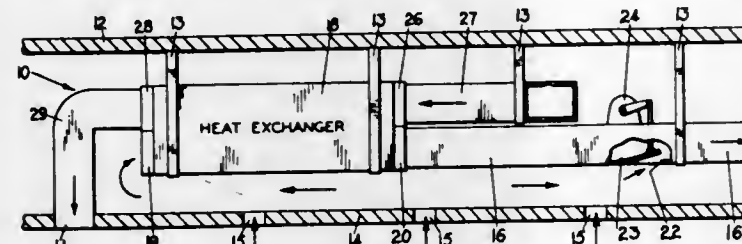
William J. Darm, 2201 N. Kellingsworth, Portland, Oreg.

Filed Apr. 23, 1970, Ser. No. 31,137

Int. Cl. F28c 3/02

U.S. Cl. 165-66

9 Claims



A high efficiency ventilation system for a compartmented building wherein heat from exhaust air removed from a region in the building is transferred, by means of an air-to-air heat exchanger, to fresh supply air being provided to the region, to regulate the delivery temperature of the latter.

3,656,543

LIQUID METAL HEAT EXCHANGER

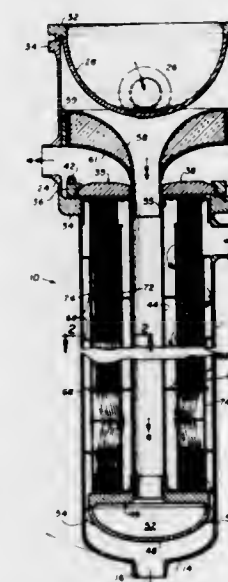
Walter Wolowodiuk, New Providence, and Tobias Stern, Rockaway, both of N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed May 25, 1970, Ser. No. 40,036

Int. Cl. F28d 1/06

U.S. Cl. 165-74

9 Claims



A liquid metal heat exchanger providing for a single pass of primary liquid metal and two passes of secondary liquid metal consisting of a removable core suspended at the top by an annular tube sheet clamped by a bolted ring for convenient removal. A funnel leading into a central downcomer separates cold incoming secondary liquid metal from the relatively hot outgoing secondary liquid metal.

3,656,544

HEAT EXCHANGER

Frank D. Howe, Painted Post, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y.

Filed Aug. 5, 1970, Ser. No. 61,227

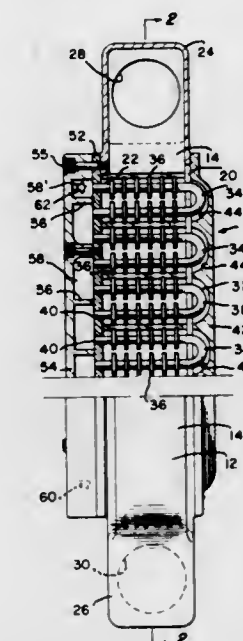
Int. Cl. F28d 1/06

U.S. Cl. 165-74

15 Claims

A substantially four-sided housing which forms a chamber therewithin, the housing being open on two opposite sides. A tube nest is replaceably disposed within the chamber, the nest comprising a plurality of coolant tubes each of which tubes has a 180°-bend midway between opposite open ends

thereof. A waterhead encloses the open tube ends which are all arrayed at one of the open sides of the housing. The waterhead has inlet and outlet apertures therein for admitting coolant into and from the open tube ends. The housing



further includes inlet and outlet fluid plenums at either ends thereof with ports therein for admitting and venting fluid to and from the heat exchanger. Also, walls of the exchanger structure have means for directing fluid away therefrom and into the tube nest.

3,656,545

FIBROUS VAPOR COOLING MEANS

Conenraad van Loo, San Jose, Calif., assignor to Varian Associates, Palo Alto, Calif.

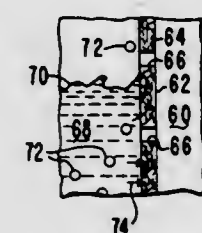
Continuation-in-part of application Ser. No. 668,082, Sept. 15, 1967, now abandoned. This application May 21, 1968,

Ser. No. 730,704

Int. Cl. H01J 7/24; F28f 13/00

U.S. Cl. 165-74

13 Claims



Improved means for vapor cooling a surface submersed in a liquid cooling agent, said means comprising a fibrous layer held in intimate relation with the surface. The fibrous layer defines a plurality of spacial paths communicating between opposite sides thereof, said paths comprising interspersed vapor conduits and capillaries. In one embodiment the fibrous layer comprises a plurality of stainless steel fibers spun into yarns which are knitted together into a fabric.

3,656,546

HEAT EXCHANGER STRUCTURE FOR STEAM GENERATORS

Josef Lippitsch, Graz, Austria, assignor to Waagner-Biro AG, Vienna, Austria

Filed June 25, 1969, Ser. No. 836,296

Claims priority, application Austria, June 26, 1968, A 6159/68

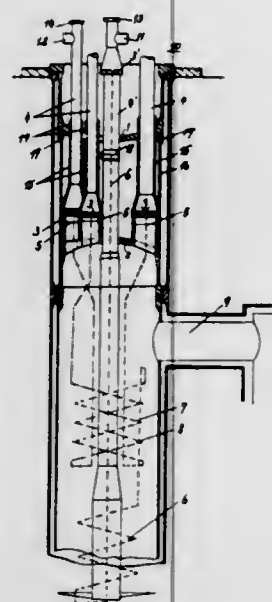
Int. Cl. F28f 7/00

U.S. Cl. 165-81

8 Claims

Heat exchanger structure for steam generators to be used with nuclear installations, chemical installations, such as

petrochemical plants and the like. The steam generator has primary and secondary pressure barriers between which connecting pipes extend, and within the latter pipes are heat-



exchanging tubes which extend from tube sheets which are situated within the connecting pipes. At least part of these tube sheets form parts of the primary and secondary pressure barriers.

3,656,547

THERMAL RADIATION SYSTEM FOR SOIL STABILIZER

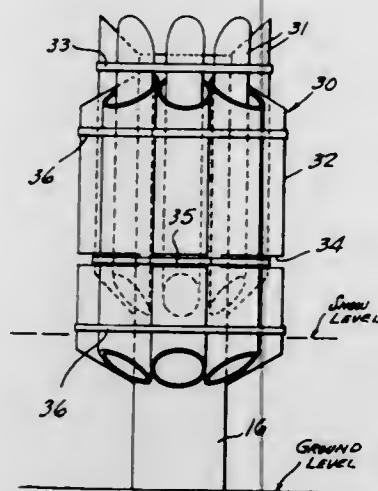
Winfield G. Beach, 808 Lakeview Trailer Court, Fairbanks, Alaska

Filed May 8, 1970, Ser. No. 35,629

Int. Cl. F28d 15/00

U.S. Cl. 165-106

7 Claims



A thermal stabilizer assembly consisting of a vertical tubular convection cell mounted in a body which is to be thermally stabilized, the convection cell being provided with a heat-transmitting fin configuration at its upper portion for heat transmission to the atmosphere. The fin configuration may consist of auxiliary metal tubes clamped to the cell by metal straps. The auxiliary tubes may be arranged in layers. The auxiliary tubes may consist of relatively small auxiliary tubes clamped in relatively large auxiliary tubes, both in heat-conducting contact with the main convection cell. The fin configuration may alternatively consist of flanged vertical bars clamped around the vertical convection cell by metal straps.

SELF-POSITIONING BAFFLE FOR SHELL AND TUBE HEAT EXCHANGERS

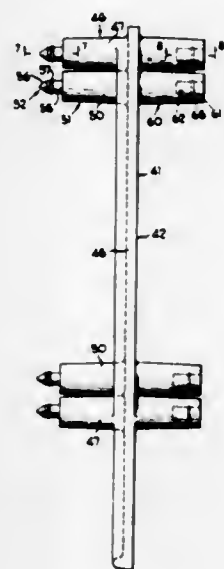
Desmond M. Donaldson, Oakville, Ontario, Canada, assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Apr. 23, 1970, Ser. No. 31,338

Int. Cl. F28f 9/22

U.S. Cl. 165-159

26 Claims



A shell and tube heat exchanger including a plurality of transverse baffle plates which may be made of a resilient formable organic compound, the baffle plate adapted to be disposed within the shell and includes positioning means associated with the baffle plate axially projecting from at least one side thereof adapted to matingly engage an axially adjacent baffle plate such that adjacent baffle plates are spaced in a relatively fixed position both axially and rotationally with respect to each other and a method for making same.

3,656,549

UNDERWATER COMPLETION SYSTEM

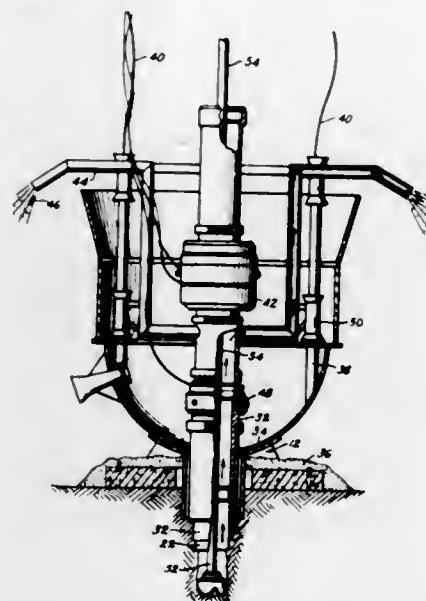
Marvin L. Holbert, Jr., and Milton T. Childress, both of Houston, Tex., assignors to Gray Tool Company, Houston, Tex.

Filed Sept. 17, 1969, Ser. No. 858,765

Int. Cl. E21b 43/01

U.S. Cl. 166-.5

3 Claims



The guide base installed as an initial step in drilling an underwater well includes an upwardly opening generally hemispherical shell. Later, during Christmas tree installation or work-over operations a man-carrying chamber is lowered to mate with the shell. Sealing between the chamber and the shell is accomplished using axially spaced inflatable toric cir-

cumferential seal elements carried exteriorly of the lower end of the chamber and expandable into sealing contact with the shell.

3,656,550

FORMING A BARRIER BETWEEN ZONES IN WATERFLOODING

Owner R. Wagner, Jr.; Lowell R. Smith, and Jack L. Osborn, all of Tulsa, Okla., assignors to Amoco Production Company, Tulsa, Okla.

Filed Sept. 8, 1970, Ser. No. 70,557

Int. Cl. E21b 33/138, 43/22

U.S. Cl. 166-270

9 Claims

In a waterflooding process for oil recovery from oil-bearing earth formations, a high-permeability zone is isolated from a low-permeability zone at the injection well. A water solution of sodium silicate is injected into one zone, a water solution of an activator — a chemical such as ammonium sulfate which causes sodium silicate solution to gel — being injected into the other zone. Preferably, the two solutions are injected simultaneously, the rates of injection being proportional to the pore volumes of the two zones to keep the solution fronts together. Fracturing pressures are avoided.

3,656,551

PREVENTING SCALE ADHERENCE IN OIL WELLS

Jerry W. Biles, Tulsa, Okla., assignor to Cities Service Oil Company

Filed Apr. 20, 1970, Ser. No. 30,327

Int. Cl. C02b 5/00; C23f 11/14; E21b 43/25

U.S. Cl. 166-279

11 Claims

The wellbore, fractures, and adjacent matrices are soaked with solutions of aliphatic amines for several hours, after which they are pushed by a slug of solvent into the formation matrix. Subsequently, normal production is resumed. This treatment prevents scale accumulation on the treated surfaces, whereas untreated surfaces will accumulate copious quantities of the precipitating solid. The chemical nature of the treating compound is such that the compound tends to migrate from the treatment solution to the solid surfaces in the wellbore, fractures, and formation matrices, thereby giving treatment which prevents scale buildup which, if it were not prevented, would decrease the rate of oil production.

3,656,552

METHOD FOR THROUGH-THE-FLOWLINE TOOL INSTALLATION

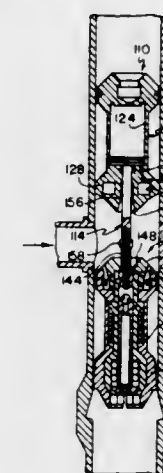
Floyd M. Pollock, Jr., Houston, and William J. Neal, Manvel, both of Tex., assignors to Shell Oil Company, New York, N.Y.

Filed July 6, 1970, Ser. No. 52,322

Int. Cl. E21b 23/04, 43/00

U.S. Cl. 166-315

5 Claims



There is disclosed a method and apparatus for placing and removing a retrievable tool in a well conduit. The tool is placed by pumping it down the well conduit to a landing area

where it is latched in place. The tool is retrieved by pumping a retrieving tool into the conduit into engagement with the retrievable tool and unlatching the retrievable tool with the retrieving tool. The two tools latched together are pumped up the conduit, and the retrieving tool is then disengaged from the retrievable tool when an elevation of lower pressure is reached and both tools are pumped out of the conduit.

3,656,553

FLAME-EXTINGUISHING SUBSTANCE COMPRISING 1,2-DIBROMOHEXAFLUOROPROPANE

Nicholino Rainaldi, Mestre, and Pierluigi Fatutto, Venezia, both of Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

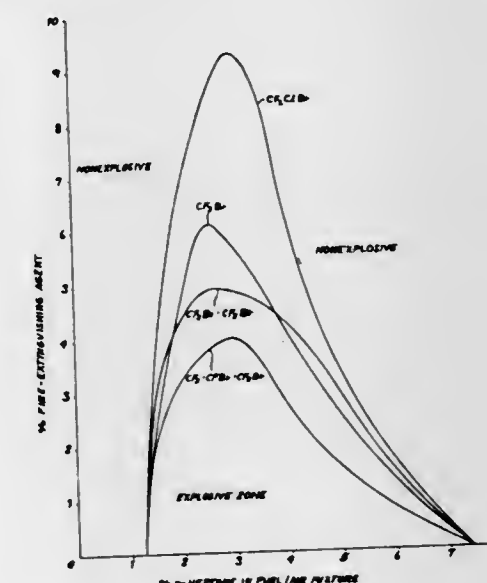
Filed May 13, 1970, Ser. No. 36,937

Claims priority, application Italy, May 16, 1969, 16892 A/69

Int. Cl. A62c 1/14; A62d 1/00

U.S. Cl. 169-1 A

5 Claims



A flame-extinguishing composition, especially for extinguishing fire upon a body of water, gasoline fires and hydrocarbon-fuel fires consisting at least in part of 1,2-dibromohexafluoropropane.

3,656,554

LAWN EDGE TRIMMER BLADE

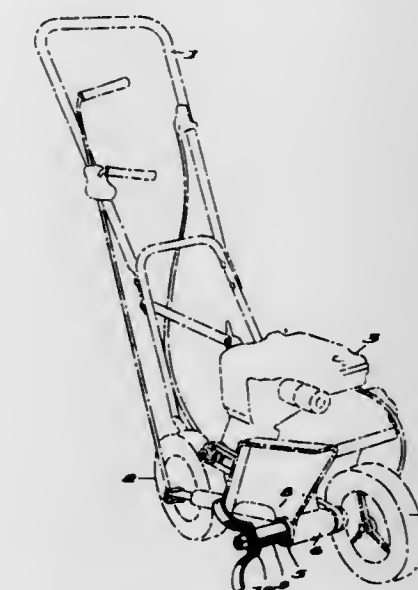
William A. Buhner, 320 Harvey Street at Hollywood, Daytona Beach, Fla.

Filed Mar. 10, 1970, Ser. No. 18,141

Int. Cl. A01b 45/00

U.S. Cl. 172-14

8 Claims



A lawn edge trimmer having a cutting blade mounted on an arbor connected with the drive shaft of the machine. The

blade is provided with a hub portion mounted on the arbor or drive shaft and has opposite end portions curved outward relative to the axis of rotation thereof to create a desirable contour shape at the edge of a lawn or around a sprinkler head, etc.

3,656,555

LAWN EDGER

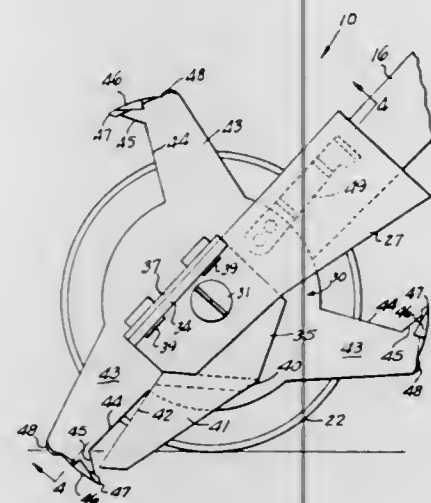
Elvy E. Johns, Sr., 770 19th Street, S.E., Salem, Oreg.; Elvy E. Johns, Jr., 3150 Jack St. N., Salem, Oreg., and Jerry E. Johns, Eastern Washington State College, Cheney, Wash.

Filed Mar. 27, 1970, Ser. No. 23,374

Int. Cl. A01b 45/00

U.S. Cl. 172-16

5 Claims



A lawn edger in which a stationary blade is mounted on a motor carrying frame and revolving blades move past the stationary blade with a shearing action. The revolving blade at its outer end has an extension extending angularly toward the stationary blade so as to trap the material to be cut to prevent it from sliding off of the stationary blade. The revolving blade carries a digger for opening a narrow trench along side of the walk or object along which edging is being done and a cleaner is positioned so as to clean out dirt from the digger which may have become lodged therein.

3,656,556

REVERSIBLE DISK PLOW

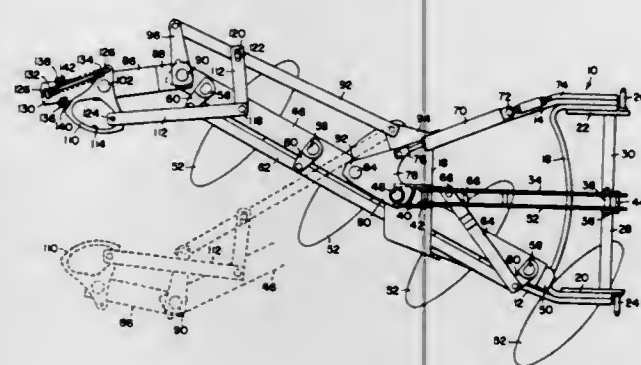
Bruno Bernhardt Johannsen, Moline, and Robert Earl Cox, Rock Island, both of Ill., assignors to Deere & Company, Moline, Ill.

Filed Oct. 20, 1969, Ser. No. 867,821

Int. Cl. A01b 3/40

U.S. Cl. 172-212

11 Claims



A reversible disk plow having a main frame and a tool-carrier subframe mounted intermediate its ends on a rear end portion of the main frame for lateral swinging movement about a vertical axis between alternate right- and left-hand plowing positions. An offset rear furrow wheel is carried by a mounting frame which is mounted on the rear end of a sub-frame for lateral swinging movement about a vertical axis

between alternate right- and left-hand plowing positions. Linkage means are provided for swinging the mounting frame between its alternate plowing positions and to reverse the furrow wheel as the subframe is swung between its alternate plowing positions.

3,656,557

APPARATUS FOR LEVELLING, SMOOTHING, AND GRADING SNOW

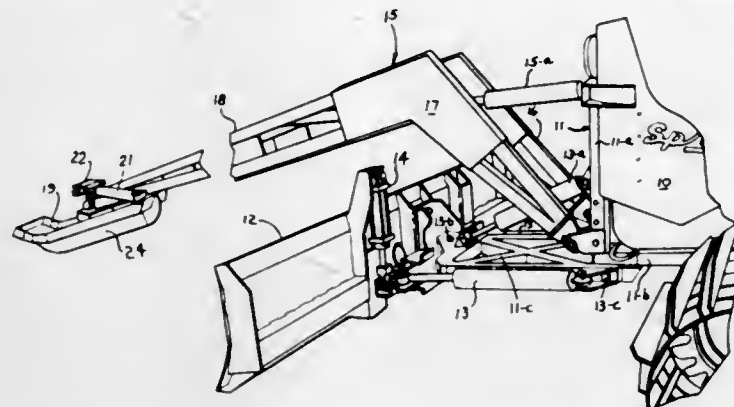
Ross W. Eskelson, Smithfield, and James S. Johnson, Logan, both of Utah, assignors to Thikol Chemical Corporation, Bristol, Pa.

Filed Aug. 12, 1969, Ser. No. 849,403

Int. Cl. A01b 59/048

U.S. Cl. 172-277

5 Claims



A device is disclosed for use with a vehicle, preferably of the track laying type which is adaptable for traversing, under low bearing pressure conditions, areas and surfaces of snow, mud, sand and other off-highway media of low density, which by virtue of its unique construction and association with the vehicle, enhances remarkably the steering capability thereof. Further, when used on a vehicle which is equipped with a grading plow for grading the surfaces being traversed, enhances the capability of the vehicle to perform grading and leveling operations with great precision not heretofore possible. The device comprises a boom-like frame mounted on the front of the vehicle and formed so as to extend over and above the grading plow and terminating in a steering ski at a point substantially forwardly of the vehicle. The ski, adjustably hinged to the boom-frame, is capable of (1) being raised above the surface being traversed (2) maintaining sliding contact therewith and (3) transmitting a downward force supplied by a control means connecting the boom-frame to the vehicle.

3,656,558

BULLDOZER FRAME WITH ARM STRESS EQUALIZER AND/OR LIMITER

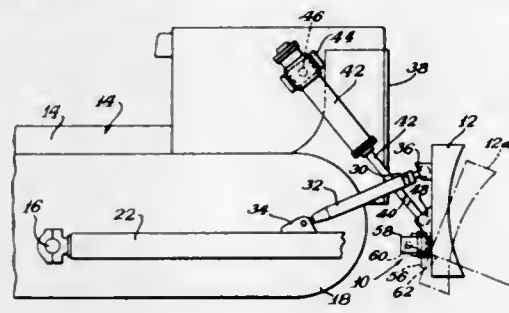
Kenneth J. Kolinger, Riverside, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Oct. 30, 1970, Ser. No. 85,523

Int. Cl. C02f 3/76

U.S. Cl. 172-803

9 Claims



Stress reducer in tiltable, diagonal strut braced, bulldozer blade mountings, comprising an intervening link having

horizontally spaced apart portions of the link proper universally connected to the inner end of different ones of the diagonal struts, and having a prolongation to the link proper rendering the latter swingable toward and from the bulldozer blade. The prolongation is horizontally disposed, is at one end of the link proper, and extends diagonally forwardly away from the struts and the one end of the link proper. Although not symmetrical because of the offset brace connection to the blade, the geometry selected nevertheless insures equalization of side-load-imposed stress in the so-called push arms provided for mounting the blade, and further insures limitation of stress in the push arms when, under the special circumstance of an imposed side load condition and a tilted blade condition, the tilt induced stress then tends to be additively superimposed in one of the already side-stressed push arms.

3,656,559

BLADE ANGLING DEVICE

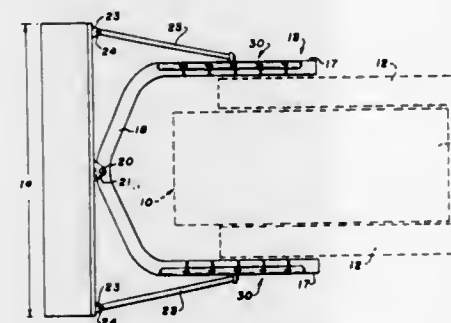
Robert W. Lennea, R.R. 1, and Robert H. Heavenor, 135 Rockland Road, both of Campbell River, B.C., Canada

Filed May 18, 1970, Ser. No. 38,000

Int. Cl. E02f 3/76

U.S. Cl. 172-805

7 Claims



A device having guide tubes which are mountable on slide members of a C-frame connecting a blade to a bulldozer. Slide blocks are mounted in the guide tubes and bracing arms, which extend rearwardly from corners of the blade, are pivotally secured to the slide blocks. The guide tubes and slide blocks both have holes which are placed in registration when a locating pin is inserted in the path of a slide block as the block is moved along its guide tube in response to movement of the blade to the required angular setting. Locking bars associated with the two locating pins provided with the device are then inserted through registering holes to lock the slide blocks within the guide tubes and to support the bulldozer blade in a selected angular position.

3,656,560

AUTOMATIC SHUT-OFF VALVE FOR POWER TOOL

Robert J. Catterfeld, Sayre, Pa., and David W. Tibbott, Phillipsburg, N.J., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed Sept. 29, 1970, Ser. No. 76,382

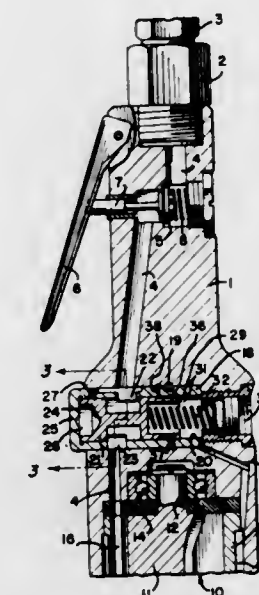
Int. Cl. B25b 23/14

U.S. Cl. 173-12

9 Claims

A fluid-actuated shut-off valve for a fluid-powered tool such as a wrench including a spool valve urged to open position by a spring and having respective valve-operating surfaces subject to both inlet and exhaust pressures in the tool.

The valve operating surfaces and spring are arranged so the valve is thrown to its closed position by a combination of the



3,656,561

WELL CASING HANDLING TOOL

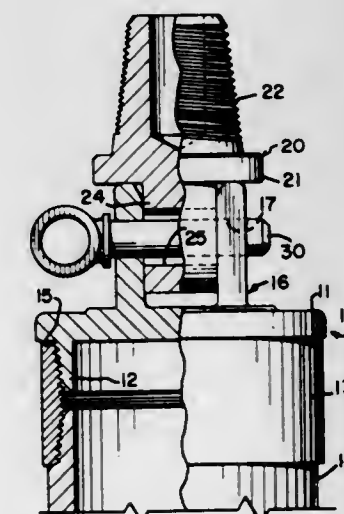
Samuel Leven, and Kenneth S. Moffitt, both of Bridgeport, W. Va., assignors to Ingersoll-Rand Company, New York, N.Y.

Filed May 25, 1970, Ser. No. 41,137

Int. Cl. E21b 19/16

U.S. Cl. 173-163

5 Claims



A handling tool used for inserting a well casing pipe into a previously drilled hole such as a water well hole. The tool is designed to be used with the machine which is used to drill the well. The tool includes a first coupling end which can be connected to the rotary head of a drilling machine and a second coupling member which can be connected to the casing pipe to be inserted in the previously drilled hole. The two coupling parts are pivotally connected to each other. The pivotal connection allows the casing pipe to be aligned with the hole in which it is to be inserted. The tool transfers longitudinal and rotary movement from the rotary head to the casing pipe.

3,656,562

WELL PERFORATOR WITH POSITIONING TOOL

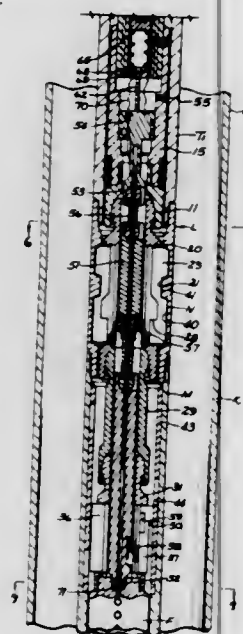
Hollis A. Baugh, Houston, Tex., assignor to Brown Oil Tools, Inc., Houston, Tex.

Filed July 13, 1970, Ser. No. 54,164

Int. Cl. E21b 43/119

U.S. Cl. 175-4.51

4 Claims



A tool string of the "pump-down" type including a well perforator in combination with locator and orienting devices for assuring aiming of the perforating charges in a predetermined direction and actuation of the firing mechanism only when the perforator has attained the predetermined aiming direction.

3,656,563

APPARATUS AND METHOD FOR INSERTING CASING BENEATH ROADBEDS

Charles F. Blinne, P.O. Box 445, Poplar Bluff, Mo.

Filed Feb. 16, 1970, Ser. No. 11,749

Int. Cl. E21b 11/02; E21c 19/00

U.S. Cl. 175-22

5 Claims



Tubular casings are inserted beneath roadbeds by hammering on one end thereof, while rotating the casing to drive cutters at the opposite end thereof, and while maintaining a constant push or pressure on the casing in its direction of advancement through the earthwork. A winch-cable-pulley assembly is used to maintain the pushing force, such assembly operating to advance the hammer and the rotating mechanism along an elongated supporting frame structure. Dirt collecting inside the casing during insertion is removed prior to running of pipelines or the like through the casing.

3,656,564

APPARATUS FOR ROTARY DRILLING OF WELLS USING CASING AS THE DRILL PIPE

Cicero C. Brown, c/o Brown Oil Tools, Inc. P.O. Box 19236, Houston, Tex.

Continuation-in-part of application Ser. No. 778,509, Nov. 25, 1968, now Patent No. 3,552,507, and a continuation-in-part of 803,911, Mar. 3, 1969, now Patent No. 3,552,508, and a continuation-in-part of 857,046, Sept. 11, 1969, now Patent No. 3,552,509, and a continuation-in-part of 864,747, Oct. 8, 1969, now Patent No. 3,552,510. This application Dec. 3, 1970, Ser. No. 94,909

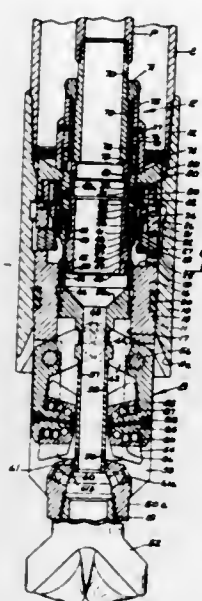
Int. Cl. E21b 9/26

U.S. Cl. 175-228

8 Claims

A drilling system employing casing as drill pipe and a bit

assembly which is bodily insertible and removable through



the casing and releasably attachable thereto for rotation with the casing.

3,656,565

ROTARY DRILLING TOOL

Fred K. Fox, 11220 Smithdale, Houston, Tex.

Filed Sept. 23, 1970, Ser. No. 74,546

Int. Cl. E21b 17/00

U.S. Cl. 175-323

6 Claims



A rotary drilling tool comprising a member connectable in a tubular drill string for rotation with it, and a body about the member having spiral blades about its outer side. The tool fluidly connects with the bore in the drill string above and below it to conduct drilling mud downwardly to and out the bit, and the body is rotated relative to the member and in a direction to cause the blades to reduce the hydrostatic pressure of the drilling mud in the lower end of the well bore below the blades.

3,656,566

GAS COOLED NUCLEAR REACTOR INSTALLATION

Geoffrey Coast, Northwich, and Vernon Morgan, Culcheth, near Warrington, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Oct. 3, 1968, Ser. No. 764,707

Claims priority, application Great Britain, Oct. 27, 1967,

49,056/67

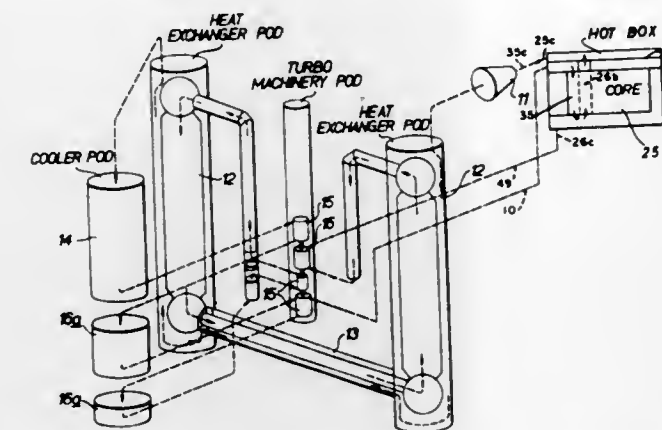
Int. Cl. G21d 5/00

U.S. Cl. 176-59

4 Claims

In a gas cooled nuclear reactor, especially one wherein the coolant is compressed, heated, and expanded through a heat

utilisation plant, prior to entry to the nuclear reactor, that is one wherein the reactor is used for reheat, the moderator is

**PRECISION BALANCE WITH AUTOMATIC LOCKING DEVICE**

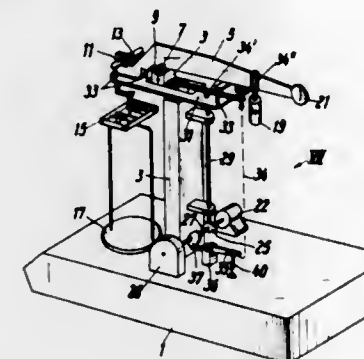
Erich Emil Knothe, Gehrrenring, and Ludwig Weickhardt, Bovenden, both of Germany, assignors to Sartorius-Werke GmbH (und vormals Gottinger Präzisionswaagenfabrik GmbH), Gottingen, Germany

Filed Oct. 28, 1970, Ser. No. 84,655

Int. Cl. G01g 23/02

U.S. Cl. 177-155

5 Claims



The invention relates to balances with a balance beam having bearings and consisting of knife-edges and pans, that must be protected against shock-like loads. A locking device permits the lifting of the bearing knife-edges from the bearing pans. In addition to a locking position and an unlocking position, there is provided a special position where the knife-edges and pans are engaged for a preliminary weighing for the purpose of selecting the weights to be added or removed. There are provided three command switches that actuate a driving motor by means of a control circuit, the motor providing the possibility of bringing the balance into each of the three operating positions. In this connection, care is taken that the balance can be shifted from the special position into the unlocking position and inversely only by passing through the locking position so that in the meantime the knife-edges must necessarily be separated from the pans.

3,656,568

VARIABLE BALANCE-POINT COUNTING DEVICE

Sid Hejzlar; Robert M. Zweig, both of Flushing, N.Y., and George D. Reynolds, Jr., New Canaan, Conn., assignors to John Chatillon Division of Macrodyne-Chatillon Corporation, Kew Gardens, N.Y.

Filed Feb. 18, 1971, Ser. No. 116,515

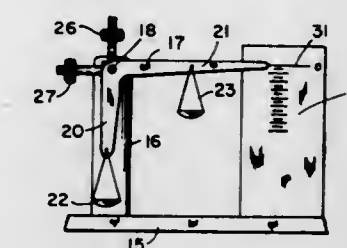
Int. Cl. G01g 19/00

U.S. Cl. 177-200

8 Claims

A counting device is provided for counting statistically uniform manufactured parts, by weight, using a self-balance-

ing scale with a variable balance-point. A known number of parts similar to those to be counted is placed on the balancing unit of a vertical balancing arm and the unknown quantity placed in the counting unit on an opposing horizontal arm. The design principle used is such that when balance equilibri-



3,656,569

WEIGHING APPARATUS

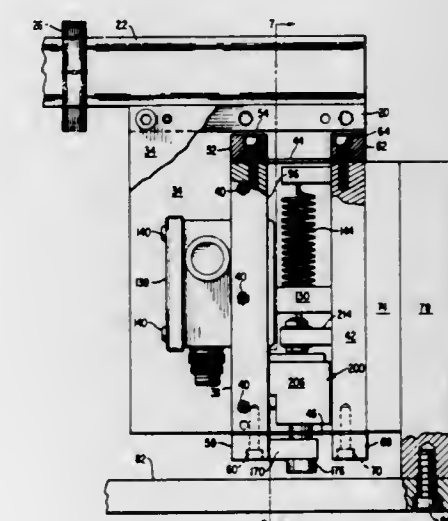
Clarence Johnson, 31649 Trillium Trail, Pepper Pike, Cleveland, Ohio

Filed Sept. 22, 1970, Ser. No. 74,300

Int. Cl. G01g 3/08, 3/12, 3/18

U.S. Cl. 177-210

19 Claims



A cantilevered flexure spring weighing apparatus in which a load-receiving structure is supported on the free ends of upper and lower, vertically spaced apart, cantilever mounted flexure spring members. The flexure members, which are flexed by the applied load to provide a weight-representing deflection of the load-receiving structure, are respectively placed in tension and compression when the load is off center whereby a structure rigidly interconnecting the free flexure member ends is turned slightly about an axis relative to a relatively stationary support that mounts the flexure members. A transducer having coacting relatively movable, signal producing parts respectively connected to the interconnecting structure and the flexure member support, measures the weight representing deflection at a location that is at least closely adjacent to a predetermined center of integrity where the relative angular displacement of the interconnecting structure does not impart any significant signal producing relative motion to the coacting transducer parts. Other features of this invention pertain to a tare adjustment and a temperature compensating construction, among other things.

3,656,570

HYDROSTATIC DRIVE ARRANGEMENT FOR VEHICLES WITH AUTOMATIC ADAPTATION OF CIRCUMFERENTIAL FORCES AND WHEEL SPEEDS TO FRICTION AND CURVATURE CONDITIONS

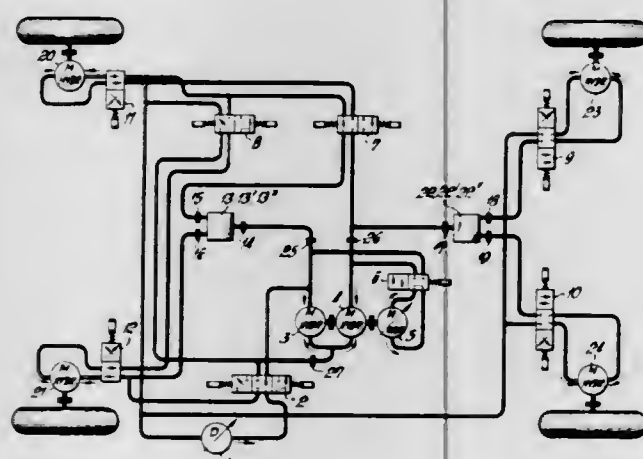
Franc Gortnar; Zarko Zalokar; Fedor Klun; Olga Zalokar, and Velen Bulog-Gortnar, all of Ljubljana, Yugoslavia, assignors to Strojna Tovarna Trbovlje, Vodenska, Trbovlje, Yugoslavia

Filed Feb. 27, 1970, Ser. No. 15,138

Int. Cl. B62d 11/04

U.S. Cl. 180-6.48

18 Claims



A hydrostatic drive for a vehicle having front and rear wheels with respective driving hydromotors connected to the corresponding right and left wheels, respectively. A main hydraulic pump is connected in hydraulic circuit with the hydromotors while a hydromotor flow distributor lies in circuit the hydromotors and the main pump for the distribution of a hydraulic medium therebetween to adapt the rotary speeds of the individual wheels to road curvature encountered by the vehicle. A further flow distributor is connected between the drive hydromotors of each pair of right and left wheels, and between the respective hydromotors and the corresponding hydromotor flow distributor to individually adapt circumferential force at each wheel to the respective road/wheel friction.

3,656,571

SPORTS VEHICLE

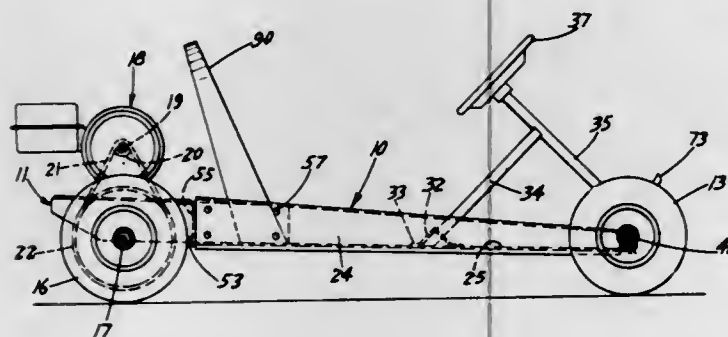
Neal R. Canfield, Trego, Wis., assignor to Stanley W. Tull Co., Inc., Minneapolis, Minn.

Filed Apr. 2, 1970, Ser. No. 25,178

Int. Cl. B60k 5/10

U.S. Cl. 180-11

7 Claims



A miniature low-clearance, ground-hugging four-wheeled sports cart for racing and other recreational purposes. The cart is characterized by sheet metal frame construction and variable clearance accomplished by readily separable and exchangeable engine and rear axle and wheel mounts, and readily separable and exchangeable front wheel mounts. The cart can be readily converted from standard to racing height and from standard to racing engine, or vice versa, in a matter of minutes.

3,656,572

VEHICLES WITH INCIDENCE-ANGLE DRIVING WHEELS

Pierre Ernest Mercier, 1, Route de Saint-Brice, Piscop, France

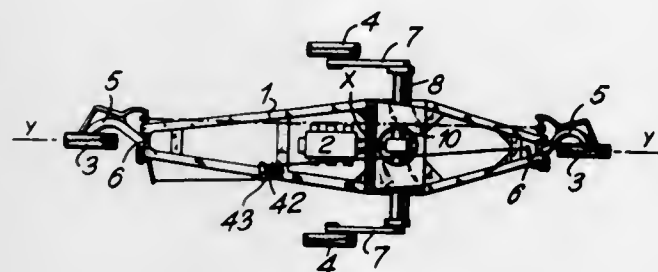
Filed Mar. 4, 1970, Ser. No. 16,300

Claims priority, application France, Mar. 4, 1969, 6905804

Int. Cl. B62d 61/04

U.S. Cl. 180-21

6 Claims



A vehicle comprising steering wheels, driving wheels distinct therefrom and supporting most of the total weight of the vehicle, and means for swivelling said driving wheels through equal angles to either side of their positions parallel to the longitudinal axis of the vehicle, said means being controlled by a servomechanism comprising a transverse acceleration sensor.

The vehicle includes an axle carrying the driving wheels and mounted for pivotal motion in relation to the chassis about an axis lying in the longitudinal vertical plane of symmetry of the chassis and passing through a transmission joint, the pivotal motion of said axle being controlled by the said servomechanism.

3,656,573

PLURAL OUTPUT PATH TORQUE TRANSMITTING MECHANISM WITH SLIP CLUTCH

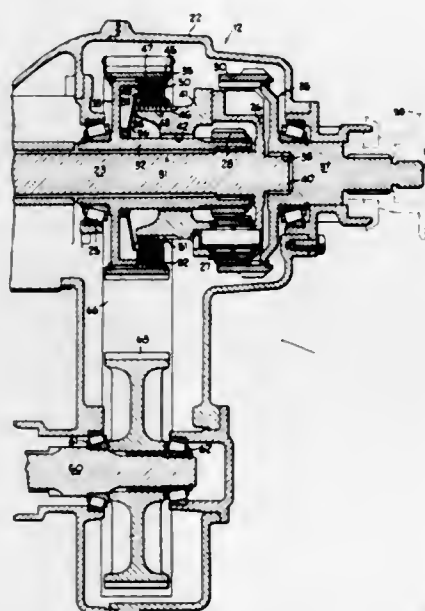
Robert W. Halberg, Muncie, Ind., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed June 5, 1969, Ser. No. 830,752

Int. Cl. B60k 17/34, 17/20

U.S. Cl. 180-44 R

5 Claims



A multiple path drive system for a vehicle having plural pairs of traction wheels including a torque transfer mechanism adapted to receive an input torque which incorporates a differential gear mechanism driven by the input torque and adapted to distribute the input torque to a plurality of drive axles and a friction clutch mechanism which acts to resist relative rotation between the drive axles.

3,656,574

VEHICLE LOCKING CIRCUIT

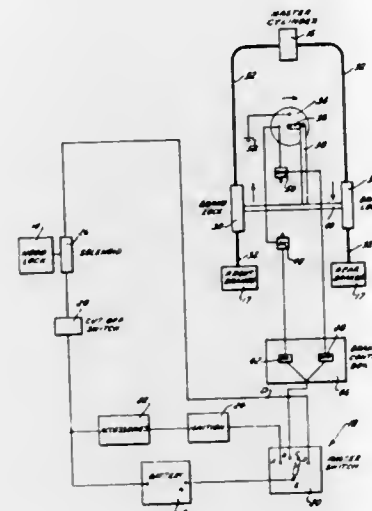
Joseph Edwards, 8822 Fourth Avenue, North Bergen, N.J.

Filed July 13, 1970, Ser. No. 54,153

Int. Cl. B60r 25/00

U.S. Cl. 180-114

12 Claims



A circuit is disclosed for locking and unlocking the brakes, ignition and hood of a vehicle so as to secure it from theft. A key-operated master switch is effective in its plurality of positions to: (a) open the ignition-power source circuit; (b) energize a circuit to unlock a normally closed hood lock; (c) energize a circuit which effects the opening and closing of brake locks; and (d) open all electrical circuits of the vehicle. The ignition of the vehicle is connected to the power source via the master switch and is energized only when that switch is in the "ignition on" position. When the master switch is in the brake locking and unlocking position, a secondary switch effects selective actuation of a motor; when the secondary switch is in the "brake lock" position, a half stroke of the motor closes brake locks, and in the "brake unlock" position, the completed stroke of the motor opens the brake locks. The hood lock, being normally closed, is opened when the master switch is in the "hood unlock" position due to the energization of the hood unlock circuit. In the remaining master switch position, the power source is isolated from all electrical circuits of the vehicle, ensuring that the ignition, hood and brakes all remain locked during the absence of the owner or user from the vehicle.

3,656,575

GROUND EFFECT MACHINE

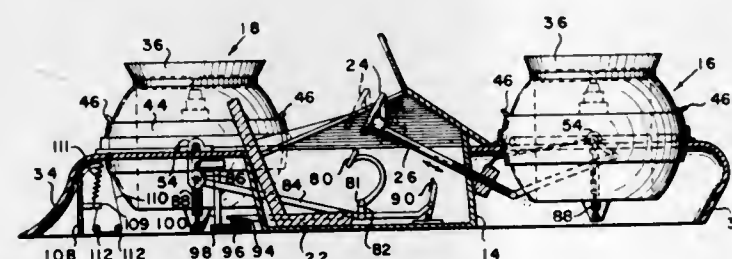
George W. Vryland, 1510 Monmouth Drive, Richmond, Va.

Filed June 30, 1970, Ser. No. 51,301

Int. Cl. B60v 1/14

U.S. Cl. 180-120

9 Claims



A ground-effect machine having a rigid outer plenum chamber which is substantially triangular and has an inverted, cup-shaped form. The two leading sides of the plenum chamber adjacent the bow have inwardly inclined sides which serve to increase stability, provide a slight lift force, and reduce the hydraulic coefficient of discharge, which in turn increases the lift of the vehicle above the

ground surface. Three spherical propulsion units are mounted on and extend above the plenum chamber. They are provided with a substantially universal mounting on the plenum chamber and their position is controlled from a cockpit on the plenum chamber.

ERRATUM

For Class 181-5 A see:
Patent No. 3,656,585

3,656,576

NOISE SHIELD PANELS AND METHOD OF FABRICATION

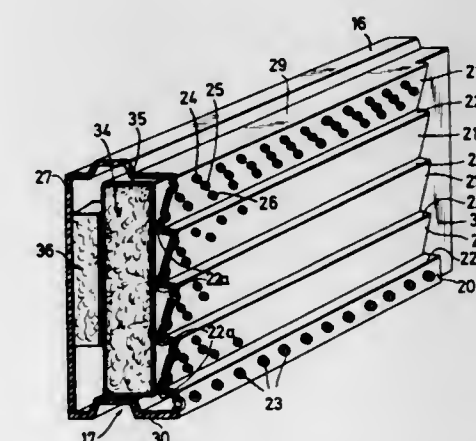
Gunter Gubela, Poll-Vingster Strasse 150-160, 5 Köln Kalk (5 Cologne-Kulk), Germany

Filed Apr. 15, 1971, Ser. No. 134,157

Claims priority, application Italy, Nov. 19, 1970, 13039 A/70
Int. Cl. E04h 17/00; B64f 1/26; E04b 1/82

U.S. Cl. 181-33 G

28 Claims



A hollow, rectangular plastic casing and a sheathed sound absorbing material batt forming a sound absorbing panel; as a panel casing noise source facing front wall, an echelon of four forwardly inclined integral step-like faces, each with three off-set series of longitudinally spaced outwardly-flanged apertures, and a bottom straight margin with a single, like aperture series; a casing back wall with alternating raised and depressed regions; the batt spaced from the back by fibrous blocks or deeper back depressions; end closures and opposed vertical flats at the lateral ends of the front and back walls; and a longitudinal land and complementarily shaped groove in the top and bottom casing walls, whereby like panels are insertable with land and groove engagements and with panel ends engaged between the opposed flanges of respective spaced H-beam uprights optionally. A panel edge-surrounding impregnated sealing band, forming a seal concealed in the tongue-and-groove engagement of adjacent panels. A noise fence comprising spaced H-beams thus filled with interposed panels and capped by inverted U-channels. Casing fabrication in one piece by blow-molding from heated extruded thermoplastic tubular stock; or by vacuum forming, injection molding, centrifugal or rotational casing as front and back halves to be partially telescoped and welded or cemented together.

3,656,577

CEILING OR FLOORING ELEMENT OF LIGHTWEIGHT CONCRETE

Ingemar Larsson, Orebro, and Karl-Gustav Ohrn, Kumla, both of Sweden, assignors to Intong AB, Hallabrottet, Sweden

Filed Dec. 1, 1969, Ser. No. 881,130

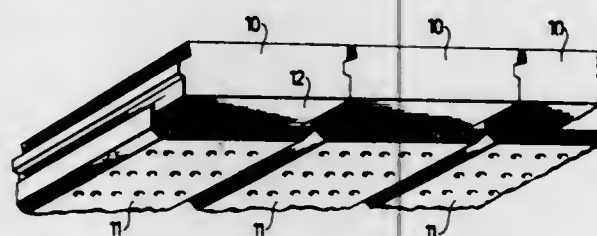
Int. Cl. E04b 1/86

U.S. Cl. 181-33 G

3 Claims

In a ceiling or flooring element of concrete or lightweight concrete the improvement of providing the underside of the

element with a box containing a porous sound insulating material to secure sound insulation. The box may be fixed by



means of two side-pieces and two flanges put in grooves in the element.

3,656,578

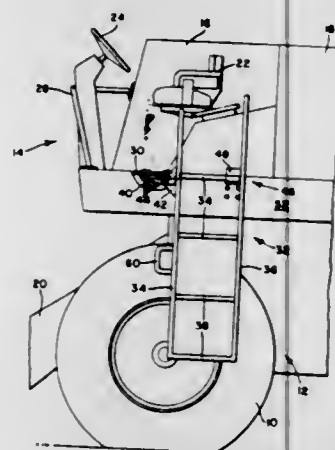
VEHICLE ACCESS LADDER

Peter Chauncey Hemken, Le Claire, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Nov. 2, 1970, Ser. No. 86,111

Int. Cl. E06c 5/04

U.S. Cl. 182-20



An access ladder for the elevated operator's platform of a vehicle, the ladder being swingably mounted on the platform for movement between a first position wherein the ladder extends vertically downwardly from the access side of the platform, and a second position wherein the ladder extends horizontally across the access side of the platform and serves as a guard rail therefor. A latch mechanism on the platform retains the ladder in either position.

3,656,579

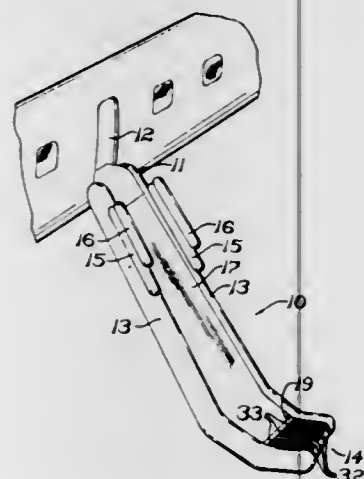
FRICTION PANEL

John M. Fisher, Cuyahoga Falls, and Kenneth E. Paige, Akron, both of Ohio, assignors to The B. F. Goodrich Company, New York, N.Y.

Filed Sept. 8, 1970, Ser. No. 70,316

Int. Cl. A62b 1/20

U.S. Cl. 182-48



A deceleration panel for the lower section of an aircraft escape slide to control the sliding speed of passengers leaving

an aircraft in which longitudinal strips of rubber having a nonskid surface are mounted on strips of fabric supporting material for resisting sliding in the dry condition. The strips of fabric are fastened to a layer of three-dimensional fabric having stiff loops for draining away any water and projecting out of the water to resist sliding in the wet condition. The three-dimensional fabric is mounted on a backing member of fabric supporting material which has a coating of conductive material on the underside as do the strips of fabric supporting material to conduct static electricity away from the panel.

3,656,580

SCAFFOLDING FOR USE IN BUILDING CONSTRUCTION

Peter Eric Gostling, Sutton Coldfield, England, assignor to Kwikform Limited, Birmingham, England

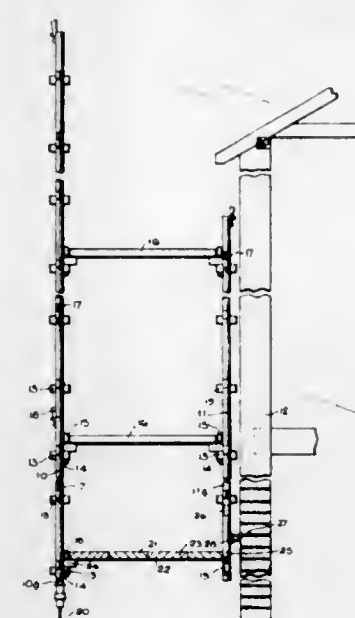
Filed July 31, 1970, Ser. No. 59,963

Claims priority, application Great Britain, Aug. 2, 1969,

38,813/69

Int. Cl. E04g 3/08

12 Claims U.S. Cl. 182-82



A platform supporting transom element of scaffolding, provided at one end with a wedge connection to a vertical scaffold tube, and at the other end with a wall engaging lug spaced above platform level.

3,656,581

SAWHORSE BRACKET ASSEMBLY

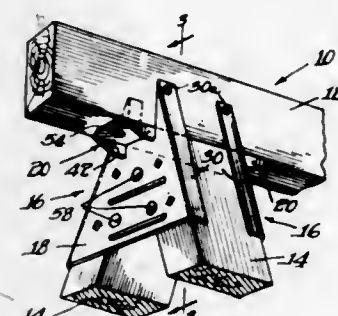
Charles O. Larson, Sterling, Ill., assignor to Charles O. Larson Co., Sterling, Ill.

Filed Mar. 30, 1970, Ser. No. 23,739

Int. Cl. F16m 11/00; E04g 1/32

U.S. Cl. 182-224

1 Claim



A bracket assembly for use in the formation of a sawhorse or the like structure. The assembly includes a main support bracket having a generally triangular face plate with a slot of a predetermined width extending inwardly from the apex

3,656,583

METHOD AND APPARATUS FOR PRODUCING A TORQUE LOAD ON A SHAFT

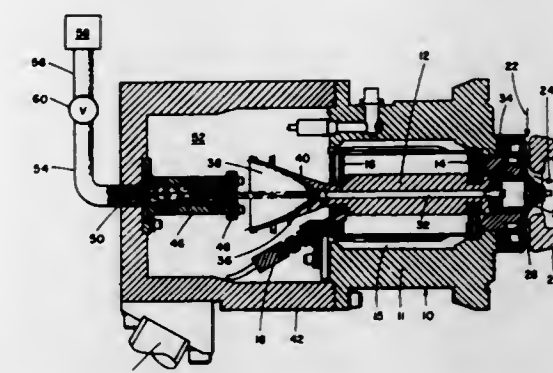
Clarence J. Hornbeck, Wescosville, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Sept. 2, 1969, Ser. No. 854,607

Int. Cl. F16n 1/00

U.S. Cl. 184-6.11

10 Claims



thereof and a shelf portion extending outwardly from a first surface of the face plate at the base of the slot; and an auxiliary bracket mounted on the main bracket. The auxiliary bracket includes a plate portion having a width at least at a predetermined point therealong equal to the width of the slot in the main bracket and being received thereat in the slot. A first section of the plate portion extends from the first surface of the face plate and rests on the shelf portion. A second section extends from the opposite surface of the face plate and includes flanges along the sides thereof, the ends of which are butted against the second surface of the face plate. The cross member of the sawhorse structure rests on the auxiliary bracket and aligned apertures in the latter and in the shelf portion serve to allow for the insertion of a screw fastener into the cross member. Side flanges along the face plate have apertures at the upper ends thereof for passage of screws into the cross member.

3,656,582

LUBRICATION OF BEARINGS OF RECIPROCATING ENGINES OR PUMPS

John Forster Alcock, Lancing, England, assignor to Ricardo & Co. Engineers (1927) Limited, Shoreham-by-Sea, Sussex, England

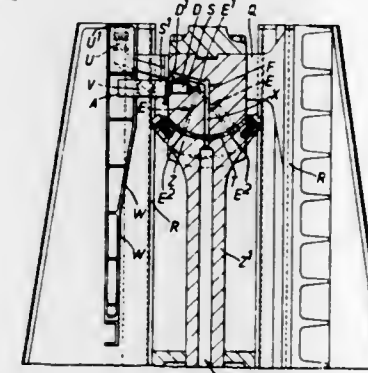
Original application Aug. 15, 1968, Ser. No. 752,967, now Patent No. 3,545,569. Divided and this application Apr. 29, 1970, Ser. No. 32,999

Claims priority, application Great Britain, Aug. 16, 1967, 37,812/67

Int. Cl. F01m 1/02

U.S. Cl. 184-6.5

5 Claims



A reciprocating piston mechanism in which the piston or piston rod is pivotally connected by a small end bearing to an angularly oscillating connecting rod and which includes a displacement type lubricating pump actuated independently of the oscillation of the connecting rod by the linear reciprocating movement of the piston assembly to deliver a timed feed of lubricant under pressure to the bearing during a selected portion of the reciprocating cycle. The pump is mounted on the crosshead block of the piston assembly with its operating axis at right angles to the direction to reciprocating movement of the piston and is actuated by a cam mechanism comprising a linear cam fixedly mounted to extend along the direction of reciprocating movement of the crosshead block assembly to one side thereof, and a movable cam follower carried by the cross head block assembly and acting on the pump plunger to actuate the pump, the cam follower being caused to ride along the fixed cam by the linear reciprocating movement of the piston assembly. A telescopic supply pipe supplies lubricant to the pump inlet, and also to the big end bearing of the connecting rod via a longitudinal passage formed in the connecting rod.

3,656,584

LUBRICANT MANIFOLD ASSEMBLY

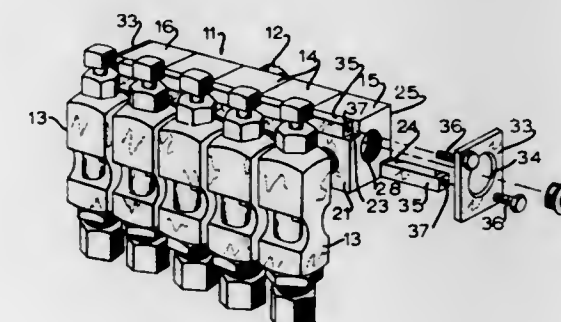
Frank J. Lyden, Mantowoc, Wis., assignor to Oil-Rite Corporation, Mantowoc, Wis.

Filed Oct. 14, 1969, Ser. No. 866,319

Int. Cl. F16n 7/06

U.S. Cl. 184-7 R

7 Claims



A manifold assembly is disclosed for the distribution of lubricant to a plurality of lubricators. The manifold includes a plurality of blocks arranged in series or in end to end relation longitudinally. Each block is provided with a longitudinally extending bore with the bores of the respective blocks being axially aligned and in communication with each other to form a manifold distribution passage. An inlet to the distribution passage is provided in one of the blocks and an outlet communicating with the distribution passage is provided in each of the blocks. A plurality of lubricators corresponding to the number of blocks are supplied from the distribution passage through corresponding coupling means which are secured in the outlets of the respective blocks and support the lubricators.

3,656,585

EXPLOSIVE ECHO RANGING DEVICE

Adlay B. Andrews, Woodbury, N.J.; David L. Coursen, Newark, Del., and Frank A. Loving, Jr., Wenonah, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 13,385, Mar. 7, 1960, abandoned.

Filed Apr. 23, 1963, Ser. No. 275,464

Int. Cl. G10k 11/00

U.S. Cl. 181-0.5 A

5 Claims



A sonic-pulse-producing assembly for use in underwater echo ranging which comprises

a. a linear charge of detonating explosive arrayed in the form of a helix having a uniform pitch, P, which satisfies the relationship

$$P \leq 0.75 \times C/D \times L$$

where D is the detonation velocity of said explosive, L is the length of explosive in each turn of said helix, and C is the velocity of sound in sea water, said linear charge being so arrayed that the closest approach of explosive in successive turns of said helix is no less than the minimum cross-sectional dimension of said linear charge;

b. supporting means adapted to maintain said explosive in said helical array; and

c. an initiator in initiating relationship to one end of said explosive, said initiator being adapted to be actuated by a self-contained actuating means when said assembly is at a predetermined depth in the ocean.

3,656,586

RUBBER BAND MOTOR FOR TOYS

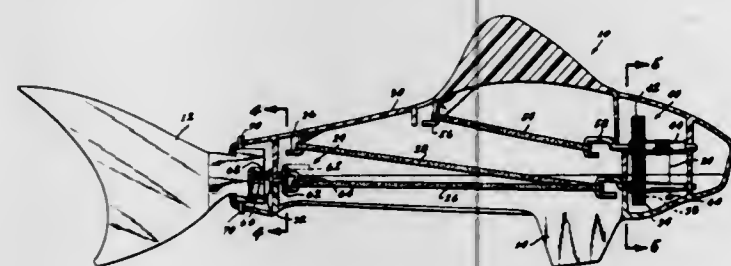
George E. Robson, Torrance, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Oct. 9, 1970, Ser. No. 79,381

Int. Cl. F03g 1/04

U.S. Cl. 185-37

6 Claims



A rubber band motor which utilizes a long length of band material in a relatively short toy housing and which enables rapid winding of the band, comprising a first rubber band extending between a rotatable output member and a first gear

and a second rubber band extending between a second gear and a stationary bracket. The two gears are normally engaged so that the rubber bands are connected in series to drive the rotatable output member. A winding gear moves into engagement with the first and second gears while separating them from each other when the rubber bands are being wound, so that the winding gear winds both rubber bands simultaneously, i.e., in parallel. When winding forces are no longer applied to the winding gear, it disengages from the first and second gears and allows them to re-engage so that they unwind in series. The motor is useful in a water toy with a flapping tail that propels it through the water while carrying a figure representing a man whose arms engage a pair of fins on the vehicle.

3,656,587

CHECKOUT COUNTERS

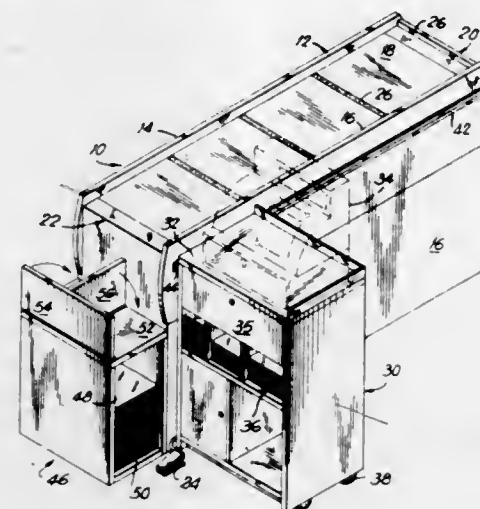
Joel S. Siegel, 229 East 79th Street, New York, N.Y.

Filed May 25, 1970, Ser. No. 40,141

Int. Cl. E04h 3/04

U.S. Cl. 186-1 A

7 Claims



A checkout counter of the type used in supermarkets. The checkout counter has a conveyor belt means provided with an upper run moving from a front toward a rear end of the conveyor belt means so that articles placed on the upper run will be conveyed toward the rear end of the conveyor belt means. Beside the conveyor belt means is a cash register support means. This cash register support means is movable along the conveyor belt means to a selected one of a number of positions which include a front position adjacent the front end of the conveyor belt means, a rear position adjacent the rear end of the conveyor belt means, and an intermediate position between the ends of the conveyor belt means. At the front position the cash register support positions a cash register for use during transfer of articles directly from a cart onto the front end of the conveyor belt means. At the rear position the register is available for use during express checkout operations. In the intermediate position the cash register is located for use during unloading of a cart situated beside the conveyor belt means between the ends thereof.

3,656,588

RUBBER TRACK BRAKE

Franz Preinfalk, Langenfeld; Dietmar Ulbricht, Dinslaken, and Friedrich Rohrsen, Rodenberg, all of Germany, assignors to August Thyssen-Hütte Aktiengesellschaft, Duisburg-Hamborn, Germany

Filed May 19, 1970, Ser. No. 38,812

Claims priority, application Germany, May 23, 1969, P 19 26 358.2

358.2; Dec. 9, 1969, P 19 61 604.7

Int. Cl. B61k 7/02

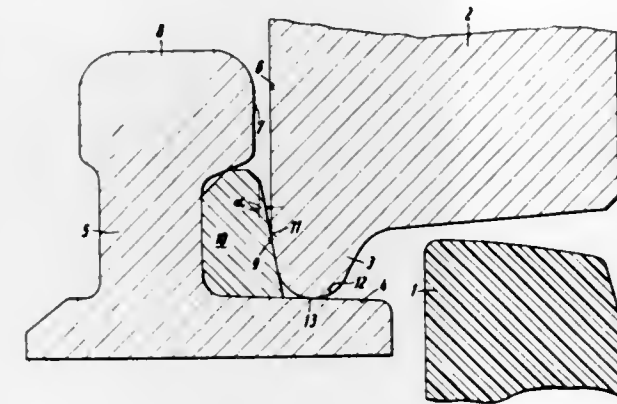
U.S. Cl. 188-62

6 Claims

The invention relates to a rubber track brake wherein each steel rail is provided with an element having an inclined sur-

face projecting laterally inwardly so that the flange of a vehicle wheel contacts the surface at only a single point close to

the resilient bushes during circumferential movement of the clamping member produced by friction forces in a braking



the foot of the rail, thereby minimizing friction even as the wheel moves up the surface somewhat under the influence of centrifugal force as when going around a curve.

3,656,589

SPOT TYPE DISC BRAKES

Tsuneo Kawabe, Hekikai Gun, and Toyoaki Kobayashi, Toyohashi, both of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

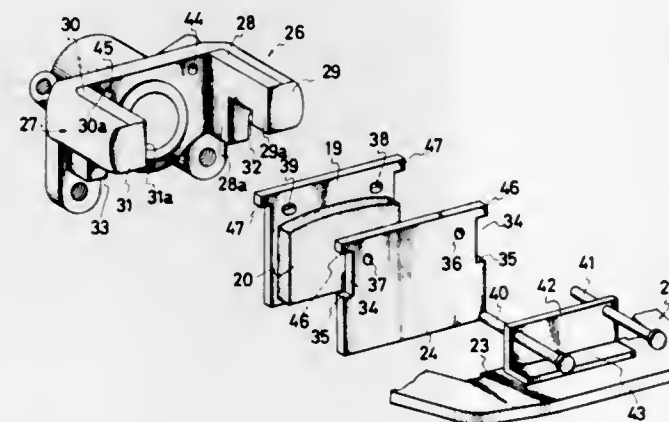
Filed May 5, 1970, Ser. No. 34,677

Claims priority, application Japan, May 10, 1969, 44/43020; May 13, 1969, 44/43717

Int. Cl. F16d 55/228

U.S. Cl. 188-72.5

4 Claims



A spot type disc brake for wheels wherein a hydraulic cylinder housing has at each side a torque-receiving arm comprising a projection extending above and across a brake disc of the outer end the lower half of the projection being cut away or recessed to permit an one inner edge of a reaction transfer plate to move thereinto below the projection.

3,656,590

CALIPER DISC BRAKE AND RESILIENT MOUNTING MEANS THEREFOR

Charles Newstead, Walsall, England, assignor to Girling Limited, Tyseley, Birmingham, England

Filed June 19, 1967, Ser. No. 646,890

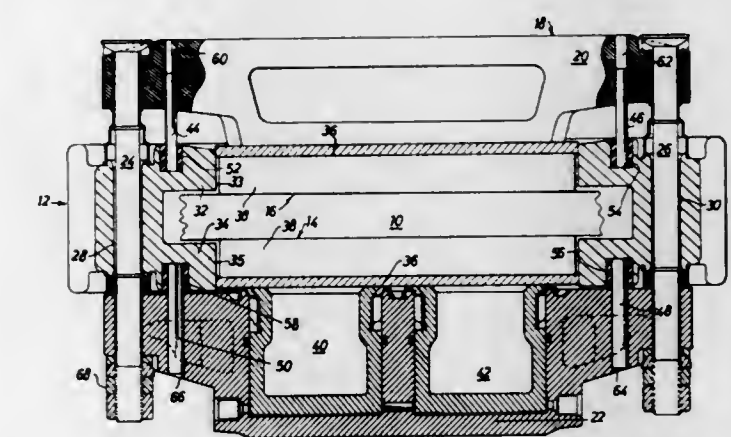
Claims priority, application Great Britain, June 18, 1966, 27,317/66

Int. Cl. F16d 55/224

U.S. Cl. 188-73.4

8 Claims

The invention relates to a reaction type caliper disc brake with a fabricated yoke or clamping member movable relative to a stationary torque carrier member adapted for fixing to a vehicle. The clamping member comprises a pair of chordal beams connected by tie rods passing through clearance holes in the carrier member and is supported on the carrier member by resilient bush and pin assemblies, compression of



operation being limited by abutment surfaces provided on the carrier member and engageable by back plates of the friction pad assemblies.

3,656,591

ONE-WAY SELF-ALIGNING TORQUE UNIT

Joseph A. Marland, Hinsdale, and Charles W. Hill, La Grange, both of Ill., assignors to Marland One-Way Clutch Co., Inc., La Grange, Ill.

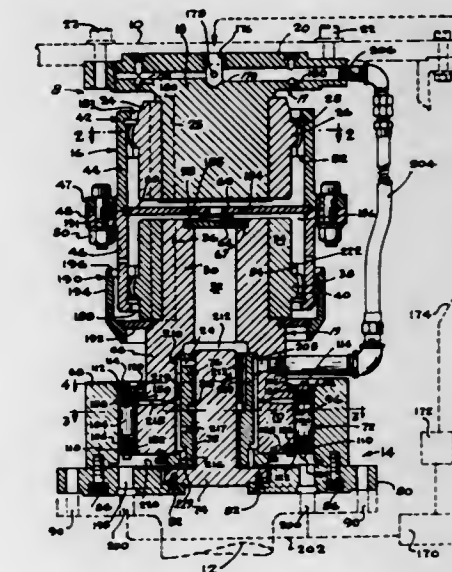
Continuation-in-part of application Ser. No. 827,400, May 23, 1969, which is a continuation-in-part of application Ser. No. 737,965, June 18, 1968, now abandoned. This application

Sept. 4, 1970, Ser. No. 69,584

Int. Cl. F16d 63/00

U.S. Cl. 188-82.84

12 Claims



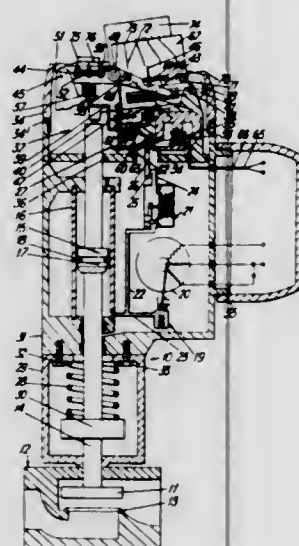
A one-way, self-aligning torque unit well suited for heavy duty on a vertical shaft subject to misalignment with respect to coaxing torque applying structure. The unit comprises a one-way torque coupling and an alignment coupling integrated together for mounting on a vertical shaft and providing for compensation for misalignment of the shaft with reference to coaxing structure which applies torque to the shaft in only one direction through the assembly. Working parts of the alignment coupling and underlying working parts of the torque coupling are continuously bathed in flowing lubricant that descends through a succession of coacting working parts all to the end that the unit will operate reliably for many years in locations where access for service is impractical. A reversible cam ring in the unit permits adaption of the unit to transmit torque to the shaft in either direction without structural modification of components of the unit. Interfitting toothed rings accommodate misalignment of the shaft and minimize the overall length of the unit.

3,656,592

ADJUSTABLE DASH POT AND ACTUATING MEANS THEREFOR

William Fredrick Keller, Covina, and Frank Francis Domyan, North Hollywood, both of Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y.
Original application Sept. 8, 1969, Ser. No. 855,937, now Patent No. 3,620,185. Divided and this application Oct. 12, 1970, Ser. No. 80,114
Int. Cl. F16f 9/04

U.S. Cl. 188—270



An hydraulic system having calibration, bandwidth, and dash pot controls with indicators for each, and a dash pot adjustment. The dash pot includes a corrugated bellows closed at one end and open at the other end to receive a conduit means. The conduit means connects the bellows to a fluid tight chamber and has an adjustable valve means therein to regulate fluid flow therethrough. Arm means is provided to compress the bellows.

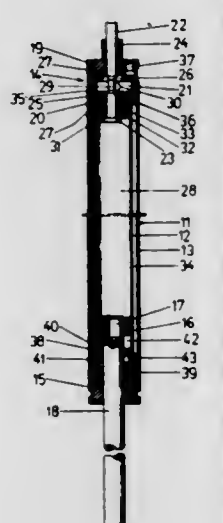
3,656,593

CONTINUOUSLY ADJUSTABLE LIFTING DEVICES

Fritz Bauer, 14 Schulzstrasse, D-8503, Altdorf near Nuremberg, Germany
Filed Dec. 2, 1969, Ser. No. 881,436
Claims priority, application Germany, Dec. 3, 1968, P 18 12 282.2

Int. Cl. F16f 9/32

U.S. Cl. 188—300



The invention provides a lifting device or displacement controlling and locking device for height adjustment of table tops and other members. The device comprises a double tubular housing having in the inner tube a piston the position of

which is controllable and lockable by controlling flow of fluid from one side of the piston to the other through a by-pass passage provided between the inner and outer tubes. A blocking device at one end of the housing is operable to allow the by-pass flow when height adjustment is required.

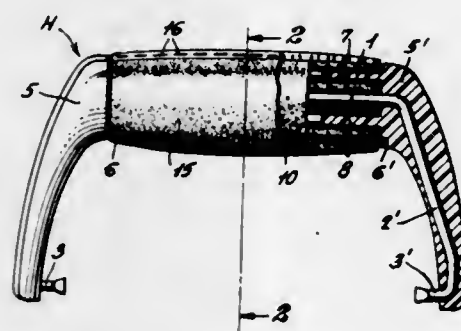
3,656,594

LUGGAGE HANDLES

Lou F. Marks, and Bela G. Szabo, both of Pittsburgh, Pa., assignors to Bruce Plastics, Inc., Moon Run, Pa.
Filed Aug. 27, 1970, Ser. No. 67,492
Int. Cl. B65d 25/32; A45c 13/26

U.S. Cl. 190—57

14 Claims



A composite luggage handle formed of a bail-shaped reinforcing core of rigid material having a central portion and two lateral legs diverging from the ends thereof which terminate in mounting pintles. The legs of the core are covered with molded bodies of hard plastic material and runner bars of the same plastic material of reduced section extend between the ends of the molded bodies in addition to the central portion of the core. A filler of soft material is folded onto the central portion of the bars and core to provide a comfortable gripping area, and this filler may be provided with an outer covering of sheet material.

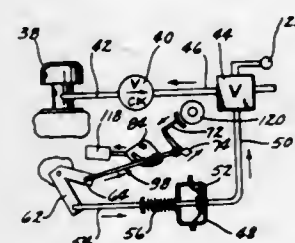
3,656,595

SEPARATE CLUTCH-BRAKE CONTROLS FOR BACKHOE

Kenneth W. Gethmann, and Russell J. Dye, both of Route #1, Gladbrook, Iowa
Original application July 15, 1968, Ser. No. 744,797, now Patent No. 3,529,701, dated Sept. 22, 1970. Divided and this application Sept. 22, 1970, Ser. No. 74,460
Int. Cl. F16d 67/04; B60k 29/02

U.S. Cl. 192—13 R

5 Claims



A clutch and brake means for a backhoe adapted to permit the operator to disengage the clutch while simultaneously applying the backhoe brakes. The backhoe intake manifold is connected to a vacuum operated control means by means of a vacuum line in which is interposed a valve means. The vacuum operated control means includes a vacuum chamber having a diaphragm movably mounted therein which is connected to a rod extending therefrom. The rod has a spring means connected thereto which resists the movement of the rod in one direction when the valve is operated to apply a vacuum on the diaphragm. The rod is connected to a linkage which is connected to the clutch-brake pedal so that when a vacuum is applied to the diaphragm, the clutch is engaged

while the brake is disengaged. When the vacuum is removed from the diaphragm, the spring means on the rod causes the rod to move the linkage so that the pedal is depressed thereby disengaging the clutch and applying the brakes on the backhoe.

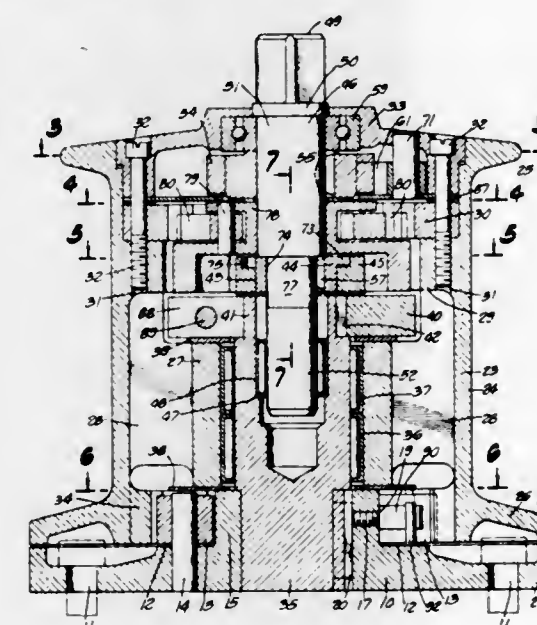
3,656,596

MULTISPEED WINCH

John S. Morgan, 123 Jasper Street, Leucadia, Calif.
Filed Dec. 2, 1970, Ser. No. 94,231
Int. Cl. F16d 67/02; F16h 29/04; B66d 1/24

U.S. Cl. 192—17 R

9 Claims



There is disclosed herein a multispeed winch using a mechanical power transmission device which provides a unidirectional output and two transmission ratios selected by changing the direction of the input motion. The transmission device uses a cam capable of two eccentricities and a pawl and ratchet wheel mechanism to provide the two transmission ratios. A direct drive is also provided by locking the winch drum to the input shaft.

3,656,597

FREE-RUNNING TWO WAY CLUTCH

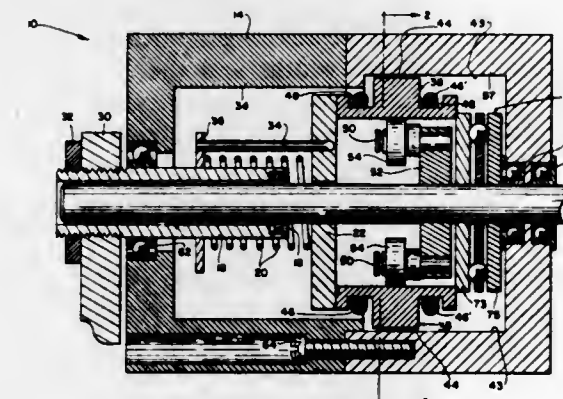
Frank P. Gruchmann, Pittsford, and Gordon F. Connelly, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 20, 1970, Ser. No. 65,550

Int. Cl. F16d 13/16, 13/04

U.S. Cl. 192—35

2 Claims



A free-running two way clutch having a drive element and a driven member and comprised of a plurality of rollers rotatable with the driving element and disposed against the inner periphery of a plurality of cam segments distributed about the driving element. The outer surfaces of the cam seg-

ments are brought into engagement with the driven member when a rotational motion is imparted to the rollers by the driving element. The symmetrical design of the cam segments permits bi-directional operation. An interface member having high static and low dynamic friction laterally abuts the cam segments. Engagement of the drive element and the driven member is facilitated because of the special frictional properties of the interface member.

3,656,598

AUTOMATIC CLUTCH WITH LOCKING MEANS

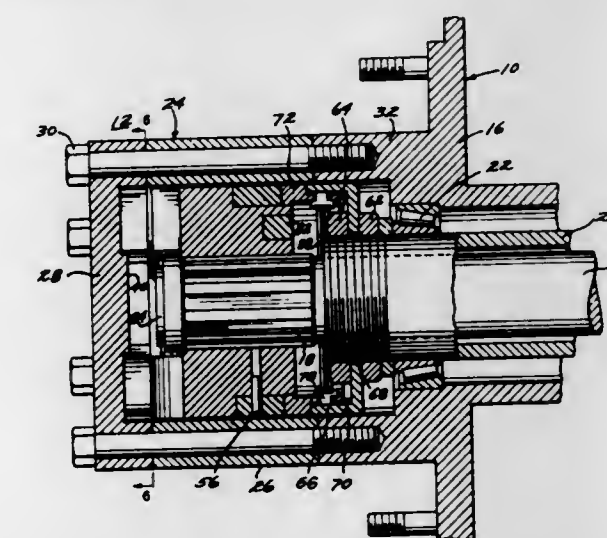
Ralph W. Goble, Boulder, Colo., assignor to Autometrics Co., Boulder, Colo.

Filed Aug. 28, 1970, Ser. No. 67,833

Int. Cl. F16d 11/00, 41/04

U.S. Cl. 192—35

22 Claims



Reversible clutch which engages and locks a driving member and a driven member upon relative movement between the driven member and another member and which disengages in the absence of relative movement between the driving member and the other member.

3,656,599

CENTRIFUGAL CLUTCH

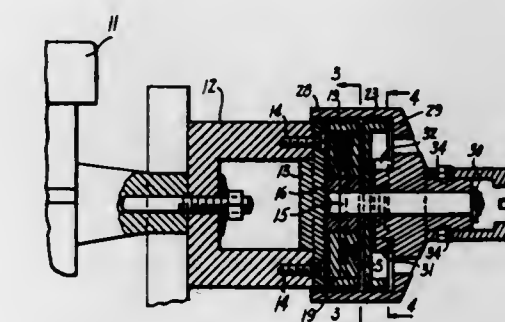
Thomas M. Diggs, 1349 Otis Street, N.E., Washington, D.C.

Filed Aug. 11, 1970, Ser. No. 62,908

Int. Cl. F16d 13/04

U.S. Cl. 192—42

4 Claims



A centrifugal clutch mechanism operating with the drive shaft or flywheel of a small motor of a hobby vehicle (boat, car, etc.) or power tool and on the driven shaft of the same types of equipment for the purposes of torque transmission control with adjustability. It includes two centrifugally operated weights, counterpoised against springs, which press against a clutch drum with increasing force as the rotational speed increases. At low speeds the springs maintain the weights out of engagement with the drum. As the speed increases the weights come in contact with the clutch drum to

drive the drum. In order to start the engine by hand or otherwise turning the driven shaft a pair of low speed automatically releasing pawls are provided for engagement with an annular ratchet.

In one form of the invention the clutch is attached to the flywheel or drive shaft of the mechanism and in another form it is attached to the driven shaft.

3,656,600

INCHING CLUTCH WITH BRAKE AND ACCELERATION CONTROLS

Shin Kitano; Yutaka Momose; Kazuo Ishikawa, and Takashi Hida, all of Kariya City, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya City, Japan

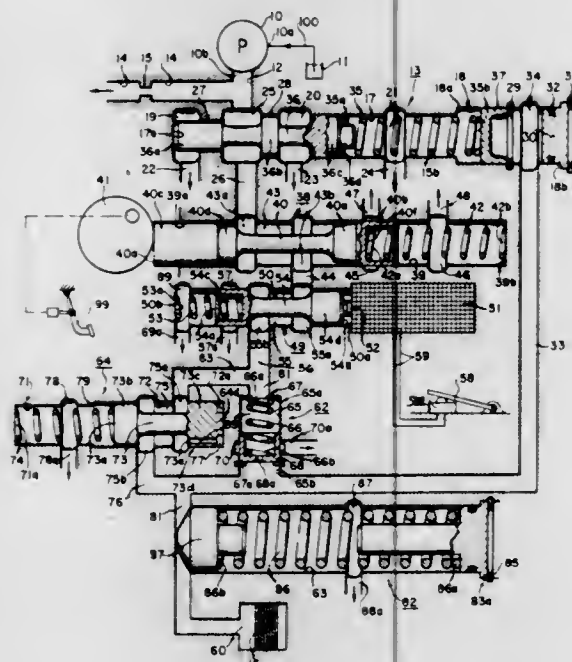
Filed May 5, 1970, Ser. No. 34,777

Claims priority, application Japan, May 7, 1969, 44/36667

Int. Cl. B60k 21/00, 29/00

U.S. Cl. 192—.055

4 Claims



This invention relates to a clutch oil pressure control mechanism of the wet type. The improvements comprise means provided for automatically causing the clutch engagement on-off control to respond to movements of a conventional accelerator pedal or brake pedal so as to easily obtain no clutch or half-clutch engagement in an easier way and for substantially obviating conventional clutch-engaging shocks.

3,656,601

PNEUMATIC PHRASE/FORMAT WRITER UTILIZING CARD CARTRIDGE AND FEATURING CYCLICAL MECHANISM FOR READING A SUCCESSION OF CARDS AS WELL AS PROGRAMMING THE TABULATION AND OTHER FUNCTIONS OF AN INTERCONNECTED PRINTER

William A. Abell, Jr., Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 4, 1969, Ser. No. 882,178

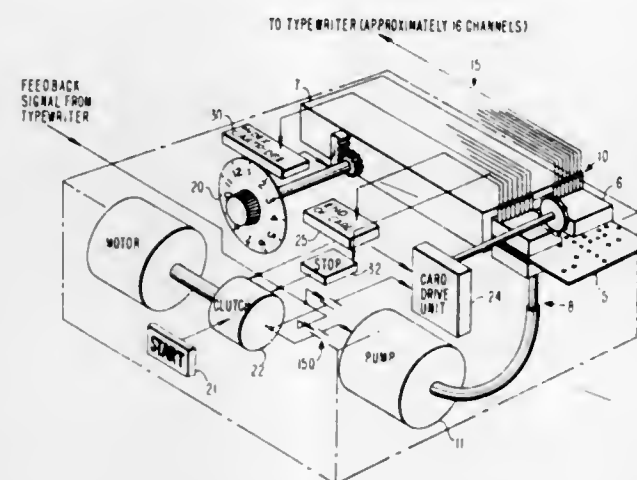
Int. Cl. B41j 5/36

U.S. Cl. 197—20

2 Claims

The present invention involves a pneumatic card handling unit accommodating a cartridge with a plurality of cards therein having information in the form of coded perforations that are pneumatically sensed. The unit includes means operable during successive cycles to withdraw individual cards in succession from the cartridge, read the information, and return the cards to the cartridge. A printing means such as "Selectric" typewriter (IBM registered trademark) is interconnected by a pneumatic cable with the card reading unit for printing of information automatically under control of the

card unit. The system further includes means for controlling tabulation functions of the printer according to diverse program cards during the printing process. Also, interlock means



are provided to insure completion of operations requiring a relatively longer period of time, such as carriage return and tabulation.

3,656,602

PAPER HOLD DOWN AND PENETRATION CONTROL CONSTRUCTION FOR HIGH SPEED PRINTERS

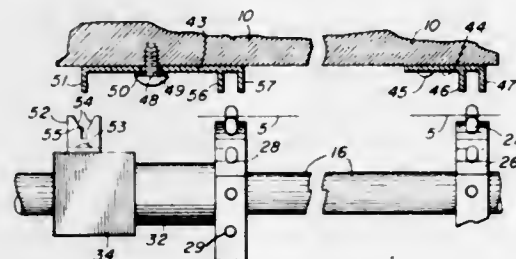
Joseph Konkell, Lynnfield, and Wallace J. Satas, Hudson, both of Mass., assignors to Data Printer Corporation, Cambridge, Mass.

Filed Sept. 9, 1970, Ser. No. 70,792

Int. Cl. B41j 11/34

U.S. Cl. 197—133 P

9 Claims



A paper hold down and penetration control for high speed printers in which the print drum is carried on a yoke pivotally attached to the frame in which the hammers are supported, comprising adjustable means for controlling the nearest approach of the print drum to the hammers, and a paper feed and hold down assembly comprising tractors mounted on the main frame and hold down plates connected to the yoke.

The lateral spacing of the tractors is adjustable to accommodate variations in paper width, and the hold down assembly is automatically adjusted by cam means operated by pivoting the yoke, to maintain proper alignment with the tractors.

3,656,603

ALIMENTARY PASTE PRODUCT HANDLING MACHINE

Ignatius Bontempi, Douglaston, and Joseph De Francisci, Jr., Rockville Centre, both of N.Y., assignors to De Francisci Machine Corporation, Brooklyn, N.Y.

Filed Sept. 23, 1970, Ser. No. 74,585

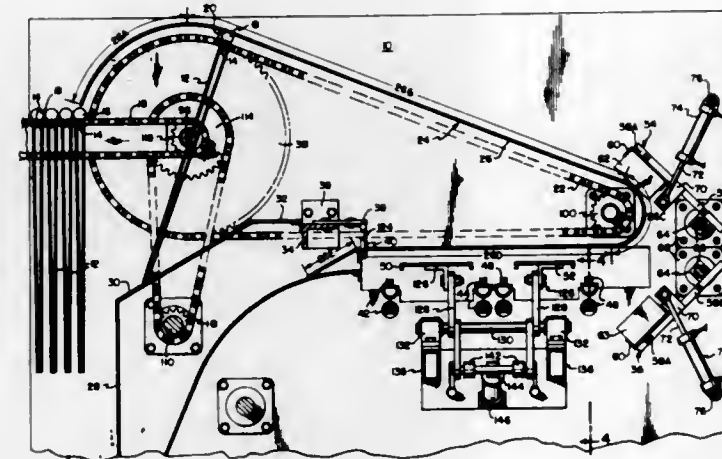
Int. Cl. B65g 47/00

U.S. Cl. 198—20

12 Claims

A long alimentary paste product handling machine for stripping dried strands of the paste product from drying sticks and for conveying the stripped strands to a cutting station is described. A clamping device grasps the heads (the U-

shaped portions) of the paste product strands as a hook on a continuous conveyor engages the supporting end of a drying stick and removes it from between the legs of the clamped strands. A pair of spaced tables which support the stripped strands transfer the strands to conveyors which are posi-



tioned between and beneath the tables and which transport the strands to the cutting station by pivoting downwardly to below the level of the conveyors. The tables pivot in the same direction of travel and at the same rate of travel as the conveyors in order to minimize transfer forces and thereby reduce breakage.

3,656,604

CLOSURE HANDLING APPARATUS

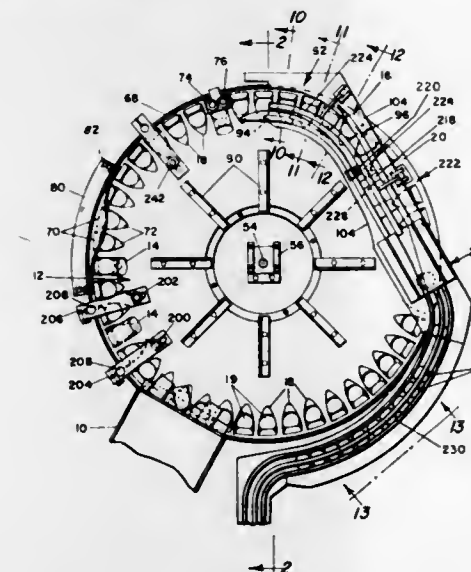
Walter S. Sterling, Quincy, Mass., assignor to Pneumatic Scale Corporation, Quincy, Mass.

Filed Mar. 16, 1970, Ser. No. 19,998

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

11 Claims



Closure handling apparatus designed to effect orientation of elongated cylindrical closures which are greater in length than in diameter and in which the closed end is heavier than the open end. Closures are received in radially arranged pockets in either an oriented or non-oriented position, provision being made for rejecting from their pockets the non-oriented closures.

3,656,605

APPARATUS FOR ORIENTING AND FEEDING CAPS

Larry C. Gess, 10523 Orchard Street, Samaria, Mich.

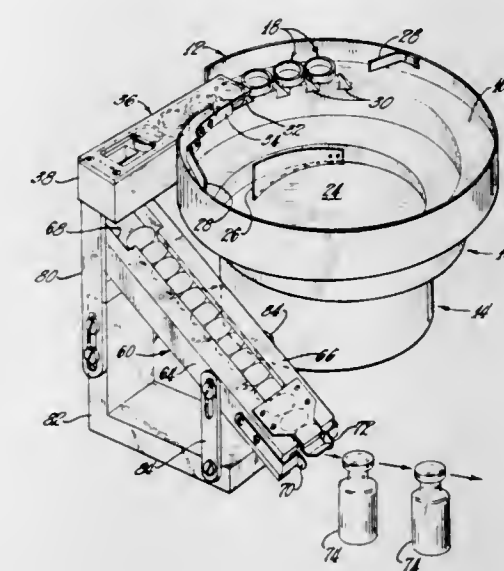
Filed June 5, 1970, Ser. No. 43,833

Int. Cl. B65g 11/20, 47/24

U.S. Cl. 198—33 AA

8 Claims

This invention relates to apparatus for orienting and feeding caps to bottles. The caps are oriented in a inverted posi-



are directed to an inclined track therebelow. The caps are received right side up on the track and are fed sequentially therealong to bottles moving below a lower end of the track.

3,656,606

APPARATUS FOR HANDLING BLOCK-LIKE ARTICLES

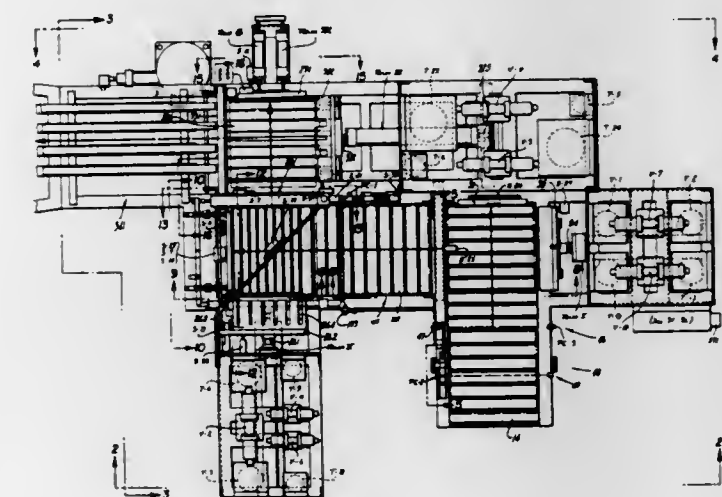
Alfred E. Comstock, Frontenac, Minn., and Burdall Gardner Wilcox, Oakland, Calif., assignors to Safeway Stores, Incorporated, Oakland, Calif.

Original application Nov. 29, 1968, Ser. No. 779,734, which is a division of application Ser. No. 402,746, Oct. 9, 1964, now Patent No. 3,433,278, dated Mar. 18, 1969. Divided and this application Apr. 30, 1970, Ser. No. 33,405

Int. Cl. B65g 21/26

U.S. Cl. 198—34

10 Claims



Apparatus for handling block-like articles having first and second conveyor means, including means controlled by the first conveyor means for causing parts to be delivered by the second conveyor means to the first conveyor means at spaced intervals so that the parts are advanced onto and carried on the first conveyor means at spaced intervals with at least certain of the parts on the second conveyor means being disposed one immediately behind the other in the direction of advance of the second conveyor means.

3,656,607

CONVEYOR SYSTEM FOR VISCOUS OR CEMENTITIOUS MATERIAL

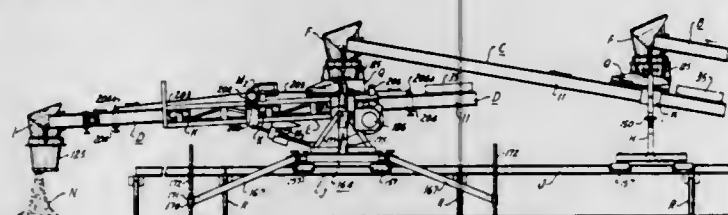
Donald J. Gorgei, Boardman, Ohio; Daniel I. Weisz, Ellwood City, and Russell B. Cooper, New Castle, both of Pa., assignors to Beaver-Advance Corporation, Ellwood City, Pa.

Filed Sept. 16, 1969, Ser. No. 858,384

Int. Cl. B65g 21/00

U.S. Cl. 198—118

7 Claims



An adaptable, flexible conveyor system is provided which employs material carrying continuous belt pick-up, conveyor-transfer and turret sections. The conveyor sections are at their adjacent ends positioned in a forwardly and backwardly movably supported and horizontally-pivoted relation with respect to each other and with respect to a pick-up and to a turret section from whose continuous conveyor, cementitious, grout or somewhat viscous material is delivered to a work area. The turret section and the head end of a transfer section with which it cooperates to receive material therefrom are both mounted for forward and backward movement on a longitudinally-extending elevated track. A transfer assembly is pivotally-carried between the forward end of one conveyor section and the tail end of a cooperating conveyor section to which the material is to be delivered, and a scraper assembly is carried by the forward end of the one conveyor section within the transfer assembly for removing adhering material from the belt adjacent a head pulley. A combination scraper means is provided for cleaning an underside of a belt and the exposed side of a drive pulley at the tail end of each conveyor section which has its own individual drive unit that is mounted to facilitate adjustment of belt tension and replacement of the belt.

3,656,608

GUIDE MECHANISM FOR VERTICAL STORAGE DEVICE

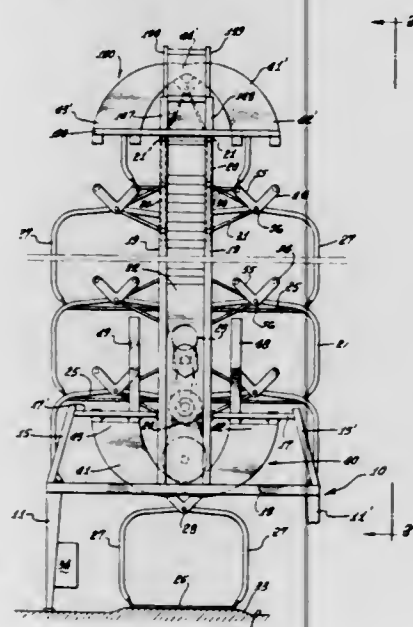
Robert D. Lichti, P.O. Box 2788, Santa Fe Springs, Calif.

Filed June 19, 1970, Ser. No. 47,764

Int. Cl. B65g 15/00

U.S. Cl. 198—138

11 Claims



A vertical storage device has a number of storage platforms carried by a pair of endless chains which move the

platforms from a lowermost loading and unloading station to various storage positions on one side or the other of the device. On each end of each platform is a v-shaped yoke with a traveler at the free end of each leg of the yoke. A pair of semi-circular tracks carried by a track guide serve the bottom and top of the device, at each end, one track being receptive of one of the travelers and the other track being receptive of the other traveler. The tracks cross each other midway between opposite ends forming an open intersection so that a traveler which is on the inside of path crosses over upon a reversal of direction and becomes the outside traveler. A pair of interconnected switch tongues at the intersection is moved to one position or another when pressed against by the first traveler to reach the intersection making certain that each traveler travels in the right track.

The tracks at each location are mounted on a guide and the guide has a limited floating attachment to the frame, held in a normal position by springs, in order to relieve the strain during operation and to minimize wear.

3,656,609

RECIPROCATING CONVEYING APPARATUS

Hideo Okano, 12-10 Sanuke, 2-Chome, Kamakura-shi, Kanagawa-ken, and Zenjiro Suzuki, 10-8 Sodegahama, Hiratsuka-shi, Kanagawa-ken, both of Japan

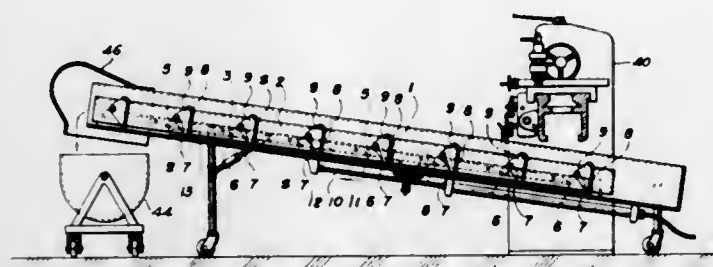
Filed Apr. 20, 1970, Ser. No. 30,166

Claims priority, application Japan, Apr. 24, 1969, 44/31394

Int. Cl. B65g 25/08

U.S. Cl. 198—224

6 Claims



The conveying apparatus has a plurality of reciprocating, rotatable scraper elements for successively pushing particles on a stationary support frame. Forward movement of a reciprocating driving element rotates the plurality of scraper elements into an operating position and carries them in a forward direction along the conveyor. Change of direction in the movement of the driving element rotates the scraper elements into a non-operative position and further rearward movement of the driving element carries the plurality of scraper elements to their original position whereupon the aforementioned cycle is repeated to move the particles along the conveyor.

3,656,610

RESILIENTLY MOUNTED CONVEYOR BELT CLEANER

Michael R. McWilliams, Aurora, Ill., assignor to Material Control, Inc., Aurora, Ill.

Filed July 15, 1970, Ser. No. 55,174

Int. Cl. B65g 45/00

U.S. Cl. 198—230

4 Claims

A resiliently mounted conveyor belt cleaner is provided to serve as a mechanical cleaner for an endless conveyor belt. The conveyor belt cleaner includes a plurality of independently operable spring-wiper blade assemblies for removing from the conveyor belt various types of abrasive and other objectionable foreign material. The spring-wiper blade as-

semblies each include a spring arm which is mounted by means of a resilient mounting structure which absorbs vibra-

3,656,612

CARTON

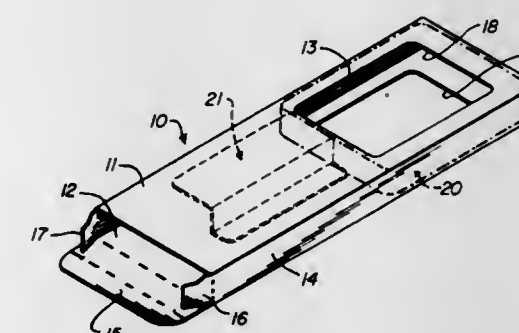
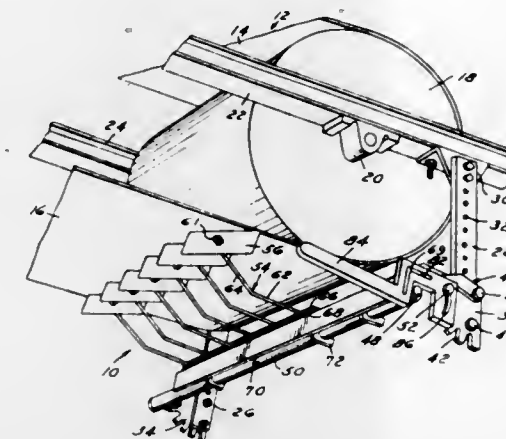
Thomas J. Sellors, Waukegan, Ill., assignor to The Finn Industries Division, Potlatch Forests, Inc., Chicago, Ill.

Filed Apr. 9, 1970, Ser. No. 26,916

Int. Cl. B65d 5/50

U.S. Cl. 206—45.14

3 Claims



tions and shock and thereby minimizes fatigue of the spring arms to result in reduced breakage of the arms during use.

A pilferproof carton which is particularly suitable for packaging Cassette tape cartridges.

3,656,611

SHIPPING AND DISPLAY PACKAGE OF NURSERY FLATS

Richard S. Mertz, Torrance, Calif., assignor to American Plant Growers, Inc., Wilmington, Del.

Filed Jan. 21, 1970, Ser. No. 4,637

Int. Cl. B65d 5/50

U.S. Cl. 206—44 R

6 Claims

3,656,613

FOLDER FOR STRANDED MATERIALS

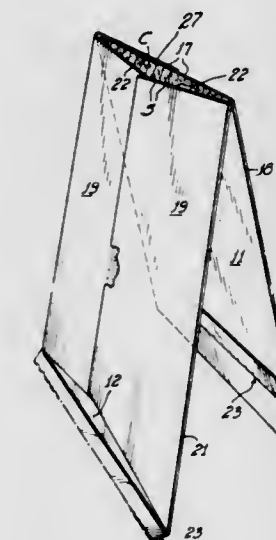
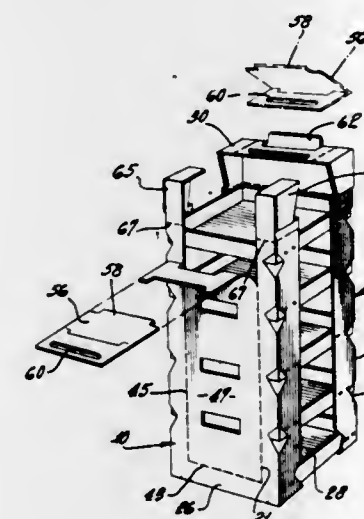
Armand D. LaFrance, Concord, and David F. O'Brien, Maynard, both of Mass., assignors to Container Corporation of America, Chicago, Ill.

Filed Mar. 9, 1970, Ser. No. 17,415

Int. Cl. B65d 5/52

U.S. Cl. 206—45.21

2 Claims



A shipping package of nursery flats comprising two panels folded into carton form and joined is convertible into a display assembly by selectively removing either of two panel sections to expose for display a series of flats contained in the package. A separable price board display forms a part of the removed panel section and is integrated with the other panel in erecting the display.

A folder for stranded material, such as Christmas tree tinsel or colored plastic strands. The folder has a pair of main panels foldably connected in end to end relationship, and side panels connected to each main panel are folded to overlapping position to hold the strands in position. The strands extend longitudinally of both main panels and across the fold line connecting the same. One of the pairs of side panels is relieved at its ends adjacent the fold line, so as to provide sharp folds in the strands at such fold line, without bunching, and so as to enable it to be displayed at such fold line for removal individually if desired. A flap foldably connected to one of the main panels is secured to the other main panel, and has a tear strip therein for readily opening the folder. A viewing window may be provided in one of the main panels so that the contents of the closed folder may be viewed without opening.

3,656,614

PACKAGE AND BLANK THEREFOR

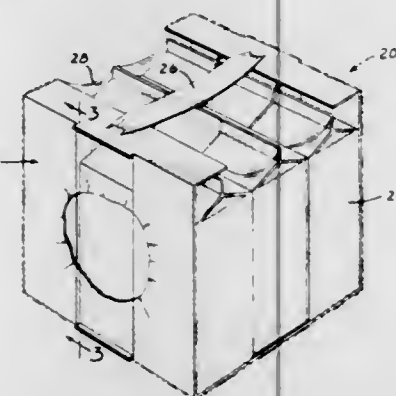
William P. Jacobson, Rockford, Ill., assignor to Anderson Bros. Mfg. Co., Rockford, Ill.

Filed May 4, 1970, Ser. No. 34,386

Int. Cl. B65d 71/00

U.S. Cl. 206—65 S

19 Claims



The package includes a plurality of cartons, a container formed from a blank, and a shrink film member shrunk around the container to hold the container and cartons together. The container is formed from a rectangular piece of corrugated paperboard and has a bottom wall, opposed side walls with support flaps cut from the side walls, and top wall portions overlying the support flaps and spaced from each other. A tie interconnects the top wall portions to at least temporarily hold the top wall portions in position. Thus the container has open ends and a partial top wall. The shrink film overwrap is so arranged to retain the cartons at the open ends and top of the package.

3,656,615

RECEIVING AND TRANSPORTING APPARATUS FOR CURRENCY

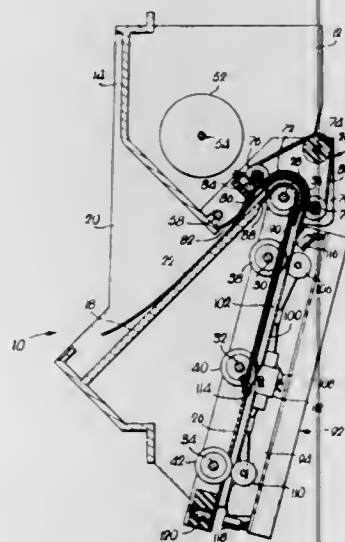
James F. Ptacek, Kansas City, Mo., assignor to The Vendo Company, Kansas City, Mo.

Filed Oct. 9, 1970, Ser. No. 79,456

Int. Cl. B07c 3/02

U.S. Cl. 209—73

18 Claims



A bill transport of a currency acceptor conveys a bill inserted therein along a path of travel having a sharp initial bend followed by a rectilinear stretch defined by an elongated, narrow channel. The bend is formed by rollers at the inside of the bend opposed by endless belts presenting the outside of the bend. A validity test station is located intermediate the ends of the channel, and the bill is held flat as it is advanced along the channel by two rows of opposed pairs of rollers projecting into the channel and receiving the bill adjacent its longitudinal edges. A constant speed transport drive is provided by a direct current motor governed by a centrifugal chopper. Failure to maintain proper operating

speed due to jamming or the like results in the application of an unchopped voltage to the motor, causing voltage to build up across a capacitor to a level which fires a programmable unijunction transistor that, through associated switching circuits, reverses the polarity at the motor input connections to reverse the drive and return the bill to the insert opening. Such switching circuits are also operated by the validity tester to return a bill found to be invalid.

3,656,616

ARTICLE INSPECTION AND REJECT SYSTEM

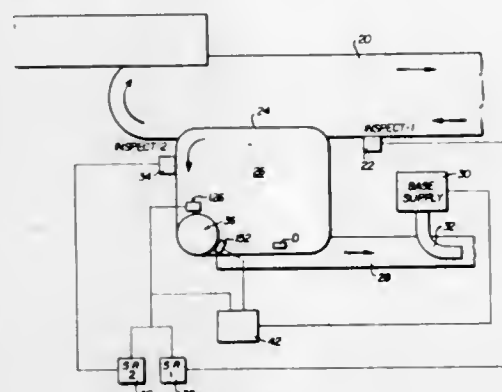
Frederick L. Wallington, Perrysburg, Ohio, assignor to Owens-Illinois, Inc.

Continuation-in-part of application Ser. No. 24,173, Mar. 31, 1970. This application June 8, 1970, Ser. No. 44,313

Int. Cl. B07c 5/00

U.S. Cl. 209—74

24 Claims



A system for inspecting articles on a continuously moving production line and ejecting flawed articles from the production line. One or more inspection stations are located at selected points along the production line to inspect articles passing through the inspection stations for specific types of flaws. Upon the detection of a flawed article, a reject signal is generated and stored in a shift register which transmits the reject signal to a reject mechanism in synchronism with the movement of the flawed container along the production line to cause the reject mechanism to eject the flawed container when the container reaches the reject station. The reject mechanism is so arranged that it is set and reset while out of registry with the production line so that the time required to set and reset the mechanism is independent of line speed. The system is also provided with a control which can set the reject mechanism to eject all containers moving along the line.

3,656,617

DEVICE FOR MANIPULATING COPPER BARS

Edouard De Bie, Antwerp, Belgium, assignor to Metallurgie Hoboken, Brussels, Belgium

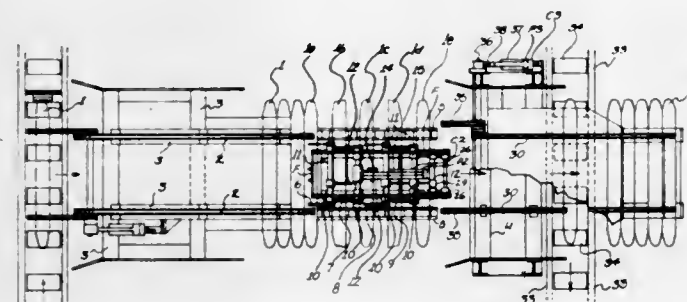
Filed Oct. 20, 1969, Ser. No. 872,438

Claims priority, application Belgium, Oct. 28, 1968, 65303

Int. Cl. B07c 7/00

U.S. Cl. 209—122

10 Claims



An apparatus for manipulating bars so that each face of the bar may be inspected for faults. The apparatus has a con-

veyor to feed a bar to an inspection table which houses angle iron members at each inspection station along the table. The angle irons engage a bar, lift it from the table, rotate it to expose its next face to inspection, and deposit it at the next inspection station. A tray is located at the end of the inspection table for unloading an inspected bar. The last angle iron deposits an inspected bar on the tray. The tray lifts the inspected bar and deposits it either on a conveyor for accepted bars, or on another conveyor for rejected bars. The unloading conveyors about the outlet end of the table. The end segment of one conveyor is mounted to move in upward and downward directions relative to the table. When the inspected bar is to travel along this conveyor, the segment is in its downward position abutting the end of the table, and the tray will deposit the inspected bar on this conveyor. When the inspected bar is to travel along the other conveyor, the segment of the first conveyor is raised upward out of contact with the table to supply clearance for allowing the tray to deposit the inspected bar on the other conveyor.

3,656,618

AIR SIFTER

Hans Jurgen Janich, Alter-Hammweg, Germany, assignor to Polysius AG, Neubeckum, Graf-Galen-Str., Germany

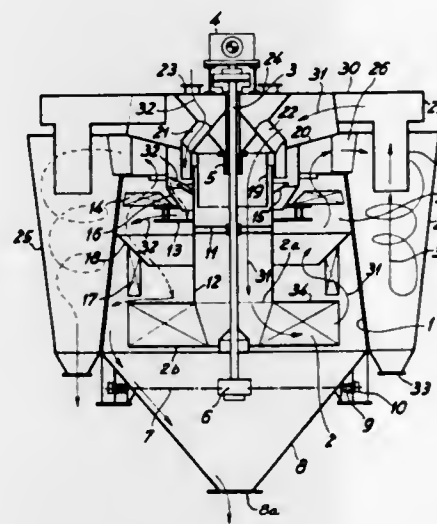
Filed Apr. 16, 1969, Ser. No. 816,558

Claims priority, application Germany, June 19, 1968, P 17 57 819.7

Int. Cl. B07b 7/10

U.S. Cl. 209—139 A

14 Claims



An air sifter is arranged in a sifter housing, and a fan for supplying air to the air sifter is disposed in the bottom of the sifter housing. A plurality of dust separators are arranged in crown fashion around the sifter housing. Each dust separator has an inlet connected to the upper portion of the sifter housing to receive air laden with fines discharged from the sifter housing, and has an outlet connected to supply clean air to the fan.

3,656,619

APPARATUS AND METHOD FOR REMOVING FLOATING POLLUTANTS FROM A BODY OF WATER

Donald J. Ryan, 1826 N. 24th Street; Winston P. Ledet, 1812 N. 24th Street, and James R. Colvin, 1818 N. 24th Street, all of Orange, Tex.

Filed Aug. 3, 1970, Ser. No. 60,287

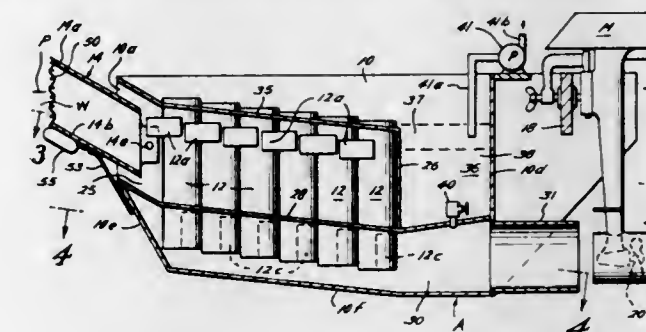
Int. Cl. E02b 15/04

U.S. Cl. 210—83

11 Claims

Apparatus and method for removing floating pollutants such as crude oil from a body of water, wherein separator means is towed, propelled or is otherwise moved through the body of water for directing the floating pollutants with a

minimum of the water through the separating means, whereby the pollutants may be rapidly removed from the



body of water with substantially no mixing and emulsifying of the pollutant with the water.

3,656,620

CONTINUOUS CHIP PROCESSING SYSTEM

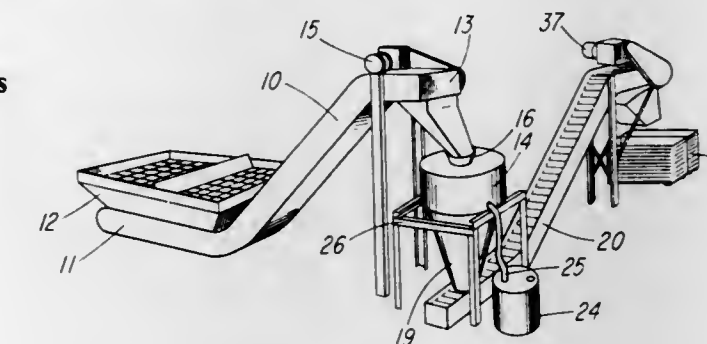
Charles R. Larson, Bellevue, and Robert H. Dudley, Kalamazoo, both of Mich., assignors to Prab Conveyors, Inc., Kalamazoo, Mich.

Filed Feb. 26, 1970, Ser. No. 14,312

Int. Cl. B04b 13/00

U.S. Cl. 210—110

11 Claims



Continuous system for separating a liquid from a liquid-solid admixture comprises a feed conveyor means for transporting the admixture, an electrically-driven centrifugal separator and control means therefor, a discharge conveyor means for receiving and transporting away the separated solids, and a feed conveyor control means responsive to the rotational speed of the separator so that the feed conveyor is operable only when the separator is operating at a predetermined speed.

3,656,621

SINGLE LINE RETURN FILTER

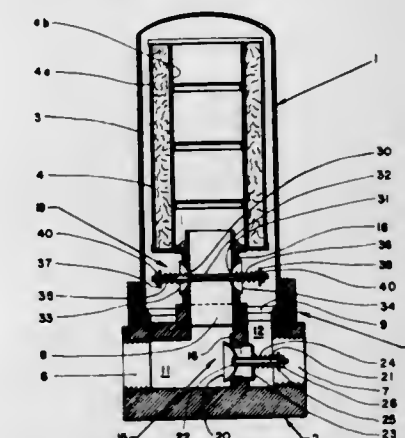
Henry P. Barthe, Pittsburgh, Pa., assignor to Schroeder Brothers Corporation, McKees Rocks, Pa.

Filed Oct. 1, 1970, Ser. No. 77,202

Int. Cl. B01d 27/10

U.S. Cl. 210—133

2 Claims



A single line return filter for insertion in a bidirectional conduit comprising a housing having a filter element

disposed therein. The housing has a reservoir-side port which is connected by a first passage to the discharge side of the filter element. The housing also has a pump-side port which is connected by a second passage to the inlet side of the filter element. A weakly biased check valve permits flow from said first passage to said second passage when there is a slight pressure drop from the discharge side to the inlet side of the filter thereby preventing backflow through the element. The bias is sufficient to close the check valve when the flow through said filter ceases thereby directing flow through the filter when there is a pressure drop from the inlet side to the discharge side of the filter element. A strongly biased check valve assembly permits flow from the second passage to the first passage when the pressure drop from the inlet side of the filter element to the discharge side exceeds a preset safe level.

3,656,622

FILTER PLATE ELEMENT

Franz Heimbach, and Alfons Schotten, both of Dueren, Germany, assignors to Eberhard Hoesch & Sohne, Duren, Germany

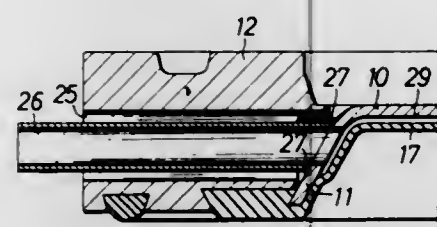
Filed July 6, 1970, Ser. No. 52,193

Claims priority, application Germany, Dec. 4, 1969, P 19 60 821.0

Int. Cl. B01d 25/12

U.S. Cl. 210-231

15 Claims



A filter plate element for use in filter presses has a peripheral frame surrounding an inner free space and having an inwardly directed surface which bounds this space and a pair of axial endfaces. A press diaphragm includes a main portion accommodated in the free space intermediate the endfaces and a circumferential edge portion which bounds the main portion and which overlies a circumferential portion of the surface, extends to one of the endfaces where it is secured by means of a marginal circumferential bead received in a groove provided in this one endface.

3,656,623

LIQUID SEPARATION APPARATUS

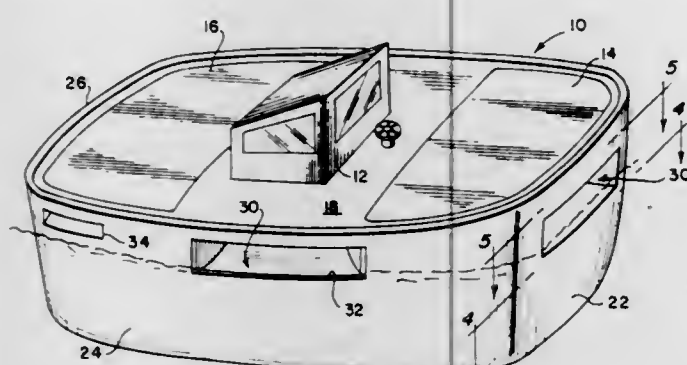
Harold G. Quase, Potomac, Md., assignor to Underwater Storage, Inc., Washington, D.C.

Filed Oct. 16, 1969, Ser. No. 866,931

Int. Cl. B01d 17/02; E02b 15/04

U.S. Cl. 210-242

4 Claims



A partially submergible platform has internal separation tanks, which are provided with screens for removing solid

materials from water. Skimmers remove a relatively light immiscible liquid before returning the water to the body from which it is taken. In one form of the invention, contaminated water is pumped upward into separation tanks, and gravity drains the separated water from the tank and vessel. In another embodiment, contaminated water flows into separation tanks, and purified water is pumped from the tanks, preferably rearwardly, for propelling the craft through the water. Gates form lower edges of intakes, so that the amount of water taken into the boat and the depth of the intake may be controlled.

3,656,624

APPARATUS FOR COLLECTING WASTE FROM THE SURFACE OF A BODY OF WATER

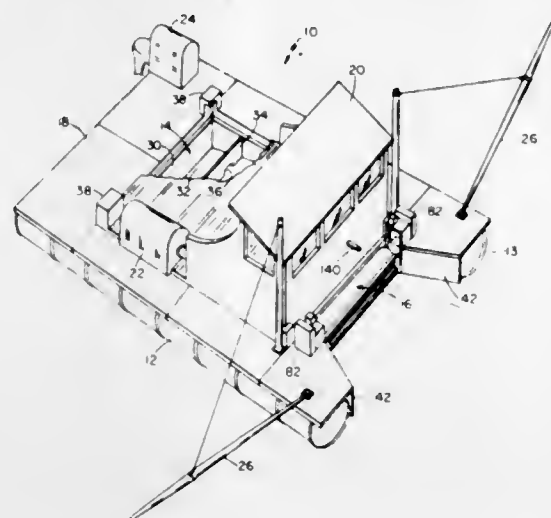
James F. Walton, 129 Front Street, Marblehead, Mass.

Filed Dec. 12, 1969, Ser. No. 884,510

Int. Cl. E02b 15/04

U.S. Cl. 210-242

21 Claims



A waste collecting vessel including an impeller assembly comprising a cylindrical support and a plurality of flexible, circumferentially supported blades extending longitudinally of and radially extending from the support, the diameter of the support being greater than the height of each blade. Preferably, the blades are individually mounted and the vessel includes a lip member for folding the blades when the support is rotated in one direction, a skimmer for engaging the blades when the support is rotated in the other direction, and a system for removing materials from the bottom of a deep well of a waste collection tank and for transporting waste from within the tank to storage tanks within support pontoons.

3,656,625

DRIER

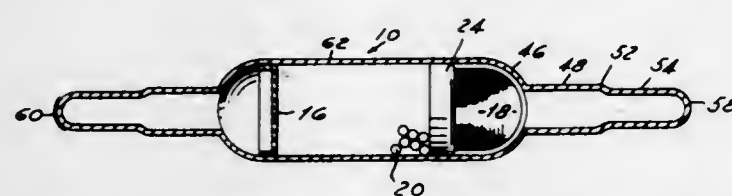
Edward W. Bottum, 9357 Spencer, Brighton, Mich.

Filed Feb. 17, 1971, Ser. No. 116,095

Int. Cl. B01d 27/02, 27/08

U.S. Cl. 210-266

5 Claims



A method of making a drier construction for connection into a refrigeration system is disclosed. The drier construction includes a one-piece body comprising a central cylindrical tubular portion defining a chamber enclosing a desiccant charge with suitable screen and baffle elements. Each end of

the body is spun down from the main body by a mechanical spinning process to form stepped tubular extensions. The end of each extension is spun down to form a substantially fluid-tight end closure.

3,656,626

FILTERING MATERIAL

Nicholas Sama, 4940 Southwest 95th Avenue, Miami, Fla.

Filed Sept. 14, 1970, Ser. No. 72,128

Int. Cl. B01d 23/10

U.S. Cl. 210-282

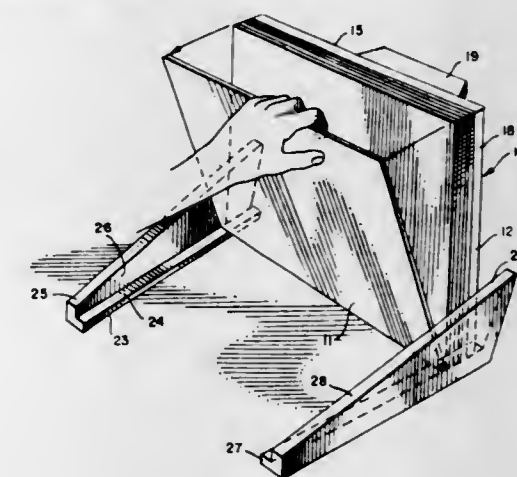
2 Claims

A filtering device for use in spanning relation of the filter flow path of a liquid which includes a container having an upstream and a downstream screen means, and a bed of shredded pieces of open-celled material, such as polyurethane foam, captivated in the container so that the liquid to be filtered is constrained to flow through the bed.

3,656,629
STORAGE RACK
William M. Irion, III, 5605 Lakeside, Lisle, Ill.
Filed Aug. 31, 1970, Ser. No. 68,143
Int. Cl. A47g 29/00

U.S. Cl. 211-40

4 Claims



A rack for supporting and storing generally rectangular objects such as record jackets, boxes for audio tapes, and the like. The rack includes a generally rectangular base for supporting the cartons in a generally flat position, and a pair of elongated legs or braces extending angularly upwardly from a pair of corners of the base. The legs are generally L-shaped in transverse cross section, providing side and end walls for confining the cartons on the base. The rack may be tilted to bring the legs into a generally horizontal position in which the cartons are supported on end primarily by the end walls, and in this position the cartons can be rotated downwardly individually to permit inspection and selection of each carton.

3,656,627

COMPOSITE FILTER ASSEMBLY

Southwick W. Briggs, Chevy Chase, Md., assignor to William Brazzerol, Washington, D.C., a part interest

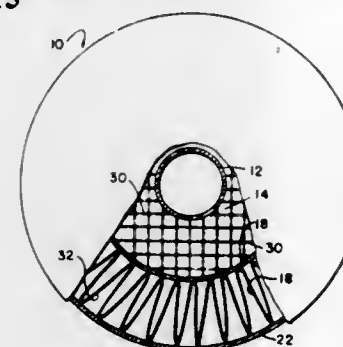
Continuation of application Ser. No. 780,303, Oct. 14, 1968, now abandoned, Continuation-in-part of application Ser. No. 653,712, June 17, 1967, now abandoned. This application

May 27, 1970, Ser. No. 41,718. The portion of the term of this patent subsequent to Feb. 16, 1988, has been disclaimed.

Int. Cl. B01d 25/18

U.S. Cl. 210-315

10 Claims



A radial flow filter having fixed end caps, a first filter comprising a stack of annular disks having their outer edges secured in fixed position are disposed between the end caps, and a second filter composed of pleated paper is disposed concentrically around the disks, or alternatively is disposed within the disks.

3,656,628

MANIFOLD LIPSTICK HOLDER

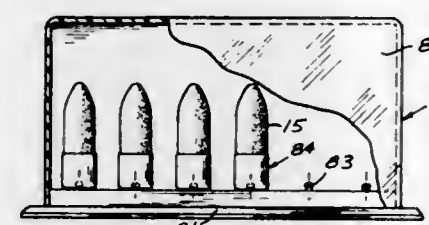
Murray Dulberg, New York, N.Y.

Original application Aug. 6, 1968, Ser. No. 750,695, which is a continuation-in-part of application Ser. No. 599,461, Dec. 6, 1966, now abandoned. Divided and this application May 15, 1970, Ser. No. 37,586

Int. Cl. A47f 7/00

U.S. Cl. 211-13

1 Claim

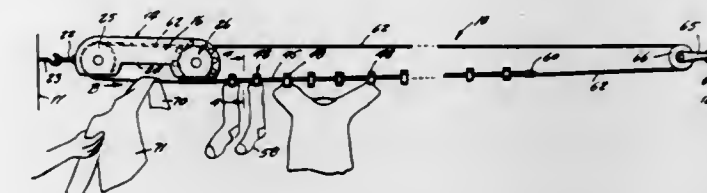


A holder for multiple lipstick refills individually exchangeable with a lipstick similarly retained in a refillable retractable lipstick holder.

3,656,630
CLOTHES LINE AND CLOTHES PIN ASSEMBLY
Robert Miguel, 364 60th Street, Brooklyn, N.Y.
Filed Jan. 2, 1970, Ser. No. 195
Int. Cl. D06f 53/00

U.S. Cl. 211-119.11

4 Claims



A combined clothes line and clothes pin assembly embodying an endless clothes line suspended from two pulleys, one pulley being secured to one support and the other pulley being carried in a pulley block suspended from another support opposite to said one support. Mounted within the pulley block is a combined pulley and reel unit rotatable on a common axis, the upper run of the clothes line being wrapped around counter-clockwise on the pulley of the pulley and reel unit and the lower run extending freely from the pulley in the pulley block to the other pulley secured to said one support. Within the pulley block, the pulley and the pulley of the combined pulley and reel unit rotate on parallel axis transverse to the longitudinal extent of the pulley block. Wound counter-clockwise on the reel is a reel line having one end secured to the reel and the other end to a selected point on the lower run of the clothes line. Secured to the reel line in selected spaced relation are clothes pins or clips each having opposed resilient arms for gripping an article of apparel, etc. The reel line with its clips is unwound as the clothes line is

moved in a direction towards the pulley carrying one end of the same remote from the pulley block, the articles of apparel being hung on the clothes line in a zone beneath the pulley block such that the unwinding reel line will successively present clothes clips that will grip desired parts of the articles of apparel, etc. to be carried by the lower run of the clothes line.

3,656,631

SELF-LIFTING CRANE

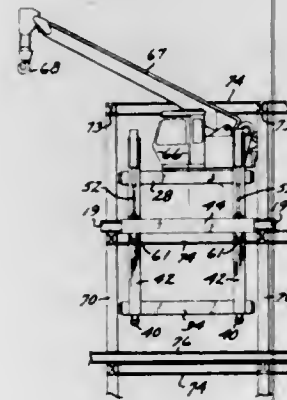
Gerald B. Rauch, Cypress, and Wade Bridges, Torrance, both of Calif., assignors to Hydro Tower Co.

Filed Mar. 25, 1970, Ser. No. 22,590

Int. Cl. B66c 23/06

U.S. Cl. 212-57

10 Claims



A self-lifting crane adapted to raise or lower itself to different levels of any building or horizontal structural members of the building said crane including a frame having four lower outriggers and four upper outriggers which can be retracted and extended by hydraulic cylinders to selectively support the crane on horizontal structural members of a building and four lift outriggers which can be retracted and extended by hydraulic cylinders to selectively support the crane on horizontal structural members of a building; said lift outriggers being mounted in a support structure which can be moved up or down by hydraulic jacks to raise or lower the crane through the use of four positive displacement pumps; said crane including in its hydraulic system trim valving to supply to any one or more of said hydraulic jacks additional fluid to maintain the level of the crane.

3,656,632

HYDROPNEUMATIC ABSORBING DEVICE FOR RAILWAY ROLLING STOCK

Zaven Oganezovich Karakashian, ulitsa Dobroljubova, 18, kv. 46, Moscow; Vsevolod Arutjunovich Lazarian, universitetskaya ulitsa, 3, kv. 9, Dnepropetrovsk; Boris Vasilievich Azarov, ulitsa Schorsa, 13, kv. 1, Kaliningrad; Mikhail Mikhailovich Bolotin, Pogonny proezd, 7, kv. 2, Moscow; Vladimir Yakovlevich Pershin, 1 Paveletsky proezd, 1/42, korpus 1, kv. 11, Moscow; Albert Isidorovich Timoshuk, B. Pirogovskaya ulitsa, 53/55, kv. 114, Moscow; Anatoly Alexandrovich Dragonenko, B. Cherkizovskaya ulitsa, 10, korpus 3, kv. 51, Moscow; Illa Yakovlevich Zarakhovich, oblastnoi, ulitsa Neftyanaya, 13, and Mikhail Vasilievich Svdirov, oblastnoi, 2-oi Oktyabrsky pereulok, 10, kv. 6, both of Kaliningrad, all of U.S.S.R.

Filed Apr. 13, 1970, Ser. No. 27,796

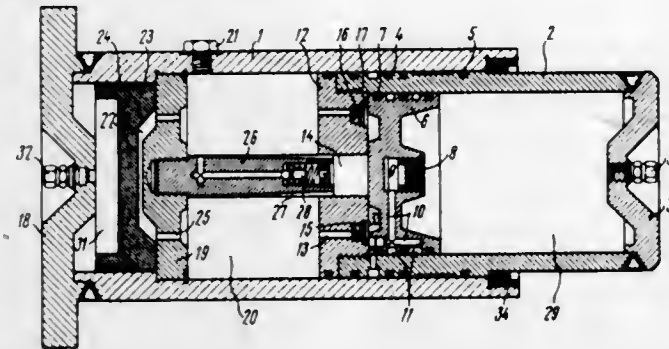
Int. Cl. B61g 9/16, 11/12

U.S. Cl. 213-43

3 Claims

A hydropneumatic absorbing device used in a railway rolling stock, comprising a cylinder having a movable cylinder mounted at the open end thereof and accommodating a floating piston and connected with a piston provided with through openings. Secured near the bottom of the cylinder is a partition forming together with the piston a space to be filled with working liquid, and together with the

bottom of the cylinder — an additional chamber accommodating an additional piston. The partition is provided with through openings through which the working liquid is supplied into the additional chamber and displaces the additional piston.



tional piston. The spaces adjacent to the bottoms of the two cylinders are filled with compressed gas and the pressure in one of the spaces is several times greater than the pressure in the other space.

3,656,633

SHOCK ABSORBER

Fritz Ostwald, Buchschlag, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

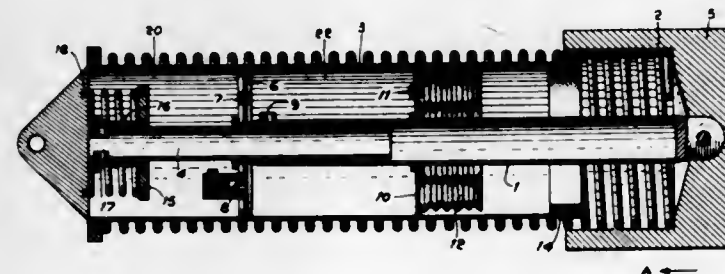
Filed Apr. 20, 1970, Ser. No. 30,055

Claims priority, application Germany, Apr. 29, 1969, P 19 21 897.4

Int. Cl. B61g 9/16, 11/12

U.S. Cl. 213-43

11 Claims



A hydraulic shock absorber for railroad cars having a first cylindrical member having a closed end and an opened end; a second cylindrical movable member disposed adjacent the opened end of the first member, surrounding the first member, longitudinally movable with respect to the first member and connected to a movable load; a third tubular member disposed within and coaxial of the first member and secured to the closed end of the first member and disposed within and coaxial of the first member extending into and in a slidable non-sealed association with the third member. First and second piston discs are disposed transverse of the first member in a predetermined manner to form a first hydraulic medium chamber between the first and second discs, the interior of the first member and the exterior of the third member and a second hydraulic medium chamber between the second disc, the closed end of the first member, the interior of the first member and the exterior of the fourth member. The non-sealed association of the third and fourth members provide a hydraulic medium communication between the second chamber and the interior of both the third and fourth members. An arrangement is disposed in the second disc for hydraulic communication between the first and second chambers. At least one passageway is provided extending transversely from the interior of the fourth member to the second chamber. A control sleeve carrying thereon an inert mass slidably engages the fourth member adjacent the closed end of the first member and the one

passageway and is responsive to deceleration of the load. This latter arrangement closes the one passageway when the deceleration is less than the given amount and opens the one passageway when the deceleration is greater than the given amount to reduce the damping of the shock absorber.

3,656,634

BRICK HANDLING AND STACKING MACHINE

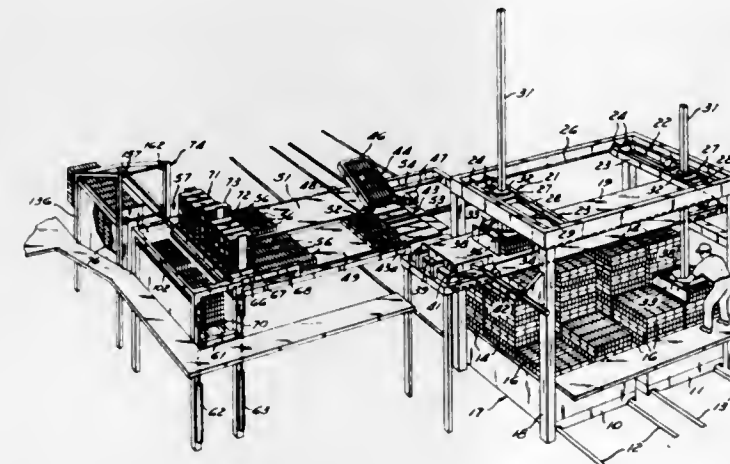
Frank S. Pearne, San Gabriel, and Florentin J. Pearne, Whittier, both of Calif., assignors to Aircraft Mechanics, Inc., Los Angeles, Calif.

Filed Dec. 4, 1970, Ser. No. 95,157

Int. Cl. B65g 57/26

U.S. Cl. 214-6 A

16 Claims



A machine for handling bricks or the like is disclosed. The machine functions to grip grids including a plurality of spaced and parallel double lines of brick located within stacks on a kiln car and to position such grids on first conveyor means. These conveyor means deliver the grids to a spreader which spreads the grids into double rows with one brick resting upon another. An inverter transfer grips the upper rows and transfers them in their spread condition to a laterally spaced location. The separated or spread rows are then delivered by second conveyor means to a stacker which operates to simultaneously form a stack on a stacking elevator corresponding to each row. The stacks are then moved out of the stacker for subsequent processing leaving the stacker free for subsequent stacking. Each subassembly simultaneously handles a number of brick substantially equal to the number of brick in a grid thereby providing high machine outputs with relatively slow subassembly cyclic rates.

3,656,635

UNSTACKING AND SORTING OF BRICKS

Karl Schafer, and Dieter Keck, both of Laggenback/Westphalia, Germany, assignors to C. Keller U. Co., Laggenback/Westphalia, Germany

Filed Nov. 17, 1970, Ser. No. 90,336

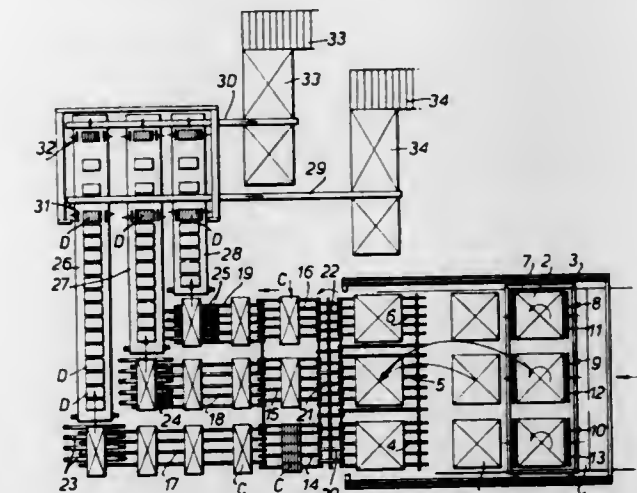
Claims priority, application Germany, June 29, 1970, P 20 31 996.4

Int. Cl. B65g 59/02

U.S. Cl. 214-8.5 C

8 Claims

Apparatus for unstacking and sorting bricks which have been fired to various tones comprises grippers which remove layers of bricks from a number of stacks and deposit the bricks on first conveyors. The first conveyors feed the bricks to devices which align transverse rows of bricks and turn the bricks over. The bricks are then fed by second conveyors and thence by third conveyors extending transversely to the



which feeds the groups of bricks to a respective packing station.

3,656,636

SYSTEM AND APPARATUS FOR AUTOMATICALLY COLLECTING, SORTING AND DISTRIBUTING ARTICLES FROM ONE OR MORE LOCATIONS TO ONE OR MORE LOCATIONS

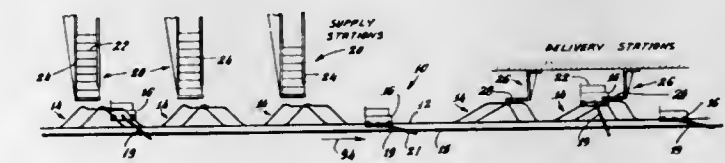
William N. Konstantin, Norwalk, Conn., assignor to Product Design Corporation, Norwalk, Conn.

Filed Nov. 24, 1969, Ser. No. 870,564

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 F

16 Claims



System and apparatus for automatically collecting, sorting and distributing articles from one or more locations to one or more locations are described wherein a conveyor system gathers selected articles located at supply stations and automatically transports these articles to delivery stations. The conveyor system incorporates main and side tracks with continuously driven carriers moving along the tracks. Article supply and delivery stations are associated with respective side tracks and the carriers are selectively routed onto the side tracks with system-controlled track switches, the data for controlling the switches is advantageously shown as being transmitted by the respective carriers themselves. A drive mechanism in the form of a continuous chain is coupled to the carriers by means of a drive link which is pivotally coupled from the drive chain to the carriers with the orientation of the link relative to the drive chain being controlled for speed control of the carriers at the respective article handling stations. Meshing engagement of article carriers with the article supply and delivery stations assures a rapid article handling system. Various system configurations are disclosed.

3,656,637

INVALID CAR LIFT

Ray E. Lynn, 5172 Acacia, San Bernardino, Calif., and Dwane P. Simmons, 7465 Olive Tree Lane, Highland, Calif.

Filed June 30, 1970, Ser. No. 51,115

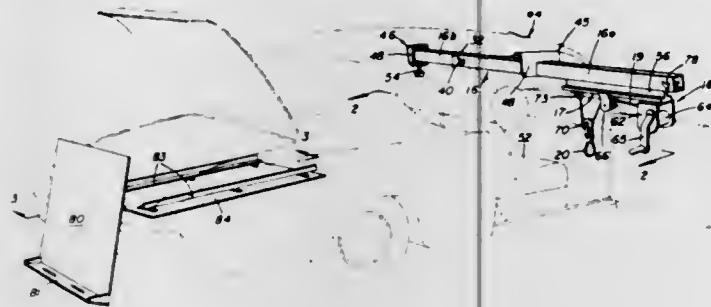
Int. Cl. B60p 1/02

U.S. Cl. 214-75 H

4 Claims

Apparatus to enable wheel-chair invalids to be transferred into and out of an automobile, comprising an overhead track

reaching all the way through the open door and opposite window to hook onto the rain gutter on both sides, and a wheeled carriage that rides on the track. The carriage has a winch and wire rope tackle that hooks onto a canvas sling in which the invalid sits. Cranking the winch raises the sling clear of the wheel chair, and the carriage is pushed inwardly along the track until the invalid is over the desired seat location. The sling is then lowered, and is disconnected from the



tackle. The track is removed and divides into sections that fit into the car trunk. The folded-up wheel chair is placed on a pallet having wheels at its front end which run on tracks in the trunk. Hooks on the underside of the pallet engage limit stops mounted on the rear bumper, to limit rearward movement of the pallet, and these cooperate with pallet-supporting wheels on the bumper to serve as pivots to lower the rear end of the pallet to the ground.

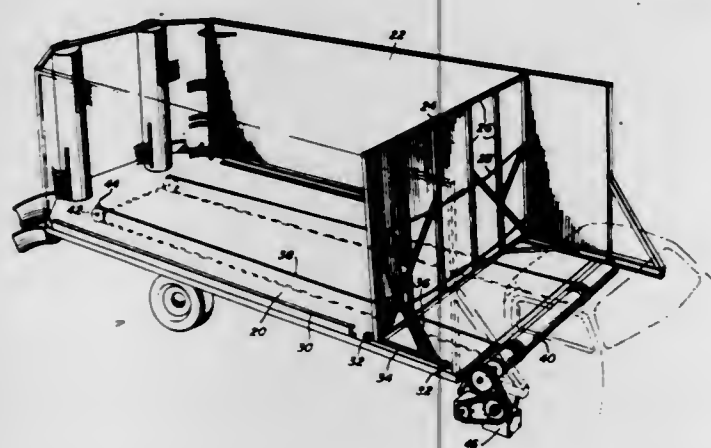
3,656,638

HAY DISTRIBUTOR

Duane A. Hutton, and Wallace Hutton, both of Baker, Oreg., assignors to John L. Jacobson, Baker, Oreg., a part interest
Filed Mar. 26, 1970, Ser. No. 22,849
Int. Cl. E01c 19/20

U.S. Cl. 214-83.14

12 Claims



A machine for feeding loose hay to livestock in parallel rows. The machine includes a mobile truck bed having a powered rearwardly moving push gate and a pair of hay distributing cylinders mounted on the rear of the bed for engaging and outwardly feeding the hay. The cylinders mount feeding fingers which grip and move the hay. Strippers are provided for cleaning the feeding fingers and spring-loaded holding fingers are utilized laterally of each cylinder so as to assist in an even distribution of the hay.

3,656,639

BOAT TRAILER WITH LAUNCHING AND LOADING DEVICE

Julius Lothen, 1600 Elliot Avenue South, Minneapolis, Minn.
Filed May 14, 1970, Ser. No. 37,153

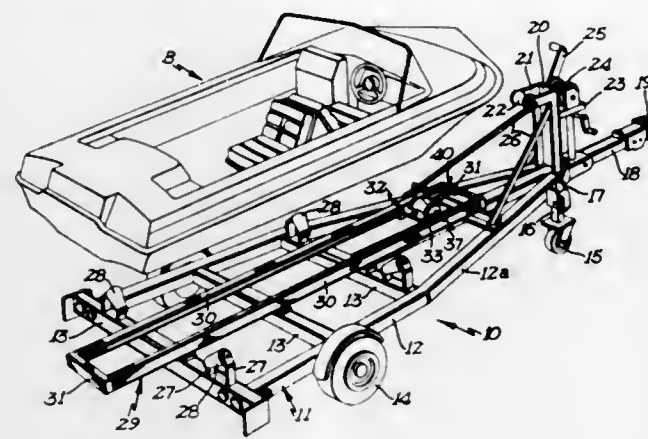
Int. Cl. B60p 3/10

U.S. Cl. 214-84

5 Claims

A conventional boat trailer comprising a chassis, ground engaging wheels, winch, and stationary revolvable tapered

support rollers is provided with a boat launching and loading device. The boat launching and loading device includes a pair of narrow parallel elongate tracks affixed to the chassis of the trailer and extending from the front end portion



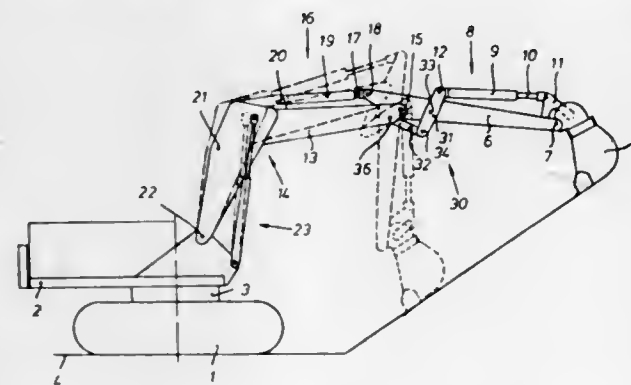
3,656,640

BUCKET MOUNTING FOR TRENCH HOE

Friedrich Schwing, Rathausstr. 126, Wanne-Eickel, Germany
Original application Apr. 17, 1969, Ser. No. 817,062, now Patent No. 3,586,182. Divided and this application Nov. 12, 1970, Ser. No. 88,664
Int. Cl. E02f 3/32

U.S. Cl. 214-138 R

3 Claims



A trench hoe which, when in operation, maintains the digging bucket at a given digging angle. The digging bucket is constructed as a ditcher and the dimension of the trapezoid control system consisting of the bucket, the dipper arm, the front thrust piston drive, and the link means between the front thrust piston drive and the dipper arm, in relation to the dimensions of the outrigger arm is such that the dipper arm in operation at the desired angle of slope or gradient is guided approximately parallel within a predetermined range of angles of slope or gradients.

3,656,641

METHOD FOR UNIFORMLY DISTRIBUTING BULK MATERIAL TAKEN FROM A STOCKPILE

Lambert Smits, Langenberg, Germany, assignor to Westfalia Dinnendahl Groppel Aktiengesellschaft, Bochum, Germany
Filed Oct. 28, 1970, Ser. No. 84,567

Claims priority, application Germany, Oct. 28, 1969, P 19 54 105.0

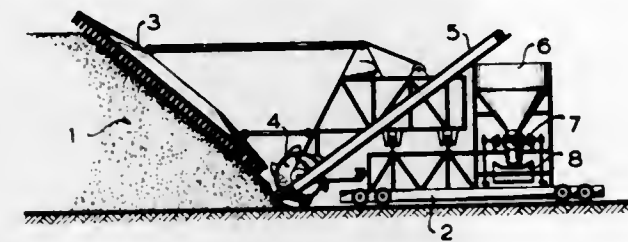
Int. Cl. B65g 65/28

U.S. Cl. 214-152

2 Claims

Method of uniformly distributing bulk material reclaimed from an elongated stockpile includes clearing bulk material

from a section of the stockpile and raising the bulk material with a single clearing device capable of traveling transversely to the stockpile and mounted on a bridge movable in longitudinal direction of the stockpile, delivering the material raised by the clearing device to a bin extending substantially over the width of the stockpile and depositing in the bin, respectively, the material corresponding to the cleared section of the stockpile, and discharging the material at adjusted flow



rates from the bin through a plurality of discharge devices located at the bottom and extending along the length of the bin, so as to deposit the quantities of the bulk material corresponding to the respective cleared sections of the stockpile at rates commensurate with their respective volumes on a common discharge belt underlying the plurality of discharge devices; and apparatus for carrying out the foregoing method.

3,656,642

BALANCED TRACK-TYPE LOADER CONSTRUCTION

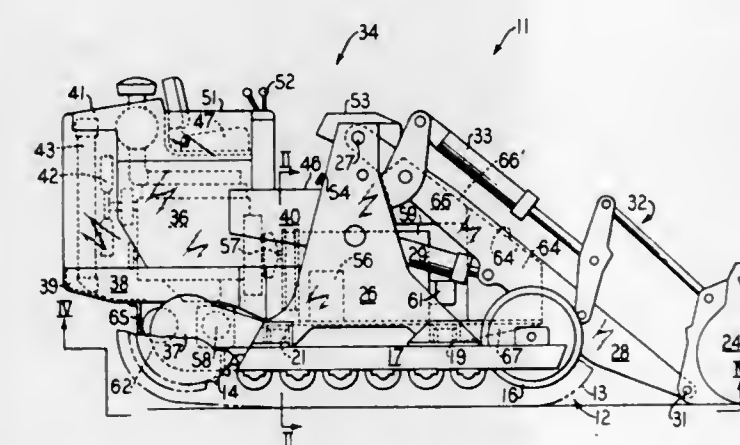
James M. Kostas, Peoria; William B. Norick, Joliet, and Raymond R. Laughlin, Peoria, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 14, 1969, Ser. No. 850,171

Int. Cl. E02f 3/76

U.S. Cl. 214-140

6 Claims



A rigid frame riding on tracks carries forwardly directly lift arms pivoted to towers at the central portion of the vehicle. The engine is disposed over the rear track sprocket axis and is spaced rearwardly from the lift arms providing for an operator's compartment which is between the engine and the arms and which overlaps the front of the engine. Fuel and hydraulic tanks are shaped to conform with the region below the lift arms when the arms are in the lowered position. The construction provides a weight distribution facilitating load handling and provides an operator station combining good visibility, easy access and safety.

3,656,643

MATERIAL HANDLING APPARATUS

George Keneson, 7156 Broadway, Ross Township, Lake County, Ind., and Marion D. Lewis, R.R. 1, Kluver Road, New Buffalo Township, Berrien County, Mich.

Filed Aug. 11, 1970, Ser. No. 62,933

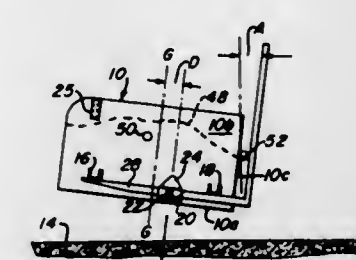
Int. Cl. B65d 47/00

U.S. Cl. 214-315

25 Claims

Material handling apparatus is disclosed for receiving, transporting and dumping a material.

The material handling apparatus has a dump type box having a bottom portion, opposed side portions and a back portion defining a load carrying cavity. The dump type box also has a front fork engaging member on one portion of a side



portion and said bottom portion, a rear fork engaging member on the one portion and spaced from the front fork engaging member, and a fork engaging stirrup member on the one portion, disposed between the front fork engaging member and the rear fork engaging member and pivotable on the one portion. A lifting fork device is reciprocable in a vertical plane with respect to the supporting surface and has a tine.

The tine is insertable through the fork engaging stirrup member while the dump type box is in the rest position and into registry with the front fork engaging member and the rear fork engaging member so that the tine engages the front fork engaging member and the rear fork engaging member when the tines moves the dump type box away from the rest position into a box transporting position to permit filling of the load carrying cavity with a material. The tine then is operable to return the filled dump type box to the rest position to permit the tine to clear the front fork engaging member, while the filled dump type box is in the rest position. The tine then is operable to move the filled dump type box away from the rest position so that the filled dump type box rotates about the fork engaging stirrup member into a dumping position thereby emptying the filled load carrying cavity.

3,656,644

AGRICULTURAL AND OTHER VEHICLES

Ernst Wagenblast, Singen, and Helmut Hohlwegler, Gottmadingen, both of Germany, assignors to Maschinenfabrik Fahr Aktiengesellschaft, Gottmadingen, Germany

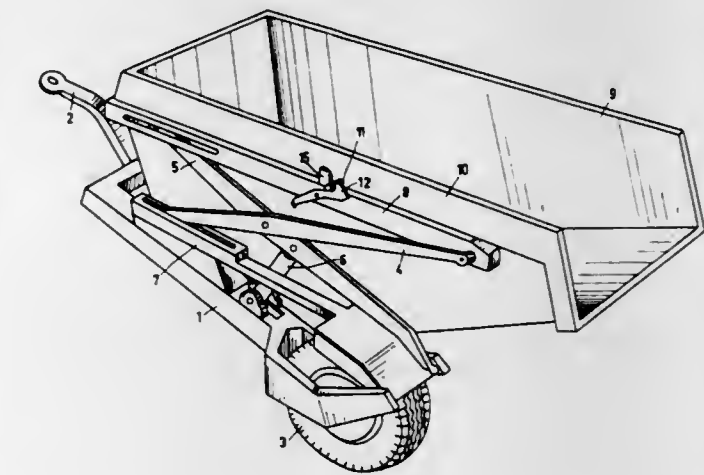
Filed Jan. 28, 1970, Ser. No. 6,458

Claims priority, application Germany, Feb. 5, 1969, P 19 05 665.6

Int. Cl. B60p 1/64

U.S. Cl. 214-390

8 Claims



A vehicle for transporting containers has a bifurcate frame with a pair of parallel, generally horizontal bars as its prongs,

these bars being articulated to hydraulically operable scissor linkages by which they may be raised and lowered together with a container overhanging the bars by its rim. Either or each bar carries a pivoted latch to hook onto a lateral projection on the container when the beams are elevated by the extended linkages, a collapse of the linkages to lower the beams causing one of the links thereof to retract the latch into an inoperative position, thereby releasing the container.

3,656,645

SAFETY CLOSURE CAP

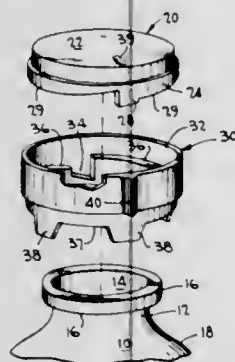
John L. Fontenelli, North Plainfield, N.J., assignor to Diamond International Corporation, New York, N.Y.

Filed Sept. 29, 1970, Ser. No. 76,390

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

9 Claims



A closure cap is snap-fitted over the neck of a container. A locking member rotatable and axially movable on the neck beneath the cap has depending spring fingers which abut against the container shoulder and urge the locking member into operative engagement with the cap. Axial projections on the cap and the locking member are interlocked to prevent relative rotation of the members, and a guard ring projecting upwardly from the locking member encircles and bars access to the lower edge of the cap skirt. Manual downward displacement of the locking member against the resilient thrust of the spring fingers disengages the interlocked projections and permit relative rotation between the members so that cooperating cam surfaces on their projections may engage and force the closure cap member axially from the container neck.

3,656,646

SAFETY CLOSURE FOR A CONTAINER

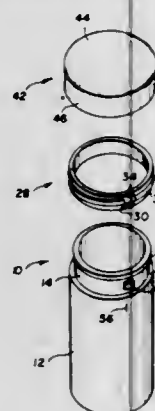
Clarence R. Taylor, Penfield, N.Y.

Continuation-in-part of application Ser. No. 797,968, Feb. 10, 1969, now abandoned, which is a continuation-in-part of Ser. No. 884,204, Dec. 11, 1969. This application June 24, 1970, Ser. No. 49,268

Int. Cl. B65d 55/02; A61j 1/00

U.S. Cl. 215-9

14 Claims



A safety closure for a container comprising a split ring mounted on a neck of the container and having at least one lock or detent between the ring and neck. When a cap is screwed on the container in a cap-tightening direction to form a container safety closure, the lock prevents rotation of

the ring in only the cap-tightening direction, and when the cap is moved to a tightened position, it cannot be removed from the container upon normal movement in a cap-removing direction. To remove or unscrew the cap from the container, it is necessary in at least one embodiment to deform the ring in response to movement of the cap on the container in one direction, and then to move the cap in a different direction to unscrew it from the container.

3,656,647

SAFETY CONTAINER

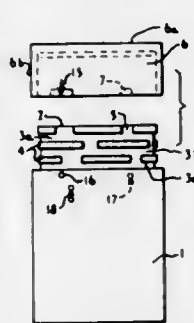
Moyle A. Swinn, 1170 Ramsey View Court, Apt. 705, Sudbury, Ontario, Canada

Filed July 20, 1970, Ser. No. 56,623

Int. Cl. A61j 1/00; B65d 55/02

U.S. Cl. 215-9

5 Claims



A safety bottle with a so-called "child-proof" closure that can be removed only by a series of alternating rotative and longitudinal movements similar to that employed in locks on safes or vaults, the closure being allowed to rotate freely for the full circumference but being movable longitudinally from one rotatable position to the successive one at only specific predetermined rotative locations.

3,656,648

COMPOSITE CLOSURE

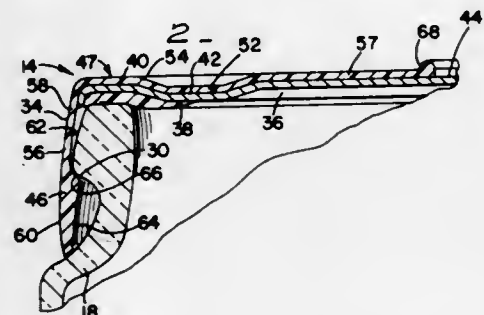
Joseph C. Powalowski, Chicago, and James E. Westfall, Western Springs, both of Ill., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Apr. 24, 1970, Ser. No. 31,650

Int. Cl. B65d 43/02

U.S. Cl. 215-46 R

3 Claims



A composite closure consisting of a flexible plastic fitment and a gasketed rigid metal closure panel. The metal closure panel is retained within the fitment by a circumferential shoulder. A lifting ring in the top of the flexible plastic fitment is joined to marginal portions of the fitment panel by breakable bridging portions and by a substantially unbreakable integral hinge portion attached directly to a portion of the skirt. Once the breakable bridging portions are broken, the semidetached ring serves to alert shoppers that the closure has been previously tampered with or removed. The exterior face of the downwardly extending skirt of the plastic fitment is substantially straight, and extends to tight abutment with a shoulder on the container making it difficult to pry the fitment off the container with an ordinary knife blade.

In a preferred embodiment, the ring and peripheral portion of the flexible plastic fitment have a cooperative relationship

with a recess in the metal closure panel to form a stacking ring to assist in the stabilization of stacked containers.

3,656,649

DELICATE INSTRUMENT SHIPPING CRATE

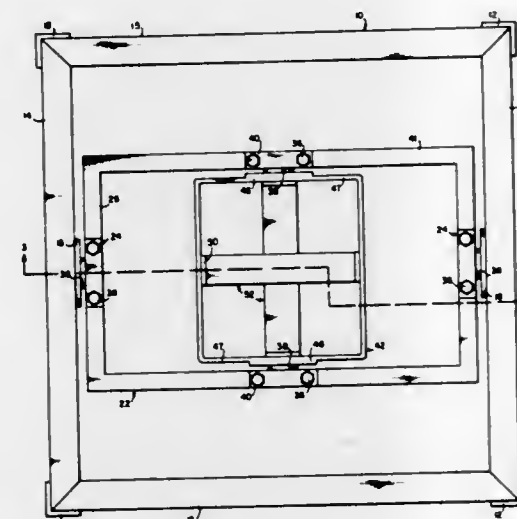
Louis N. Martin, Route 1, P.O. Box 406B, Brandywine, Md.

Filed July 20, 1970, Ser. No. 56,523

Int. Cl. B65d 25/12, 85/30

U.S. Cl. 217-52

4 Claims



A shipping crate for delicate instruments including a wooden crate inside of which a frame is gimbal mounted. The delicate instrument is strapped to the frame with its center of gravity disposed below the frame plane. The gimbal mounting of the frame maintains the instrument case in a generally vertical attitude regardless of the orientation of the crate during transit, and shocks delivered to the crate are converted to kinetic energy by the swinging of the case in the gimbal mount thereby mitigating the shock and protecting the delicate instrument.

3,656,650

COMPARTMENTALIZED CONTAINER

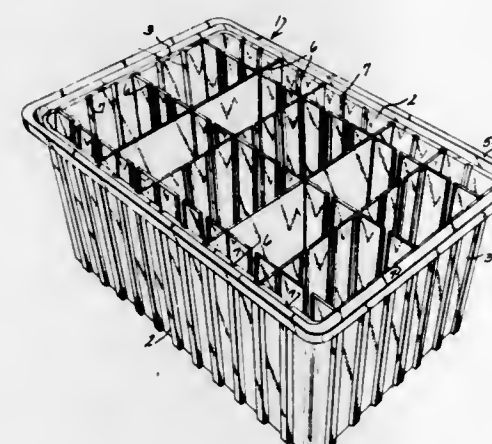
Allen H. Frater, Nashotah, Wis., assignor to Container Development Corp., Watertown, Wis.

Filed June 11, 1970, Ser. No. 45,279

Int. Cl. B65d 25/06

U.S. Cl. 220-22.3

8 Claims



A compartmentalized container having a series of interlocking and removable partitions to divide the container into a series of compartments. The vertical side edges of each partition fit into grooves in the walls of the container and one horizontal edge of each partition is provided with a series of slots that extend approximately one-half of the height of the partition, and the portions of the partition extending from the end of each slot to the opposite horizontal edge define connecting portions. Each partition is interlocked with at least

one normally arranged partition in a manner such that the connecting portions of each partition are received within the slots of the other partition. To provide increased rigidity a pair of ribs are located on each side of the slot and also border each connecting portion.

3,656,651

DRAWER DIVIDER

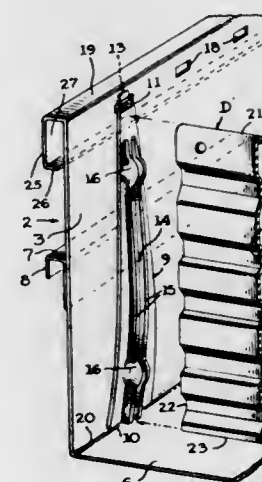
Carl H. Hage, Youngstown, Ohio, assignor to The General Fireproofing Company, Youngstown, Ohio

Filed June 1, 1970, Ser. No. 42,146

Int. Cl. B42f 17/12

U.S. Cl. 220-22.3

11 Claims



A drawer divider arrangement includes a mounting element having an arcuate body and provided with a single tab freely insertable within an opening in a drawer wall. Channel means on the mounting element permits the insertion of a divider which deflects the arcuate body to provide a biasing action.

3,656,652

PULL TAB

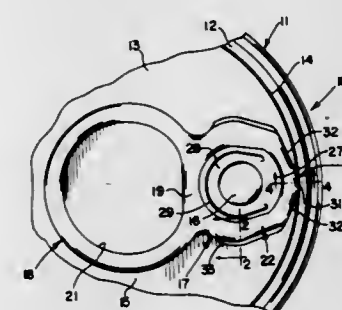
Nick S. Khoury, Worth, Ill., assignor to Continental Can Company, Inc., New York, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,568

Int. Cl. B65d 17/24

U.S. Cl. 220-54

1 Claim



A pull tab for an easy opening container. The pull tab includes a finger grip portion and a forward portion having a nose for penetrating a score line defining a removable panel portion. The forward portion is formed with a rib including an outer peripheral depending flange. The depending flange terminates in an outwardly extending lip which serves to increase the resistance against bending.

3,656,653

RETAINER FOR CAN CLOSURE

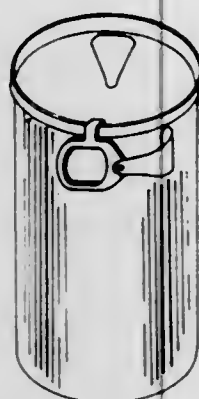
Herbert Arthur Bly, P.O. Box 57, North Brunswick, N.J.

Filed Oct. 20, 1969, Ser. No. 867,555

Int. Cl. B65d 17/24

U.S. Cl. 220-54

1 Claim



A retainer consisting of a clip or spring clip made of metal, plastic, or other material, specially shaped so that it may be readily affixed to rim of metal beverage cans for the purpose of attaching to the can and thereby conveniently disposing of the ring-and-tear-strip closure and opening device commonly used on such cans. Said clip, in the preferred embodiment, may be an integral part of the opening ring, so that the clip, ring, and tear-strip may be affixed to the can by manually pressing the clip over the rim of the can; or in an alternate configuration, may be separate from the ring and permanently attached to the rim or other part of the can, so that the opening ring and tear-strip may be affixed to the can by sliding the ring under the free end of the spring clip. As an adjunct to either form of my invention, or alone, a pouch or shield of flexible or rigid material, may be affixed to the can to cover or contain the ring-and-tear-strip.

3,656,654

CONTAINER AND DRINKING TUBE

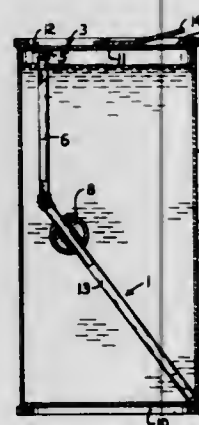
William J. Brinkley, III, 106 East Eastport Street, Iuka, Mich.

Filed June 25, 1970, Ser. No. 49,593

Int. Cl. A47g 19/22

U.S. Cl. 220-90.2

8 Claims



In combination, a beverage container and drinking tube and means to present the tube for use upon opening the container wherein a drinking tube for use with a beverage container having a tear-out strip in the lid thereof is an elongate tubular member having a length at least equal to an interior diagonal dimension of the container and an upper end por-

tion thereof engaged by a positioning member mounted on the tear-out strip which guides the upper end portion through an opening in the lid formed by removal of the tear-out strip. A float member is mounted on the tubular member for raising the upper end thereof through the opening in the lid formed by removing the tear-out strip.

3,656,655

DEVICE FOR FEEDING AN EXPLOSION GENERATOR WITH EXPLOSIVE CHARGES

Pierre Magneville, Vernouillet, and Claude Duconge, Le Vesinet, both of France, assignors to Institut Français Du Pétrole, Des Carburants Et Lubrifiants, Ruell Malmaison (Hauts de Seine), France

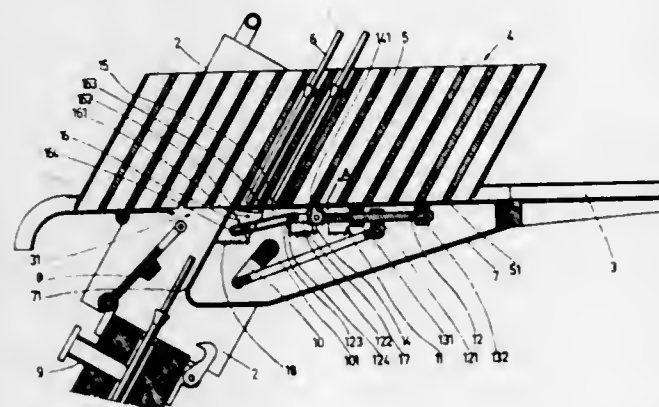
Filed Oct. 9, 1970, Ser. No. 79,450

Claims priority, application France, Oct. 10, 1969, 6934910

Int. Cl. B65g 47/06

U.S. Cl. 221-82

7 Claims



Device for feeding explosive cartridges to a charging tube of an explosion generator wherein said cartridges are stored, each in a compartment of a magazine displaceable along a slideway so that successively each compartment registers with a hole in the slideway in line with the opening of the charging tube and comprising a reciprocating shaft actuated through a crank and a connecting rod and solid with a catch adapted to come into engagement with recesses provided at the base of the magazine, a rocking lever with pawls adapted to block the magazine by engagement with a recess thereof and a connecting rod with a longitudinal slot connecting said rocking lever to said shaft only towards the end of the backward stroke of the latter.

3,656,656

CYLINDER POSITIONER

Richard Joseph Malero, Yonkers, N.Y., assignor to Ventech Automation Company, Inc., Garnerville, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,326

Int. Cl. B23q 7/12

U.S. Cl. 221-173

10 Claims

A high speed positioner for cylindrically or conical-shaped objects; such as pen caps, barrels, lip stick shells, flashlights or ammunition shells, which will orient and feed the elements supplied from a hopper, with one of the ends of the elements being pointed in a selected direction. A sensing device is provided on the feed bar to select one of the ends of the elements to be pointed downwardly in advance of the other end of the element into an orienting chamber for delivery to a vertically extending discharge chute. Other sensing devices and micro switches are provided in the positioner to control the operation of solenoid-operated air cylinder devices and air injectors used in positioning the work cylinder elements. The passing of the cylinder elements through the orienting chamber and the delivery tube can be observed through a transparent door closed thereover. A safety door at the bottom of the vertical chute is automatically opened to prevent a jamming of the cylinder elements at the lower end of the delivery chute, and by which access can be had to the chute,

and by which a faulty element can be removed prior to being ejected from the lower end of the chute onto a pin or

smaller in diameter than the bottom orifice located in the dip-tube at points corresponding to the levels at which from about 10-90 percent volume of the full charge of liquid is present in the pressure container. The apparatus is particularly suited for removing non-azeotropic refrigerant mixtures from pressurized containers in which such mixtures are stored and dispensed.



3,656,657

APPARATUS FOR DISPENSING FLUID MIXTURES IN UNIFORM PROPORTIONS FROM PRESSURE CONTAINERS

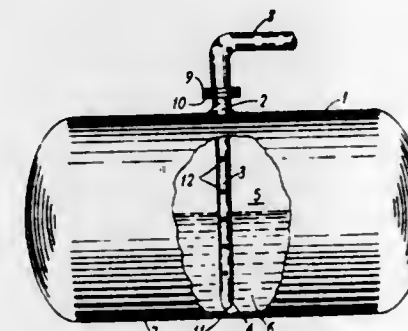
Burton F. B. Smith, Madison, and John M. Slegmund, Morris Plains, both of N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed June 17, 1969, Ser. No. 833,945

Int. Cl. B65d 83/14

U.S. Cl. 222-4

16 Claims



An improvement in apparatus for dispensing mixtures of fluids having different vapor pressures, held under pressure in liquid and gas phases, in uniform proportions, from a pressurized container comprising the conventional elements of a pressure container, a perforated dip-tube extending within the pressure container through the vapor and liquid spaces of the container when charged and terminating in a closed free end in proximity to a wall of the pressure container, and means to provide controlled fluid flow from within the pressure container. The improvement comprises providing a bottom orifice in the dip-tube, substantially at the end of the dip-tube which terminates in the liquid space of the container when charged with fluid, and at least one upper orifice

3,656,658

INTRUSION PROTECTION SYSTEM

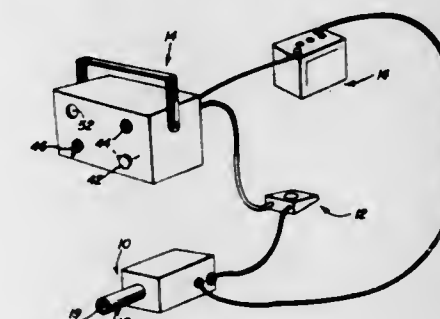
Silve J. Iannetti, 735 Moody Street, Waltham, Mass.

Filed Oct. 15, 1969, Ser. No. 866,669

Int. Cl. B67b 7/24

U.S. Cl. 222-5

7 Claims



between jaws of a rotating table of machine on which work is to be performed by the machine upon the cylinder element.

A tear gas gun is mechanically maintained in a normally cocked position by an electrical resistor connected at one end to a firing pin while the opposite end of the resistor is secured to a stationary surface. The firing pin has a projection extending therefrom which is normally engaged by an electromagnetic latch. The latch is mounted on the plunger of a solenoid energized to cause displacement of the latch to a release position. An electrical control unit has a firing switch connected to the resistor for causing burn-out and disintegration of the resistor upon energization of the solenoid thereby permitting firing action by the firing pin.

3,656,659

PRESSURE-FLUID SPRAY DEVICE WITH PRESSURE INDICATOR

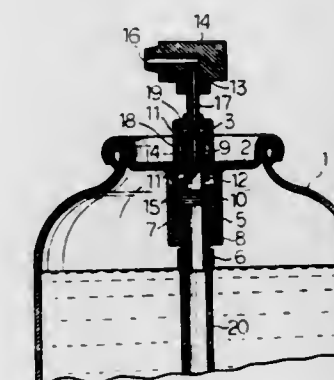
Mitsuo Ishida, 9, Ageba-cho, Shinjuku-ku, Tokyo, Japan

Filed Apr. 13, 1970, Ser. No. 27,530

Int. Cl. B67d 5/22; B67b 7/26

U.S. Cl. 222-49

9 Claims



A spray device includes a vessel containing a pressurized fluid. A valve located exteriorly can be actuated for permitting escape of fluid from the vessel. An indicating arrangement is integrated with the valve and includes a member provided with viewable markings indicating satisfactory or unsatisfactory pressure conditions in the vessel, this member being slidable between portions in which the respec-

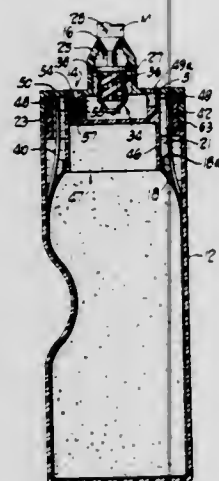
tive markings are exposed to view, in response to changes in the pressure conditions prevailing in the vessel.

3,656,660

CLOSURE MEMBER AND DISPENSING DEVICE
John J. Mueller, Richmond Heights, Ohio, assignor to Air-Ject Corporation, Richmond Heights, Ohio
Filed Nov. 17, 1969, Ser. No. 877,138
Int. Cl. B65d 35/22

U.S. Cl. 222-94

10 Claims



A closure member, for use with a flexible, resilient, container. The closure member provides an inlet orifice and an outlet orifice to the container and an expansible chamber for containing displacement fluid. The outlet orifice is constructed to communicate directly with the interior of the container, to permit outflow of material when the container is squeezed, and to prevent inflow of displacement fluid. The inlet orifice is constructed to communicate with the expansible chamber, to permit inflow of displacement fluid to the expansible chamber when the container wall returns to original shape after being squeezed, and to prevent outflow of displacement fluid. A flexible bladder, initially collapsed, forms the expansible chamber. The closure member includes structure to which the bladder is attached and which contains the initially collapsed bladder, and structure that inhibits the bladder from sealing off the outlet orifice from the contents of the container. The structure that contains the initially collapsed bladder can be elongated to limit the extent to which the container can be flexed.

3,656,661

DOSAGE DEVICE FOR PNEUMATICALLY OPERATING DISTRIBUTION SYSTEMS
Ferdinand Schumacher, Coesterweg 42, 477 Soest; Heinrich Weiste, and Helmut Weiste, both of 4771 Sieningsen near Soest, all of Germany
Filed July 23, 1970, Ser. No. 57,463
Claims priority, application Germany, Sept. 12, 1969, P 19 46 213.6

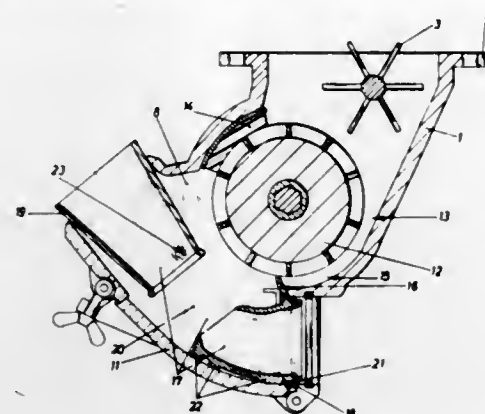
Int. Cl. B65g 53/46; B67d 5/54

U.S. Cl. 222-194

1 Claim

A measuring device for a pneumatically operated system for spreading granular material wherein the material is introduced into an intake funnel having a bottom outlet opening, with a compartmentalized dosage disk rotatably mounted therein, the disk having a discharge side leading to an air duct with an ejector unit mounted therein to form a low pressure area adjacent the discharge side. The discharge side of the disk is sealed by a simple, flexible lip seal and the reverse side is sealed by a wider gasket operating against the circumferential edges of the disk compartments. The ejection unit

includes a trap nozzle for introducing air flow into the air duct, an extension piece spaced downstream therefrom, and



a feeder opening between them for said granulated material being discharged from said disk.

3,656,662

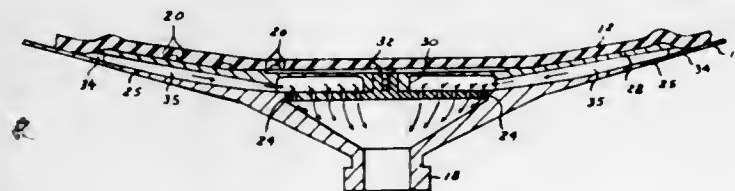
EXPULSION TANK COLLECTOR PLATE
Richard G. Peterson, Littleton, Colo., assignor to The United States of America as represented by the Secretary of the Air Force

Filed May 27, 1970, Ser. No. 40,974

Int. Cl. B67d 5/54

U.S. Cl. 222-386.5

1 Claim



In a positive expulsion tank having a ribbed diaphragm provided within the tank wherein a fluent material admitted to the chamber on one side of the diaphragm forces liquid, in the chamber on the other side of the diaphragm, through the outlet port. A circular collector plate is secured to the tank outlet plate and is spaced from the wall of the tank to provide an annular collection channel which encompasses the center of the diaphragm rib pattern when the diaphragm is at its maximum off-center position.

3,656,663

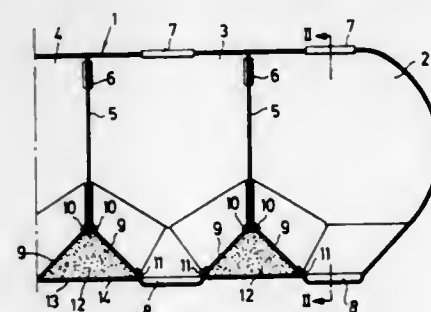
CONTAINER FOR GRANULAR OR PULVERULENT MATERIALS WITH ELASTICALLY DEFORMABLE OUTLET FUNNEL STRUCTURE
Kjell Charles Svensson, Malmö, Sweden, assignor to Tankmobil Aktiebolag, Malmö, Sweden

Filed June 2, 1969, Ser. No. 829,547

Int. Cl. B67c 11/00

U.S. Cl. 222-460

4 Claims



The present invention relates to improvements in a transport container for granular and pulverulent materials which

can be fluidized for discharging purposes by increasing the air pressure within the container.

3,656,664

APPARATUS FOR SAFELY STORING AND DISPENSING HAZARDOUS FLUENT MATERIALS

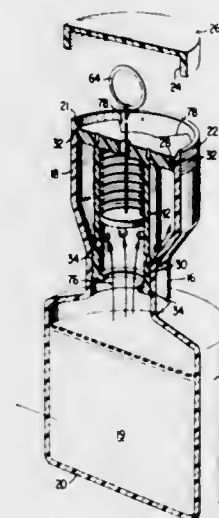
John E. Kelly, R.F.D. #3, Gaithersburg, Md.

Filed Mar. 16, 1970, Ser. No. 19,724

Int. Cl. B67d 3/00

U.S. Cl. 222-518

6 Claims



An apparatus is provided for the safe dispensing of hazardous fluent materials which apparatus includes a valve mechanism which must be hand operated in a deliberate manner. The valve mechanism is so disposed with respect to the dispensing portion of the apparatus that an operator's hand substantially covers the dispensing portion of the apparatus while the valve is held open. In this manner, it is difficult, if not impossible, for an operator to place his mouth over the dispensing portion of the apparatus for oral ingestion while his hand is operating the valve mechanism.

3,656,665

INERTIA RESPONSIVE APPARATUS FOR SUPPLYING FLUID MEDIUM UNDER PRESSURE

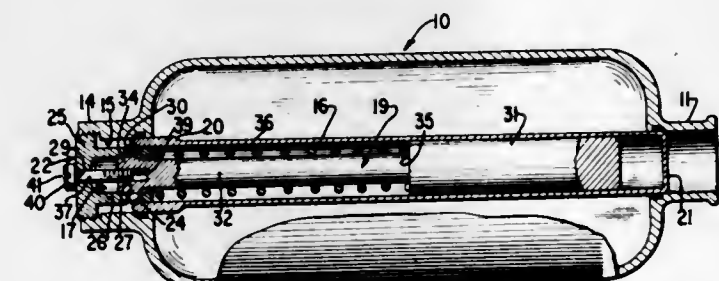
William T. Fleming, Boonton, and Alfred J. Munn, Wayne, both of N.J., assignors to Walter Kidde & Company, Inc., Belleville, N.J.

Filed Apr. 14, 1970, Ser. No. 28,309

Int. Cl. B60r 21/08; F16k 17/36

U.S. Cl. 222-500

10 Claims



Apparatus for supplying fluid medium under pressure in response to a predetermined rate of change in velocity including a container of fluid medium under pressure and an inertia responsive valving arrangement positioned within the

container. The container is provided with an outlet opening and a larger diameter second opening aligned therewith. A stepped hollow cylindrical valve member extends between the two openings and is pressure biased toward the second opening to overcome the friction of the seals at the openings. The valve member is held in the closed position by a ball locking arrangement provided at the second opening. An inertia sensitive mass is positioned within the hollow valve member to unlock the locking arrangement in response to a sudden change in the velocity of the container.

3,656,666

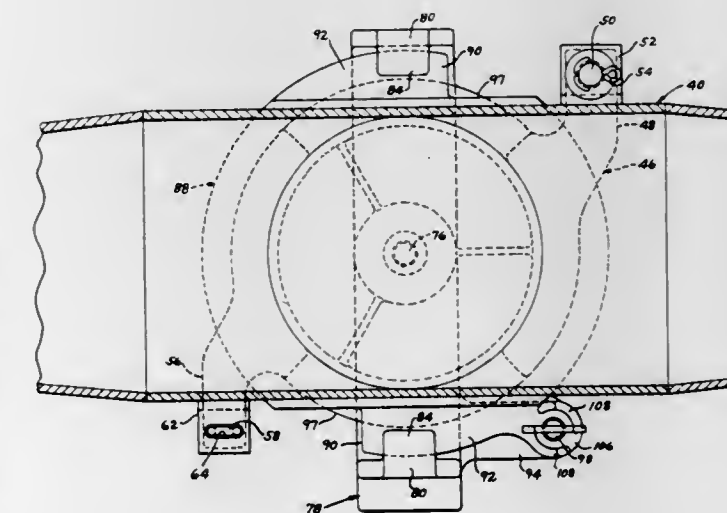
REMOVABLE LOWER COVER FOR HOPPER DISCHARGE OUTLET STRUCTURE
Richard H. Dugge, St. Louis County, and Garth R. Smith, Maryland Heights, both of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Jan. 19, 1970, Ser. No. 3,858

Int. Cl. B65d 47/00

U.S. Cl. 222-556

3 Claims



A lower cover for a bottom discharge outlet structure of a hopper, particularly for a covered hopper railway car, positioned beneath a butterfly valve which controls the discharge of lading from the hopper. A locking arm is pivotally carried from the underside of the cover and a cam type lock is effected between the ends of the locking arm which extend beyond the cover and coacting lugs on the adjacent housing whereby upon rotation of the arm in one direction when the cover is beneath the bottom discharge opening the cover is drawn tightly against the housing in generally air-tight relation to releasably lock the cover in position. Upon rotation of the locking arm in an opposite direction, the cover is released and may be pivoted to an open position remote from the discharge opening to permit the gravity unloading of lading.

3,656,667

RESEALING DEVICE
Henry Albert Johansen, 10244 Bel Air Street, Montclair, Calif.

Filed Aug. 10, 1970, Ser. No. 62,364

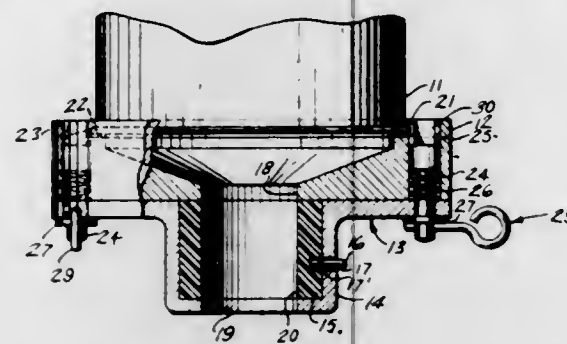
Int. Cl. B67d 47/28

U.S. Cl. 222-561

1 Claim

The device for dispersing coffee in predetermined amounts. This device includes a container portion held in place on a rubber seal ring within the base of the device, the flange serving to hold the container in place by spaced apart

locking pins having handle means for rotating them so as to engage the lip portion of the head on top of the flange.



The bottom includes a slide pin and slide for covering and uncovering the opening of the dispenser.

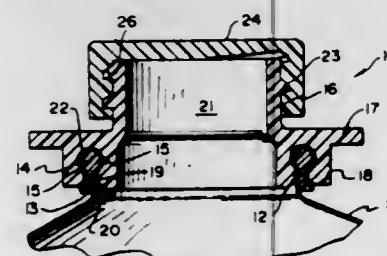
3,656,668

NECK ASSEMBLY FOR THIN WALLED CONTAINER
Wolfgang Liebertz, Wilmington, Del., assignor to Contalner Corporation of America, Chicago, Ill.

Filed Sept. 11, 1969, Ser. No. 856,986
Int. Cl. B65d 35/44

U.S. Cl. 222-570

1 Claim



A neck assembly for a container body such as may be formed from polymers of the unsaturated olefin series in a blow molding operation. The container body has a flexible annular neck extending therefrom, and is of a thickness that can be folded upon itself about an annular ring. A neck piece has an annular groove therein of a diameter corresponding to the diameter of the annular ring and the folded over portions of the annular neck together with the annular ring are inserted into the annular groove with an interference fit.

The annular groove is undercut to cooperate with a land on the annular ring to provide a tightly locking assembly.

3,656,669

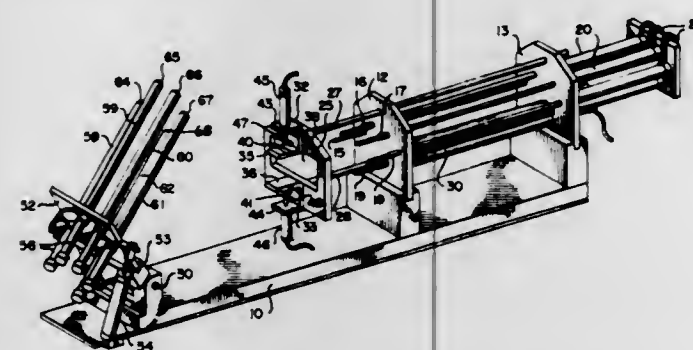
GLOVE TURNING APPARATUS

Clayton E. Conklin, Antonio Ledesma, Jr., and Moises R. Bautista, all of El Paso, Tex., assignors to Wells Lamont Corporation, Chicago, Ill.

Filed Mar. 31, 1970, Ser. No. 24,092
Int. Cl. A41h 43/00

U.S. Cl. 223-40

14 Claims



Apparatus is disclosed for turning a glove after the glove has been sewn, stitched or otherwise fastened wrong-side-out, and is to be turned back on itself. The wrong-side-out

glove to be reversed or turned is mounted on finger tubes and the finger tubes are then brought into alignment with rods projecting in opposition to the tubes. The finger tubes and the oppositely positioned rods are grouped and aligned to permit insertion of either set into the fingers and thumb of the glove to be turned, depending on whether the glove is wrong-side-out or right-side-out. After the glove is mounted on the finger tubes, the opposing rods are brought towards the tube tips such that the ends of the rods are in contact with or adjacent to the tips of the fingers and thumb of the mounted glove. The wrist portion of the glove is reversed for a short distance to permit gripping thereof by means movable in either direction parallel to the orientation of the tubes and rods. The latter means is then retracted to pull the glove backward over the rods so that the rods enter the fingers and thumb of the glove.

3,656,670

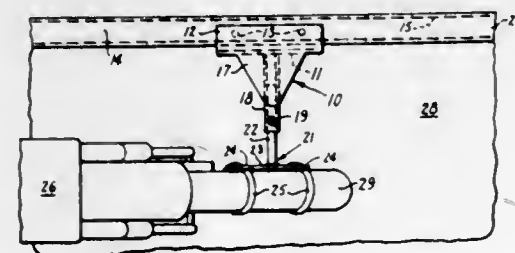
MOTORCYCLE SUPPORT

Eugene Hill, 215 North High Street, Antlers, Okla.

Filed June 30, 1970, Ser. No. 51,068
Int. Cl. B60r 9/02, 11/00

U.S. Cl. 224-42.45 R

4 Claims



The present invention relates to a motorcycle support in which a bracket is detachably secured to the top edge of the side of a pick-up body and an adjustable member projects inwardly therefrom. The adjustable member engages the side of the motorcycle tire and straps secured to the adjustable member encompass the tire to secure the motorcycle tire and wheel thereto. A pair of supports are required for securing a motorcycle in a pick-up truck body.

3,656,671

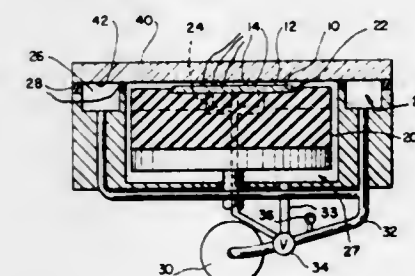
FRANGIBLE PROJECTION REMOVAL

Richard J. Bratek, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,675
Int. Cl. B26f 3/00

U.S. Cl. 225-1

16 Claims



Frangible epitaxial projections on a semiconductor wafer which is susceptible to abrasive damage are removed by forcing a rigid glass plate toward the projections and surfaces of the wafer, with pressures sufficient to break projections extending greater than two microns from the surface. Vacuum

greater than about 25 inches of mercury is used to pull the plate down on the projections. After the plate is removed from the wafer, broken projections are removed by washing the chip sequentially in ultrasonically vibrated baths.

3,656,672

METHOD FOR SPLITTING ORIENTED PLASTIC MATERIALS INTO FIBROUS STRUCTURES

Frank Kalwaite, Somerville, N.J., assignor to Johnson & Johnson

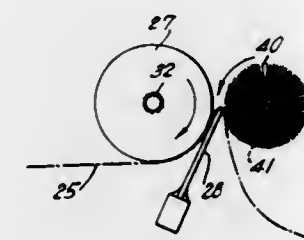
Division of Ser. No. 710,532, Mar. 5, 1968, Pat. No. 3,520,458

Filed Aug. 11, 1969, Ser. No. 870,876

Int. Cl. B26f 3/02

U.S. Cl. 225-3

5 Claims



This is a method and apparatus for splitting oriented plastic sheet materials such as films, ribbons, etc. into fibrous structures. The material to be split is moved in a first direction. The direction in which the material is moving is changed so that the second direction makes an acute angle with the first direction. Simultaneously with the change in direction or movement of the material a plurality of disruptive forces are applied to the material substantially in the direction of the movement of the material to split the oriented material into a fibrous structure.

3,656,673

METHOD AND MEANS OF ACCURATELY POSITIONING FILM IN A FILM PROCESSING MECHANISM

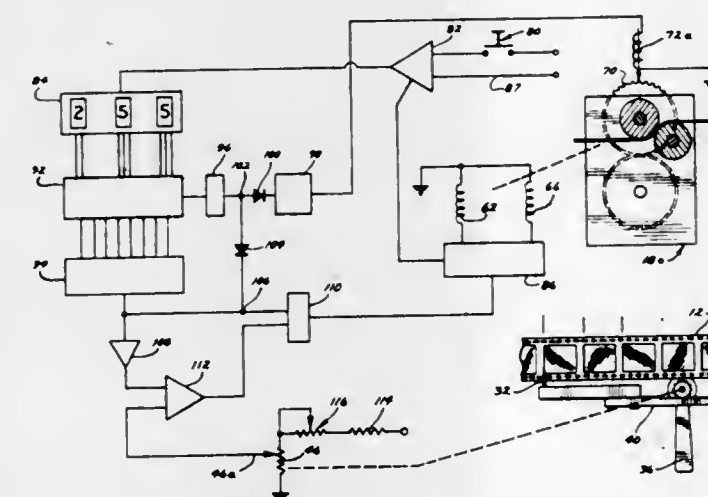
Glenn D. Erickson, Minneapolis, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Sept. 21, 1970, Ser. No. 74,011

Int. Cl. B65h 23/04, 17/10

U.S. Cl. 226-2

11 Claims



This invention is a film feed control for a film advancement mechanism to accurately position a particular film frame for processing by using the film frame location prior to

advancement to determine a sequential cycle of film advancement in which each film frame is first advanced and a minimum predetermined distance by actual measurement and then, without stopping, is advanced a further distance using a timer to control the end of the film advancement cycle by measuring an increment of time for further film advancement determined for each frame based on frame position prior to the start of the advancement cycle.

3,656,674

WEB TENSION ISOLATOR OR AMPLIFIER FOR WEB HANDLING APPARATUS

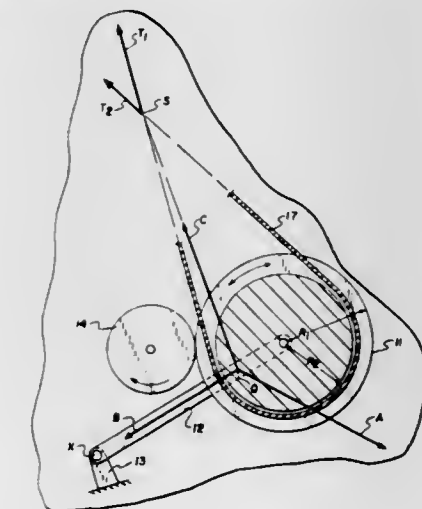
John E. Morse, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 18, 1970, Ser. No. 20,612

Int. Cl. G11b 15/43

U.S. Cl. 226-25

8 Claims



A web tension isolator or amplifier includes a rotatable pulley engageable with a driver pulley in response to tension forces in a web that is wrapped on the driven pulley. The mechanism maintains the film tension ratio (i.e., the ratio of the tensions in the web portions on the two sides of the driven pulley) substantially constant regardless of the magnitude of the web tension. The mechanism automatically and quickly adjusts the web tension for any variations in the tensions of the web portions at either side of the driver pulley. The mechanism can be used (for example) in a motion picture projector between the film gate and a supply reel and/or a take-up reel.

3,656,675

FILM CARTRIDGE GUIDE ASSEMBLY

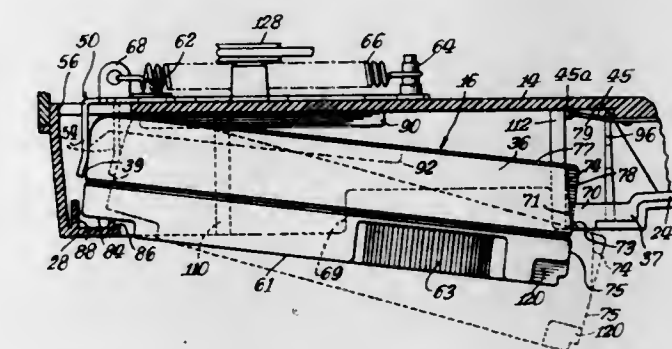
George J. Zahradnik, Wheaton, Ill., assignor to A. B. Dick Company, Chicago, Ill.

Filed June 19, 1970, Ser. No. 47,660

Int. Cl. G03b 1/56

U.S. Cl. 226-89

12 Claims



In a movie projector designed to receive and operate with a film cartridge, where the film cartridge housing is con-

structed with guiding surfaces that cooperate with complementary guide surfaces in the cartridge receptacle of the movie projector to cause the cartridge to follow a predetermined path when inserted or removed from the receptacle in order that the film cartridge will always be brought into a proper operating relationship with the various operating components of the movie projector.

3,656,676

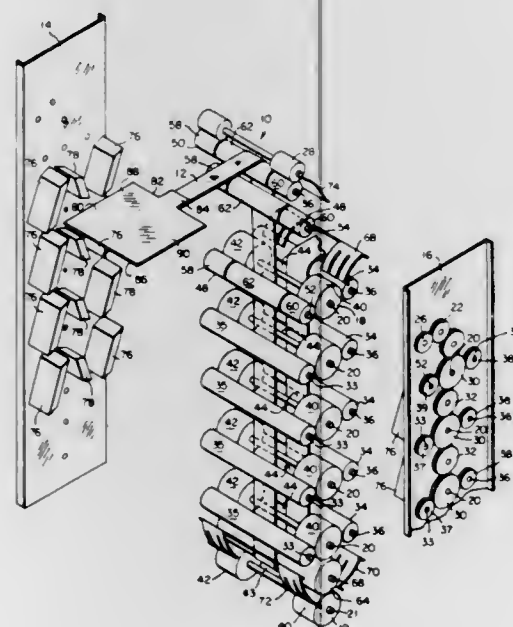
FILM TRANSPORT ROLLER SYSTEM

Henry E. Hope, 195 Welsh Road, Huntingdon Valley, Pa., and Stephen F. Hope, 2321 Wyandotte Road, Willow Grove, Pa.

Filed Dec. 3, 1970, Ser. No. 94,823
Int. Cl. G03d 3/12

U.S. Cl. 226-92

10 Claims



A film transport roller system for conveying an elongate web of film through processing tanks including a plurality of juxtaposed rack assemblies, each having a plurality of pairs of rollers and film guides which cooperate to drive the film through the processing tanks without tensioning or otherwise stressing the film. The medial section of one roller of each pair of cooperating rollers is fabricated to a reduced diameter to form an annular film receiving area, wherein the film may be guided through the various processing tanks without stress. The transverse ends of the pairs of cooperating rollers tangentially co-act to automatically thread the film through rack assemblies.

3,656,677

OFFSET PRINTING MACHINES

Karel Stepanek, Drnovice, and Josef Zelinka, Bukovina, both of Czechoslovakia, assignors to Adamovske strojirny, narodni podnik, Adamov, Czechoslovakia

Filed Aug. 11, 1970, Ser. No. 62,980

Claims priority, application Czechoslovakia, Aug. 22, 1969, 5788-69

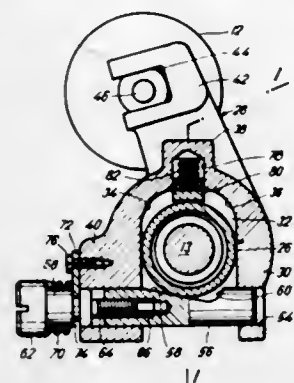
Int. Cl. B65h 17/20

U.S. Cl. 226-180

10 Claims

Apparatus for mounting distributor and dampening rollers in an offset printing machine. The distributor roller is jour-

naled in a bearing secured in fixed bushing and the dampening roller is mounted on an arm extending from a body sur-



rounding the bushing. The body is provided with key means permitting adjustable rotative positioning about the bushing.

3,656,678

STAPLING MACHINE

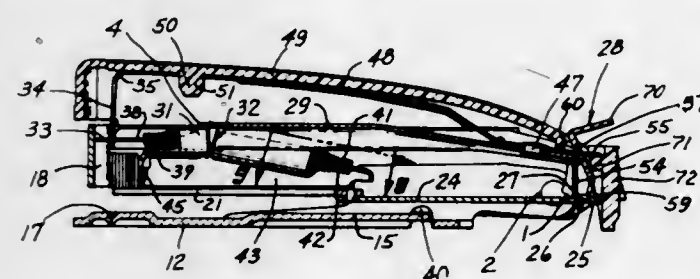
Henry Ruskin, Cranford, N.J., assignor to Swingline Inc., Long Island City, N.Y.

Filed June 8, 1970, Ser. No. 44,292

Int. Cl. B25c 5/02

U.S. Cl. 227-128

12 Claims



A stapling machine is shown having a base of springable material having a clearance spring integrally formed therein, a magazine made of springable material and having spaced sides also has a base portion and a rearwardly projecting spring member. A follower is formed with a body portion and a downwardly projecting forward portion having a pair of opposite laterally projecting members which are in slidable closely adjacent relationship with the sides of the magazine, a cover overlies the magazine and is formed with a longitudinal channel therewithin. A tapered coil spring is connected to the cover and the follower. A latch is provided with actuating means which are selectively engageable with complementary fastening means upon the rearwardly projecting spring member of the magazine.

3,656,679

LABEL ATTACHMENT

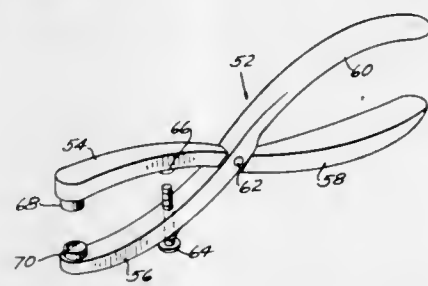
Arthur J. Minasy, 21 Elm Street, Woodbury, N.Y.

Original application Dec. 7, 1966, Ser. No. 599,922. Divided and this application Feb. 7, 1970, Ser. No. 6,004

Int. Cl. B25c 1/00

U.S. Cl. 227-144

2 Claims



A label attachment arrangement comprising a tack-like element whose shank passes through a label and an article of

merchandise. The shank is encased by and interlocked in a button. A plier-like attachment tool and a cutting tool for adapted to be pressed into and held by friction within a correspondingly shaped recess in a base tray.

3,656,680

APPARATUS FOR SIMULTANEOUSLY WELDING PAIRS OF REINFORCING PLATES TO A BASE PLATE

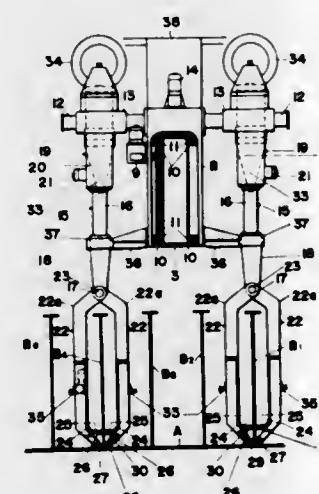
Hirokazu Nomura, Yokohama, Japan, assignor to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 20, 1970, Ser. No. 21,395

Int. Cl. B23k 19/00

U.S. Cl. 228-44

5 Claims



An apparatus for welding reinforcing plates to a base plate. Two pairs of welding means respectively simultaneously deposit fillet welds at all four corners defined between the lower edges of a pair of upright reinforcing plates and the upper surface of a main base plate engaged by these lower edges, so that a pair of T-welds are simultaneously formed between the two reinforcing plates and the main base plate. After one pair of reinforcing plates are simultaneously welded in this manner to the main base plate, a second pair of reinforcing plates are simultaneously welded in the same way to the main base plate, so that pairs of T-welds are formed successively between pairs of the reinforcing plates and the main base plate.

3,656,681

DISPOSABLE TRAY

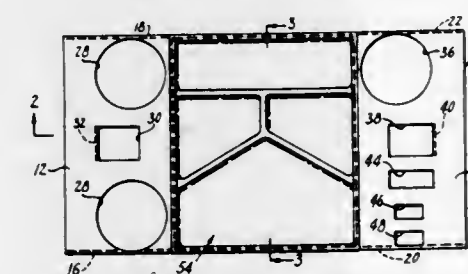
Harford E. Golgs, 5428 Center Drive, Camp Springs, Md.

Filed Sept. 3, 1969, Ser. No. 854,902

Int. Cl. B65d 11/10

U.S. Cl. 229-15

4 Claims



A food tray, pressed or stamped from plastic, is provided with dividing partitions for different types of food, etc., and is

3,656,682

DRUMHEAD FOR END SEALED CARTONS AND METHOD OF MAKING THE SAME

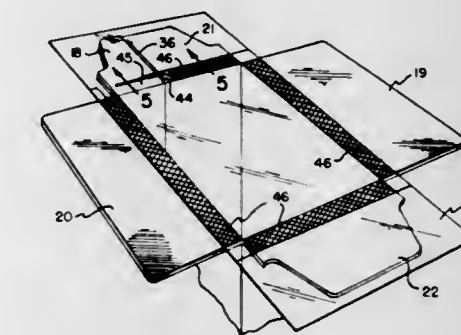
Lawrence E. Giuliani, Rockford, Ill., assignor to Riegel Paper Corporation, New York, N.Y.

Filed Oct. 1, 1970, Ser. No. 77,231

Int. Cl. B65d 5/08

U.S. Cl. 229-37 R

5 Claims



This disclosure is directed to an improved method of construction of drumhead type cartons (i.e., parallelepiped cartons whose ends are sealed by independent, taut membranes) in which a fillet means of hot melt material having a generally right triangular cross section is deposited along that portion of the manufacturer's joint which extends into the carton dust flaps to provide an uninterrupted peripheral surface to which the membrane may be tightly adhered. Absolute tightness at the joint is enhanced by simultaneously cross-crushing and cross-sealing the membrane, fillet, and underlying flap portions by a specially configured sealing platen.

3,656,683

TRAY

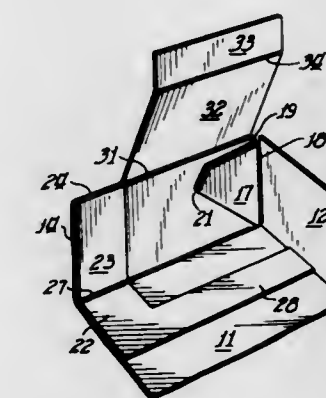
John D. Desmond, Philadelphia, Pa., and David L. Bottoroman, Greensboro, N.C., assignors to Container Corporation of America, Chicago, Ill.

Filed Jan. 30, 1970, Ser. No. 7,159

Int. Cl. B65d 5/24

U.S. Cl. 229-31

2 Claims



A tray formed from a cut and scored blank. Contiguous of the end and side panels have gusset panels therebetween which fold upon themselves when the side and end panels are erected. The end panels have a locking structure consisting of a central locking panel foldable with respect to the end

panel and secured to the tray bottom. Panel portions flanking the locking panel are folded to position upon carton erection, and the distal ends thereof cooperate with the locking panel and maintain the gusset folds and sides in erected position.

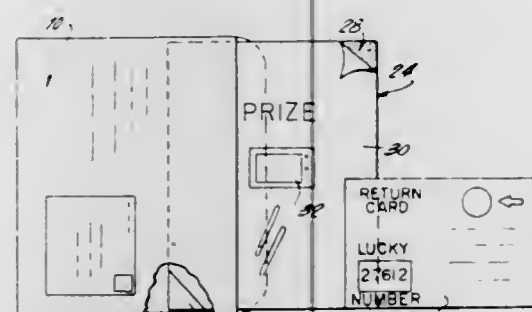
3,656,684

COMPOSITE MAILING PACKAGE AND METHOD OF PREPARING SAME

Desmond Meehan, 250 Grath Road, Scarsdale, N.Y.
Filed Nov. 19, 1970, Ser. No. 91,074
Int. Cl. B65d 27/04

U.S. Cl. 229-92.8

4 Claims



A composite mailing package comprising an envelope having a view window provided therein and a mountable plaque within said envelope. Said plaque having a front face including a pictorial image thereon and a rear face having a layer of pressure-sensitive adhesive. A removable combined protective backing and advertising sheet is positioned over and in removable engagement with said pressure-sensitive adhesive and contains the advertising message on its outer face. The removable backing sheet may be stripped from said plaque to expose said pressure-sensitive adhesive for mounting said plaque on a support surface.

3,656,685

CENTRIFUGE

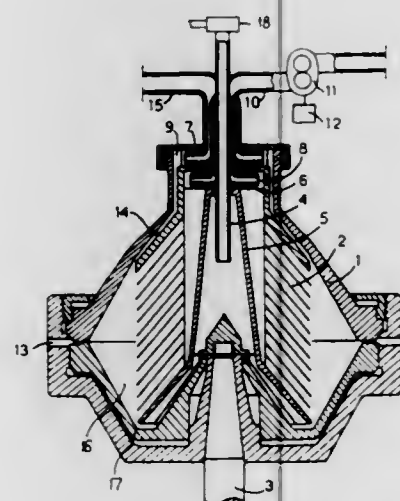
Ove Allan Valentin Kjellgren, Stockholm, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden
Filed Jan. 8, 1969, Ser. No. 789,865

Claims priority, application Sweden, Jan. 9, 1968, 232/68

Int. Cl. B04b 11/00

U.S. Cl. 233-19

3 Claims



A centrifugal rotor is provided with an inlet for a mixture of two liquid components to be separated from each other and of which one component is high viscous, the rotor also

having outlets for the respective separated components. A displacement pump is inserted in the discharge pipeline of a paring means which forms the outlet for the highly viscous component, and the throughput capacity of this pump is adjustable during operation to control the discharge of the two separated components from the rotor.

3,656,686

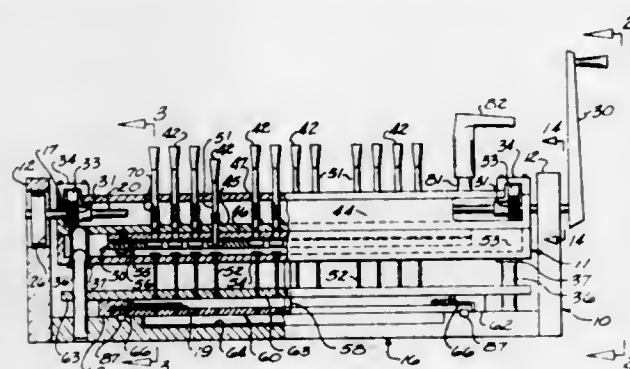
PUNCHING DEVICE

James R. Lee, 249 West Jewel, Kirkwood, Mo., and James V. De Lurgio, 1924 Berra Court, St. Louis, Mo.
Filed Mar. 3, 1970, Ser. No. 16,158

Int. Cl. G06k 1/08

U.S. Cl. 234-1

21 Claims



This punching device includes a base unit and a reciprocating header unit mounted above the base unit. Guide pins maintain the two units in register and eccentric cams, journal-mounted to the header unit and bearing on the base unit, provide the reciprocating mechanism. The header unit carries a key bank and selected, individual keys may be depressed to lock associated punch elements in position below the header unit. When the header unit is lowered, the locked punch elements perforate a stack of test papers carried by the base unit, and provide punch holes at specific locations on each test paper corresponding to correct answers in a multiple choice quiz. The header unit includes a cam actuated release mechanism which releases all of the locked key punch elements simultaneously.

3,656,687

DATA SYSTEM FOR MEDICAL AND OTHER ENVIRONMENTS

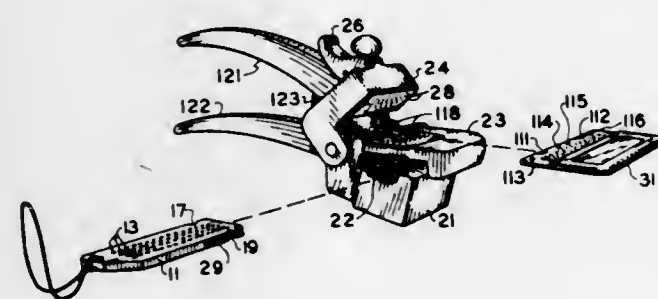
Russell H. Romney, 3259 Bon View Drive, Salt Lake City, Utah, and Billy M. Jensen, 8129 South 1475 East, Sandy, Utah

Continuation of application Ser. No. 772,622, Nov. 1, 1968, now abandoned. This application Oct. 24, 1969, Ser. No. 868,982

Int. Cl. G06k 1/08

U.S. Cl. 234-2

5 Claims



For maintaining error-free records in hospitals and other environments, a master identification tab or device for a primary subject or object receives indicia including coded information and later the coded information is directly transferred

to a dependent identification tab or device which in turn is affixed to a subordinate subject or object. Thus, manual transfer of information is avoided and high accuracy assured. Additional data may be recorded on the dependent identification tab. When the present system is used in hospitals, the primary subject may be a patient and the subordinate subject may be a prescription container, a specimen tube or the like.

3,656,688

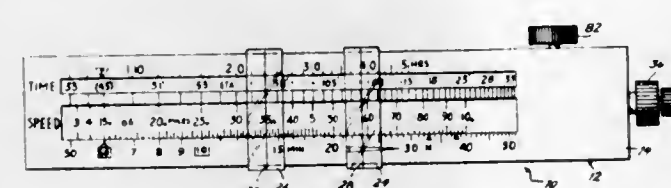
AIRCRAFT COMPUTER

William J. Camp, 14 B Glendale Manor, Pleasantville, N.J.
Filed Dec. 29, 1969, Ser. No. 888,269

Int. Cl. G06c 3/00

U.S. Cl. 235-86

9 Claims



A device for instantly computing time, distance and fuel in an aircraft consisting of a housing, a vertically movable tape and a horizontally movable tape. The vertically movable tape indicates time and the horizontally movable tape indicates distance and fuel. The indicia on both tapes work in conjunction with indicia on the face of the housing.

3,656,689

MODULATING VALVE

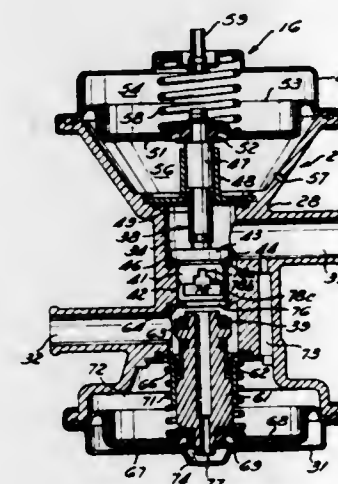
Tadeusz Budzich, Moreland Hills, and Hiralal V. Patel, Cleveland, both of Ohio, assignors to The Weatherhead Company, Cleveland, Ohio

Filed Dec. 16, 1970, Ser. No. 98,595

Int. Cl. F24d 3/02; B60h 1/08

U.S. Cl. 237-8

15 Claims



A vehicle heater control system is disclosed which includes a flow control valve in which pressure regulating means provide a constant pressure drop across a metering valve to insure accurate flow rates. The metering valve is adjustably positioned by a vacuum suspension system. The vehicle operator controls the position of the metering valve and the flow rate therethrough by controlling the valve of a control vacuum supplied to the metering valve actuator.

3,656,690

RAILBED

Siegfried Hanig, Peine, Germany, assignor to Ilseeder Hutte, Peine am Hannover, Germany

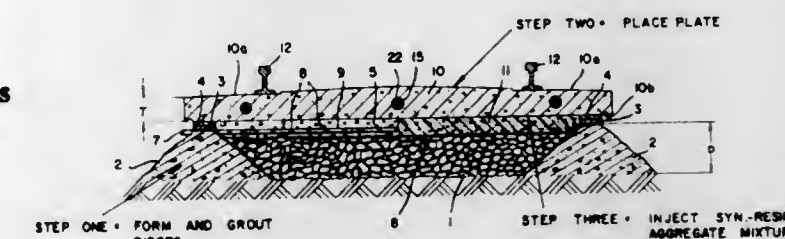
Filed Mar. 23, 1970, Ser. No. 21,953

Claims priority, application Germany, Mar. 22, 1969, P 19 14 712.7

Int. Cl. E01b 1/00

U.S. Cl. 238-2

5 Claims



A railbed for high-speed railways in which a plurality of elongated concrete slabs are longitudinally prestressed in groups with cast synthetic-resin sealing strips between the adjoining ends of the concrete slabs. The slabs are laid over a hollow bed and are cushioned below with a hard-foam synthetic resin including expanded mineral filters, the foamable synthetic resin being injected through perforated ducts. The downward force is supported by a pair of longitudinally extending sills flanking the hollow and carrying the concrete-slab platform via sealing strips. The sills may be formed in situ by grouting mounds of loose stone or may be cast monolithically with the remainder of the bed.

3,656,691

WASHER SYSTEMS FOR CLEANING SURFACES

Leif Roland Norstrand, Malmo, Sweden, assignor to Monark-Crescent Aktiebolag, Varberg, Sweden

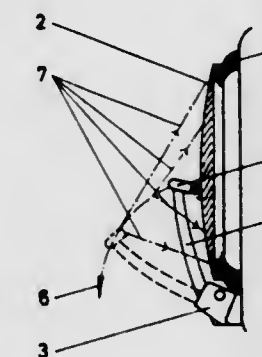
Filed Mar. 20, 1970, Ser. No. 21,274

Claims priority, application Sweden, Apr. 2, 1969, 4684/69

Int. Cl. B05b 1/10; B60s 1/46

U.S. Cl. 239-284

9 Claims



A washer system for cleaning surfaces such as automobile headlights directs jets or shots of liquid from a nozzle against the dirty surface. The nozzle is spring-biased toward the surface to be cleaned, and each shot moves the nozzle by jet reaction from the start position near the surface to a position farther away from the surface along a path such that the sprayed area progressively increases concentrically outwardly. The spring returns the nozzle to the start position between shots.

3,656,692

OIL BURNER

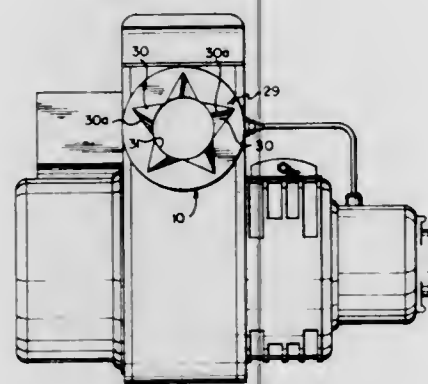
Norman E. Flournoy; Julian H. Dancy, both of Richmond, and Raymond Trippet, Highland Springs, all of Va., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 5, 1971, Ser. No. 104,044

Int. Cl. B05b 7/10

U.S. Cl. 239-405

4 Claims



A gun type oil burner provided with a conventional lily having flow-directing blades which provide a rapidly swirling rotation of air within the blast tube, the improvement involving the provision of a partition plate upstream of the lily to provide a substantial increase in operating pressure upstream thereof, and with jet orifices specifically aligned with the flow-directing surfaces of the lily so as to direct high velocity jets of air on to the flow-directing surfaces in such a way as to maximize the swirl in the blast tube.

3,656,693

FUEL INJECTION NOZZLE FOR EXTERNALLY IGNITED INTERNAL COMBUSTION ENGINES

Konrad Eckert, Stuttgart-Bad Cannstatt, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed July 9, 1970, Ser. No. 53,587

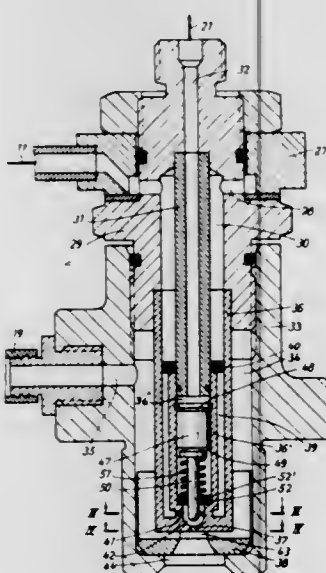
Claims priority, application Germany, July 9, 1969, P 19 34

704.7

Int. Cl. B05b 7/12

U.S. Cl. 239-410

5 Claims



In a fuel injection nozzle there is disposed a valve member which, during normal operation, maintains the nozzle open but which, when actuated by a control liquid admitted to the nozzle in a control conduit, hermetically obturates the nozzle opening.

3,656,694

SEWER CLEANING CHEMICAL DISPENSING NOZZLES

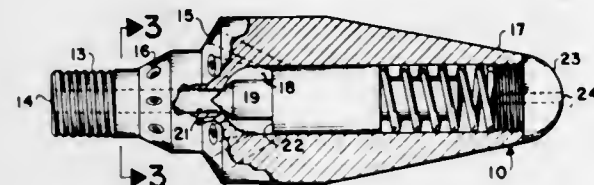
John A. Kirschke, P.O. Box 125 Ammann Road, Boerne, Tex.

Continuation-in-part of Ser. No. 36,901, May 13, 1970. This application Dec. 10, 1970, Ser. No. 96,723

Int. Cl. B05b 1/14

U.S. Cl. 239-533

5 Claims



The two stage sewer cleaning chemical dispensing nozzle particularly adapted for utilization in dispensing root fumigant. The nozzle incorporates an internal spring loaded pressure responsive valve for selectively activating rearward or forward jets as desired for propulsion, cleaning, or chemical fumigant dispensing.

3,656,695

ROLLER MILL WITH ROTATING GRINDING VESSEL

Ottmar Bacharach, Kaiserslautern, Germany, assignor to Gebr. Pfeiffer Barbarossawerke AG, Kaiserslautern am Pfalz, Germany

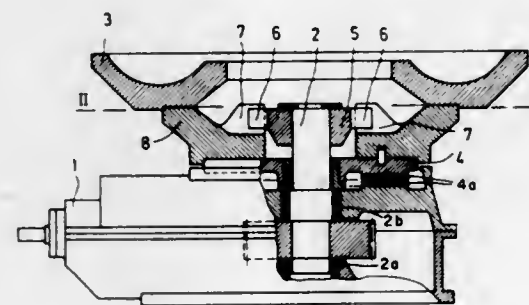
Filed June 12, 1970, Ser. No. 45,856

Claims priority, application Germany, June 12, 1969, P 19 29 912.8

Int. Cl. B02c 15/00, 4/42

U.S. Cl. 241-103

2 Claims



A roller mill having a rotatable grinding vessel with a drive shaft for the grinding vessel connected to a transmission where the connection between shaft and vessel is non-positive or interrupted.

3,656,696

MOBILE ROCK CRUSHING APPARATUS

Richard P. Maillard, 604 Lorna Street, Redding, Calif.

Original application June 16, 1967, Ser. No. 646,630, now Patent No. 3,510,073, dated May 5, 1970. Divided and this application Dec. 4, 1969, Ser. No. 879,966

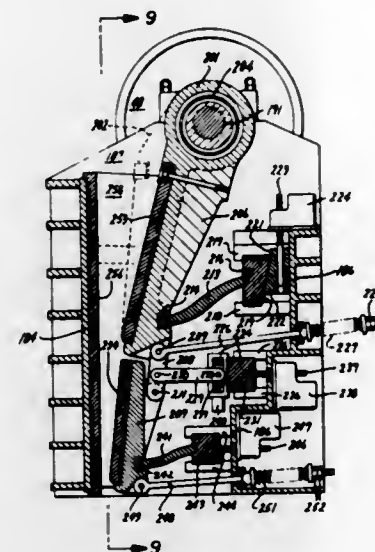
Int. Cl. B02c 1/06

U.S. Cl. 241-155

4 Claims

A vertical, two-stage rock crusher with inter-linked upper

and lower movable jaws including a provision for shifting the



link position to effect change in the inlet area of the lower jaw and its amplitude of crushing oscillation.

3,656,697

TIRE PULVERIZER

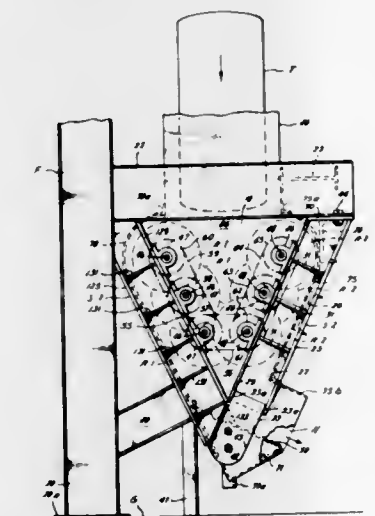
David J. Nelson, Route 17, P.O. Box 915 16914 Creeksouth, Houston, Tex.

Filed June 11, 1970, Ser. No. 45,315

Int. Cl. B02c 49/20

U.S. Cl. 241-222

9 Claims



A tire pulverizer adapted to receive and cut automobile, truck or other vehicle tires into small particles, wherein the pulverizer has a plurality of rows of interfitting abrading rotating blades disposed in substantially a V-shape and through which the tires are fed as they are cut into the small particles by the blades.

3,656,698

WINDING APPARATUS

Robert E. Morton, Warwick, R.I., assignor to Leeson Corporation, Warwick, R.I.

Filed Oct. 30, 1970, Ser. No. 85,412

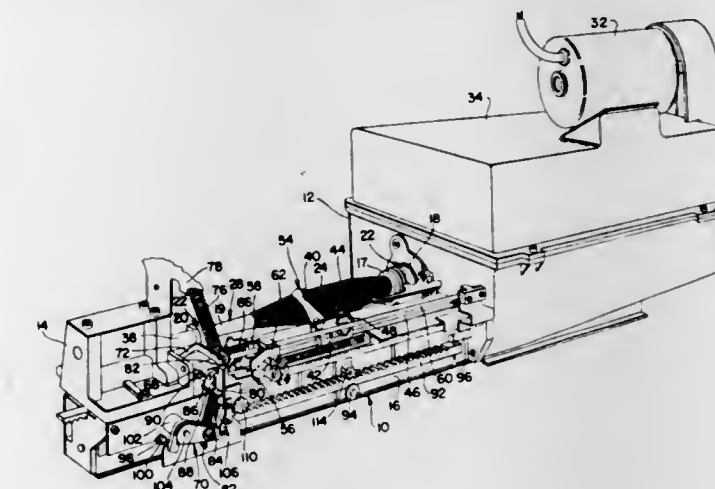
Int. Cl. B65h 54/14

U.S. Cl. 242-27

8 Claims

A winding machine, such as UNIFIL loom winder, manufactured by Leeson Corporation, Warwick, Rhode Island 02887, has a spindle assembly for receiving and rotating a bobbin, and a transversing assembly including a transversing member releasably threadably secured to a traverse rod, during winding, for guiding a strand of yarn being wound onto a bobbin. Upon completion of winding of a bobbin, the spindle assembly is stopped and the transversing member is released

from the traverse rod and is returned to its starting point as the yarn is cut between the traversing member and the doffed, filled bobbin and is engaged for winding onto an empty bobbin previously donned onto the winder. The traversing and spindle assemblies are driven by mechanism within a casing of the winder. This mechanism includes a continuously driven drive shaft releasably connected by a clutch with a spindle shaft. A power take-off including a worm on the spindle shaft drives cam rotatably received on



the spindle shaft for rotating and reciprocating the threaded traverse rod to provide the traversing member with builder and reciprocating motions. The cams and worm are effectively held against axial movement along the spindle shaft by a rigid member in abutting relationship with an end of the cams and adjustably fixed to the casing, and a noise deadening member mounted on the rigid member and holding the worm. When the traversing member has been returned to its starting position, the clutch again drivingly engages the drive shaft and spindle shaft whereupon the cycle is repeated.

3,656,699

TOILET PAPER DISPENSER

Conrad W. Schnyder, 9497 Triesenberg, Liechtenstein, and Katrin Schnyder, Germaniastrasse 64, 8006 Zurich, both of Switzerland

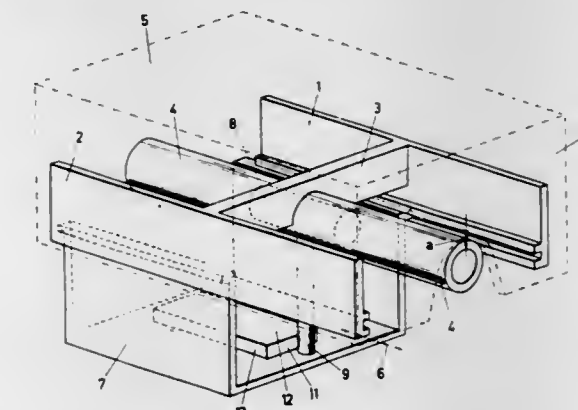
Filed Jan. 5, 1971, Ser. No. 104,022

Claims priority, application Switzerland, Aug. 24, 1970, 12639/70; Jan. 6, 1970, 47/70

Int. Cl. B65h 19/04

U.S. Cl. 242-55.3

5 Claims



A toilet paper dispenser is disclosed in which two rolls of toilet paper may be mounted on the two free ends of a rod-form support. At any one time one of these two rolls is enclosed in the housing of the dispenser by means of a displaceable covering wall, whereas paper may be withdrawn from the other roll. The rolls are retained on the support by side walls of a housing cover which approach the free ends of the support. Small gaps between these side walls and the ends of the support allow removal of a practically empty roll core, but not of a full roll. As long as the uncovered roll is retained

by the respective side wall this roll in turn prevents a movable abutment member from being moved out of a center position in which this abutment member radially projects from the support and cooperates with stop surfaces on the displaceable covering wall to preclude uncovering of the covered roll. Thus the covered roll can be uncovered only when the empty core of the other roll can be removed, allowing motion of the abutment means. A fresh roll may thereafter be inserted in place of the removed empty core, and this fresh roll will then, of course, be covered by the covering wall. Apart from the covering wall which may be displaced to either side the dispenser is symmetrical in relation to a central plane at right angles to the support.

3,656,700

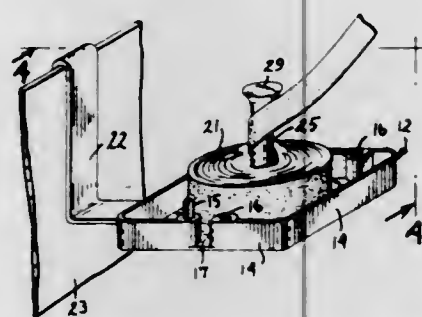
APPARATUS FOR WINDING STORING AND DISTRIBUTING PUNCHED PAPER TAPE

Robert D. Gauvin, Minneapolis, Minn., assignor to Metro Machine & Engineering Corp., Minneapolis, Minn.
Filed June 24, 1970, Ser. No. 49,265

Int. Cl. B65h 17/02

U.S. Cl. 242-67.1

10 Claims



A device for handling punched paper tape is disclosed which consists of a closed cartridge to be selectively used with a reel having a spindle to receive the tape and form it into a roll within the cartridge for storage purposes, or with a mounting bracket that carries the cartridge and permits it to be rotated as tape is withdrawn from the center of the tape roll.

3,656,701

WIRE RECEIVING AND STORING MEANS

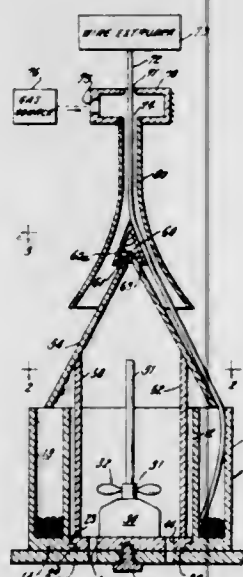
James W. Dibrell, Malibu, Calif., assignor to Microwire Corporation, Allentown, Pa.

Filed July 6, 1970, Ser. No. 52,594

Int. Cl. B21c 47/00

U.S. Cl. 242-83

9 Claims



Wire to be wound and stored is drawn through a tube by the viscous drag of a flowing gas. The wire then is passed

over a cone and an air stream having an angular component relative to the cone axis causes the wire to rotate over the cone surface. A storage container having an annular chamber is disposed adjacent the wide end of the cone, with the annular opening communicating with the wide end of the cone so that wire is deposited into and wound within the annular chamber.

3,656,702

STRIP-HANDLING APPARATUS

Friedrich Forch, and Erwin Krob, both of Vienna, Austria, assignors to Karl Vockenhuber and Raimund Hauser, Vienna, Austria

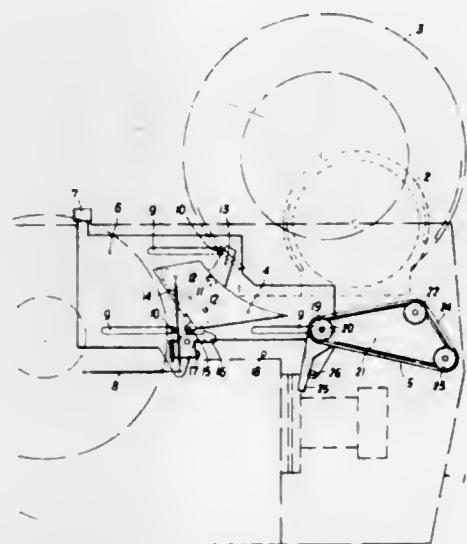
Filed Oct. 28, 1969, Ser. No. 871,833

Claims priority, application Austria, Oct. 30, 1968, A 10600/68

Int. Cl. G03b 1/04; G11b 15/32

U.S. Cl. 242-192

4 Claims



A cartridge is fixed to a frame and has an exit opening. A coil of strip contained in the cartridge has a leading end which is accessible from the outside of the cartridge and movable out of the same in a predetermined direction through the exit opening. A peeling member carried by the frame is pivotally movable through the exit opening into engagement with a predetermined point of the periphery of the coil. A belt drive has a plurality of rollers and a belt trained around the rollers. The rollers include a drive roller carried by the frame on a stationary axis and operable in a predetermined sense to move the belt in a predetermined direction, and a friction roller. A friction roller mounting is movably mounted in the frame and carries the friction roller and is operable to move the friction roller through the exit opening into engagement with the periphery of the coil at a point which in the direction in which the leading end is movable out of the exit opening precedes the point where the periphery of the coil is engageable by the peeling member. The belt has a belt course which is arranged to move away from the friction roller when the belt moves in the predetermined direction. The peeling member and the belt course define between them a passage arranged to receive the leading end of the strip as it moves out through the exit opening. A slider has the peeling member pivoted thereto and is movable from an initial position to a final position to move the peeling member into the cartridge. A pawl is carried by the slider and arranged to engage the peeling member and hold it clear of the periphery of the coil when said slider is in an intermediate position between the initial and final positions. A

stop secured to the frame is arranged to be engaged by the pawl in the final position of the slider and thus to disengage the pawl from the peeling member. A spring acting between the peeling member and slider tends to urge the peeling member into engagement with the periphery of the coil when the slider is in its final position.

3,656,703

INFORMATION-PROCESSING APPLIANCE FOR USE WITH A STRIPLIKE INFORMATION CARRIER CONTAINED IN A CARTRIDGE

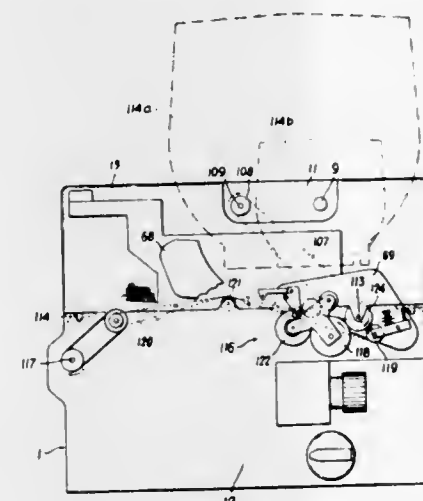
Karl Vockenhuber, Vienna; Gottfried Pammer, Sudstadt Lower; Erwin Krob, Vienna; Friedrich Forch, Vienna; Peter Revy-Belvard, Vienna, and Alfons Valoh, Vienna, all of Austria, assignors to said Vockenhuber, by said Pammer, said Krob, said Forch, said Revy-Belvard and said Valoh
Filed July 15, 1970, Ser. No. 55,203

Claims priority, application Switzerland, July 16, 1969, 11082/69; 11083/69; Aug. 25, 1969, 13092/69; 13093/69; 13094/69; 13095/69

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-192

91 Claims



The information carrier is wound on a reel which is contained in a cartridge of either of first and second types. Each of the cartridges has locating and fixing surfaces specific to the type of cartridge. The reel in the cartridges of said first type has a flange. The reel in the cartridges of the second type has a central bore. The cartridges of the second type have a wall formed with an aperture aligned with said bore. The information carrier on said reel has a leading end. The appliance comprises first locating and fixing means adapted to engage said locating and fixing surfaces of any cartridge of said first type so as to hold said cartridge of said first type in an operative position on said appliance, second locating and fixing means adapted to engage said locating and fixing surfaces of any cartridge of said second type so as to hold said cartridge of said second type in an operative position on said appliance, threading means operable to mechanically move said leading end of said information carrier in a cartridge of either of said first and second types when said cartridge is held in said operative position, first reel-driving means adapted to cooperate with said flange and operable to drive said reel in a cartridge of said first type when said cartridge is in said operative position, and second reel-driving means comprising a mandrel adapted to extend through said aperture into engagement with said bore of a reel of a cartridge of said second type when said cartridge is in said operative position. The second reel-driving means are operable to drive said reel in said cartridge of said second type.

3,656,704

CASSETTE TYPE TAPE RECORDER

Daiichi Ogura, Kyoto, Japan, assignor to Mitsubishi Electric Corporation, Chiyoda-ku, Tokyo, Japan

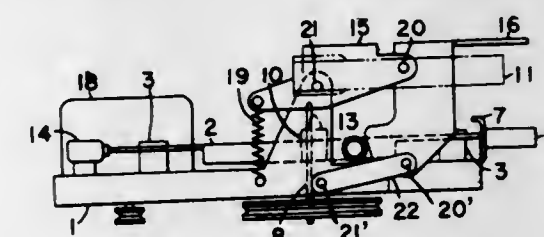
Filed Nov. 25, 1970, Ser. No. 92,721

Claims priority, application Japan, Nov. 27, 1969, 44/112766

Int. Cl. G03b 1/04; G11b 15/32, 23/04

U.S. Cl. 242-198

6 Claims



Disclosed herein is a cassette type tape recorder which readily permits insertion and removal of the cassette by a simple operation and further provides high stability against vibration. The tape recorder is operated simply by inserting a horizontally disposed cassette through an inlet provided on an operating panel and pushing down a handle, and the cassette is easily removed by just pushing a releasing button.

The recorder is provided with a magnetic head and a pinch roller on a subordinate base member which is slidably disposed on a main base member. A bridge member having a holder in which the cassette is horizontally inserted is pivotally joined to the main base member through an arrangement of joint shafts and connecting rods for vertically moving the same within the recorder. A cam surface on the bridge member is engaged with a set roller provided on the subordinate base member so that the bridge member is retained in the lower position and the recorder in an operating condition when the bridge member reaches the end of its downward stroke. On the other hand, the cam of the bridge member is disengaged from the set roller of the subordinate base, allowing the bridge member to automatically move upward under the urging of a spring, and consequently to stop the operation of the recorder, whenever a release button fixed on one end of the subordinate base member is pushed.

3,656,705

TAPE TRANSPORT ASSEMBLY

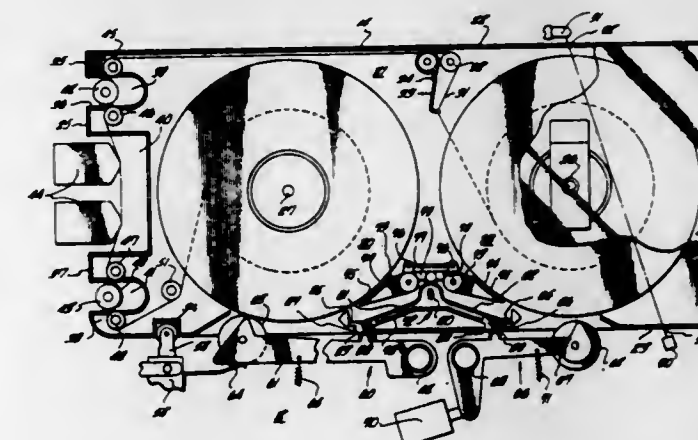
George Wesley Boyer, Covina, Calif., assignor to Leach Corporation, Pasadena, Calif.

Filed Dec. 26, 1968, Ser. No. 787,038

Int. Cl. G11b 15/32, 23/04

U.S. Cl. 242-199

11 Claims



The disclosure describes a tape transport assembly that is capable of receiving a plurality of tape cartridges for sequentially operating each cartridge to provide a long period of uninterrupted recording time.

ERRATUM

For Class 244—2 see:
Patent No. 3,656,723

3,656,706

PISTON FOLLOWER DEVICE

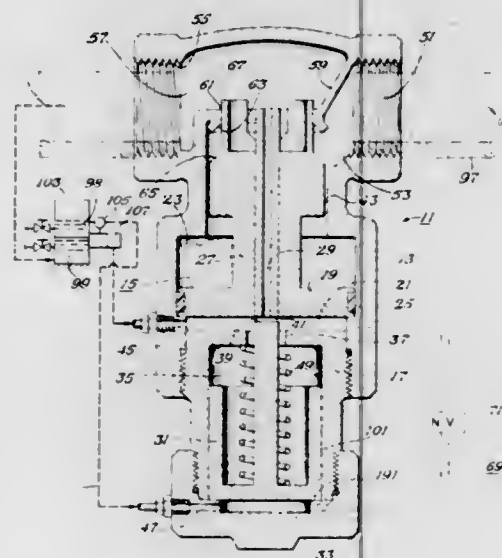
Everett E. Johnston, Newark, Tex., assignor to Esco Elevators, Inc., Fort Worth, Tex.

Filed May 21, 1970, Ser. No. 39,460

Int. Cl. F16k 31/143

U.S. Cl. 251—38

11 Claims



A piston follower device for control applications characterized by a control piston disposed in a control chamber and having a fluid passageway therethrough for communicating outside the control chamber; and a pilot piston disposed in a pilot chamber and having a regulator surface portion that is positionable adjacent the end of the fluid passageway that is in fluid communication with the control chamber to control the size of a fluid outlet. A port is provided in the pilot chamber for connecting the pilot pressure end with a first source of pressure for developing a force to position the pilot piston. A port is provided in the power end of the control chamber that, in co-action with the flow outlet, effects a control pressure for positioning the control piston and opposing the force on the pilot piston. A spring is disposed to act on the pilot piston, tending to force it in one direction or the other toward an equilibrium position. Also disclosed are specific applications in which the fluid ports are connected with sources of pressure for control applications; such as, positioning a valve portion with respect to a valve seat; and in which the equilibrium position effects a fully opened valve or a fully closed valve.

3,656,707

POPPET VALVE ASSEMBLY WITH STRAIGHT-THROUGH FLOW

Patrick T. Marotta, Boonton Township, N.J., assignor to Marotta Scientific Controls, Inc., Boonton, N.J.

Filed Apr. 16, 1970, Ser. No. 29,129

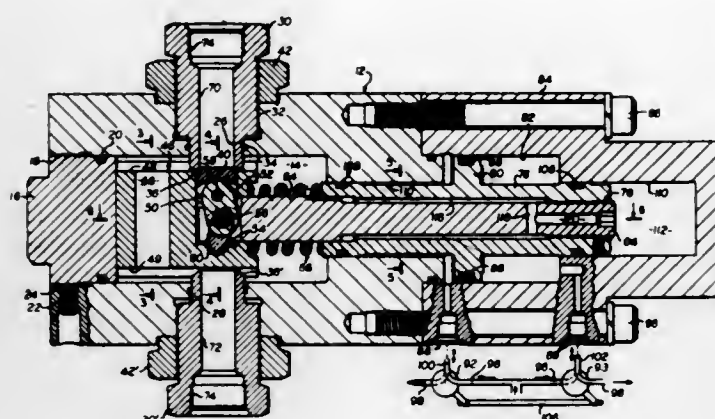
Int. Cl. F16k 31/10, 31/36

U.S. Cl. 251—62

14 Claims

This valve assembly has a housing with aligned inlet and outlet passages, and it has a poppet valve that closes against the upstream pressure with as much force as necessary to seal the pressure of the fluid with which the valve is used. Closing pressure is applied by a mechanical toggle in one embodiment, and pressure on a piston is used in another em-

bodiment. When the valve is open, the poppet is displaced transversely away from the axis of the aligned passages and



the construction provides straight-through flow with no reduction in the cross section of the flow passage.

3,656,708

DUMP VALVE

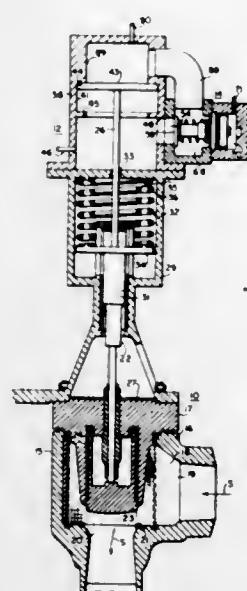
Milton M. Hobbs, Springfield, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 10, 1970, Ser. No. 53,965

Int. Cl. F16k 31/143

U.S. Cl. 251—63.6

9 Claims



A valve structure for quickly dumping the hydraulic actuating fluid in an actuator system. The structure comprises a valve body having a drainage cavity communicating with an actuating fluid inlet. The inlet is blocked by a valve plug secured to an integral valve stem slidably disposed within the valve body. On the opposite end of the valve stem, a piston member and feedback valve member are secured thereto. The feedback valve member prevents communication between a control fluid cavity in the valve and the drainage cavity. The combination of forces from the control fluid and a spring member seats the valve plug to maintain the actuating fluid pressure and also maintains the feedback valve member in a seated position. Upon decay of the control fluid pressure, the force of the actuating fluid unseats the valve plug, allowing dumping of the actuating fluid, and also unseats the feedback valve member, allowing the control fluid to dump into the drain cavity. The dumping of the control fluid enables the faster dumping of the actuating fluid.

3,656,709

VALVE HAVING IMPROVED CAM-TYPE ACTUATOR

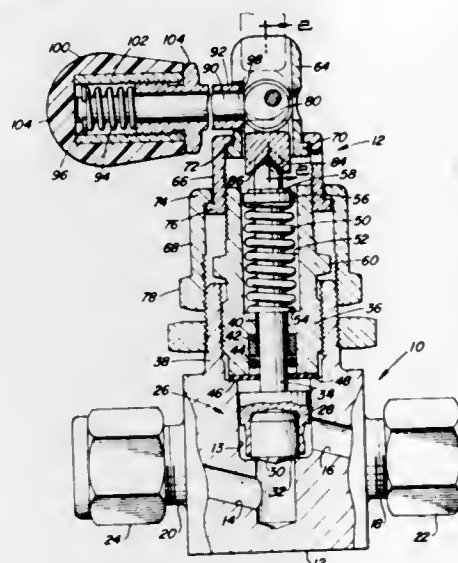
Earl D. Shuffebarger, Mentor; Oliver L. Danko, North Olmsted, and Richard J. Medvick, Cleveland, all of Ohio, assignors to Nupro Company

Filed July 8, 1970, Ser. No. 53,065

Int. Cl. F16k 35/02

U.S. Cl. 251—95

8 Claims



A valve of the type including a body having an internal valve chamber and a valve element mounted therein for reciprocatory movement between at least two positions for controlling flow through the chamber. An operating stem having a free end extending outwardly of the chamber is arranged for moving the valve element. The stem is moved by operating means including a cap means connected to the body and extending over the free end with a cam member mounted in the cap means for rotation about an axis perpendicular to the axis of the stem. An operating shaft extends from the cam member to a position outwardly of the cap means and an operating handle is associated with the shaft for moving it between at least two positions. Additionally, latching means are associated with the handle and the cap means for locking the cam in at least one position.

3,656,710

BOTTOM OPENING VALVE

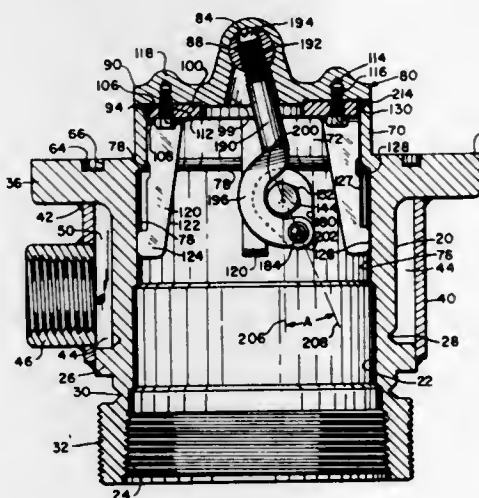
Harry N. Shaw, Chicago, Ill., assignor to The Golconda Corporation, Chicago, Ill.

Filed July 9, 1970, Ser. No. 53,549

Int. Cl. F16k 1/00, 31/52

U.S. Cl. 251—144

11 Claims



A positive opening and self-closing valve for low pressure fluids having a housing with a valve port around a top open-

ing and spaced from an inner peripheral shoulder. A two-part valve member is used having an upper housing and seat connected to a lower face ring with depending circumferentially spaced radial stop and guide members. The valve member is assembled with the housing above and stop members below the peripheral shoulder with a resilient annular valve seat member retained peripherally between the upper seat and the face ring. The valve is crank-operated for reciprocation from the closed position upwardly to the open position within the limits of the spacing provided by the peripheral shoulder and the radial stop and guide members. The crank shaft for the valve extends through the housing between or adjacent to the stop and guide members and is offset from the vertical axis of the valve member. A connecting rod extends from a wrist pin in the upper housing of the valve member to the crank shaft where it is coupled by means of an arcuate yoke and crank pin to a radial crank member carried by the crank shaft. In the closed position of the valve the arcuate yoke allows the radial crank member to rotate past bottom-dead-center to a locked position and at the same time compressing the resilient valve seat member between the valve seat of the upper housing and the lower face ring and upon the valve port. In the open position of the valve the connecting rod is moved to a vertical position and is stopped by the radial stop members with the radial crank member in an intermediate position (less than top-dead-center) so that the valve is self closing.

3,656,711

THERMOSET PLASTIC BALL VALVE

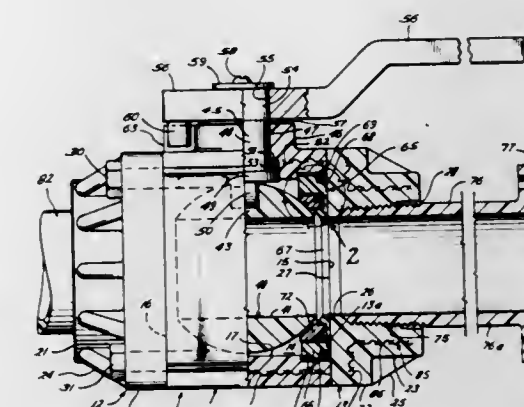
Lester W. Toelke, Houston, Tex., assignor to Encon Manufacturing Company

Filed Aug. 17, 1970, Ser. No. 64,279

Int. Cl. F16k 51/00

U.S. Cl. 251—151

12 Claims



A thermoset, noncircular plastic valve ball is rotatably mounted in a valve chamber formed in a thermoset, ported plastic valve body which is adapted to be secured between a pair of thermoset, ported plastic end caps. A thermoset plastic valve stem extends through the wall of the valve body and is engaged with the valve ball. Self-adjusting annular sealing structures are located at the valve body ports for forming fluid tight seals with the noncircular valve ball. The valve body, end caps, valve ball, and valve stem incorporate a fiber reinforcing. Any amount up to approximately 99 percent of the total number of fibers is greater than one-sixteenth inch in length, but preferably at least the majority of the fibers is greater than one-sixteenth inch in length.

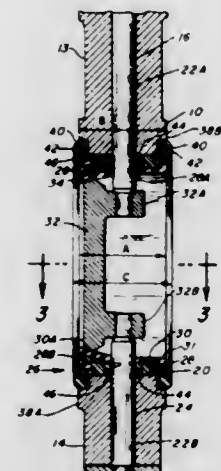
3,656,712 BUTTERFLY VALVE

Bradley E. Bertrem, Tulsa, Okla., assignor to Dover Corporation, Tulsa, Okla.

Filed June 19, 1970, Ser. No. 47,752
Int. Cl. F16k 1/226, 25/00

U.S. Cl. 251-306

2 Claims



A butterfly valve for mounting between flanges having means facilitating insertion and removal from between flanges and means of retaining fluid pressure when one flange is removed, the valve body having a flow passageway therethrough and a disc rotatable in the flow passageway to close and open the valve, the valve body having opposed paralleled planar faces which are engaged by spaced apart flanges, the valve body having annular grooves in each face and a gasket received in each annular groove, the valve having a resilient liner therein of length equal to or less than the length of the valve body so that no part of the liner extends beyond the valve faces.

3,656,713

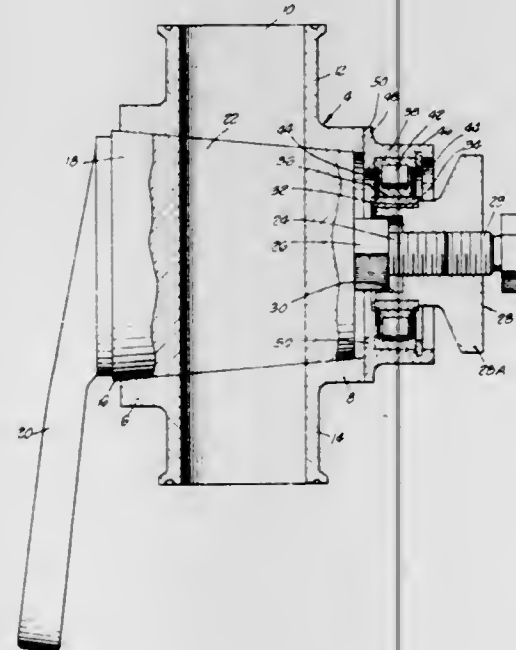
FREE TURNING TIE NUT AND PLUG VALVE

Richard C. Walton, Hollywood, Calif., assignor to Annelie Hoyer Walton, Hollywood, Los Angeles County, Calif., a part interest

Filed May 1, 1970, Ser. No. 33,821
Int. Cl. F16k 5/02

U.S. Cl. 251-309

5 Claims



A free turning plug valve and tie nut wherein the plug is retained in the valve housing by a threaded retainer which

rotates in an antifriction bearing and the retainer engages an abutment positively limiting the tightening action of the retainer; and wherein the plug or the wall of the housing in which it oscillates has a friction reducing plastic surface, which in cooperation with the controlled tightening means prevents binding of the plug in the housing.

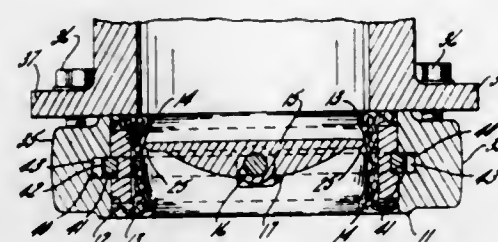
3,656,714 VALVE SEAT RETAINING MEANS AND METHOD OF ASSEMBLY AND DISASSEMBLY

Leslie R. Peterson, St. Cloud, Minn., assignor to De Zurik Corporation, Sartell, Minn.

Filed Dec. 3, 1970, Ser. No. 94,875
Int. Cl. F16k 1/22

U.S. Cl. 25-360

15 Claims



A spring biased valve seat retaining means in the form of an annular sector is inserted wholly within the deeper one of two grooves formed in the inner periphery of the valve body and the outer periphery of the valve seat and snaps into the shallower groove while remaining partially in the deeper groove when the grooves are brought into registry. The shallower groove and the retaining means are formed with cooperatively inclined end portions whereby the retaining means is forced into the deeper groove upon rotation of the seat relative to the body to permit axial removal of the seat from the body.

3,656,715

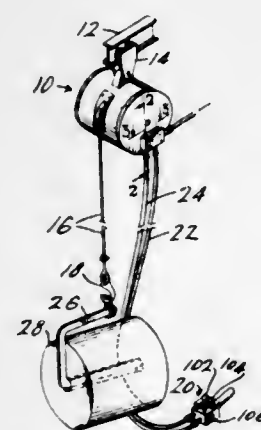
HOIST HOOK CONTROL

Edgar R. Powell, Grand Haven, Mich., assignor to D. W. Zimmerman Mfg., Inc., Madison Heights, Mich.

Filed May 20, 1969, Ser. No. 826,251
Int. Cl. B66d 1/00

U.S. Cl. 254-168

10 Claims



A control is provided for maintaining a predetermined position of a hoist hook. The control is designed particularly

for a pneumatically operated hoist of the type shown in U.S. Pat. No. 3,325,148. In a hoist of that type, when the hoist hook is at rest or inactive in a predetermined position over a period of time, whether or not loaded, the hook will tend to slowly drop as air in the hoist tends to dissipate and the pressure decreases. The new control supplies regulated air to the hoist chamber to maintain a constant pressure therein when the hoist is not being operated, to prevent lowering of the hook. This air is supplied directly to the chamber, by-passing the remotely operated controller used to raise and lower loads.

3,656,716

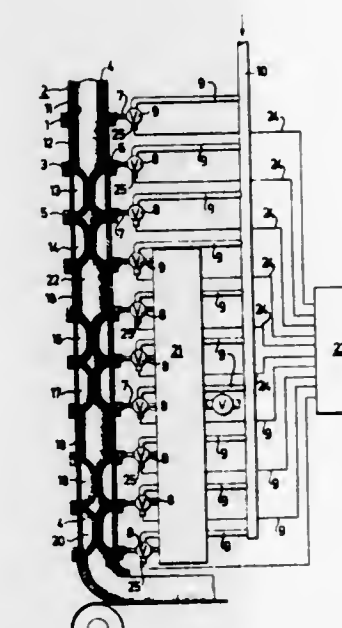
APPARATUS FOR KNEADING DOUGHY EXPLOSIVES

Sten Herman Ljungberg, and Lennart B. T. Sternhoff, both of Stockholm, Sweden, assignors to Nitro Nobel AB, Gytterp, Sweden

Filed Jan. 12, 1970, Ser. No. 2,004
Claims priority, application Sweden, Dec. 31, 1968, 18079/68
Int. Cl. B01f 15/02

U.S. Cl. 259-4

4 Claims



This apparatus comprises a flexible hose adapted to receive solid and liquid constituents of the explosive. This hose is surrounded by a flexible tube which in turn is surrounded by a rigid tube that is made of a series of sections secured together. Compressed air is supplied into the spaces between the flexible tube and successive sections of the rigid tube successively to force the mixture of the solid and liquid constituents of the explosive down through the hose peristaltically. The solid ingredient is supplied to the hose from a hopper through a measuring chamber and rigid tube; and the liquid ingredient is supplied from a separate measuring chamber which comprises a flexible cylinder inside a rigid housing. Opposite ends of the cylinder are closed alternately; and alternately the outside of the cylinder is put under suction and under pressure. On suction, the liquid component is sucked into the cylinder from a supply source. On pressure the liquid component is forced out of the cylinder into the hose through a nozzle which surrounds the tube that delivers the solid component into the hose. This nozzle directs the liquid against the inside wall of the hose to prevent the solid ingredient from sticking to the hose.

3,656,717

PROCESS AND APPARATUS FOR THE CONTINUOUS PNEUMATIC TREATMENT OF FINE MATERIAL

Hans Klein, Bergisch Gladbach, and Wolfgang Kluger, Ennigerloh, both of Germany, assignors to Polysius AG, Neu-Neckum, Germany

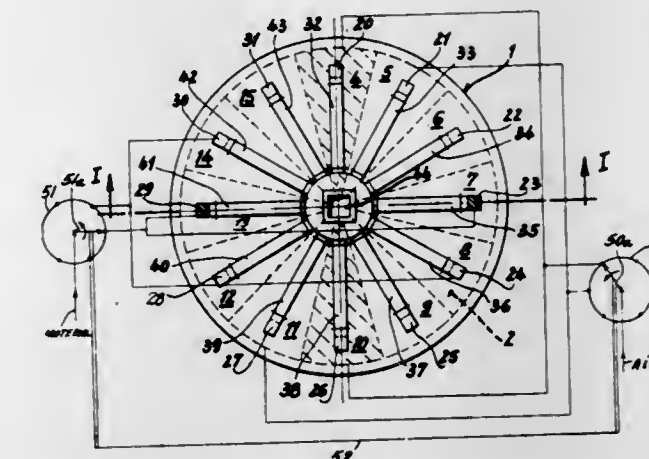
Filed July 6, 1970, Ser. No. 52,607

Claims priority, application Germany, Aug. 28, 1969, P 19 43 782.2

Int. Cl. B01f 13/02, 15/02

U.S. Cl. 259-4

7 Claims



At least two separate zones in the bottom of a mixing chamber are supplied alternately with finely divided streams of agitating air, and fine material to be treated is supplied at alternate points in the top of the chamber, each of such points being located above one of such separate zones. The fine material is withdrawn at the bottom of the chamber. The point at which fine material is supplied is always a point at which the fine material in the chamber is relatively quiet, located above a zone in which the agitation of the material by air is relatively slight.

3,656,718

HELICAL BLADE MIXER

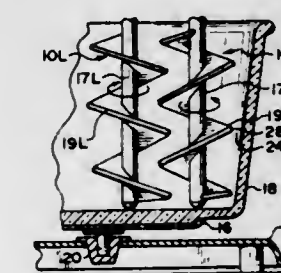
Carmen P. Calrelli, Farmington, Conn., assignor to Dynamics Corporation of America, New York, N.Y.

Continuation-in-part of application Ser. No. 766,402, Oct. 10, 1968, now abandoned. This application July 30, 1970, Ser. No. 59,419

Int. Cl. B01f 9/16

U.S. Cl. 259-84

15 Claims



A food mixer having vertically disposed parallel shafts with integral helical intermeshing blades on each shaft rotated in opposite directions for selective use to move the food ingredients vertically upwardly or downwardly in a selectable direction in the mixing zone with or without rotation of a mixing bowl. The relative vertical spacing between the blades at their working overlap is adjustable by varying their phase relation therebetween whereby the benefits of a wide spacing and a narrow spacing may be had in the mixing overlap zone.

3,656,719

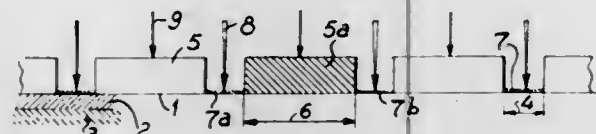
METHOD OF HEATING METALLURGICAL PRODUCTS
Pierre Marie Louis Dessarts, Paris, France, assignor to Societe Anonyme Heurtey, Paris, France

Filed Aug. 17, 1970, Ser. No. 64,261

Claims priority, application France, Aug. 19, 1969, 6928327
Int. Cl. F27b 9/14

U.S. Cl. 263-6 R

3 Claims



The technical province of this invention is the heating in a furnace or kiln of metallurgical products principally.

The invention relates to a heating method and means for imparting to mutually spaced products resting on the hearth of a kiln of this kind successive individual advancing motions, each consisting of alternating elemental motions, of which one at least is of length different from that of the others.

The advantage of the invention resides primarily in the recovery of the heat accumulated in the hearth on the uncovered parts thereof and its transmission along successive zones to the undersurfaces of the products being treated, with dwelling times in the kiln and a degree of filling thereof enabling maximum efficiency to be obtained.

3,656,720

HEAT TREATING FURNACE WITH WALKING BEAM DRIVE

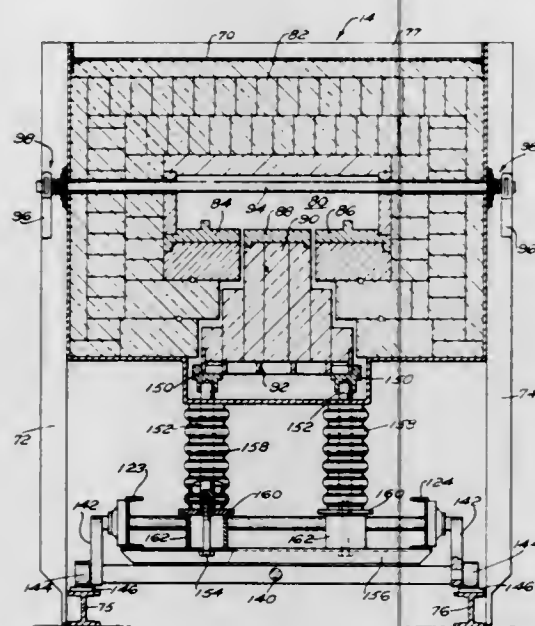
Herbert W. Western, Barrington; Ernest C. Gronquist, Jr., Providence; Marvin J. Ott, Jr., Warwick, and Donald E. Gunther, Providence, all of R.I., assignors to C. I. Hayes Inc., Cranston, R.I.

Filed Mar. 16, 1970, Ser. No. 19,709

Int. Cl. F27b 9/14

U.S. Cl. 263-6 A

7 Claims



A furnace construction for the heat treating of metal materials and including a conveying apparatus that provides for step-by-step movement of the metal materials through the heat treating chamber of the furnace construction, the drive for the conveying apparatus comprising a walking beam assembly. Sintering of various kinds of materials including

metal compacts may be accomplished by the furnace construction and since treatment of the materials at relatively high temperatures is necessary during the heat treating cycle, a special sealing structure is provided for preventing contamination of the high temperature zone during sintering of the materials and the cooling thereof after the sintering cycle.

3,656,721

REFRACTORY STRUCTURE

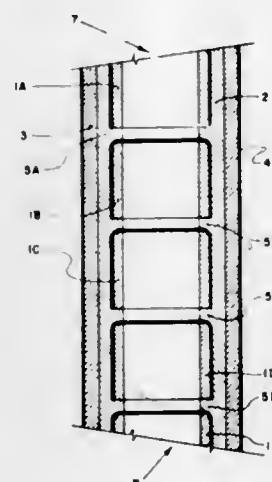
Jean-Michel Bauer, Chatou, and Andre Brossard, La Garenne-Colombes, both of France, assignors to Societe Generales des Produits Refractaires, Paris, France

Filed July 20, 1970, Ser. No. 56,445

Claims priority, application France, July 18, 1969, 6924459
Int. Cl. F23i 9/04

U.S. Cl. 263-19 R

4 Claims



A refractory insulating structure for a hollow combustion shaft comprising an interior and backup lining. The interior lining comprises a plurality of interior ring sections spaced along the length of the shaft. The backup lining is continuous and has a plurality of internal corbels spaced along the length of the shaft such that each interior ring section is supported by a corbel.

3,656,722

APPARATUS FOR PREHEATING FINE GRANULAR MATERIAL

Jochen Polysius, and Horst Ritzmann, both of Neubeckum, Germany, assignors to Polysius AG, Neubeckum, Germany

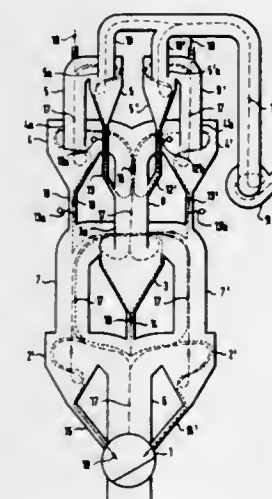
Filed May 28, 1970, Ser. No. 41,286

Claims priority, application Germany, Aug. 12, 1969, P 19 41 071.0

Int. Cl. F27b 15/00; F26b 17/00

U.S. Cl. 263-21 A

4 Claims



A plurality of eddy chambers of the cyclone separator type are arranged in superimposed levels through which the

3,656,725

MOUNTING OF GRAMOPHONE UNIT PLATES AND SIMILAR FLANGE-EDGED PANELS

Rene Clark, Woodborough, England, assignor to The Plessey Company Limited, Ifford, England

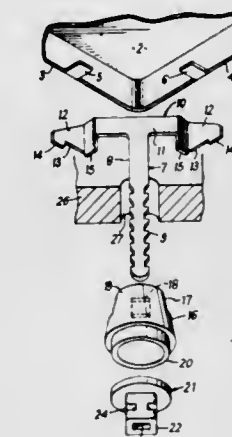
Filed May 7, 1970, Ser. No. 35,363

Claims priority, application Great Britain, May 23, 1969, 26,435/69

Int. Cl. F16j 15/08

U.S. Cl. 248-22

5 Claims



To detachably secure a mounting stud in a corner position underneath a unit-plate panel having integrally drawn edge flanges, the mounting stud is provided with a T-bar which is placed underneath integral, inwardly bent tabs projecting respectively from two flanges meeting at a corner of the plate with the T-bar extending from flange to flange at 45° to these, touching the flanges at both ends and being held against displacement along the flanges, when the stud is upright, by inter-engagement of portions of the T-bar ends and of the tabs. Preferably the T-bar ends are flat and bent at 45° from the T-bar center part to lie flat on the flanges and have projections which, when the stud is upright and in contact with the panel, project at the two sides of each tab to clamp the unit plate to a mounting board. A rubber buffer having slots to accommodate the T-bar is slid over the stud on one side, and a bush, fitting over the buttress-toothed mounting stud and having slots for the accommodation of a clip engaging the buttress teeth, is placed on the stud on the other side of the mounting board.

3,656,726

WELDING HEAD HANGER

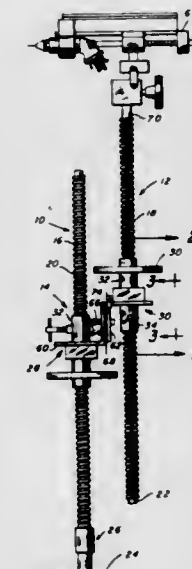
John R. Haynes, 2630 East 15th Place, Tulsa, Okla.

Filed Oct. 10, 1969, Ser. No. 865,368

Int. Cl. B23k 37/02

U.S. Cl. 248-124

1 Claim



A welding head hanger is vertically and horizontally adjustable to properly align a welding head attached thereon with a work piece to be welded.

material passes downward in series and through which the hot gases travel upward in series. Each eddy chamber in at least the uppermost level is provided with a dip pipe, and each eddy chamber in at least the lowermost level is constructed without any dip pipe.

3,656,723

MULTIPLE HELICOPTER LIFT SYSTEM

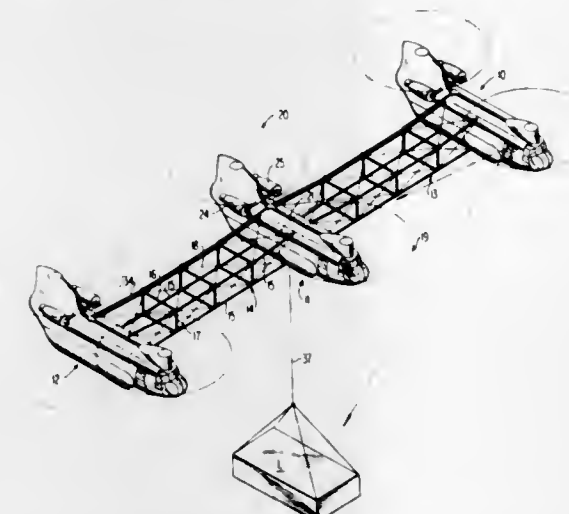
Frank N. Piasecki, Haverford, and Donald N. Meyers, Philadelphia, both of Pa., assignors to Piasecki Aircraft Corporation, Philadelphia, Pa.

Filed Dec. 16, 1969, Ser. No. 885,400

Int. Cl. B64c 37/02

U.S. Cl. 244-2

22 Claims



A multiple helicopter lift system of two or more helicopters of the conventional type normally operating independently that are rigidly connected together in a spaced relationship by structural beam members to form an integral unit with the rotor drive systems of the attached helicopters interconnected so that the engines of each of the interconnected helicopters rotate at the same speed, as do the rotors. If desired the flight controls of all helicopters in the system are interconnected so that the rotational path and pitch of the rotors of all helicopters in the system are controlled from a single master pilot's station in a manner to establish the necessary forces and moments required to effectively control the movement of the entire system of connected helicopters.

3,656,724

PAKAHOME

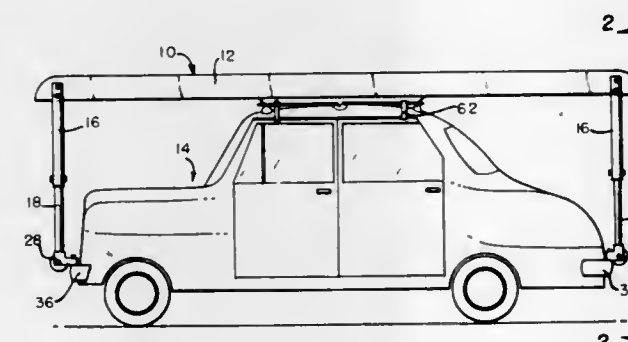
William Greenhalgh, P.O. Box 521, Oshawa, Ontario, Canada

Filed June 5, 1970, Ser. No. 43,722

Int. Cl. B60p 3/34

U.S. Cl. 296-23 R

5 Claims



A unit adapted to be carried on top of a vehicle, and which can be opened up upon arrival at a stopping place on a journey, and converted to a full enclosure for the carrying vehicle, or to a safe and private quarters for one or more persons, for sleeping, eating or other activities.

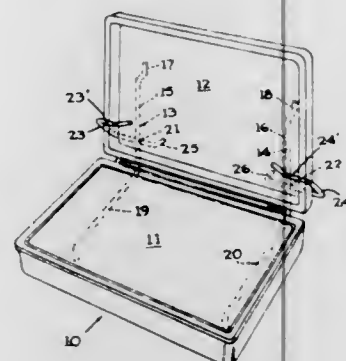
3,656,727

HANGER BRACKET MEANS

Hugh T. Greenlee, Cleveland, Ohio, assignor to The Wright Tool and Forge Company, Barberton, Ohio
Filed Aug. 3, 1970, Ser. No. 60,574
Int. Cl. A47I 7/00

U.S. Cl. 248-201

9 Claims



Bracket means for engagement with a perforated "peg board" and capable of supporting a receptacle, such as a tool box or tote box, having a hinged cover or lid, with such cover or lid held in open position.

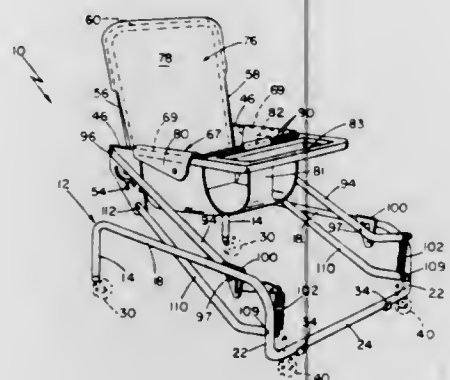
3,656,728

BABY JUMPER

Clifton A. Griggs, Fitchburg, Mass., assignor to Collier-Keyworth Company, Gardner, Mass.
Filed Aug. 20, 1970, Ser. No. 65,439
Int. Cl. F16m 13/00

U.S. Cl. 248-399

10 Claims



A collapsible baby jumper includes a base frame, and a seat frame disposed above the base frame movable to and from an upright or erected position and a collapsed position, supported on the base frame by a main diagonal brace member, arranged at each side of the seat and base frames, extending diagonally upwardly from the base frame, and having its upper end pivotally connected to the seat frame; each brace member has a pivot pin projecting therefrom at a position between its ends, and there is secured to each side of the base frame adjacent the pivot pins a pivot support means having two pivot support surfaces, one for upright position and the other for collapsed position, with a guide in which the adjacent pivot pin is engaged for controlling movement of the pin to and from the two support surfaces; and the forward end of each brace member is connected to the base frame by a downwardly extending tension spring which in its collapsed position forms a rigid link pivotally connecting the forward end of the brace member to the base frame.

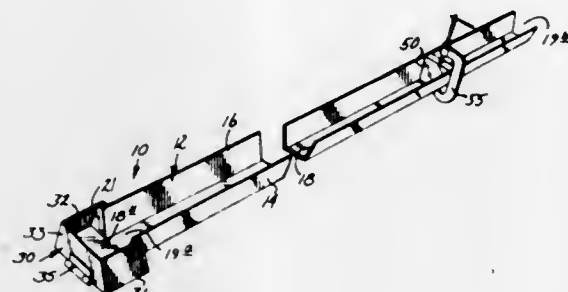
3,656,729

MOLD FOR PREPARING CONCRETE SLOTTED FLOORS

Kenneth J. Borgert, St. Cloud, Minn., assignor to Borget Concrete Products, Inc., St. Joseph, Minn.
Filed Oct. 9, 1970, Ser. No. 79,489
Int. Cl. E04g 11/42

U.S. Cl. 249-18

5 Claims



A mold for casting a T-shaped concrete slab useable in a slotted floor assembly is described. The mold includes an elongated mold section and a transversely extending end mold section; the two mold sections having reversely flared sidewalls for casting T-shaped slabs which can be assembled in an adjacent lateral trunk-to-cross arm relationship to provide a self-spaced and self-secured slotted floor.

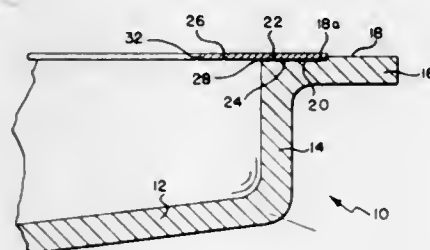
3,656,730

MOULD FOR PRODUCING SHAPED ARTICLES FROM FOAM FORMING COMPOSITIONS

Peter Reginald Hogben, and Eric Short, both of Marley Foam Ltd. Dickey Lane, Lenham, Kent, England
Filed Apr. 23, 1969, Ser. No. 818,650
Claims priority, application Great Britain, May 1, 1968, 20,675/68
Int. Cl. B28b 7/34

U.S. Cl. 249-134

9 Claims



A mould for use in the production of moulded articles from foam-forming compositions. The mould has a shaped mould portion into which a foam-forming composition is introduced and a closure member for closing the mould during foaming. The rim of the shaped mould portion has a lip which extends inwardly beyond the inner surface of the shaped mould portion and which is close to the closure member when the mould is closed. The lip serves to direct the gases escaping from the mould during foaming thereby substantially reducing the formation of a hard edge around the periphery of the moulded article.

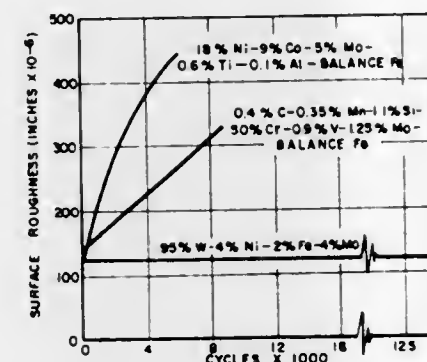
3,656,731

TUNGSTEN-NICKEL-IRON-MOLYBDENUM DIE CASTING SHAPING MEMBERS

Earl I. Larsen, 9565 Copley Drive, Indianapolis, Ind.
Continuation-in-part of application Ser. No. 645,041, June 9, 1967, now abandoned, which is a continuation-in-part of application Ser. No. 590,088, Oct. 27, 1966, now abandoned.
This application Sept. 5, 1969, Ser. No. 855,701
Int. Cl. B22c 9/06; B22d 17/00

U.S. Cl. 249-135

18 Claims



This invention is directed to the use of tungsten base alloys containing about 1 to 12 weight percent nickel, about 0.5 to 8 weight percent iron and about 0.5 to about 8 percent molybdenum for die casting dies, molds, cores and other metal shaping members.

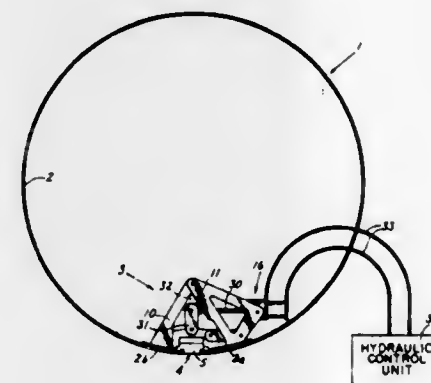
3,656,732

EXPANDABLE CORE FOR CASTING CONCRETE PIPE

Dudley St. John, Redlands, Calif., assignor to Hydro Conduit Corporation, Orange, Calif.
Filed Oct. 6, 1970, Ser. No. 78,384
Int. Cl. B28b 7/30

U.S. Cl. 249-179

16 Claims



An expandable core for casting concrete pipe is disclosed having a cylindrical core member with a longitudinal slot-like opening in its periphery. Core gate means and rigid links are pivotally interconnected and are mounted on the interior of the core member to straddle the slot-like opening. An over-center linkage system is connected to the core gate means and driven by fluid or mechanical means to selectively expand the core member, simultaneously pivot the core gate into the slot-like opening and lock the core in this expanded position so that concrete may be cast therearound. To separate the core from concrete cast therearound, the fluid or mechanical means may be selectively operated to drive

the overcenter linkage means so as to pivot the core gate means out of the slot-like opening and collapse the core.

ERRATUM

For Class 261-72 R see:
Patent No. 3,656,736

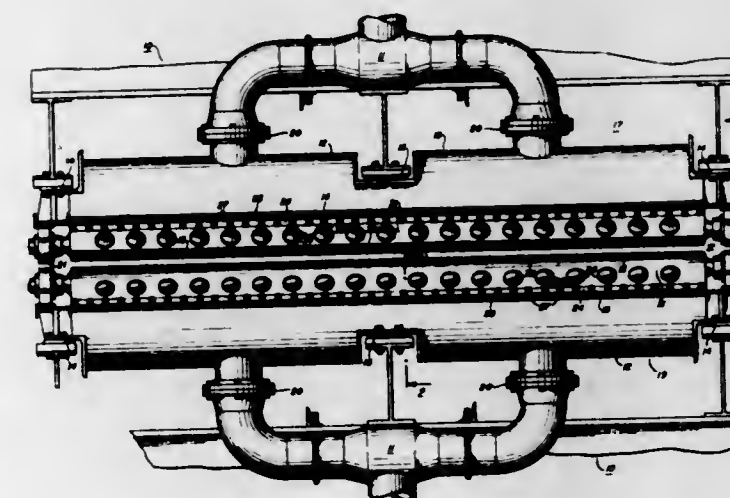
3,656,733

HEAT TREATMENT APPARATUS

Robert L. Winkler, Bethlehem, Pa., and William J. Baker, Valparaiso, Ind., assignors to Bethlehem Steel Corporation
Filed Oct. 30, 1969, Ser. No. 872,676
Int. Cl. C21d 1/62

U.S. Cl. 266-6 S

7 Claims



Apparatus which is adapted to be removed and replaced as a unit in a quench system for applying quenching fluid at high pressure to a heated workpiece with means to form a continuous uniform curtain of quenching fluid on the workpiece.

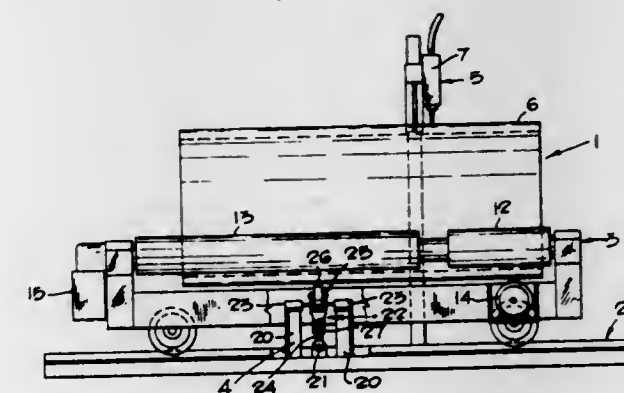
3,656,734

PIPE CUTTING DEVICES AND METHODS OF MAKING AND USING THE SAME

William F. Davis, 6234 Langdon Court, Berkeley, Mo.
Filed Oct. 8, 1969, Ser. No. 864,635
Int. Cl. B23k 7/10

U.S. Cl. 266-23 N

4 Claims



The present invention relates to devices for cutting pipes and similar articles which automatically maintain a uniform longitudinal position between the cutting torch and the arti-

cle to be cut comprising means for detecting longitudinal shift between said torch and the transverse plane of cut of a pipe while it is being cut peripherally and means for minimizing any error or shift.

3,656,735

SCRAP RECLAMATION

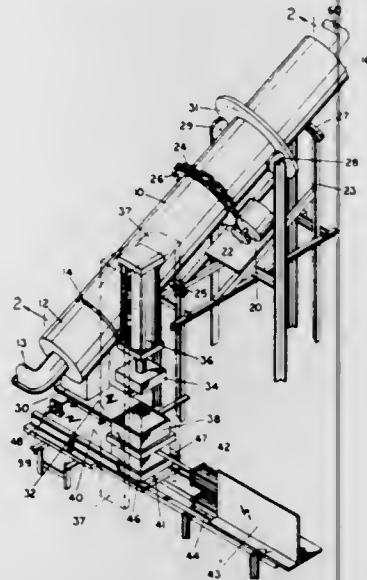
Sigdon A. Elliot, Worthington, Ohio, assignor to Thermetics, Inc., Columbus, Ohio

Filed Mar. 3, 1969, Ser. No. 803,729

Int. Cl. F27b 7/14

U.S. Cl. 266—33 S

15 Claims



A system for removing oil, water and other adulterants from machine shop scrap cuttings. Scrap is inserted in the upper end of an inclined tumbler barrel and passed through a counterflowing stream of hot gases from a burner located at the lower end. Oxygen is inserted into the tumbler barrel at an intermediate position. The barrel is lined with refractory inserts each having contiguous connecting passages of different diameters. The scrap is raised to a temperature near its melting point and compacted into briquettes while remaining hot. Excess fuel gas flow and combustion prevent the aspiration of air into the barrel and thus prevent oxidation of the metal part of the scrap. As an alternative, the scrap can be melted as it flows from the tumbler barrel directly into a melting pot.

3,656,736

FLUID AMPLIFIER CONTROLLED CARBURETOR

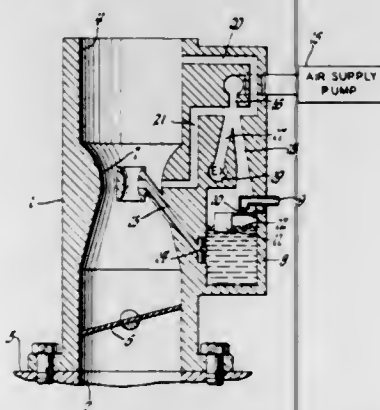
Jerome B. York, Jr., Royal Oak, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation of application Ser. No. 764,907, Oct. 3, 1968, now abandoned. This application June 29, 1970, Ser. No. 56,080

Int. Cl. F02m 5/08

U.S. Cl. 261—72 R

1 Claim



A carburetor with a fluid amplifier, controlled by venturi signal, to pressurize the float bowl in inverse proportion to

the air flow through the mixture conduit and thereby augment fuel delivery through the main metering system during engine idling.

3,656,737

SAFETY DEVICES FOR TENSION SPRINGS

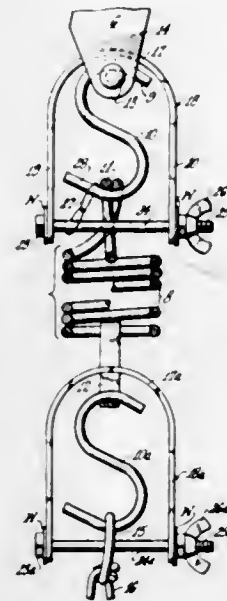
Richard D. Smith, 8143 1/2 Winnetka, Canoga Park, Calif., and Ronald S. Du Bois, 790 Spalding, Thousand Oaks, Calif.

Filed Aug. 6, 1970, Ser. No. 61,648

Int. Cl. F16f 1/12

U.S. Cl. 267—73

5 Claims



Safety devices for loose attachment to each end of garage-door-mounted coiled tension spring(s) such as used to lift overhead doors. Separated (severed) pieces of spring assembly which result from accidental break and would otherwise fly about the area are retained by the safety device, thus preventing property and personal injury. Different forms of device are provided for attachment to single and to double springs, in either event comprising a rockable cradle or bracket which embraces the spring hanger, plus it journals and anchors a cross pin which traverses the terminal spring attachment loop(s), which loop is also hung on the conventional hanger. The cross pin is limitedly movable axially to the spring so as to accommodate attachment loops of different sizes. Such safety devices can be placed on already mounted spring assemblies without disassembling the latter.

3,656,738

CONVEYOR OPERATED MISFEED CONTROL MECHANISM FOR MULTIPLE STATION ARTICLE DELIVERY APPARATUS

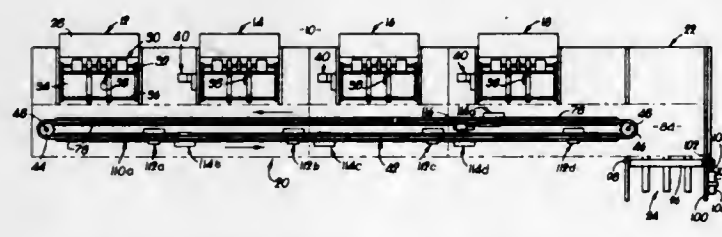
Donald A. Glaser, Emporia, Kans.; Lyle V. Dutro, Pasadena, Calif., and Woodrow W. Pendleton, Emporia, Kans., assignors to Diddle-Glaser, Inc., Emporia, Kans.

Filed Jan. 22, 1970, Ser. No. 5,033

Int. Cl. B65h 39/02

U.S. Cl. 270—58

10 Claims



Control mechanism operated by the conveyor of multiple station article feeding apparatus of the type wherein the

3,656,740

PAPER PILING MACHINE FOR BINDING

Megumu Takatou, 2-banchi, 1-chome, Jinno-cho, Atsuta-ku, Nagoya, Japan

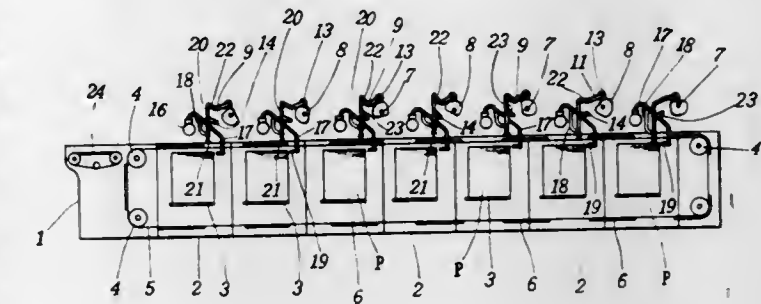
Filed Oct. 13, 1969, Ser. No. 865,908

Claims priority, application Japan, Oct. 14, 1968, 43/89618

Int. Cl. B65h 39/02

U.S. Cl. 270—58

4 Claims



feeder unit at each station has a misfeed detector and in the preferred form all feeder units but the first are provided with article feed deactivating structure. The control mechanism includes a plurality of actuators swingably mounted on the endless roller chain of the conveyor and each normally located in a standby position. A solenoid operated shifter for each feeder unit is coupled to the detector of an associate feeder unit for operation thereby and located adjacent to the chain to shift the actuator next movable theretoward. Sensors proximal to each shifter in the direction of movement of the chain are positioned to be actuated by an actuator in the line thereof are connected to the deactivating structure of the next following feeder unit to deactivate the latter upon misfeed of a preceding feeder unit and the last sensor is connected to reject mechanism at the delivery end of the conveyor. Reset cam structure returns an operated actuator to the standby position after it passes by the delivery end of the conveyor. Optionally, the control mechanism may be set up to cause articles to be fed from each station down the line from a station at which a misfeed has occurred but operable to actuate the reject mechanism for the group of articles when they reach the end of the conveyor.

3,656,739

COLLATOR

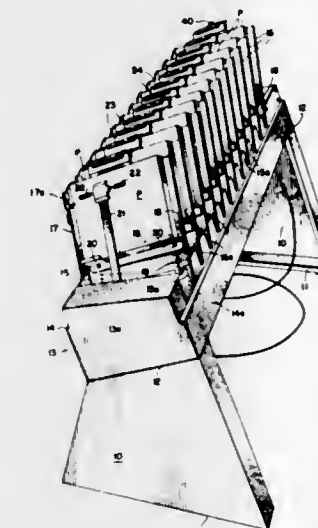
Charles Nicholas Hoff, Willowdale, Ontario, Canada, assignor to General Binding Corporation (Canada) Limited

Filed Aug. 25, 1969, Ser. No. 852,606

Int. Cl. B65h 39/02

U.S. Cl. 270—58

12 Claims



Collating apparatus having a series of trays supported for carrying sheets of paper, and a finger mechanism for pushing individual sheets of paper from the trays upwardly, and anti-friction members arranged on the trays for manually gathering the ejected sheets of paper by a sweeping motion along the upper edges of the trays, the trays being mounted and tilted forwardly towards an operator so as to permit the sheets of paper to be gathered while the operator is seated in front of the machine, and incorporating electrical control means automatically recycling the machine each time the operator gathers the ejected sheets of paper, the machine being so constructed as to permit use of widely different sizes of paper with a minimum of adjustment, the pads of paper in each tray being automatically located due to the forward tilting of the trays.

3,656,741

FOLDING APPARATUS

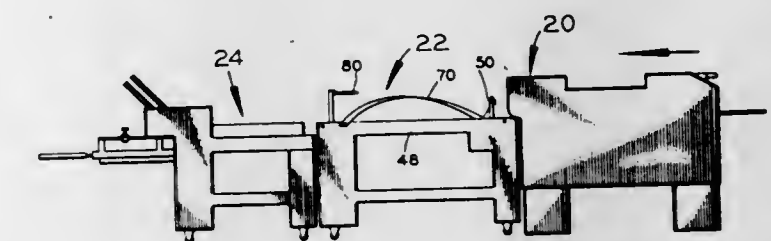
Thomas F. Macke, 525 S. E. 26th Avenue, Fort Lauderdale, Fla., and Robert W. Olson, 801 S. E. 7th Avenue, Pompano Beach, Fla.

Filed Apr. 3, 1970, Ser. No. 25,522

Int. Cl. B65I 45/22

U.S. Cl. 270—66

10 Claims



Folding apparatus for use in folding a sheet, particularly for folding the sheet into a signature. A travelling sheet is folded once by a first folder, and while continuing to travel in a straight path is folded in a second folder along a line parallel to the direction of travel by a diagonal cross over guide. While continuing to travel in the same direction, the sheet is folded again by a third folder to produce a signature.

3,656,742

DOCUMENT TRANSPORT DEVICE

Heinz-Gunter Michels, Berlin, Germany, assignor to The National Cash Register Company, Dayton, Ohio

Filed July 29, 1970, Ser. No. 59,090

Claims priority, application Germany, Aug. 1, 1969, P 19 39 129.8

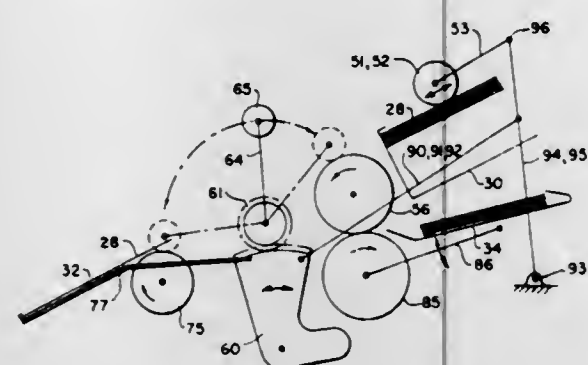
Int. Cl. B65h 5/06

U.S. Cl. 271—3

14 Claims

A single, double-function, pressure platen, movable by actuating mechanism from a home position to two different

operative positions for transporting record material in successive fashion. The platen is positioned to cooperate with a first, constantly driven, platen to transport the record materi-



al from a stack to a processing station and then to cooperate with a second, constantly driven, platen to transport the material from the processing station to a collection station.

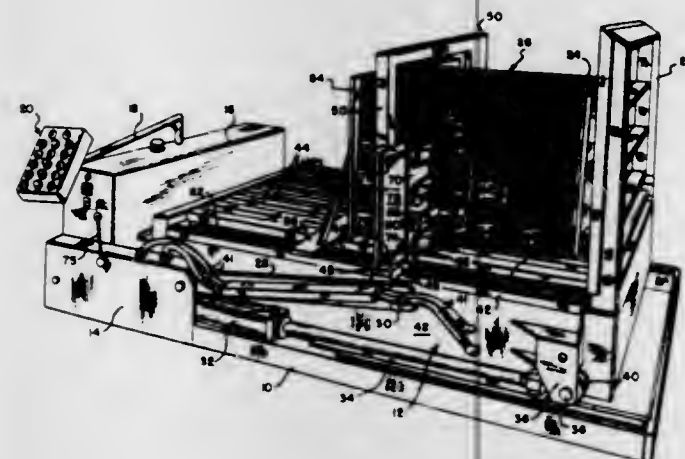
3,656,743

METHOD AND APPARATUS FOR RESTACKING STACKS OF PAPER, CARDBOARD AND THE LIKE SHEETS
Gunnar Ruud, Guru Popp A/S, P.O. Box 50, 1701, Sarpsborg, Norway

Filed Oct. 16, 1970, Ser. No. 81,444
Int. Cl. B65h 31/40

U.S. Cl. 271-61

12 Claims



A machine for processing and restacking stacks of sheets of printed or unprinted paper, cardboard and the like, including a support, means for holding the sheets of a stack on edge, in a substantially vertical position on the support, sheet lifting means movable along the support successively under the sheets of the stack, side sheet guide means having a face located adjacent the position of the side edges of the sheets of the stack above the support with its face in a position to be engaged by the adjacent side edges of the sheets, means for vibrating the sheet lifting means for in turn vibrating, loosening and separating the sheets of the stack at the position of the sheet lifting means, means for positioning the vibrating means and controlling its effect on the lifted sheets for moving them in a direction to cause their said side edges to contact the face of the side guide means, thereby stacking the sheets of the stack with the side edges in alignment. The support of this unit comprises a plurality of spaced parallel beams, the sheet lifting means and the vibrating means comprises a plurality of lifting shoes located between beams and projecting above their upper surfaces, and the vibrating means is an electromagnetic vibrator for controlling the stacking of the sheets.

3,656,744

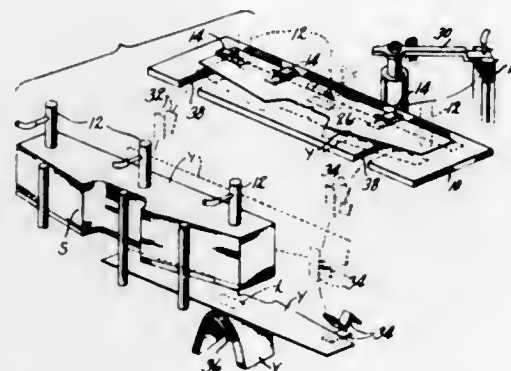
SHEET REGISTERING MECHANISM

Richard W. Gray, 24 Lee Street, Apt. B-8, Marblehead, Mass.; Paul E. Morgan, 109 Highview Avenue, Melrose, Mass., and Paul G. Rumball, 8 Laurel Street, Beverly, Mass., assignors to USM Corporation, Boston, Mass.

Filed Mar. 13, 1970, Ser. No. 19,256
Int. Cl. B65n 9/04

U.S. Cl. 271-60

2 Claims



A device is disclosed employing no moving parts for quietly causing sheets of flexible material, especially fabric work pieces, to assume a desired position in a plane. A pair of adjustably mounted U-shaped edge gages respectively including an air flow device for directly air parallel to and along a surface of the work piece within the edge gage, has closed ends of the gages cooperating to determine selectively the position of the margin of the flexible material. The device has particular advantage when used in conjunction with an automatic fabric feeder, for example.

3,656,745

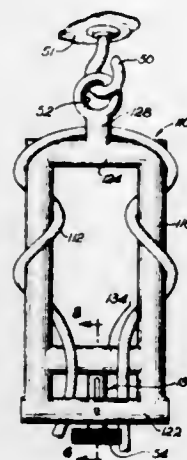
PULL-TYPE FRICTIONAL RESISTANCE EXERCISING DEVICE WITH GUIDE MEANS

Edgar E. Holkesvick, 1801 Smokewood, Fullerton, Calif.
Continuation-in-part of application Ser. No. 693,206, Dec. 26, 1967, now Patent No. 3,510,132. This application May 5, 1970, Ser. No. 34,745

Int. Cl. A63b 21/00, 23/04

U.S. Cl. 272-79 A

12 Claims



An exercising device for use with a length of rope and adapted to have one end thereof fastened to a support while the length of rope is pulled back and forth therethrough. The exercising device includes two elongated leg members to receive turns of rope therearound, a neck-like guide portion between the leg members for guiding the rope from one leg

member to the other leg member, a retaining bar adjacent the other ends of the leg members to prevent the turns of rope from slipping off the device, and an attachment member on the end of the guide member for supporting the device. A member is also provided adjacent the other end for preventing the portions of rope from becoming entangled.

3,656,746

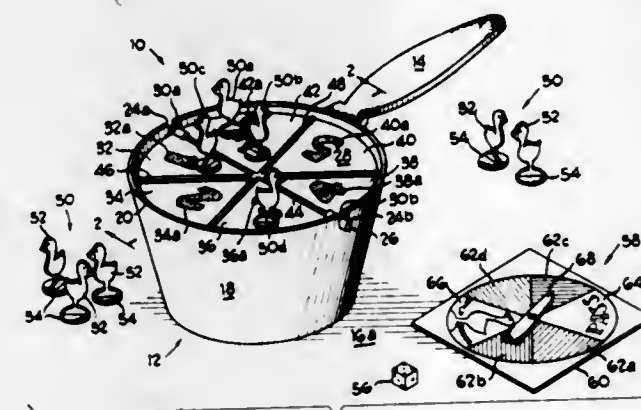
BALANCING GAME WITH PIVOTED RECEPTACLE COVER MEMBER

Jeffrey D. Breslow, Chicago, Ill., assignor to Marvin Glass & Associates

Filed Mar. 2, 1970, Ser. No. 15,623
Int. Cl. A63f 9/00

U.S. Cl. 273-1 R

2 Claims



A game of the type wherein playing pieces are deposited on a surface according to the dictates of a chance device until an excessive number of playing pieces are deposited thereupon, resulting in a dumping or tilting action of the playing surface, characterized by the provision of a supporting member in the form of a simulated pot-like receptacle and a playing piece receiving surface in the form of a lid-like member pivoted to the open end of the receptacle, with the receiving surface divided into discrete zones, and a plurality of visually identifiable playing pieces for depositing on the zones of the playing surface. Chance devices are provided for determining which zone is to receive a playing piece and for further determining which type of playing piece is to be deposited in the determined zone.

3,656,747

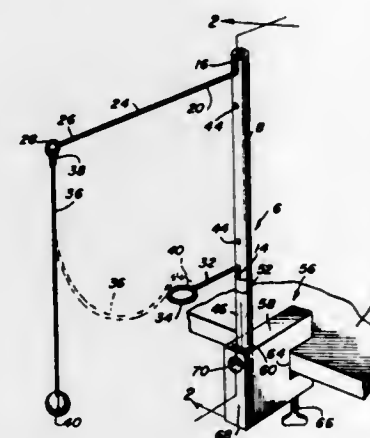
TETHERED BALL GAME DEVICE AND SURFACE CONNECTOR

Don H. Revell, Jr., 3107 Brownhurst Cove Road, and Hans W. Copony, 2733 Shippen Avenue, both of Louisville, Ky.

Filed Apr. 8, 1970, Ser. No. 26,711
Int. Cl. A63f 7/00

U.S. Cl. 273-95 A

3 Claims



A tethered projectile, usually a ball, is tossed by hand in a manner to score when properly landed and retained on a

captive-type target, a seating ring for example. An upright is provided at its lower end with an adapter bracket capable of being clamped on a stationary support member and has an arm suspending a projectile-tethering-string. The upright comprises separably connectable dowel-like sections. The arm and also the target means are detachably connected to an upper one of the aforementioned sections. The game device is of such construction that it may be located on a vertical support surface as well as on a horizontal support surface, and can also be screwed into place. The upright is vertically adjustable. The lower end is detachably connectable with a block which serves as an adapter bracket which allows the above-mentioned support by either a vertical or horizontal surface.

3,656,748

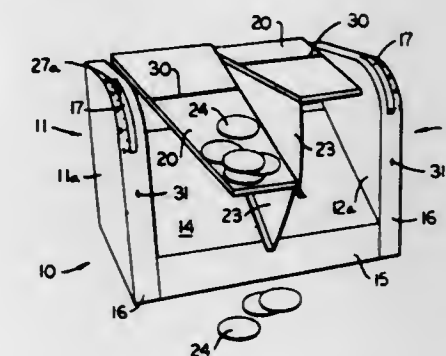
TOSSING GAME HAVING TARGET SURFACES TILTABLE IN RESPONSE TO CORRECTLY TOSSED PROJECTILE

Arthur G. Howard, 5869 N. Keystone Avenue, Indianapolis, Ind.

Filed Dec. 1, 1969, Ser. No. 881,193
Int. Cl. A63b 63/00

U.S. Cl. 273-102.1 F

6 Claims



A game for persons of any age or either sex wherein a plurality of weighted objects are successively tossed from a set distance towards a selected one of two tiltable playing surfaces. Each of the playing surfaces is downwardly tilted or depressed to a predetermined extent by the weight of each object that comes to rest thereupon. A scoring indicator is so connected to each surface that the more the surface is depressed or tilted by the weight of the objects, the higher the scoring end of the indicator is rocked about a fulcrum, thereby indicating a higher score.

3,656,749

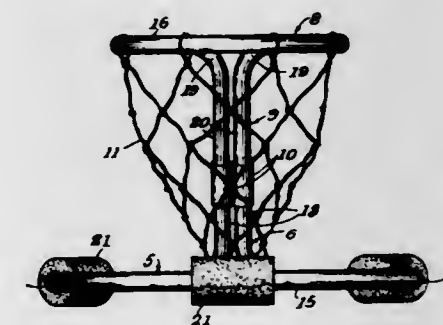
BUOYANT GAME HOOP

Gilbert Reyes, El Monte, Calif., assignor to Albert J. Jacobs, Van Nuys, Calif., a part interest

Filed Jan. 28, 1970, Ser. No. 6,418
Int. Cl. A63b 63/00

U.S. Cl. 273-105 R

7 Claims



A game device formed of a flat, circular, plastics base member provided with buoyancy elements, a smaller, flat,

circular, plastics hoop member from which a ball-passing net is adapted to be hung, an integral portion being provided on each member and extending from the plane of each respective member, and sleeve means connecting the ends of the extending portions to space the hoop member above the base member. The apparatus is used in swimming pools for playing games similar to basketball and, in some respects, similar to water polo.

3,656,750

BALL TARGET COMPRISING A HOLLOW SPHERICAL CHAMBER AND TUBES EXTENDING THEREFROM

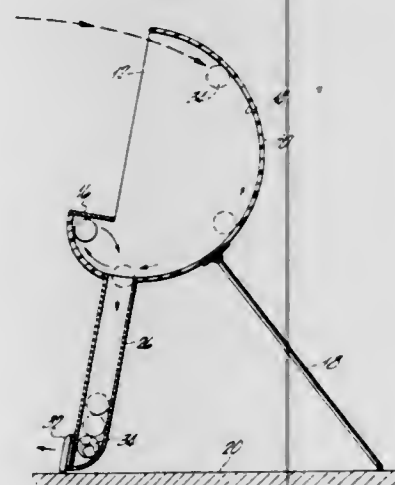
Albert E. Meunier, Pawtucket, R.I., assignor to The Raymond Lee Organization, Inc., New York, N.Y., a part interest

Filed June 24, 1970, Ser. No. 48,976

Int. Cl. A63b 63/00

U.S. Cl. 273—105 R

2 Claims



A large hollow chamber has a plurality of hollow tubes communicating therewith and extending thereout. Each tube represents a different base ball condition such as strike, out, or a hit for one or more bases. Two players take turns throwing a ball into the chamber whereby the ball falls into one or another of the tubes.

3,656,751

BOARD GAME APPARATUS

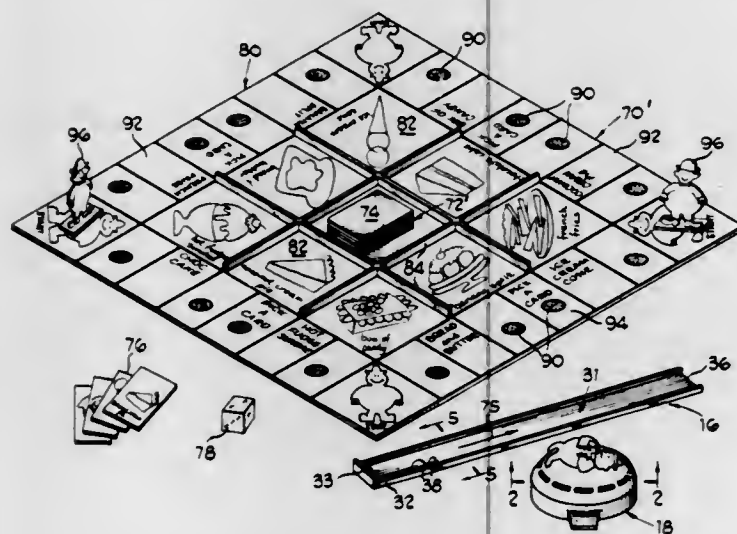
Marvin I. Glass; Jeffrey D. Breslow, both of Chicago, and Gurnars Licitis, Lombard, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Jan. 9, 1969, Ser. No. 790,002

Int. Cl. A63f 3/02

U.S. Cl. 273—134 B

1 Claim



Game apparatus including a game board having a path for movement of markers in accordance with numbers with

selected by means of a die, certain of the stations along the path being distinctly marked to indicate that the player should also use a second chance means to instruct him as to further play, and said board having areas thereof provided with pictorial representations. The players are provided with game pieces in the form of illustrated cards, each being identifiable with one of said pictorial representations, and the disposition of such cards is determined by instructions provided on sound reproducing means providing the second chance means. The sound reproducing means comprises an elongated strip having a plurality of parallel sound tracks with different messages, and a diaphragm and stylus device is manually moved along a sound track at random to effect reproduction of a message of instruction in the play of the illustrated cards.

3,656,752

TRAINING AID FOR IMPROVING PUTTING

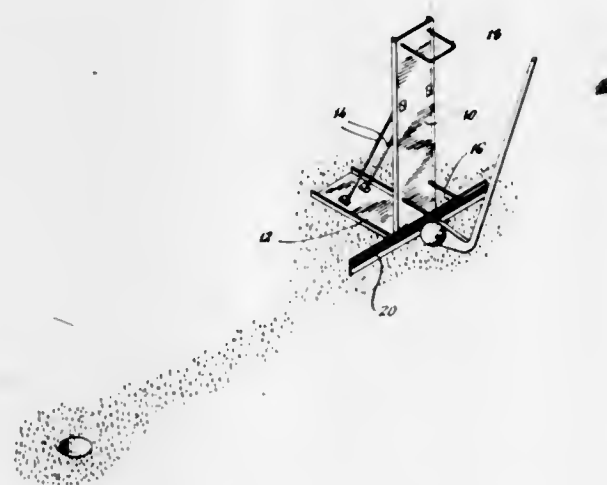
Francis T. Moriarty, Norwalk, Conn.

Filed July 29, 1970, Ser. No. 59,175

Int. Cl. A63b 69/36

U.S. Cl. 273—183 E

3 Claims



A training aid for putting comprises a base adapted to assume the slope of the surface on which it is placed and a standard normal to the base and providing a line of ball travel sighting aid and a plurality of eye positioning sighting members spaced apart one above the other and projecting in the same direction from the standard and disposed so that there is room for a putter head to move under the lower sighting member along a line parallel with the line of ball travel sighting aid.

3,656,753

MINIATURE BALL GAME

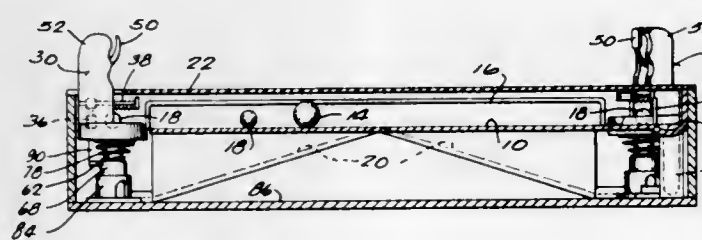
Raymond L. Juneau, 3307 W. Wells Street, Milwaukee, Wis.

Filed Mar. 5, 1970, Ser. No. 16,639

Int. Cl. A63d 3/02

U.S. Cl. 273—122 R

8 Claims



A game having a playing surface with opposite goals into which a ball is to be driven by opposed players or teams is

surrounded by a barrier above the level of the playing surface which confines the playing ball to the surface. A transparent cover may be used above the barrier. Each side is provided with turrets which shoot marbles or the like along the playing surface to drive the playing ball into a goal. The marbles pass under the barrier and are returned to the turrets for re-use. A number of forms of turret are disclosed, each being rotatable and capable of automatic re-supply of marbles from the return channels.

3,656,754

RANDOM SELECTION AND REGISTRATION APPARATUS

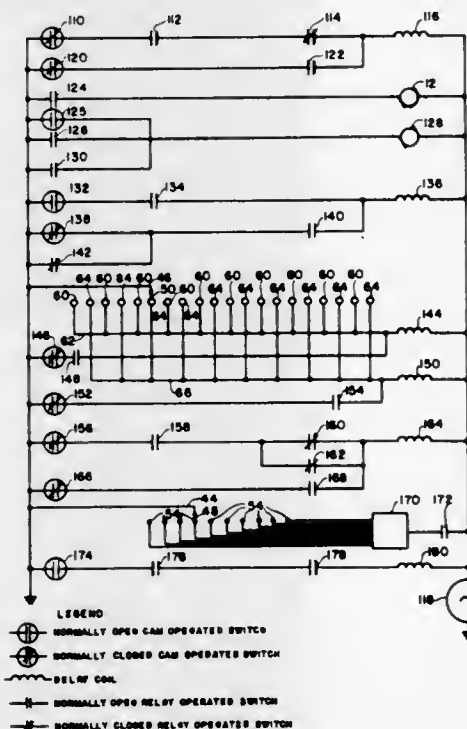
Norman R. Clark, Oak Lawn, Ill., assignor to Walter E. Heller & Company, Chicago, Ill.

Filed June 8, 1970, Ser. No. 44,455

Int. Cl. A63b 71/06; A63f 7/00

U.S. Cl. 273—124 A

16 Claims



A motor actuated spinning indicator coasts to a stop after deactuation to make a random selection. Information regarding the selection is then transmitted to an appropriate register, transmission of the information being precluded until the indicator has stopped. Such an arrangement has particular applicability in a game scoring situation.

3,656,755

THREE-DIMENSIONAL CHECKER GAME APPARATUS

Robert I. Thompson, 7444 St. Charles Avenue, New Orleans, La.

Filed June 26, 1970, Ser. No. 50,262

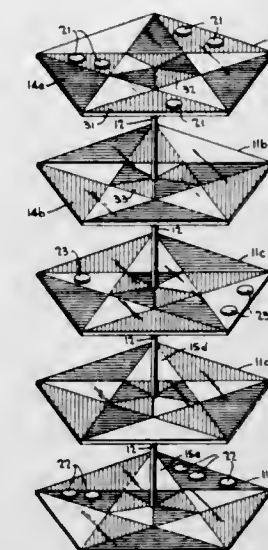
Int. Cl. A63f 3/02

U.S. Cl. 273—131 AC

5 Claims

A checker game having five identical vertically spaced game boards each shaped in the form of a pentagon which is divided into three groups of different sized triangles, each group having one of three visual characteristics different from one another and each triangle having a visual characteristic different from an adjacent triangle. The game boards are oriented in a manner whereby no more than two triangles on one board are coaxial with triangles on an adjacent board having the same visual characteristic. Play is conducted with

three sets of pieces having visual characteristics corresponding to those of said groups, the pieces being initially placed



on their corresponding triangles on the topmost, bottommost and middle game boards.

3,656,756

THREE-DIMENSIONAL CHESS GAME

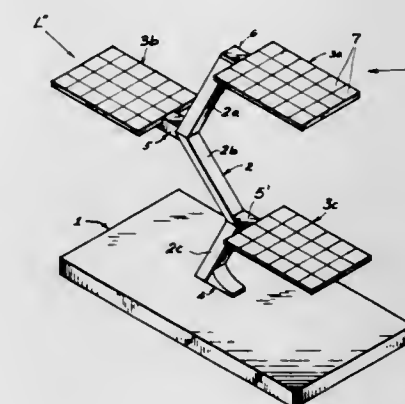
Edwin F. Gribbon, Jr., 457 Central Avenue, Cedarhurst, N.Y.

Filed Sept. 18, 1969, Ser. No. 859,023. The portion of the term of the patent subsequent to Nov. 10, 1984, has been disclaimed.

Int. Cl. A63f 3/02

U.S. Cl. 273—131 B

7 Claims



Two sets of conventional chess men (eight pawns and eight pieces per side) confront each other on three vertically spaced boards of four by six squares each, with the middle board offset from the substantially aligned top and bottom boards to provide three freely accessible playing surfaces on which the men may move longitudinally, laterally or vertically (from one board to another) according to predetermined rules.

3,656,757

FARM BOARD GAME APPARATUS

James F. Carroll, 501 Estelle Street, Blackwood, N.J.

Filed Mar. 30, 1970, Ser. No. 23,541

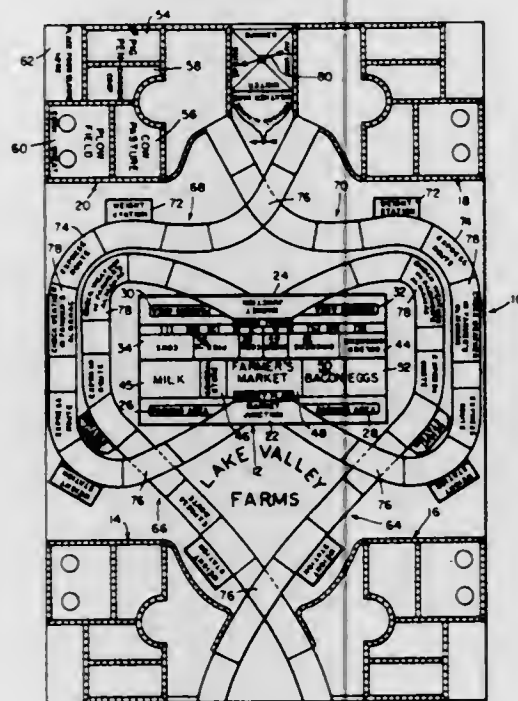
Int. Cl. A63f 3/02

U.S. Cl. 273—134 D

8 Claims

A game apparatus comprising a board having thereon indicia representing farms, a market, and roads therebetween, said roads crossing to provide collision points and being pro-

vided with obstacles, a plurality of movable pieces representing farm animals and products, and a plurality of movable miniature truck pieces each having capacity for receiving and



transporting a plurality of said first mentioned movable pieces, said truck pieces being movable over said roads between said farms and said market.

3,656,758

GAME APPARATUS

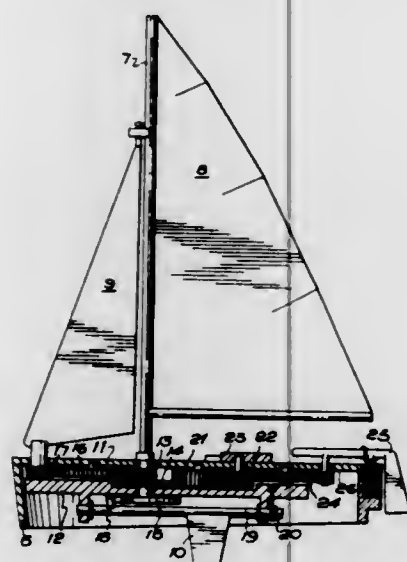
Irvine L. Thatcher, Greenleaves, Marldon Road, Northowram, Halifax, England

Filed May 22, 1970, Ser. No. 39,607

Int. Cl. A63f 3/02

U.S. Cl. 273-134 G

1 Claim



Sailing game apparatus comprising a board which portrays a waterway, model boats, each having a rotatable mast, a sail connected to said mast, a simulated wind direction indicator, a rotatable keel plate, and a gear system for adjusting said indicator and said plate in response to rotation of said mast. The board is provided with a network of horizontal, vertical and diagonal grooves, each comprising three subgrooves for receiving said keel plate in vertical or inclined position.

3,656,759
DEVICE FOR USE IN PRACTICING SWINGING A GOLF CLUB

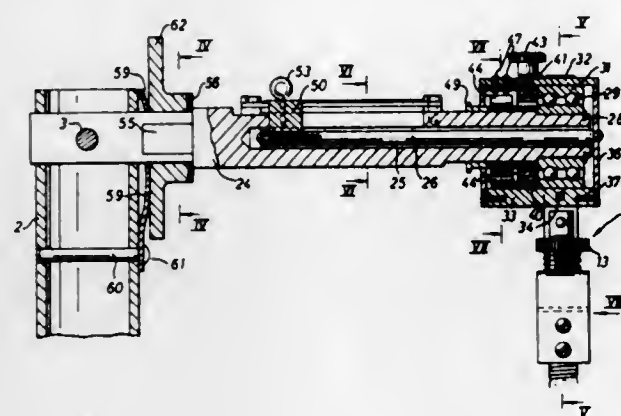
Richmond L. Hall, 2 Langley Road, Highcliffe-on-Sea, Hampshire, England

Filed Apr. 14, 1970, Ser. No. 28,347

Int. Cl. A63b 69/36

U.S. Cl. 273-185 D

12 Claims



A device for use in practicing swinging a golf club comprises an arm securable in a horizontal orientation, a further arm rotatably mounted on one end of said arm for rotation about a horizontal axis and a ball mounted at the outer end of said further arm. Means are provided for measuring rotation of the ball about the axis of said further arm to indicate fade or draw and/or means are provided for counting the number of revolutions of said further arm, when the ball is struck by a golf club, to indicate distance the ball has travelled. Another arm which is securable to said arm has a member thereon mounting a plurality of flexible fingers to be struck by the ball when rotating about said arm and also an optionally presentable putting gate, through which the ball can just pass, for practicing putting. An upright member, on which said arm can be mounted in a horizontal orientation, is supported in a horizontal base member covered with a resilient flexible material, a pocket is provided beneath the resilient flexible material at a position immediately below that at which the ball hangs on said further arm in a rest position, whereby different lies from which the ball can be struck can be simulated by inserting members of various consistencies in said pocket.

3,656,760

METHODS AND MEANS FOR INDUCING HYPNOSIS

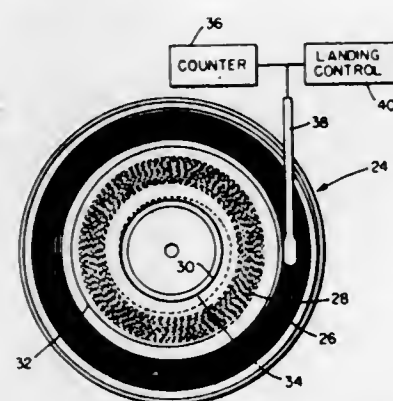
Paul S. Symmes, Cornwall Heights, Pa., assignor to American Clinic, Inc., Seattle, Wash.

Filed Aug. 7, 1969, Ser. No. 848,173

Int. Cl. G11b 3/00

U.S. Cl. 274-1 R

5 Claims



An arrangement for inducing hypnosis includes a record medium subdivided into sections. A first section reproduces a

message once for a predetermined period of time. A second section reproduces a second message repetitively for an indefinite period of time. A third section may be included to produce a message or alarm ending the period of hypnosis. Alternately, the alarm may be outside of the record medium.

3,656,761

AUTOMATIC CONTROLS FOR TAPE PLAYERS OF CARTRIDGE TYPE

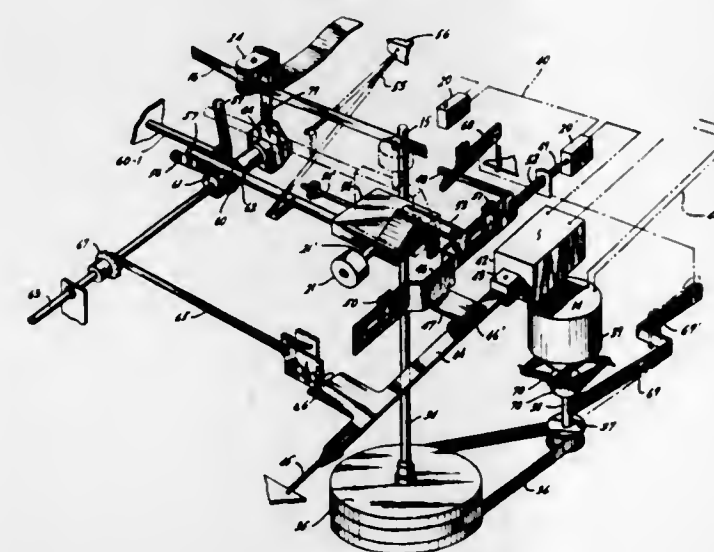
Joseph E. Laschenski, Philadelphia, Pa., assignor to Philco Corporation, Philadelphia, Pa.

Filed June 20, 1966, Ser. No. 558,730

Int. Cl. G11b 21/08, 15/29

U.S. Cl. 274-4 G

1 Claim



An apparatus adapted for automatically accommodating for play either a four track cartridge without a built-in pinch roller or an eight track cartridge with a built-in pinch roller upon insertion of said cartridges. The player is set to play the eight track cartridge without adjustment. Upon insertion of the four track cartridges a linkage automatically provides for shifting of the head adjustment cam from a first location providing a series of positions corresponding to the track tape to a second location providing a series of positions corresponding to the track levels of the four track tape and for moving a pinch roller from a storage position into an operative position within the four track tape cartridge.

3,656,762

PHONOGRAPH PICKUP HEAD ASSEMBLY

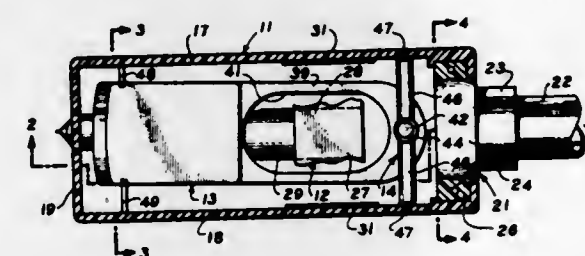
Richard D. Johnson, Rosemead, Calif., assignor to Reverbasonics, Inc., Oakland, Calif.

Filed Jan. 7, 1970, Ser. No. 1,232

Int. Cl. G11b 3/02

U.S. Cl. 274-37

3 Claims



A phonograph pickup head assembly is described for producing reverberative sound signals from a grooved phonograph disc. The head assembly includes a pickup head and

forward and rear cartridge supports. The rear cartridge support is secured rigidly to the pickup head and the forward cartridge support is secured such that it is movable laterally and vertically with respect thereto. A mounting clamp is provided at the rearward end of the pickup head for attaching the pickup head to a tone arm in a manner in which the relative angular position of the pickup head with respect to the tone arm is adjustable.

3,656,763
SEALING PACKER

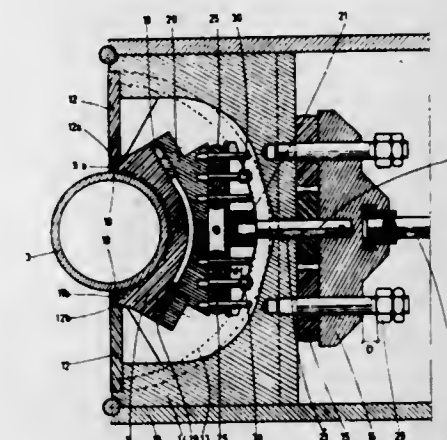
Philippe Joubert, Rungis, and Andre Castela, Mesnil Le Rol, both of France, assignors to Institut Francais Du Petrole, Des Carburants Et Lubrifiants, Rueil Malmaison (Hauts de Seine), France

Filed July 2, 1970, Ser. No. 51,955

Claims priority, application France, July 7, 1969, 6923038
Int. Cl. F16j 15/00

U.S. Cl. 277-63

9 Claims



Sealing packer formed of two sealing assemblies movable between a joining position and a spaced position, each assembly comprising two lateral straight packing members on both sides of a semi-circular central packing member, said lateral and central packing members being adapted to be displaced together to a position of abutment of the lateral packing members of an assembly against those of the other assembly, first compressible elastic means connecting a support of said lateral packing members to the driving means of said central packing members, to provide for the relative displacement of the central packing member with respect to the lateral packing members, and second compressible elastic means interposed between said central packing member and said driving means, to provide a compression stress on said central packing members in their joining position.

3,656,764

DRILL BIT SEAL ASSEMBLY

William P. Robinson, 6100 Via Subida, Miraleste, Calif.

Filed Aug. 31, 1970, Ser. No. 68,140

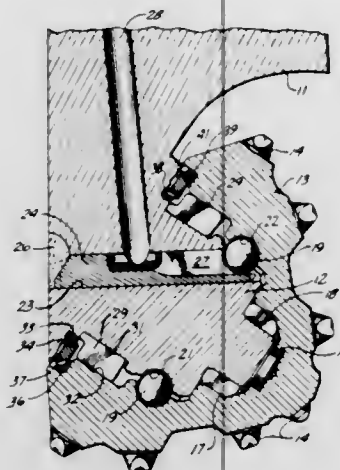
Int. Cl. F16j 15/16

U.S. Cl. 277-92

14 Claims

An earth boring drill bit employing roller cutters is provided with an improved seal for inhibiting ingress of abrasive materials into the bearing surfaces and egress of lubricant. The improved seal is between an outwardly facing re-entrant corner on the journal and an inwardly facing re-entrant corner on the cutter. The seal is made by a pair of O-rings engaging the opposed re-entrant corners and separated by a floating rigid ring having opposed bearing surfaces for seating the O-rings into the corners. This seal accommodates radial,

axial, and angular displacements of almost twice the magnitude that can be accommodated by a single O-ring of the



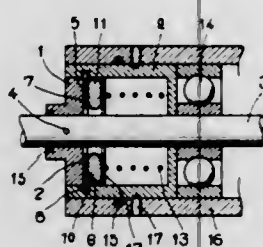
size of one of the O-rings without significantly increasing the length of journal needed for the seal.

3,656,765

A DEVICE FOR SEALING A ROTATING SHAFT
 Kennosuke Nakagawa, 95-1 chome Naumune, Tokyo, Japan
 Filed Jan. 13, 1970, Ser. No. 2,475
 Claims priority, application Japan, Jan. 23, 1969, 44/4449
 Int. Cl. F16j 15/02

U.S. Cl. 277-81

8 Claims

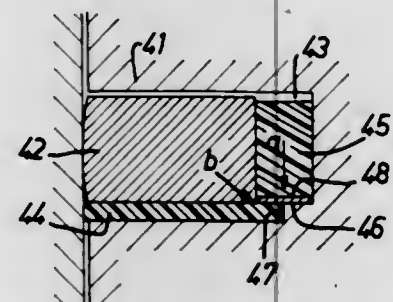


3,656,766

PISTON AND PISTON RINGS UNIT FOR AN INTERNAL COMBUSTION ENGINE
 Robert Geffroy, 1, boulevard Richard Wallace, Neuilly-sur-Seine, France
 Filed Dec. 15, 1969, Ser. No. 885,245
 Int. Cl. F16j 9/12

U.S. Cl. 277-136

34 Claims



The invention has for its object, on the one hand, all means which protect, at least partially, the internal face of the seal-

ing joint placed between the lower adjacent faces of the piston ring and the piston groove against the high pressures which, from the combustion chamber pass between the compression ring and the bottom of the groove and also into the cross-sectional or gap clearance of the compression ring, and on the other hand, a support for the said joint, which is not affected by creep, is annular, is not fixed to the piston and is arranged at least under the periphery of the said joint between the joint and the lower face of the piston groove, the peripheral face of the support being maintained at least in proximity to the cylinder and having as a maximum narrow discontinuities, the maximum clearances of this proximity and of these discontinuities being smaller than those in which the material of the said joint begins to creep, under the conditions of temperatures and pressures reached during the operation of the engine.

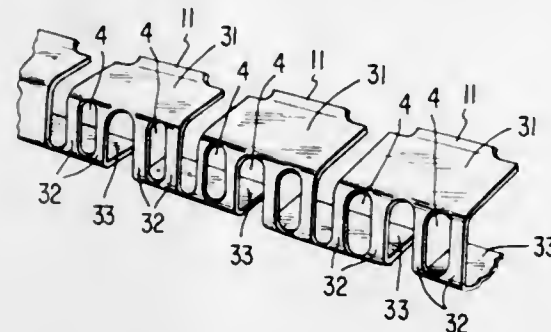
3,656,767

SPACER EXPANDER

Yoshio Matsumoto, Gumma, Japan, assignor to Nippon Piston Ring Co., Ltd., Tokyo, Japan
 Filed Mar. 16, 1970, Ser. No. 19,828
 Claims priority, application Japan, Sept. 6, 1969, 44/84628
 Int. Cl. F16j 9/06, 15/00

U.S. Cl. 277-140

2 Claims



A spacer expander for an internal combustion engine piston ring assembly has a plurality of T-shaped cut-out portions alternating from both side edges so that remaining edge portion forms a plurality of projections between the cut-out portions. Upper pressure areas, vertical outside areas and lower pressure areas, with a plurality of oil passages formed on the outside areas, are formed between the cut-out portions. The projections are curved outwardly at right angles. The upper and lower pressure areas are curved with respect to the vertical outside areas and at right angle to the same sides. The spacer expander is inserted into the piston groove by bending it into circular shape so that the projection side lies to the inside of the groove in such a manner that side rails inserted into the piston groove are mounted on the spacer expander at their projections so that the projections push the side rails in the outward direction in order for the outer peripheral surface of the side rails to slidably contact with the cylinder wall.

3,656,768

PISTON AND RING THEREFOR

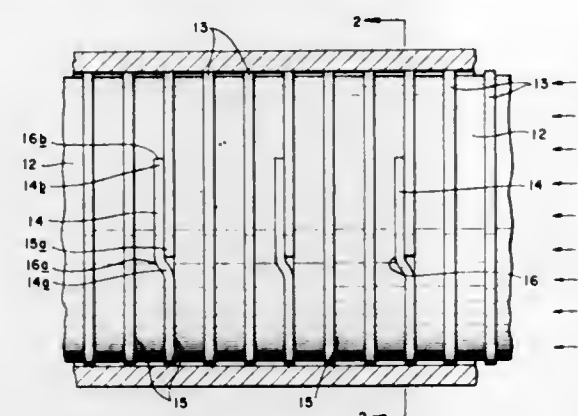
William Josephian, 2311 Magonia Street, Oakland, Calif.
 Filed Jan. 20, 1970, Ser. No. 4,230
 Int. Cl. F16j 9/04

U.S. Cl. 277-167

5 Claims

A piston and compression ring therefor useful in high pressure gas compressors and expanders having self-lubricated rings. The ring is relatively narrow in its axial dimension and has an angular length from end to end thereof in excess of 360°, one end portion of the ring being offset axially so as to overlap the other end portion thereof and reinforce the same. The piston provides a circumferential ring groove that is enlarged axially over an angular length sufficient to seat such

offset overlapping end portion of the ring therein; and the ends of the groove as defined by the axial enlargement thereof and the respectively cooperative portions of the ring



are in close proximity and are all parallel so as to prevent the ring from rotating but permit it to expand as it wears without increasing the likelihood of leakage therepast.

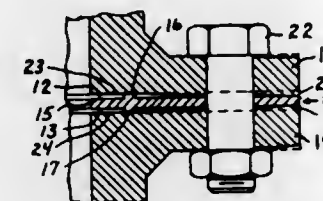
3,656,769

FLUID SEALING JOINT AND GASKET

Jerry G. Jellnek, Whittier; Gary L. Duesenberry, Canoga Park, and Thomas J. McCulston, Marina Del Rey, all of Calif., assignors to Parker-Hannifin Corporation, Cleveland, Ohio
 Filed Sept. 30, 1968, Ser. No. 763,647
 Int. Cl. F16l 19/00; F16j 15/00; B65d 53/00

U.S. Cl. 277-207

9 Claims



A sealed joint between a pair of members in which one member has a raised rib for sealing contacting the other member at one location and has a predetermined clearance with the other member at another location, one of the members being yieldable under clamping pressure to take up the clearance upon application of predetermined pressure upon the rib. The invention also provides means for achieving substantially equal unit sealing pressure throughout the length of the rib despite uneven yielding of the one member.

3,656,770

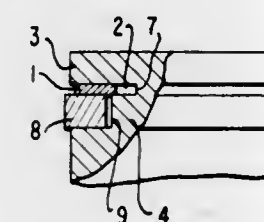
PISTON

Heinrich Hoffmann, Stuttgart-Gerokruhe, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
 Filed Jan. 23, 1970, Ser. No. 5,286
 Claims priority, application Germany, Jan. 23, 1969, P 19 03 257.6

Int. Cl. F16j 9/22, 9/00

U.S. Cl. 277-189.5

7 Claims



A piston in which the piston ring arranged in the groove following the piston top land is securely supported by a

piston ring support that consists of an annular disc retained under stress with its inner circumference at the piston, and more particularly between the upper edge of the piston ring groove and the piston ring itself.

3,656,771

FLEXIBLE SEAL ASSEMBLY FOR SPIGOT AND BELL CONDUIT JOINT

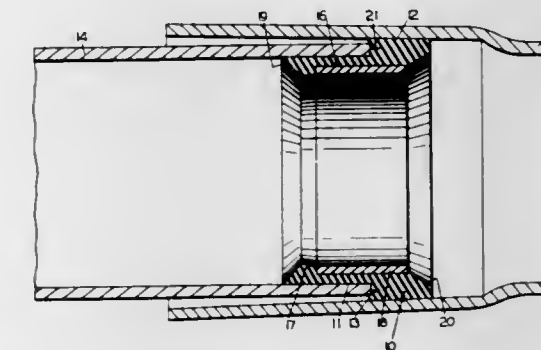
John C. Stout, Portland, Oreg., assignor to Irrigation Accessories Co., Portland, Oreg.

Filed Dec. 11, 1970, Ser. No. 97,158

Int. Cl. F16j 15/02

U.S. Cl. 277-207 A

6 Claims



A resilient sealing sleeve has one portion inserted in the end of the spigot member and the remaining portion, of larger outer diameter, extending into the bell portion of the joint. The interior wall of the sleeve has an annular recess to accommodate an annular pressure member which keeps the two portions of the sleeve pressed outwardly against the spigot and bell members respectively. The shoulder on the sleeve between the smaller and larger outer diameter portions is slotted to act as an air seal upon the development of vacuum within the conduit.

3,656,772

FEED CHUCKS

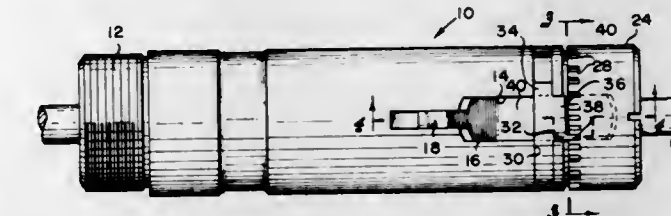
Hubert J. Parsons, Horseheads, and Anders Adolf Peterson, Elmira, both of N.Y., assignors to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Aug. 3, 1970, Ser. No. 60,352

Int. Cl. B23b 31/00

U.S. Cl. 279-23

16 Claims



A feed chuck for a machine tool including a tubular body member, a plurality of radially spaced, longitudinally extending slots in said body member, spring means in each of the slots each having one end fixed in an end of its slot and having its middle portion bowed inwardly of the body member for engagement with bar stock, movable spring compression adjusting means engaging the body member and engaging the other ends of the spring means for further inwardly bowing each of the spring means to various positions for adjusting the gripping force on the bar stock inserted into the chuck, a plurality of notches formed in the movable spring compression adjusting means, lock means secured to the body member and engaging at least one of the notches for preventing relative rotation of the body member and the movable spring compression adjusting means, and the lock means having a substantial portion outwardly of the surface of the

bowed middle portion of the spring means and between the ends of the spring means.

3,656,773

CHUCK FOR TURNING MACHINES

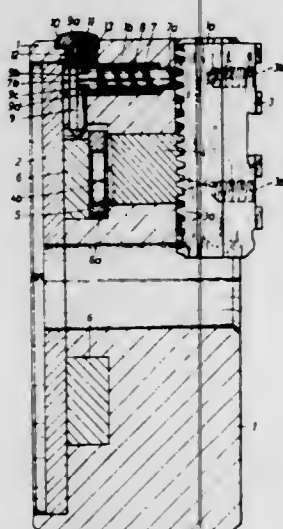
Hans Blattry, and Wolfgang Kimm, both of Buderich, Germany, assignors to Paul Forkardt Kommanditgesellschaft, Dusseldorf, Germany

Filed July 1, 1970, Ser. No. 51,440

Claims priority, application Germany, Feb. 4, 1970, P 20 04 889.9

Int. Cl. B23b 31/16

U.S. Cl. 279-121



The specification discloses a chuck for a machine tool having radially movable jaws for engaging a workpiece. A rotatable drive member in the chuck body engages the jaws and is movable between certain limits to actuate the jaws positively in radial movement on the chuck body. Movement of the drive member beyond one of its limits releases the jaws from the drive member and simultaneously releases holding pins which engage the jaws. Each holding pin is manually movable into jaw disengaging position to permit the jaws to be removed from or introduced into the chuck body, or to be radially adjusted on the chuck body.

3,656,774

TOE IRON FOR SAFETY SKI BINDINGS

Ernst-Richard Schriewer, Garmisch-Partenkirchen, Germany, assignor to Hannes Marker, Garmisch-Partenkirchen, Germany

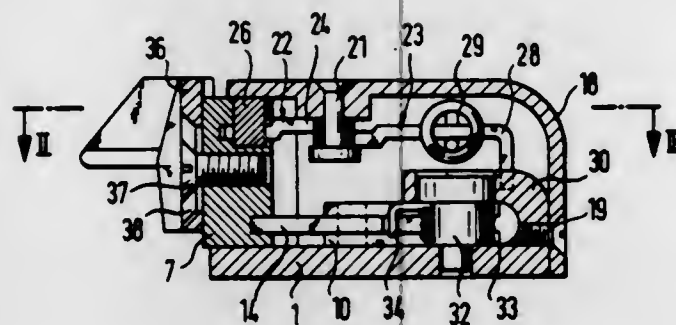
Filed May 26, 1970, Ser. No. 40,546

Claims priority, application Germany, June 23, 1969, P 19 31 753.4

Int. Cl. A63c 9/00

U.S. Cl. 280-11.35 T

7 Claims



A soleholder member constituting a coupling link of a four-bar linkage, which comprises levers that are pivoted to a baseplate which is secured to the ski. The four-bar linkage is modified in that the levers consist of toggle joints, which

have toggle arms that are pivoted to the baseplate and the arms in the normal position of the toe iron diverge and engage stationary stops, whereas the other toggle arms of the toggle joints in the position of the toe iron converge from the hinges. A spring urges the soleholder member to its normal position.

3,656,775

WINTER-SPORT DEVICE

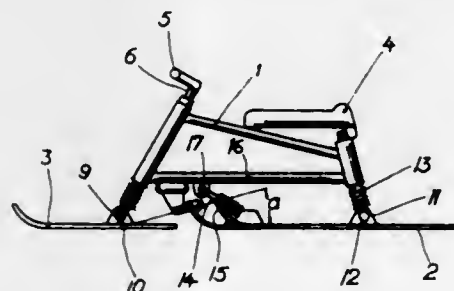
Willy Friedrich Krautter, P.O. Box 217, Portland, Pa.

Filed Oct. 13, 1970, Ser. No. 80,323

Int. Cl. B62b 13/14

U.S. Cl. 280-16

5 Claims



A sport vehicle having a support ski supporting a frame, a steering ski mounted on the frame and adapted to be aligned with the support ski and outrigger skis having flexible connections to the frame to permit individual displacement of each outrigger ski by the foot between a normal position parallel to the axis of the frame and a plowing position in which the outrigger ski points forwardly and inwardly toward the longitudinal axis of the frame and in which the outer edge of the ski is elevated relative to its inner edge.

3,656,776

SEMI-TRAILER

Helmut Steiner, Freiherr-vom-Stein-Strasse 1, 5284 Wiehl, Germany

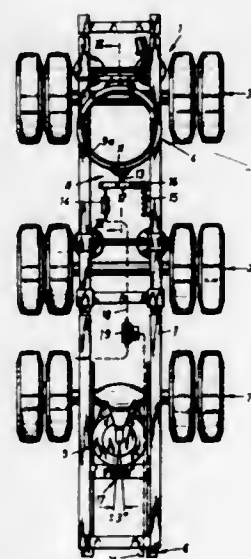
Filed Nov. 28, 1969, Ser. No. 880,777

Claims priority, application Germany, Dec. 2, 1968, P 18 12 153.4

Int. Cl. B62d 53/06

U.S. Cl. 280-81 A

3 Claims



A semi-trailer which has at least one track alignment axle pivotally movable about the vertical central axis of said axle, which latter has associated therewith locking means operable positively to prevent said axle from pivoting about said axis when said semi-trailer is moving along a substantially straight path.

3,656,777

SCOOTER-LIKE TOY VEHICLE

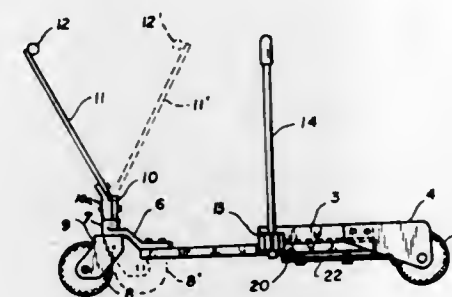
David Howard Kelsor, Jr., 53 Park Road, Wyomissing Hills, Reading, Pa.

Filed Sept. 12, 1969, Ser. No. 857,608

Int. Cl. B62k 9/00; B62b 11/00

U.S. Cl. 280-87.04 B

5 Claims



A scooter-like toy vehicle embodying a modified three wheel construction including a forward steering wheel and two widely separated rear wheels between which a platform of very substantial area is supported. The steering wheel, when rotated 180°, may be used as a tow for pulling the vehicle, such as when the platform is loaded with groceries, newspapers or the like. Upstanding side handles are provided for steadying the rider.

3,656,778

LEVELLING AND STABILIZING MEANS FOR HOUSE TRAILERS

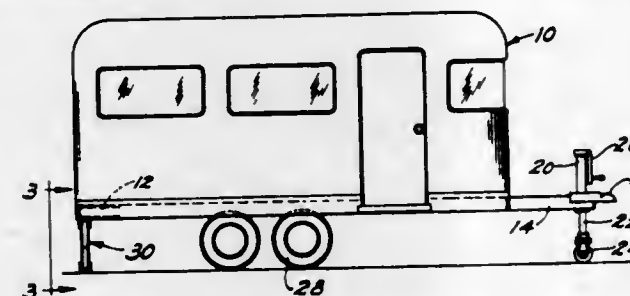
Ross W. Bristol, 1201 Ashford Drive, Bissell Hills, County of St. Louis, Mo.

Continuation-in-part of application Ser. No. 819,843, Apr. 28, 1969, now abandoned. This application Dec. 7, 1970, Ser. No. 95,810

Int. Cl. B60s 9/02

U.S. Cl. 280-150.5

18 Claims



Support means for levelling a trailer when parked and for stabilizing it against rocking and swaying comprising a pair of struts pivotally connected to a horizontal support member carried by the trailer, the struts being arranged to swing between downwardly inclined operative positions with their free ends engaging a parking surface to retracted positions parallel with the support member, the struts each including a brace pivotally connected at one end to the strut and arranged to selectively engage a series of abutments along the support member at its free end whereby the struts may be independently braced in the positions of inclination required to level the trailer, and the braces each comprising two links pivotally connected to form a toggle whereby the struts and braces may be conveniently stressed to stabilize the trailer.

3,656,779

DEFLECTION BAR UNIT FOR SNOWMOBILES

Virgil Clungan, 9792 Buckingham, Allen Park, Mich.

Filed June 30, 1970, Ser. No. 51,130

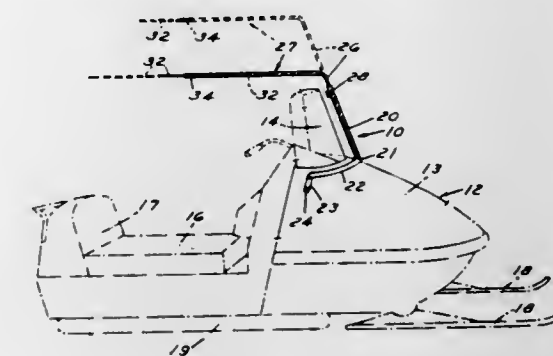
Int. Cl. B60r 19/00

U.S. Cl. 280-150 B

14 Claims

An upwardly and rearwardly extending deflection bar device is mounted before the windshield of a conventional

winter sport or recreation vehicle, extending above the driver and a possible passenger to protect from danger of injury occasioned by his striking fence wires or other low-lying objects on property traversed by the vehicle. An upward or downward adjustment of the protective bar unit at an upright



most portion thereof accommodates a kneeling posture of the driver; and an adjustable rearward extension of a generally horizontal portion of the unit affords protection to both the driver and an occupant of the vehicle behind him. Single bar and dual forked bar versions of the unit are shown.

3,656,780

TRANSPORT OF TRACK-LAYING VEHICLES

Carl Gustaf Nordstrom, Klammerdammagatan 13, S-302, 42 Halmstad, Sweden

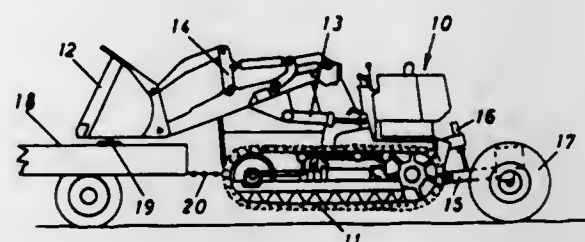
Filed Nov. 5, 1969, Ser. No. 874,350

Claims priority, application Sweden, Nov. 7, 1968, 15085/68; Oct. 13, 1969, 14013/69

Int. Cl. B62d 53/00, 53/06

U.S. Cl. 280-415 R

5 Claims



A method of simplifying the transport of a track-laying vehicle having an implement which can be raised and lowered at its forward as well as at its rearward end, in which the implement at the forward end of the track-laying vehicle is brought into engagement with a coupling pin projecting upwardly from the floor of a towing vehicle by means of a socket or opening disposed in the bottom of the implement, and the rearward end of the track-laying vehicle is thereupon raised by depressing a wheeled axle unit against the ground, the axle unit comprising a frame or like structure on which wheels are rotatably mounted whereafter the track-laying vehicle can be towed by a truck like a trailer while on the wheels of the axle unit.

3,656,781

QUICK-DISCONNECT COUPLING

Thomas O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of; Allan R. McDougal, 5432 Vista Del Arroyo, LaCrescenta, Calif., and Douglas P. Davis, 911 East Elmwood, Burbank, Calif.

Filed Aug. 21, 1970, Ser. No. 66,004

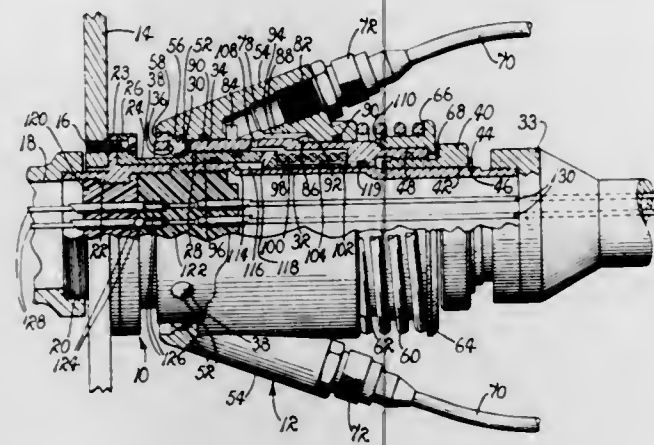
Int. Cl. F16l 37/22

U.S. Cl. 285-3

4 Claims

A quick-disconnect coupling particularly suited for use in coupling umbilical leads, including electrical cables and fluid conduits, characterized by a pair of coaxially related

coupling components interconnected through an annular array of balls operatively seated within an annular locking groove established by a radially extended shoulder, and maintained in operative disposition by an axially reciprocable circumscribing locking ring spring-biased into an operative disposition relative to the array. A particular feature of the instant invention resides in an embodiment which includes a



sealed gas generator operatively associated with the locking ring for positively displacing the locking ring, relative to the array, for thereby achieving a release of the balls, and an axially displaceable, actuating sleeve so coupled with the generator that the generator also serves to initiate a positive separation of the coupling components as the balls are released.

3,656,782

DUCT STRUCTURE

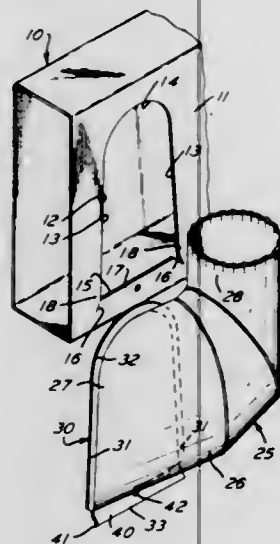
Angelo R. Molino, 816 East Building, Haddonview, Haddonfield, N.J.

Filed Oct. 28, 1969, Ser. No. 871,820

Int. Cl. F16l 5/00

U.S. Cl. 285—189

9 Claims



A duct structure comprising a duct having a sidewall with an opening having opposite side edges and end edges extending between said side edges, said side wall being formed with cuts extending from said opening laterally outward adjacent to one end edge, and a generally tubular open-ended take-off having one end generally similar to and larger than said sidewall opening and located outwardly of said duct with said one take-off end proximate to said sidewall opening, said take-off having a flange extending partially about said one take-off end conformably along the other end edge and side edges of said opening interiorly of said duct, said flange being provided with a groove extending therealong into said take-off and slidably receiving said other end edge and side edges of said opening, said take-off being slidably removable away

from said opening with said flange engaged in said cuts, said take-off having a lip projecting from said one take-off end extending along said one end edge in facing engagement with the exterior of said sidewall.

3,656,783

TRANSITION PIPE JOINT

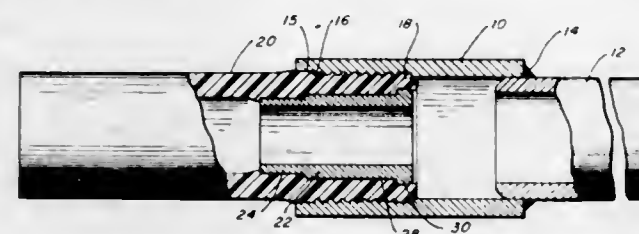
Charles H. Reeder, Tulsa, Okla., assignor to W & R Industries, Inc., Tulsa, Okla.

Filed July 23, 1970, Ser. No. 57,642

Int. Cl. F16l 33/00

U.S. Cl. 285—239

12 Claims



A transition connection for metal to plastic pipe wherein the plastic pipe, such as polyethylene, is cold-extruded to form a high tensile strength sealed connection.

3,656,784

SLIP JOINT

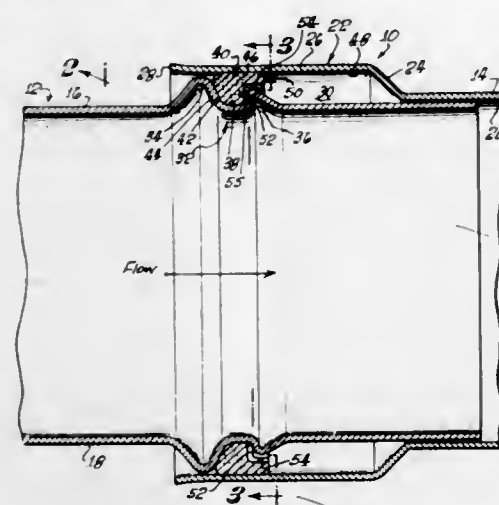
Robert W. Dow, Tujunga, and Arthur L. Moore, Mission Hills, both of Calif., assignors to SSP Industries, Burbank, Calif.

Filed Apr. 1, 1970, Ser. No. 24,560

Int. Cl. F16l 55/00

U.S. Cl. 285—187

5 Claims



An adjustable slip joint adapted to be interposed in a tubular structure which may be varied in length due to exposure to very high temperatures and is normally under pressure. The joint includes telescoping first and second tubular members forming the tubular structure wherein a sealing means is interposed between the respective members. The sealing means is to prevent excessive pressure leakage from said tubular structure through said joint.

3,656,785

HUB-TO-SHAFT CONNECTION

Peter Lothar, Guglingen, Wurt, Germany, assignor to Oskar E. Peter, Brackenheim, Germany

Filed Dec. 7, 1970, Ser. No. 95,763

Claims priority, application Germany, Mar. 14, 1970, P 20 12-256.9

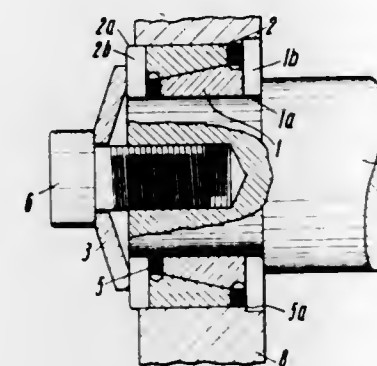
Int. Cl. F16d 1/06

U.S. Cl. 287—52.06

8 Claims

A frusto-conical holding ring is adapted to seat on a shaft; a closed outer holding ring having an internal frusto-conical surface seats and surrounds the first holding ring. To center

these rings on the shaft and within the hub, cylindrical centering rings adapted to seat against the inner surface of the hub and on the shaft are formed adjacent the thicker ends of each of said rings, the cylindrical centering rings extending over a radial distance greater than the thickness of the thickened end to overlap the thinner end of the other ring, and center the holding rings on the shaft and within the hub. Disks of elastic material, such as rubber or plastic disks may



be located between the end faces of a holding ring and the inner end face of the centering ring adapted to fit thereagainst to form an elastic and sealing insert. The entire arrangement can be tightened by relative axial shifting of the two holding rings against each other, for example by circumferentially arranged holding screws, a central screw with an interposed disk spring or the like. The center rings may be radially slitted, the radial slits extending into the holding rings.

3,656,786

PANEL FASTENER CLIP

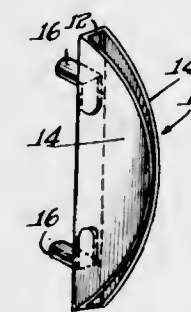
Charles O. Larson, Sterling, Ill., assignor to Chas. O. Larson Co., Sterling, Ill.

Filed June 10, 1970, Ser. No. 45,049

Int. Cl. F16b 2/20

U.S. Cl. 287—189.35

7 Claims



The present invention relates generally to spring type fastener clips, and more particularly to improvements in fastener clips of the type adapted to accommodate the margins of panels. The embodiment disclosed herein includes a sheet metal stamping presenting an elongate relatively narrow base section and laterally yieldable converging panel engaging wing members extending from opposite longitudinal margins of said base section. The opposite extremities of the outer marginal edges of said wing members diminish in distance from the base section to facilitate initial reception of a panel margin, and integral struck-out panel attachment prongs extend from the base section in a direction opposite to the wing members.

3,656,787

DOOR STOP AND HOLDER

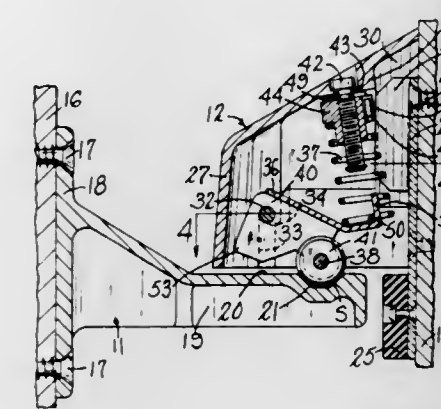
Leo Coopersmith, Ivoryton, Conn., assignor to The H. B. Ives Company, New Haven, Conn.

Filed July 23, 1970, Ser. No. 57,513

Int. Cl. E05c 19/04

U.S. Cl. 292—79

4 Claims



This disclosure relates to a door stop and holder wherein a spring-biased detent carried by one member is urged into a slot therefor defined in another member to provide a latching action therebetween where one member is mounted to a door and the other member is mounted to an adjacent stationary member.

3,656,788

DOUBLE DOOR SECURITY BOLT ASSEMBLY

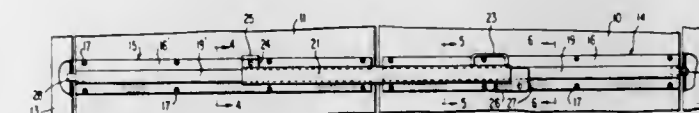
William L. Emery, P.O. Box 6058, Corpus Christi, Tex.

Filed July 31, 1970, Ser. No. 59,989

Int. Cl. E05c 1/04

U.S. Cl. 292—148

3 Claims



A high strength security bolt assembly for double doors of commercial establishments and the like affords security on both sides of the door when in the active locking position bridging both door leaves. The device features separate self-contained assemblies which are mounted with through bolts on each door leaf and a sliding locking tube which spans or bridges components of each assembly when in the active locking position. The assemblies are reversible to accommodate any arrangement of active and inactive door leaves.

3,656,789

MULTIPLE LOCKING MECHANISM FOR A COMMON LATCH MEANS FOR A CLOSURE

Joe R. Ray, 1798 Grace Avenue, San Jose, Calif.

Filed Oct. 2, 1970, Ser. No. 77,652

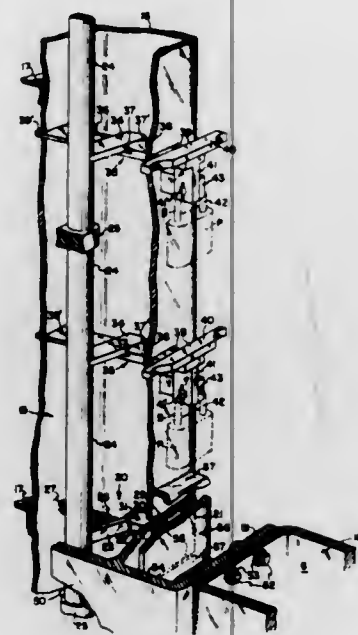
Int. Cl. E05b 15/02; E05c 3/22, 19/00

U.S. Cl. 292—304

10 Claims

A series of independently lockable and operable latch operating means on a concealed latch mechanism for closure member such as a gate, door and the like facilitating opening of the latter upon removal of a single lock confined within a jamb post of an opening although all other locks are secured and including suitable covering and guard means for the con-

sealed latch mechanism to prevent unlocking of the closure member other than by persons authorized and licensed to a



particular lock receiving portion of a multiple locking mechanism therefor.

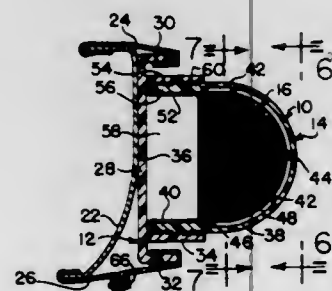
3,656,790

VEHICLE PRE-LOADED IMPACT-CUSHIONING DEVICE
Robert E. Truesdell, Rochester, Mich., assignor to William H. Nienstedt, Detroit and Benjamin W. Colman, Southfield, Mich., part interest to each

Filed Oct. 12, 1970, Ser. No. 79,954
Int. Cl. B60r 19/10, 21/00

U.S. Cl. 293-1

34 Claims



An inflatable vehicle front end impact-cushioning device mounted on its forward end within a rupturable container securing an inflatable bag in compact form under gas pressure. Upon impact of the container with a resistant object, and at a substantially low speed of from about three miles to about 10 miles per hour, the forward portion of the device ruptures allowing the inflatable bag to promptly expand, inflate, overlie and protect the forward-facing portion of the vehicle and the facing surface or surfaces of the object struck by the vehicle, whereby the inflated bag is positioned between the impacted object and the forward-facing portion of the vehicle to cushion the latter against substantial damage. The inflatable bag is designed, when expanded, to cover, overlie and protect the forward-facing portion of the vehicle.

3,656,791

VEHICLE IMPACT-CUSHIONING DEVICE
Robert E. Truesdell, Rochester, Mich., assignor to William H. Nienstedt, Detroit and Benjamin N. Colman, Smithfield, Mich., part interest to each

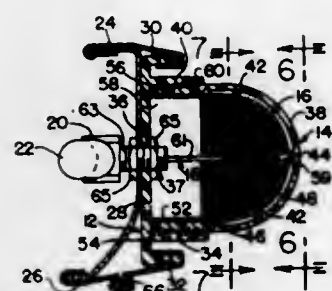
Filed Oct. 12, 1970, Ser. No. 79,996
Int. Cl. B60r 19/10, 21/00

U.S. Cl. 293-1

35 Claims

An inflatable vehicle front end impact-cushioning device mounted on its forward end within a rupturable container

securing an inflatable bag in compact form, in combination with a valved cylinder containing gas under pressure. Upon impact of the container with a resistant object, and at a substantially low speed of from about 3 miles to about 10 miles per hour, the forward portion of the device ruptures, triggering the gas valve and allowing the inflatable bag to promptly expand and inflate with gas, and to overlie and protect the



forward-facing portion of the vehicle and the facing surface or surfaces of the object struck by the vehicle, whereby the inflated bag is positioned between the impacted object and the forward-facing portion of the vehicle to cushion the latter against substantial damage. The inflatable bag is designed, when expanded, to cover, overlie and protect the forward-facing portion of the vehicle.

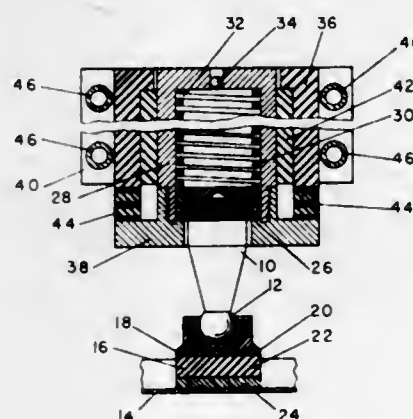
3,656,792

SAFETY CONSTRUCTION FOR VEHICLES
Joseph V. Tavano, Sr., 26 Whitney Street, Milford, Mass.

Filed July 16, 1970, Ser. No. 55,509
Int. Cl. B60r 19/08

U.S. Cl. 293-85

2 Claims



Safety construction for vehicles particularly adapted to absorb and dissipate kinetic energy resulting from a crash whether head-on, from the rear, or at an angle with respect to the front and rear bumpers thereof comprising a bumper for attachment to the frame of a vehicle, a piston rod, a ball on the rod, a first shock pad on the bumper, a socket on the first shock pad receiving the ball, a cylinder open at one end facing the first shock pad and the piston rod, the cylinder having a closed bottom at its end opposite its open end, a spring in the cylinder, a piston fixedly mounted on the piston rod in the cylinder, the spring urging the piston toward the open end of the cylinder, a second shock pad mounting the cylinder including a shield surrounding the cylinder in spaced relation thereto, an elastomeric sleeve connecting the sleeve and the cylinder, and a mount for connecting shield to the vehicle frame.

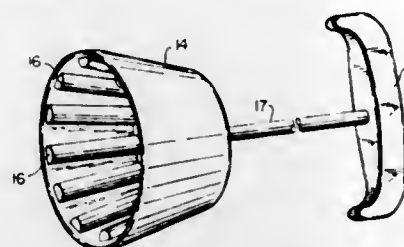
3,656,793

EXTENSION FOR BATH FAUCET VALVE OPERATORS
James Kenneth Mathews, 5005 North 15th Street, Arlington, Va.

Filed Apr. 23, 1970, Ser. No. 31,148
Int. Cl. A47f 13/06

U.S. Cl. 294-19 R

3 Claims



An extension handle to be used by one for manipulating the valve operators in a bathtub or shower stall.

3,656,794

VACUUM CUP LIFTER FOR SHELL EGGS
Robert C. McCord, Romulus, Mich., assignor to Diamond International Corporation, New York, N.Y.

Filed Jan. 21, 1971, Ser. No. 108,399
Int. Cl. B66c 1/02

U.S. Cl. 294-64 R

6 Claims



A vacuum cup lifter having a neck portion adapted to be connected to a vacuum means, a thin flexible lip particularly adapted to lifting shell eggs to be transported and deposited for processing or packing, and intermediate bell portions providing gentle yet stable lifting and carrying characteristics.

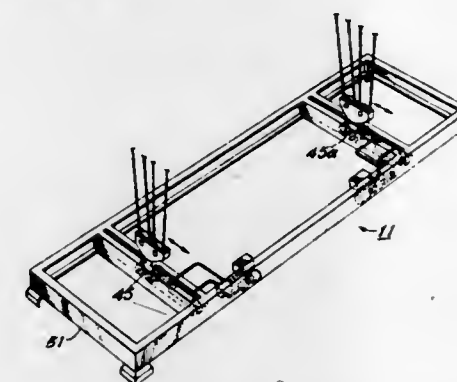
3,656,795

SPREADER SKEW ARRANGEMENT
James C. White, Jr., and Roger L. Wolfe, both of Longview, Tex., assignors to R. G. Le Tourneau Inc., Longview, Tex.

Filed June 30, 1970, Ser. No. 51,207
Int. Cl. B66c 1/00

U.S. Cl. 294-67 R

4 Claims



In cargo-handling apparatus having a spreader conformably fitting and attaching to a cargo container, the improvement characterized by having a carriage means sup-

portingly engaging a transverse support member of the spreader such that the carriage means is reciprocally movable laterally of the spreader so as to be able to move at least one end of the spreader to skew it over such that its conforming corner attachments will mate with those on the cargo container. Also disclosed are specific preferred arrangements wherein the spreader is moved with respect to the carriage by a fluid powered cylinder, piston and shaft arrangement; and wherein movable carriages are employed at each end of the spreader for doubling the amount of skew attainable.

3,656,796

CARGO SLING

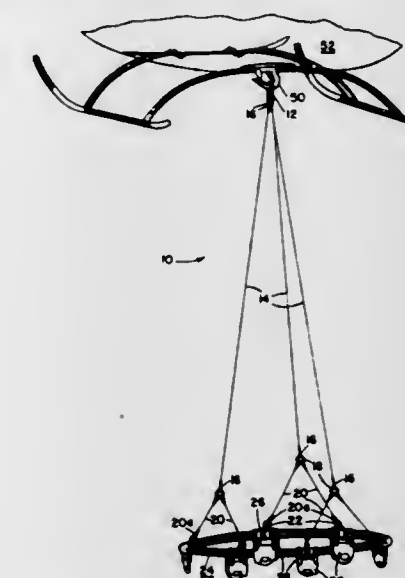
Lionel H. J. Cook, Vancouver, British Columbia, Canada, assignor to Okanagan Helicopters Ltd., Vancouver, British Columbia, Canada

Continuation of application Ser. No. 737,782, June 17, 1968, now abandoned. This application July 13, 1970, Ser. No. 64,004

Claims priority, application Canada, Aug. 24, 1967, 998 610
Int. Cl. B66c 1/34

U.S. Cl. 294-78 R

2 Claims



A cargo sling which maintains stability on releasing any one of a number of loads being carried thereby. The sling is releasably connected to a supporting structure for releasing the loads collectively, and includes a supporting ring or equivalent thereof for supporting a plurality of cargo hooks. Each hook is preferably operable automatically, and is connected substantially unyieldingly to the supporting structure by means of an interconnected plurality of suspension arms and a corresponding plurality of sling arms. Such arms are completely interchangeable and, under load, assume a conical configuration wherein the centre of gravity is located so as to assure stability of the load during any vertical, transverse or translational motion of the cargo sling and load. The cargo sling is particularly adapted for use with helicopters.

3,656,797

HOIST HOUSING-HOOK COMBINATION

Ralph A. Ratcliff, 614 Mountain View Avenue P.O. Box 543, Belmont, Calif.

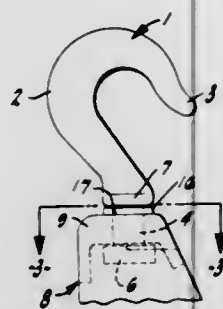
Filed Apr. 2, 1970, Ser. No. 25,211
Int. Cl. B66c 1/34

U.S. Cl. 294-82 R

9 Claims

An improved and simplified arrangement for pivotally connecting a hook with the housing of a load supporting device. The conventional threaded shank end, nut and locking pin commonly employed heretofore are eliminated. An improved housing top wall construction, which includes a laterally opening hook receiving recess and a seating depression therein, are provided so that an enlarged flange on the shank portion of the hook may be slidably inserted into the recess

and seated in the depression. Stop means, in one embodiment comprising a retaining ring, is operatively engaged with the shank portion to maintain the flange seated in the recess



depression so that separation of the hook from the housing is positively precluded. The shank portion and retaining flange are formed in one piece to simplify and reduce manufacturing procedures and costs.

ERRATUM

For Class 296—23 R sec:
Patent No. 3,656,724

3,656,798

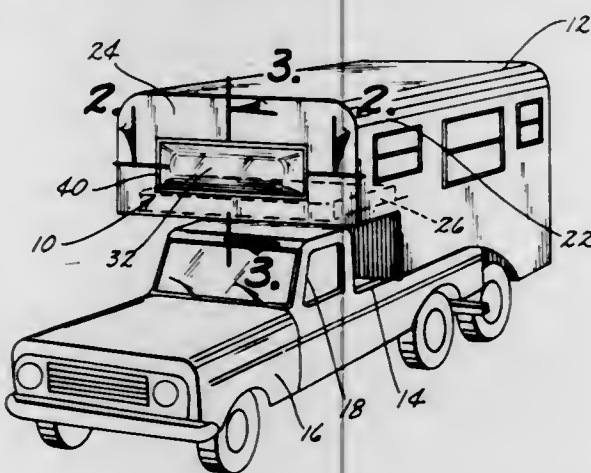
CAMPING TRAILER SAFETY AND INSULATING WINDOW

John N. Dodgen, Humboldt, and Harry L. Taylor, Dakota City, both of Iowa, assignors to Dodgen Industries, Inc., Humboldt, Iowa

Filed May 4, 1970, Ser. No. 34,492
Int. Cl. B60p 3/32

U.S. Cl. 296—23 MC

7 Claims



A pickup-type camper having a forward window in a sleeping compartment over the cab of the truck wherein the window includes a first window in the plane of the front compartment wall and a second window spaced forwardly therefrom and having a convex forwardly configuration. Molding fasteners secure the two windows together and to the front compartment wall.

3,656,799

VIBRATION ISOLATED UNITARY CAB AND CONTROL CONSOLE CONSTRUCTION FOR A TRACTOR

Donald Irwin Malm; Craig Eugene Christie, both of Cedar Falls, and Claire Eugene Rojohn, Denver, all of Iowa, assignors to Deere & Company, Moline, Ill.

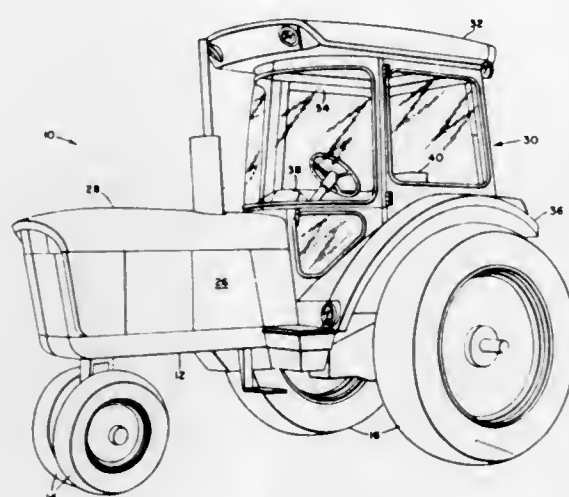
Filed Apr. 14, 1970, Ser. No. 28,328
Int. Cl. B62d 27/04

U.S. Cl. 296—35 R

19 Claims

A tractor is provided with a unitary cab and control console construction which is secured to the tractor chassis by

resilient mount assemblies which provide vibration isolation. The cab is disconnectible from the control console and during assembly of the tractor, the control console may be



mounted as a unit on the tractor chassis to provide controls for testing the working of and/or for moving the tractor before completing assembly of the tractor by adding the cab.

3,656,800

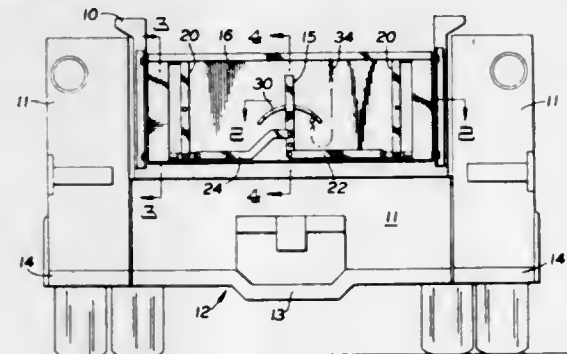
DUMP BODY TAILGATE WITH DOUBLE ACTION PIVOT AND LOCK MECHANISM

Frank C. Timmons, and Carl Smith, both of Columbus, Ohio, assignors to Timmons Metal Products Company, Columbus, Ohio

Filed Mar. 27, 1970, Ser. No. 23,353
Int. Cl. B62d 25/00

U.S. Cl. 296—50

3 Claims



A tailgate for a dump body provided with upper and lower hinge pivots and locking arrangements which are normally in locked condition but can be selectively actuated to hinge either the upper edge or the lower edge for swinging respectively up or down relative to the body during dumping. The selection is made by means of a single control lever connected to the pivot and locking arrangements by linkage which permits movement of the single lever from a central locking position in either of opposite directions to make the selection. The dump body is further provided with a combination bumper and step arrangement which not only protects the body but provides a step upon which a person can stand to be in a position to readily operate the selection lever.

3,656,801

QUICKLY DETACHABLE HINGE FOR TRUCK BODY TAILGATE

Oliver Doult, Route 7, P.O. Box 801, Lynwood, Wash., and Thomas D. Doult, 1981-28th West, Lynwood, Wash.

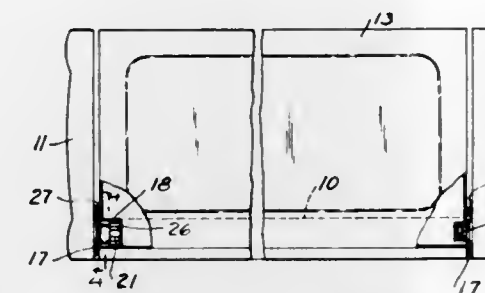
Filed May 14, 1970, Ser. No. 37,106
Int. Cl. B60j 5/10

U.S. Cl. 296—57 R

3 Claims

This is a replacement hinge for a truck body tailgate which is normally movable between an upright closed position and an approximately horizontal open position but can be

released for further downward movement, said hinge comprising a socket part having a longitudinal slot in it and another part having a flat hinge stud, one of said parts being secured to an end of the tailgate and the other part to a side



wall of the truck body, the hinge stud and the slot in the socket being dimensioned and positioned so the stud can pass sidewise through the slot when the tailgate is lowered below its normal horizontal position thus providing for quick and easy removal of and replacement of the tailgate.

3,656,802

AUTOMATICALLY RETRACTABLE TRUCK COVER

Walter D. White, 815 Middle Road, Acushnet, Mass.

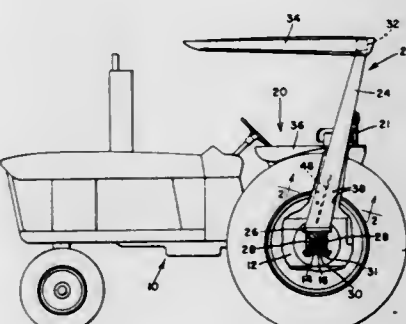
Filed Nov. 10, 1970, Ser. No. 88,426
Int. Cl. B60p 7/04

U.S. Cl. 296—100

3 Claims



An automatically retractable cover for a truck particularly of the dump truck type wherein the cover is attached at its forward edge to a horizontal rod mounted transversely atop the forward portion of the cab protection platform of the truck bed. The rear edge of the cover is attached to the cross member of the generally U-shaped support member. The arms of the U-shaped support member have their outer ends fixedly secured to a shaft that is pivotally mounted beneath the truck bed. A piston in a cylinder mounted beneath the truck bed has its piston rod actuated responsive to a switch within the cab of the truck. The rod in turn drives a crank arm that is radially attached to the shaft to pivot the U-shaped support member from a forward position with the truck bed uncovered, to a rearward position where the bed is covered. A shaft having three spring loaded pulleys thereon is mounted beneath the forward end of the cab protection platform. Cables on the pulleys pass upwardly through apertures in the platform then around a second set of pulleys mounted atop the platform. Next the cables are threaded through rings attached along the length of the canvas with the ends of the cables being attached to cross member.



3,656,803
TRACTOR ROLL BAR
Clarence Edward Brown, and Norman Frederick Lemmon, both of Cedar Falls, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Aug. 27, 1970, Ser. No. 67,422
Int. Cl. B62d 25/06

U.S. Cl. 296—102

6 Claims

A tractor roll bar has a pair of generally upright box beam members disposed on opposite sides of the operator's station with the lower ends of the box beam members rigidly attached to the axle housings for the rear drive wheels. The upper ends of the box beam members are connected by a transverse beam generally above the operator's seat. Each upright box beam member has an elongated, longitudinally extending plate welded to the interior side of one of the lateral sides of one of the box beam members and projecting toward and spaced from the opposite, the plates engaging the opposite side to limit lateral buckling of the upright box beam members during a side rollover of the tractor.

3,656,804

PIECE OF FURNITURE, PARTICULARLY A CHILD'S CHAIR

Knud Nielsen, Masebakken 16, Virum, Denmark

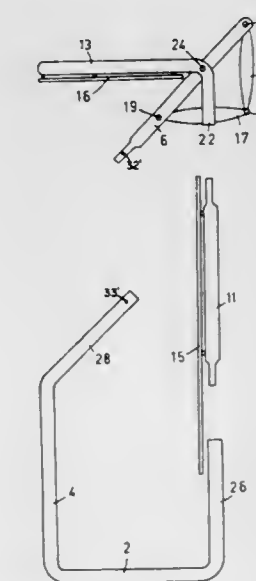
Filed Aug. 19, 1970, Ser. No. 65,057

Claims priority, application Denmark, Aug. 20, 1969, 4472/69

Int. Cl. A47c 9/04

U.S. Cl. 297—170

3 Claims



The invention relates to furniture, particularly a child's chair, formed with table and seat portions arranged in such manner that the furniture is useable in two positions, in one of which it is independently useable and in the other of which it is useable in conjunction with a further piece of furniture, i.e., a dining table.

3,656,805

CHAIR CONTROL AND SUPPORT

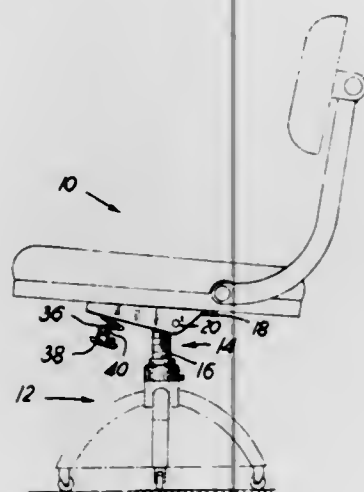
Carl J. Engstrom, Michigan City, Ind., assignor to Interroyal Corporation, New York, N.Y.

Filed Sept. 15, 1969, Ser. No. 857,922

Int. Cl. A47c 3/00

U.S. Cl. 297-302

6 Claims



An improved tilt control and support mechanism for a chair seat assembly utilizing a simplified sturdy construction wherein a single plate-like element functions to support the seat assembly and, in cooperation with an adjustable compression spring, yieldably restrains the tilt movement of the chair seat in a uniform and controlled manner to permit the occupant to bring the chair seat to a comfortable tilted rest position and return it to a substantially horizontal position.

3,656,806

CHAIR OR THE LIKE WITH BACK AND SEAT FOLDABLE IN UPRIGHT POSITION

Leonida Castelli, and Giancarlo Piretti, both of Bologna, Italy, assignors to Anonima Castelli s.a.s., Bologna, Italy

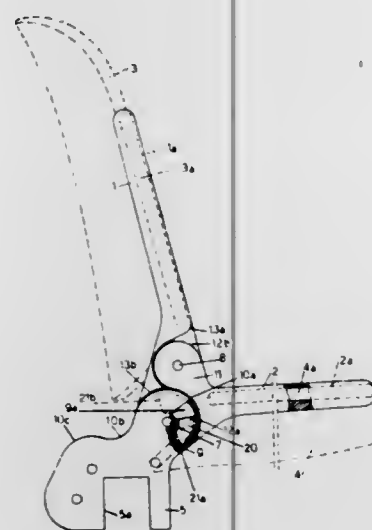
Filed Apr. 13, 1970, Ser. No. 27,524

Claims priority, application Italy, May 23, 1969, 37,339 A/69

Int. Cl. A47c 1/02

U.S. Cl. 297-324

8 Claims



A chair of the like used in public halls permitting the occupant when seated to assume an anatomically correct position while permitting both the seat and back to be folded into a substantially vertical position permitting the occupant to rise and stand comfortably while permitting others to pass in front should the chairs be connected together in a row. The

chair comprising a support, a seat, first coupling means connecting the support and the seat about a first transverse axis about which the seat rotates, a back, second coupling means connecting the back and seat about a second axis parallel to the first axis permitting the second axis to rotate thereabout, guide means cooperating with the first and second coupling means rotating the back clockwise about the second axis into a generally vertical position as the seat is rotated counter-clockwise from a generally horizontal position into a generally vertical position and rotating the back counter-clockwise about the second axis into an inclined position as the seat is rotated clockwise into a generally horizontal position and means limiting rotation of the back and seat as aforesaid.

3,656,807

VEHICLE SEAT ASSEMBLY

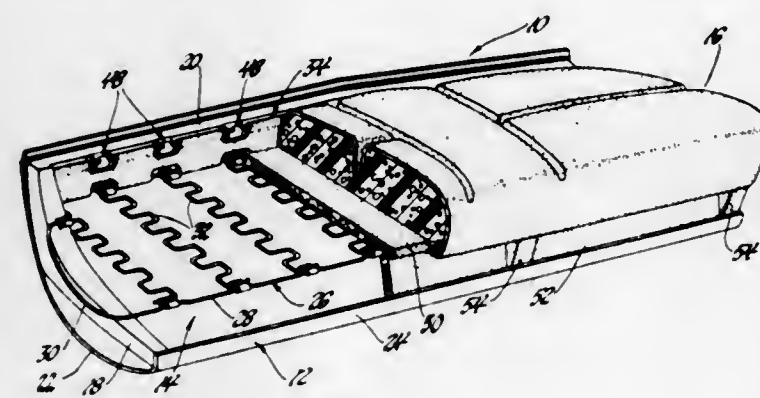
Louis K. Arida, Detroit; Edmond R. Gionet, Warren, and Donald E. Gunlock, Birmingham, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1970, Ser. No. 81,277

Int. Cl. A47c 7/02, 23/02, 23/00

U.S. Cl. 297-452

5 Claims



A vehicle seat assembly having a spring support for a seat cushion that includes a plurality of sinuous spring members extending between a border wire and a vertically disposed diaphragm. The sinuous spring members are located in a horizontal plane and encapsulated within a slab of high density plastic foam material, the front end of which is integrally formed with a block of high density foam material. The block serves as a support for maintaining the spring assembly at a predetermined distance above the seat frame.

3,656,808

CHAIR

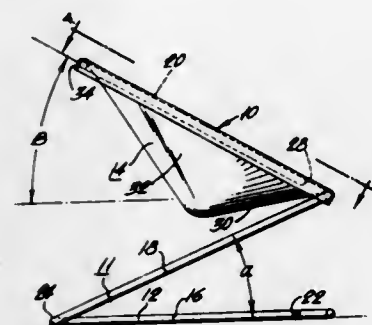
Ching-Yu Chang, Manoa Park Apts. - E115, 400 Glendale Road, Havertown, Pa.

Filed June 9, 1970, Ser. No. 44,699

Int. Cl. A47c 1/12

U.S. Cl. 297-445

11 Claims



A chair characterized by a frame structure formed by a single frame member having a continuously curved shape. The frame member includes an arcuate planar floor engaging portion, an arcuate inclined riser portion, and an inclined ar-

uate seat support portion. A seat is suspended from the frame seat support portion and may be fabricated of flexible material such as fabric, or may be of a rigid material such as molded plastic.

3,656,809

SERVICE STOOL

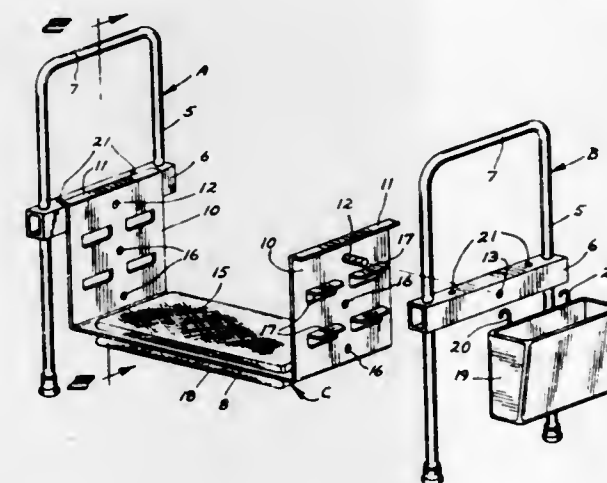
Jacob A. Ronning, 3525 Irving Avenue South, Minneapolis, Minn.

Filed Aug. 14, 1970, Ser. No. 63,716

Int. Cl. A47c 9/12, 7/50

U.S. Cl. 297-461

2 Claims



A utility stool having vertically spaced end frames connected by a generally U-shaped body member that is detachably connected to the frames in either of two vertically reversed positions, and at various elevations in either of such positions, together with means for supporting a variety of attachments.

3,656,810

TUNNELING SHIELD

Vladimir Alexandrovich Khodosh, ulitsa Burdenko, 16/12, kv. 16; Valentin Alexandrovich Ivanov, ulitsa Konstantinova 4, kv. 25; Sergei Fedorovich Salov, ulitsa Akademika Koroleva, 9, korpus 2, kv. 284; Arkady Ivanovich Mozhaev, Khavsko-Shabolovsky pereulok, 11, kv. 446; Evstafy Andreevich Vasilenko, Rizhsky proezd, 1/5, kv. 50; Pavel Semenovich Burtsev, Bolshoi Chudov pereulok, 8a, kv. 4; Kazimir Stanislavovich Anchevsky, ulitsa Obratsova, 12, kv. 14; Leonid Ivanovich Savelliev, Otkrytoe shosse, 29, korpus 4, kv. 58; Evgeny Molisevich Bolotin, Otkrytoe shosse, 24, korpus 25, kv. 12, and Leonid Konstantinovich Khaidurov, otkrytoe shosse, 24, korpus 5G, kv. 31, all of Moscow, U.S.S.R.

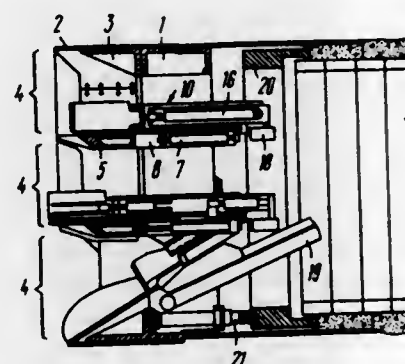
Filed Jan. 29, 1970, Ser. No. 6,798

Claims priority, application U.S.S.R., Feb. 8, 1969, 1303473

Int. Cl. E21d 23/00

U.S. Cl. 299-33

1 Claim



A tunneling shield for soft loose soils, whose face working space is divided into several decks accommodating the work-

3,656,811

PNEUMATIC TRANSPORTATION OF MATERIALS AND APPARATUS THEREFOR

Ralph R. Raad, 8 Astoria Main Road, Three Anchor Bay, Republic of South Africa

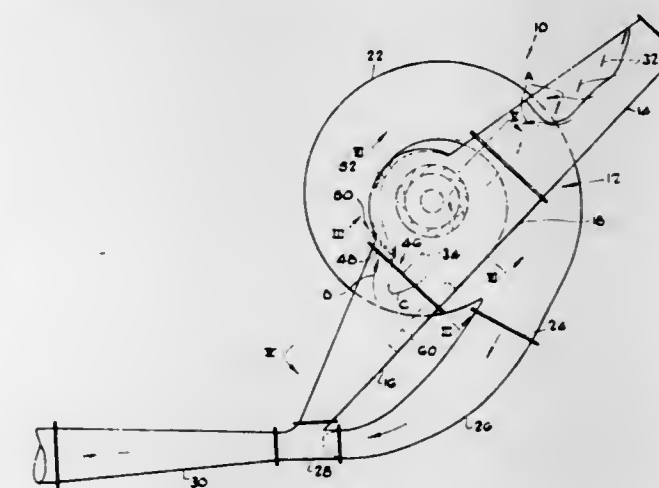
Filed Nov. 13, 1969, Ser. No. 876,271

Claims priority, application Republic of South Africa, Nov. 18, 1968, 68/17515

Int. Cl. B65g 53/04

U.S. Cl. 302-23

16 Claims



A machine for the pneumatic transportation of material in which the material to be transported is sucked downwardly along an inclined passage part of which is in the form of a suction chamber having an upper material inlet and a lower material outlet. An air outlet leads from the suction chamber, the axis of the outlet being transverse to the axis of the passage. An air displacing device such as a fan has its inlet aligned with and connected to the air outlet from the chamber. The pressure side of the fan is connected to a device such as a venturi to which the material which has passed from the suction chamber through the lower outlet is also fed, the air and material then flowing from the venturi device along a delivery duct. The suction chamber has therein arrangements for the removal of fines from the air flowing towards the air outlet.

3,656,812

DEVICE FOR FLUIDIZING STORED MATERIAL

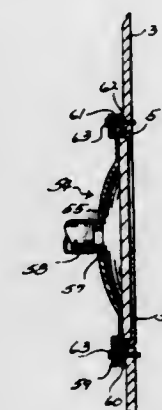
Douglas C. Steltz, Brookfield, Wis., assignor to Portec, Inc., Waukesha, Wis.

Filed Sept. 18, 1969, Ser. No. 858,937

Int. Cl. B65g 53/40

U.S. Cl. 302-53

4 Claims



A device for injecting a gas into bulk material stored within a vessel to enhance the flow characteristics of the

material. The device includes a housing to be mounted within an opening in the wall of the vessel and having a connection to a source of gas under pressure. The housing supports a porous metal filter element which permits the flow of gas into the material confined within the vessel but prevents the escape of the material into the pressurized gas system. The housing is designed so that it can be attached to the vessel wall entirely from the exterior of the vessel.

3,656,813

SINGLE-PISTON BRAKE CYLINDER FOR A DOUBLE-CIRCUIT COMPRESSED-AIR BRAKE SYSTEM

Jean Gachot, 179 Avenue de la Division Leclerc, Enghien, and Fernand Perales, 87 rue A. G. Belin, Argenteuil, both of France

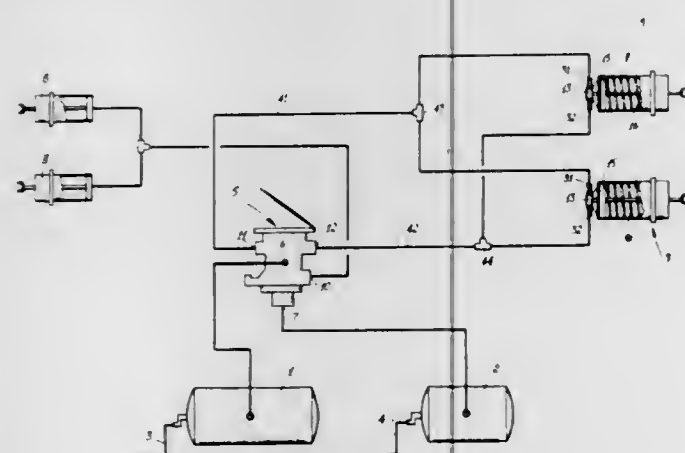
Filed Mar. 9, 1970, Ser. No. 17,765

Claims priority, application France, Mar. 19, 1969, 6907886

Int. Cl. B60t 13/36

U.S. Cl. 303-2

3 Claims



A single-piston brake cylinder for a double-circuit brake system consisting of a main application circuit and an emergency application circuit. A double check-valve is fixed on the cylinder and has its two admission ports connected respectively to the main circuit and to the emergency circuit whilst the discharge port of said check-valve is adapted to communicate with said cylinder. The flap of the double check-valve cannot become oxidized and impurities are not liable to accumulate in its vicinity since this flap operates continuously under normal service conditions. This ensures safe operation of the emergency circuit.

3,656,814

MONITORING DEVICE FOR FLUID PRESSURE SYSTEMS

Fritz Scheele, Munich; Josef Frania, and Walter Ortmann, both of Hannover, all of Germany, assignors to Westinghouse Bremsen-und Apparatebau G.m.b.H., Hannover, Germany

Filed Aug. 17, 1970, Ser. No. 64,478

Claims priority, application Germany, Nov. 15, 1969, P 19 57 561.2

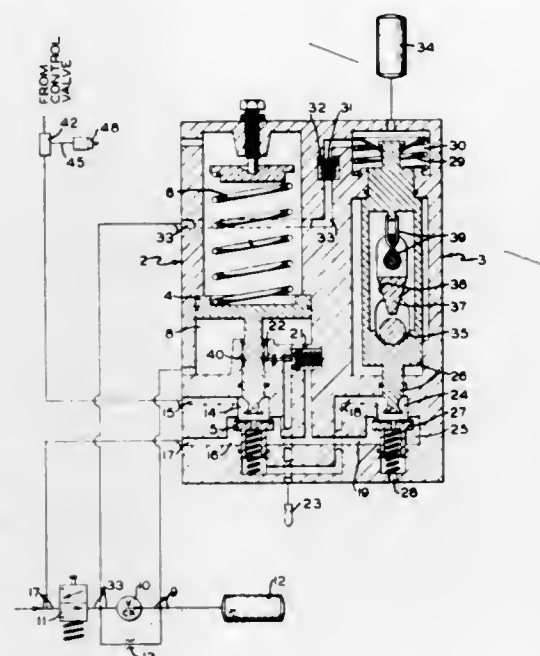
Int. Cl. B60t 7/14

U.S. Cl. 303-19

12 Claims

This invention relates to fluid pressure operable railway locomotive safety control apparatus which requires certain periodic acknowledging operations by the locomotive engineer to forestall a penalty brake application which will be automatically effected should the engineer fail to perform the required acknowledging operation within a certain time subsequent to the sounding of an alarm signal or whistle. This apparatus, when installed on locomotives having only an engineer in the cab, requires that he, following each sounding of the alarm signal, either after a certain time interval or subsequent to a chosen distance traveled, manually operate an

acknowledging valve to prevent a brake application which



will automatically occur should he become incapacitated.

3,656,815

VEHICLE ANTISKID-BRAKE-SYSTEM WITH ACCELEROMETER

Abotaleb Talebi, Ober Roden-Messenhausen, and Erwin Schlitz, Heusenstamm, both of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Germany

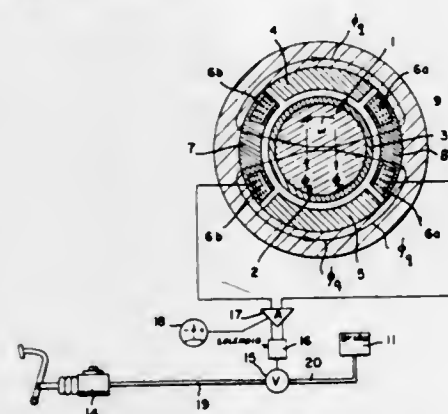
Original application Feb. 12, 1969, Ser. No. 798,636, now Patent No. 3,555,326, dated Jan. 2, 1970. Divided and this application Apr. 9, 1970, Ser. No. 33,140

Claims priority, application Germany, Feb. 17, 1968, P 16 73-443.3

Int. Cl. B60t 8/16

U.S. Cl. 303-21 CG

9 Claims



An antiskid-brake-system accelerometer has a solid cylindrical ferromagnetic rotor rotationally coupled to a vehicle wheel and coated with a conductive nonferromagnetic metal sheath. Magnets create a radial primary flux through the rotor while pickup coils located on the stator outside this field sense any variation in flux of a secondary field produced by the eddy currents in the coating. The output of these differentiating (pickup) coil is a function of the angular acceleration of the rotor and is used to regulate braking force in the wheel.

3,656,816

BRAKING SYSTEM WITH DECELERATION DERIVATIVE CONTROL

Erwin Schlitz, Heusenstamm, and Werner Fink, Frankfurt am Main, both of Germany, assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed July 9, 1969, Ser. No. 840,390

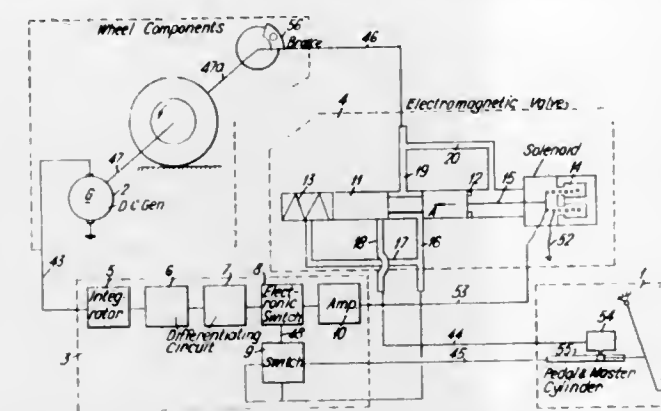
Int. Cl. B60t 8/08; F15b 13/02

U.S. Cl. 303-21 P

7 Claims

A wheel anti-lock braking device especially adapted to au-

tomotive systems is described. A wheel tachometer generator develops an angular velocity signal, which, twice differentiated, becomes the derivative of acceleration or a term herein called "ruck." This term indicates angular accelera-



tion changes and is used to optimize braking pressure at the point approximating maximum tire-to-road friction and thereby averting wheel locking and consequent skid. Control is effected through a partially electrical and partially hydraulic regulatory servomechanism.

3,656,817

ANTISKID BRAKE PRESSURE CONTROL DEVICE FOR HYDRAULIC BRAKING SYSTEMS

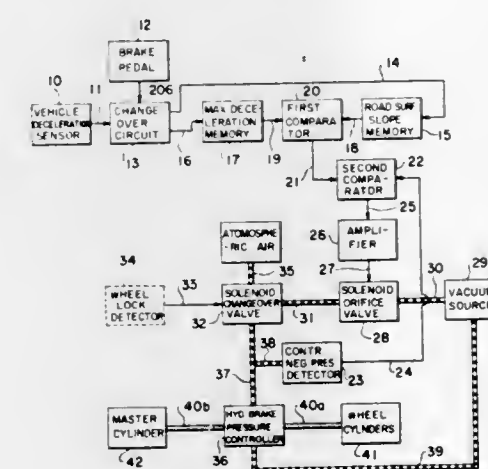
Tosiaki Okamoto; Masami Inada; Katuki Takayama; Tatsuo Hayashi; Koji Nishida; Naoki Sakakibara, and Masao Kamiya, all of Toyota-shi, Japan, assignors to Aisin Seiki Company Limited, Toyota-shi, Japan

Filed Oct. 13, 1969, Ser. No. 865,848

Claims priority, application Japan, Oct. 11, 1968, 43/74480; Oct. 12, 1968, 43/74328; Nov. 9, 1968, 43/82662; 43/82663; Nov. 20, 1968, 43/84954

U.S. Cl. 303-21 P

3 Claims



The hydraulic braking circuit between the master cylinder and the wheel cylinder is provided with a valve for interrupting fluid communication therebetween and a movable member for selectively increasing and decreasing the effective volume of a portion of the hydraulic circuit. A sensor is provided for sensing the rotation of at least one of the wheels of the vehicle and delivering an instruction signal when the wheel is subjected to an excess braking beyond a predetermined deceleration of the wheel. The signal from the sensor operates a change-over valve which increases the effective volume of the portion of the hydraulic circuit by actuating the movable member. A detector is provided for detecting maximum deceleration of the wheel during braking and the maximum value of the detected wheel deceleration is preserved in a memory. The detected maximum wheel deceleration and the rate of change of the effective volume

of the hydraulic circuit are converted into effective electric signals. An orifice valve controls the rate of effective volume reduction in the hydraulic circuit in response to a comparison of the electric signals.

3,656,818

SELF-DAMPED GUIDE RAIL

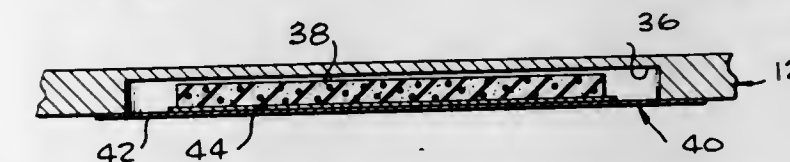
Vincent E. Bischoff, Rivergrove, and Paul S. Colecchi, Des Plaines, both of Ill., assignors to A. B. Dick Company, Chicago, Ill.

Filed May 8, 1970, Ser. No. 35,717

Int. Cl. F16c 29/00

U.S. Cl. 308-3

8 Claims



A vibration resistant guide for an ink jet printing head that moves back and forth across a paper web, comprising a flat rail supported at opposite ends and having guideways extending along opposite edges to guide the printing head, the center of the rail having a recess in its under surface. A damping bar composed of a rubber matrix with lead shot embedded therein is disposed in the recess to damp out vibrations of the rail. The damping bar fits loosely within the recess, and is retained therein by a diaphragm that covers the recess.

3,656,819

AEROSTATIC OR HYDROSTATIC BEARING

Gilles Gerardus Hirs, Pijnacker, Netherlands, assignor to Nederlandse Organisatie Voor Toegepast-Natuurwetenschappelijk Onderzoek Ten Behoeve Van Nijverheid, Handel En Verkeer, The Hague, Netherlands

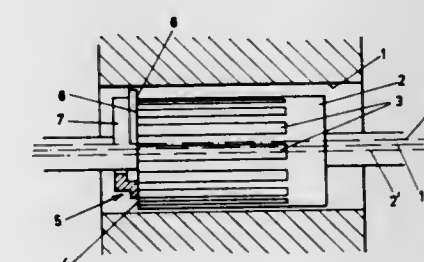
Filed Aug. 21, 1970, Ser. No. 65,990

Claims priority, application Netherlands, Aug. 29, 1969, 6913284

Int. Cl. F16c 17/16

U.S. Cl. 308-9

7 Claims



In an aerostatic or hydrostatic bearing a ring that is freely movable in the lubricant supply flow controls the lubricant distribution over the entry of the slit between the bearing members and amplifies the circumferential pressure differentiation occurring at eccentric positions of the bearing members. As a result the bearing's carrying capacity and stiffness are improved.

3,656,820

WEAR COMPENSATING SEAL

Pietro Pensa, Milan, Italy, assignor to Massey-Ferguson Services N.V., Curacao, Netherlands

Filed May 8, 1968, Ser. No. 727,425

Claims priority, application Italy, May 20, 1967, 16335 A/67

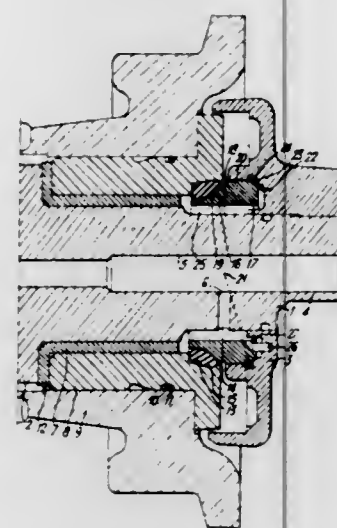
Int. Cl. F16j 15/16; F16k 41/00

U.S. Cl. 308-36.1

10 Claims

A seal assembly for a bearing wherein two relatively rotatable annular matched members have planar face-to-face

sealing contact surfaces resiliently urged together and one of the members is mounted for limited spherical rocking move-



ment about a point on the sealing surface plane and on the axis of relative rotation between the members.

3,656,821

SELF-ALIGNING BEARING

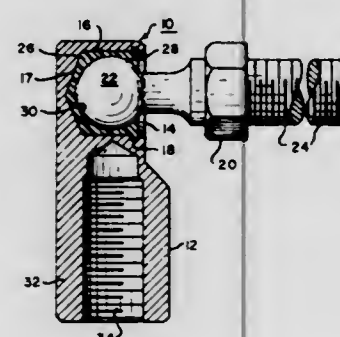
Albert R. McCloskey, and Alfred Rozentals, both of Fairfield, Conn., assignors to Heim Universal Corporation, Fairfield, Conn.

Filed Aug. 5, 1970, Ser. No. 61,294

Int. Cl. F16c 23/04

U.S. Cl. 308—72

10 Claims



A self-aligning bearing comprising an outer member with an open portion with at least one annular groove disposed therein, an inner member with a convex outer surface, and an intermediate member of a preformed resilient, self-lubricating material, said intermediate member having at least one annular lip, said lip adapted to register with said annular groove in said outer member to mechanically restrain said intermediate member in place within said open portion of said outer member and to mechanically restrain said inner member in place within said intermediate member, said intermediate member, when in its assembled position, having a spherical inner surface generally conforming to the convex outer surface of said inner member.

3,656,822

SERVO-CONTROL GAS-LUBRICATED BEARING SYSTEM

Everett H. Schwartzman, 457 34th Street, Manhattan Beach, Calif.

Filed Sept. 13, 1968, Ser. No. 759,615

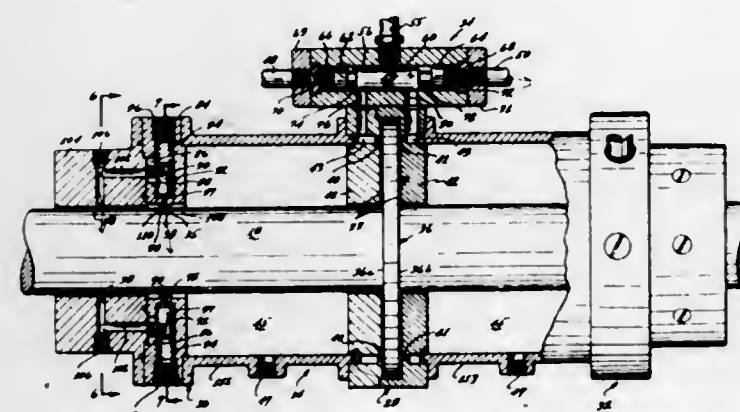
Int. Cl. F16c 1/24

U.S. Cl. 308—122

5 Claims

A system is disclosed for supporting a rotary load on a cushion of gas that is developed in a gas-bearing structure. Both radial and thrust loads are carried in the system as dis-

closed, and similar principles are utilized in the operation of each such component structure. A closure member cooperates with a load member, carrying a rotary load, to define the space in which a gas cushion is developed. To preserve the space relationship between the load member and the closure member within operating limits, the two structures are position servo-controlled. As disclosed herein, signals are developed that are indicative of the relationship



3,656,823

SLIDABLE CARRIER OR SUPPORT

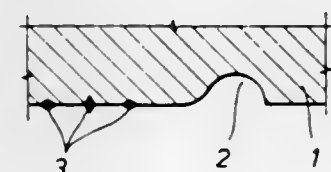
Wladimir Tiraspol'sky, 69 Avenue Victor Cresson, 92 Issy-les-Moulineaux, and Pierre Leschiutta, Villa Pimpy-Impassée Gallego, 65 Tarbes, both of France

Filed Aug. 5, 1970, Ser. No. 61,055

Int. Cl. F16c 17/04

U.S. Cl. 308—160

15 Claims



A thrust bearing has the working surface of a first element facing the working surface of a second element. The material forming the working surface of the first element is made of a harder material than that which forms the working surface of the second element. The working surface of the first element is grooved radially outwardly to the edge so the edges of the grooves will scrape abrasive material from the softer working surface of the softer surface, collect it in the grooves, and discharge it radially out the open ends of the grooves.

3,656,824

SEALING DEVICE IN BEARING HOUSINGS

Carl Woodrow Ullberg, Katrineholm, Sweden, assignor to Aktiebolaget Svenska Kullager-fabriken, Goteborg, Sweden

Filed Sept. 16, 1969, Ser. No. 858,294

Claims priority, application Sweden, Sept. 16, 1968, 12434/68

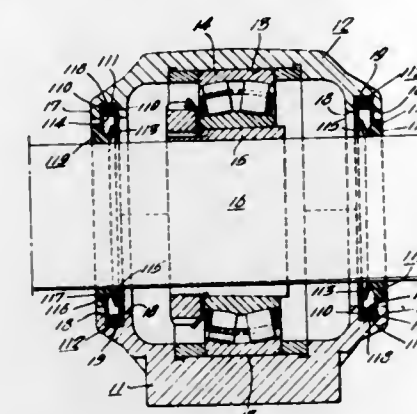
Int. Cl. F16j 15/32

U.S. Cl. 308—187.1

7 Claims

A sealing device for bearing housing intended to carry a bearing and a rotatable shaft mounted therein, which housing is divided along a diametrical plane into two halves, charac-

terized thereby that the bore in the side walls of said bearing housing halves through which the shaft passes, is considerably greater than the shaft and internally provided with a ridge or a groove which seals against and acts as a fixing



device for the peripheral portion of a side washer which surrounds the shaft and forms a sealing device either alone, together with the shaft or together with another annular member which is arranged around the shaft.

3,656,825

ROLLER BEARINGS

Werner Manger, Schweinfurt, Germany, assignor to SKF Kugellagerfabriken GmbH, Schweinfurt, Germany

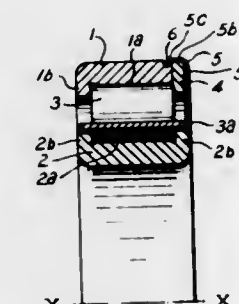
Filed July 24, 1970, Ser. No. 57,972

Claims priority, application Germany, Aug. 1, 1969, G 69 30 530.2

Int. Cl. F16c 33/60

U.S. Cl. 308—213

6 Claims



A roller bearing having an inner and outer race and a plurality of rollers located therebetween. One of the races is provided with a separable retaining shoulder. Connecting means comprising a cap extends over the shoulder and engages a circumferential groove provided in the periphery of the ring to thereby secure the shoulder thereto.

3,656,826

METHOD FOR THE PREPARATION AND HANDLING OF HIGHLY OXYGEN REACTANT MATERIALS

Hugh D. Fraser, West Caldwell, and Leo C. Werner, Cedar Grove, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 17, 1970, Ser. No. 55,822

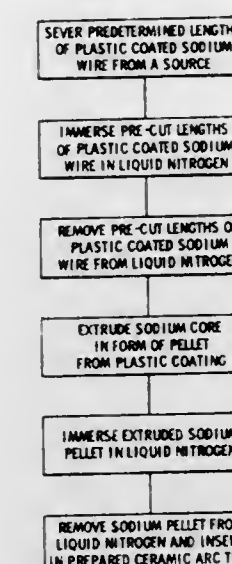
Int. Cl. H01j 9/18

U.S. Cl. 316—19

3 Claims

A method for the preparation and handling of predetermined quantity amounts of sodium or other highly oxygen reactant materials. The method comprises the steps of cutting a preselected length of the material from a source of the material disposed within protective plastic tubing of an indeterminate length and storing the precut lengths of tubing containing the material as a core in a container of liquid nitrogen. After suitable chilling in the liquid nitrogen the precut lengths of tubing are removed from the liquid nitrogen

and the chilled core material is extruded from the plastic tubing and is reinserted into a liquid nitrogen bath for sub-



sequent use as a predetermined quantity amount or dose of the material in handleable form.

3,656,827

HOLOGRAPHIC READ/WRITE STORAGE SYSTEM

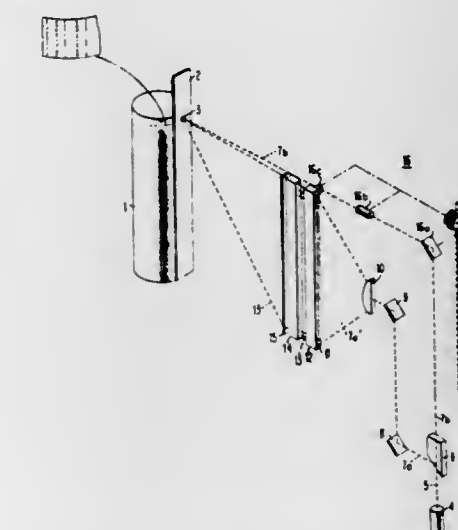
Rodger L. Gamblin, Vestal, N.Y., and Carl D. Southard, Raleigh, N.C., assignors to International Business Machines, Armonk, N.Y.

Filed Apr. 3, 1969, Ser. No. 813,198

Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

2 Claims



The invention relates to a holographic mass data storage system in which coded representations of data are recorded on the photosensitive surface of a drum sequentially under control of mechanical means, and means for reading the written information, by reflection onto an array of radially disposed photodetectors. An address control means is provided whereby the written information may be selectively read out in any desired combinations of words of information.

3,656,828

LIGHT SIGNAL APPARATUS

Karl Otto Ragnar Scholdstrom, Lidings, Sweden, assignor to AGA Aktiebolag, Lidings, Sweden

Filed Dec. 17, 1969, Ser. No. 885,799

Claims priority, application Sweden, Jan. 24, 1969, 934/69

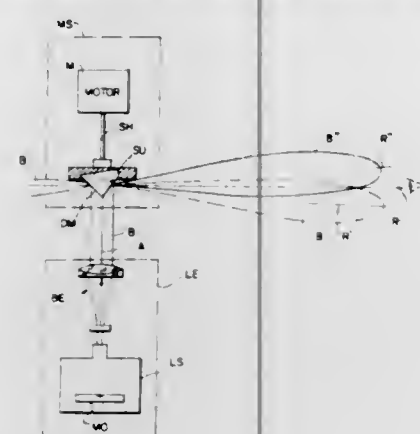
Int. Cl. G02b 17/00

U.S. Cl. 350—7

4 Claims

A pair of oppositely directed beams of light are rotated about an axis. The direction of the beams has a small devia-

tion from a plane normal to the axis, whereby flashes of equal strength from both beams are produced in the normal plane at twice the frequency of revolution, thereby indicating



the normal plane to a viewer.

In similar manner, a line may be indicated by making a beam rotate about an axis having a small deviation from that of the beam.

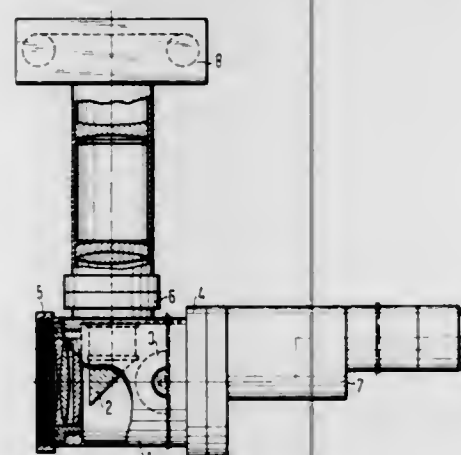
3,656,829

ASSEMBLY FOR A STEREOSCOPIC MICROSCOPE
Karl-Heinz Wilms, Dachau, Germany, assignor to Optische Werke G. Rodenstock, Munich, Germany
Filed Apr. 15, 1970, Ser. No. 28,784
Claims priority, application Germany, Apr. 19, 1969, P 19 20 006.7

Int. Cl. G02b 23/00

U.S. Cl. 350-33

8 Claims



A stereoscopic microscope is built around a basic unit having a housing, adapters on three walls of the housing for securing an entrance objective, binocular eyepieces, and an auxiliary unit, such as an illuminator or a camera, to the housing. A beam splitting mirror in the housing permits light to be transmitted between the auxiliary unit and the objective while light also is transmitted between the objective and the eyepieces. The magnification of the microscope can be changed by two Galilean telescopes reversibly mounted on a rotary carrier between the mirror and the eyepiece adapter.

3,656,830

REAR VIEW MIRROR WITH MOISTURE CONTROL
Gustav Kurschner, Fechenbach (Main), Germany, assignor to Fechenbacher Armaturen-Und Metallwaren-Fabrik, Fechenbach am Main, Germany
Filed Aug. 20, 1970, Ser. No. 65,379
Claims priority, application Germany, Aug. 20, 1969, G 69 32 782.8

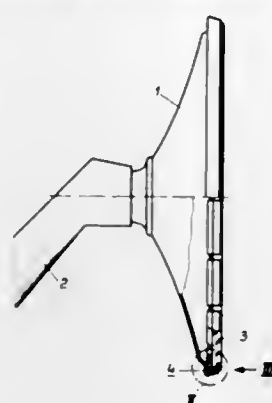
Int. Cl. G02b

U.S. Cl. 350-67

10 Claims

In an external rear view mirror a cupped housing has an open side in which a mirror member is retained, with an annular sealing ring being interposed between the mirror

member and the housing. The sealing ring has a main annular body portion and an axially adjacent annular sealing lip extending along the main annular body portion with both of them together having a circumferential edge face provided

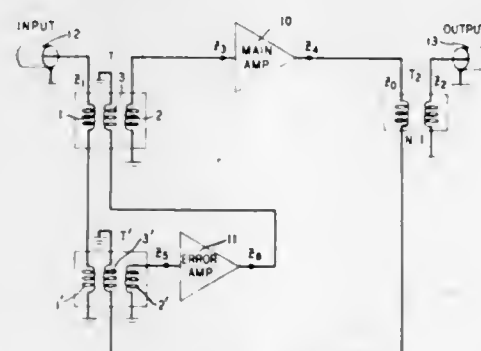


3,656,831

FEEDBACK AMPLIFIER
Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Jan. 14, 1971, Ser. No. 106,510
Int. Cl. H03f 1/36

U.S. Cl. 330-85

6 Claims



A feedback amplifier is disclosed wherein two trifilar transformers are used to couple into and between a main signal amplifier and an error amplifier. The signal source is connected in series with one winding in the main amplifier transformer and one winding of the error amplifier transformer. A second winding of each transformer is connected, respectively, to the input port of its associated amplifier, while the output from each amplifier is connected to the third winding of the other's transformer. Advantageously, the input impedances of the main amplifier and the error amplifier are much less than the driving source impedance, while their output impedances are much greater than the source and load impedances. This permits the use of small, simple coupling transformers having very few turns. As a consequence, the resulting feedback network is exceedingly broadband, and the feedback delay correspondingly small.

3,656,832

MICRO-OPTICAL IMAGING APPARATUS
Herbert Judin, Huntington, N.Y., assignor to Areoptix Technology Corporation, Plainview, Long Island, N.Y.
Continuation of application Ser. No. 727,384, Feb. 26, 1968, which is a division of application Ser. No. 419,512, Dec. 18, 1964, now Patent No. 3,379,832, dated Apr. 23, 1968. This application June 3, 1970, Ser. No. 41,763

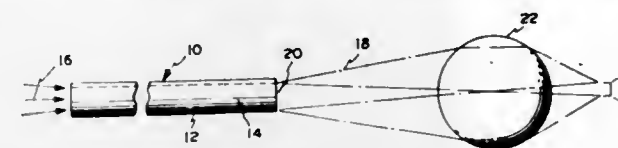
Int. Cl. G02b 5/14

U.S. Cl. 350-96 R

11 Claims

A high speed, diffraction limited point or line forming optical system utilizing uncorrected and imperfect single element lenses which are substantially spherical, hemispherical or

cylindrical in shape, or appropriate index and size, in conjunction with radiation or light waves incident at limited



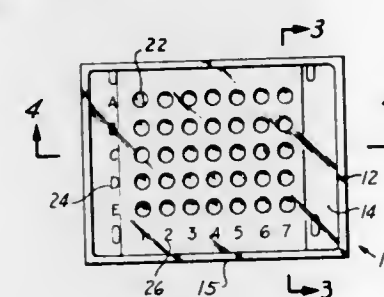
divergence angles upon said lens elements; by virtue of small optical path differences of focusing exit rays, a diffraction predominant effect occurs.

3,656,833

COMBINED PLASTIC-GLASS MICROSCOPE SLIDES
Clarence Wallace, Glendale, Calif., assignor to Medical Plastics, Inc., Burbank, Calif.
Filed June 29, 1970, Ser. No. 50,596
Int. Cl. G02b 21/34

U.S. Cl. 350-95

7 Claims



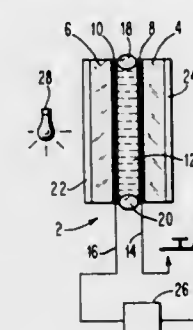
A microscope slide according to the present disclosure is provided for laboratory use. Its utility is widespread, a single example being in lymphocyte typing. The slide comprises a body constructed of a non-wettable material having aperture means extending between opposite planar surfaces. A glass plate is bonded to one of the planar surfaces so as to close one end of the aperture means and thereby to form cavity means for confining a specimen to a restricted area. The glass plate provides a wettable surface in the cavity means for the specimen so that the specimen may spread on the glass plate in the cavity means. The device thereby provides the manufacturing convenience of a plastic-molded product with the essential feature of a wettable glass slide.

3,656,834

ADDITIVE FOR LIQUID CRYSTAL MATERIAL
Ivan Haller, Chappaqua, and Harold A. Huggins, White Plains, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 9, 1970, Ser. No. 96,369
Int. Cl. G02f 1/16

U.S. Cl. 350-150

10 Claims



A nematic liquid crystal material which assumes a homeotropic texture is provided by dissolving an additive material having the formula



wherein R is an alkyl radical having 10 to 24 carbon atoms, R' is a methyl or ethyl radical, and X⁻ is an anion derived

from a simple acid, in a nematic material. A typical example of the additive is hexadecyltrimethylammonium bromide. The homeotropic texture provided by this composition, when placed between two conducting transparent plates, is readily deformed by a voltage applied to the plates and can thereby be utilized to control the transmission of light.

3,656,835

MODULATION BY A MAGNETIC FIELD OF ELECTROMAGNETIC RADIATION PRODUCED BY THE DECAY OF TRIPLET STATES

Robert C. Johnson, and Richard E. Merrifield, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of application Ser. No. 724,420, Apr. 26, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 648,883, June 26, 1967, now abandoned. This application Aug. 26, 1969, Ser. No. 853,183
Int. Cl. G02f 1/16

U.S. Cl. 350-160

16 Claims



This disclosure describes a process and devices for modulating electromagnetic radiation, e.g., visible light, by means of variation in a magnetic field on a substance, e.g., anthracene, pyrene, diphenylanthracene, etc., in which triplets can be created, with the triplets subsequently decaying and thereby causing said substance to emit electromagnetic radiation, e.g., to fluoresce.

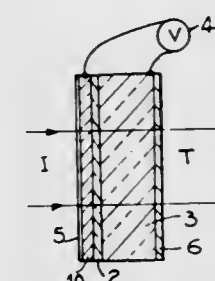
3,656,836

LIGHT MODULATOR

Baudoin de Cremoux, and Pierre Leclerc, both of Paris, France, assignors to Thomson-CSF
Filed June 26, 1969, Ser. No. 836,783
Claims priority, application France, July 5, 1968, 158042
Int. Cl. G02f 1/36; H01s 3/00

U.S. Cl. 350-160

10 Claims



The application of a voltage between the semiconductor and the conducting layers of a structure wherein said layers are separated by an insulator layer allow the modulation of a luminous radiation propagating through or reflected on said structure.

3,656,837

SOLID STATE SCANNING BY DETECTING THE RELIEF PROFILE OF A SEMICONDUCTOR BODY

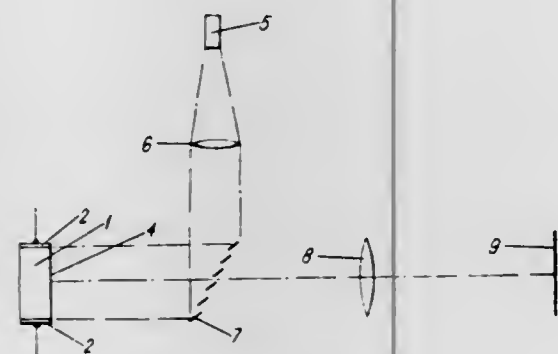
Carl Peter Sandbank, Bishop's Stortford, England, assignor to ITT Industries, Inc., New York, N.Y.
Filed Oct. 14, 1970, Ser. No. 80,616
Claims priority, application Great Britain, Oct. 21, 1969, 51,474/69
Int. Cl. G02f 1/28

U.S. Cl. 350-161

8 Claims

A solid state scanning system includes a body of semiconductor material, such as cadmium sulfide, which exhibits

moving high field instability effects, and a light projection system having Schlieren optics to detect surface disturbances caused by a propagating high field domain nucleated within the semiconductor body. The light is preferably directed onto the semiconductor surface by a plurality of louvered mirror strips which also detect the light reflections therefrom. The system may also include a display means to show the relief



profile of the surface disturbances in the form of a raster of brightness information representing variations in the voltage across the domain which occurs during the propagation. A layer of a high coupling constant material can be provided on the device to enhance the disturbance effect. A liquid or plastic film can also be used on the device to introduce memory in the system.

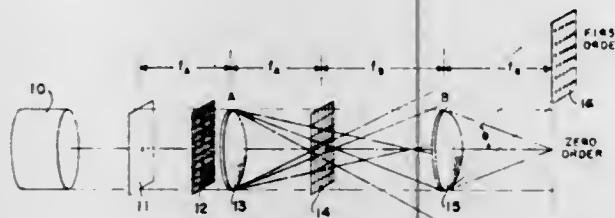
3,656,838

METHOD FOR MAKING AN OPTICAL FILTER FOR A CHARACTER IDENTIFICATION SYSTEM

John F. Bryant, Lemon Grove, and Will T. Hyde, Jr., San Diego, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy
Original application Nov. 12, 1968, Ser. No. 774,737, now Patent No. 3,571,603. Divided and this application Sept. 4, 1970, Ser. No. 69,678
Int. Cl. G02b 5/18

U.S. Cl. 350-162 SF

6 Claims



A source of collimated coherent light is arranged to impinge upon a character to be identified and a two-dimensional diffraction means is positioned in the path of the collimated light passing through the character to be identified, forming a plurality of spatially disposed diffraction patterns. Appropriate optical means of a determinable focal length is positioned one focal length from the position of the character to be identified, forming far-field images of the plurality of diffraction patterns. A filter has a plurality of spaced discrete areas each defining the distinctive diffraction pattern of a known character by holographic techniques. Optical means integrates the light passing through the filter, diverting it to a first order, off-beam position. A plurality of light-responsive means, disposed in the first order off-beam position, and each related to a discrete area of the optical filter produces a signal in response to a predetermined amplitude of light passing through the filter, therefore identifying the character which was initially exposed to the source of collimated coherent light.

3,656,839 PROJECTION LENS OF HIGH NUMERICAL APERTURE

Patrick A. Trotta, Penfield, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Oct. 1, 1970, Ser. No. 77,271

Int. Cl. G02b 9/64, 13/04

U.S. Cl. 350-214

4 Claims



A reversed telephoto projection lens of 200x magnification having a numerical aperture of 0.45 and long back focus comprises two groups, a three-element negative group spaced from a seven-element positive group by a factor of substantially 6.5x the focal length of the lens, being intended for use in a system with a plano-parallel cover glass.

3,656,840

MAGNIFYING SPECIMEN VIEWER

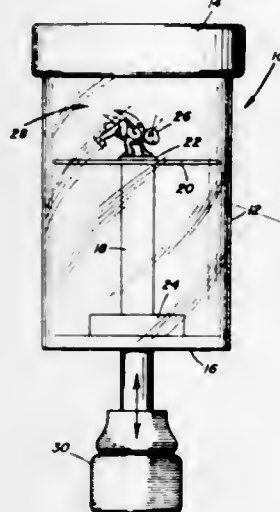
William G. Smith, Lutherville, and Elias S. Friant, Jr., Baltimore, both of Md., assignors to Kimtec Incorporated, Towson, Md.

Filed June 26, 1970, Ser. No. 50,259

Int. Cl. G02b 27/02

U.S. Cl. 350-239

7 Claims



A container for housing a specimen to be studied. A specimen, such as an insect, is mounted on a disk. The disk, acting as a piston, is mounted on a shaft having a knob on the opposite end thereof. The shaft extends through the bottom of a housing and the disk slides, as a piston, within the housing. The top of the housing is a lens element. The distance between the lens element and the specimen to be observed is controlled by positioning the piston within the housing by means of the knob resting outside the housing.

3,656,841 CINEMATOGRAPHIC CAMERA WITH QUICK- CONVERT COLOR-ENCODING FILTER

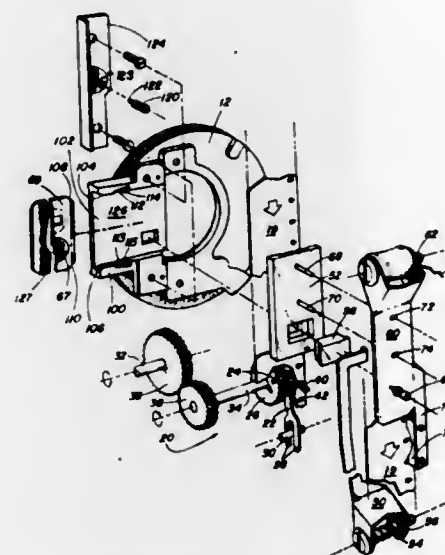
Russell M. Heinonen, Jr., Hudson, Mass., assignor to Technical Operations Incorporated, Burlington, Mass.

Filed Apr. 3, 1970, Ser. No. 25,404

Int. Cl. G03b 19/18; G02b 5/22

U.S. Cl. 352-45

11 Claims



This disclosure depicts a number of cine cameras illustrating principles, uses, implementations, and modes of operation of the invention. Each disclosed embodiment includes a removable holder for supporting two alternatively operative light-affecting elements. At least one of the elements is a spectral zonal filter for encoding color information such that it may be recorded on black-and-white recording materials. In the illustrated preferred embodiments the other element constitutes a neutral glass slip having substantially the same optical retardation as the color-encoding filter. A guide structure is provided for guiding the holder through the camera housing from a withdrawn position to an inserted position wherein one of the light-affecting elements is in an operative position on the optical axis. The holder is designed such that it may be quickly withdrawn from the camera, altered in orientation, and reinserted into the camera to convert between conventional black-and-white photography wherein the neutral element is on axis and nonconventional color storage black-and-white photography wherein the color encoding filter is on axis.

3,656,842

MOTION PICTURE CAMERA

Anton Theer, Munich, and Johann Zanner, Unterhaching, both of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Continuation of application Ser. No. 699,691, Jan. 22, 1968.

This application July 29, 1970, Ser. No. 64,102

Claims priority, application Germany, Jan. 26, 1967, A 54723

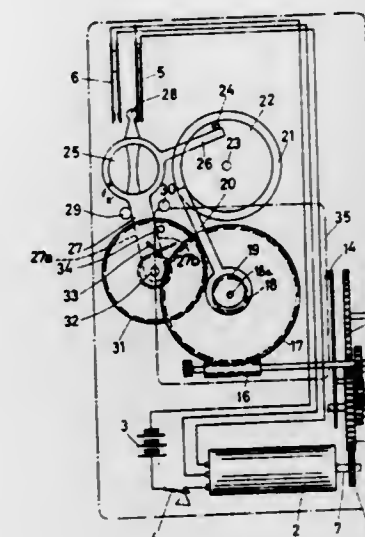
Int. Cl. G03b 21/36

U.S. Cl. 352-91

12 Claims

A motion picture camera wherein the supply reel need not or cannot be rotated by a motor in a sense to collect exposed film by drawing such film from the takeup reel. The motor which drives the takeup reel is reversible so that the takeup reel can be rotated in forward direction in order to draw unexposed film from the supply reel and also in reverse direction to pay out the film, for example, when the photographer wishes to reexpose a certain length of motion picture film. An arresting device which is controlled by a lever serving to set the motor for operation in forward or reverse is actuated when the motor is set for operation in reverse to arrest the drive for the takeup reel when the latter pays out a predetermined length of film. The film frame counter is ar-

ranged to prevent the lever from setting the motor for operation in reverse when a fresh film is inserted into the housing



of the camera to thus prevent separation of film from the takeup reel.

3,656,843

FILM MATCHING APPARATUS

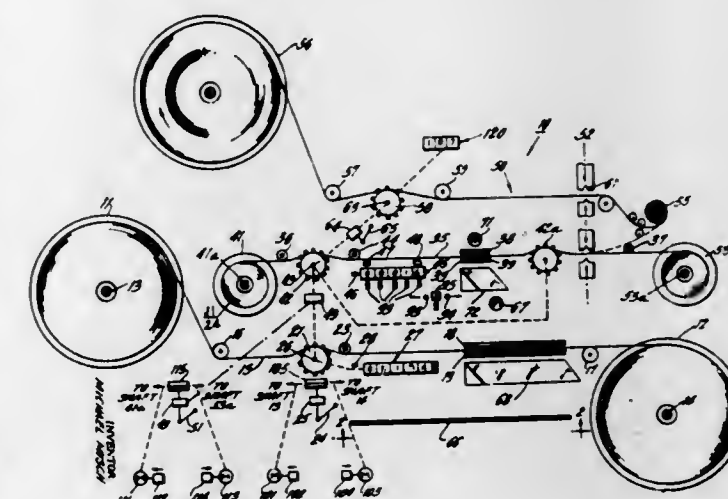
Michael Misch, East Mount Airy Road, Croton on Hudson, N.Y.

Filed Nov. 17, 1970, Ser. No. 90,386

Int. Cl. G03b 21/00

U.S. Cl. 352-129

7 Claims



Apparatus for matching motion picture film is constructed with individual transport means for the edited work film, the original film, and black leader film. Clutches are operable to couple selected ones of the transport means for coordinated movement of two or three of the film strips as required. Magnified images of selected portions of the films appear at a viewing station, which also contains footage and edge number counters for the work and original films, respectively.

When a desired scene is being taken from the camera original, an equal length of black leader film is also cut. Both are fed to a holding container that is constructed with spiral guide grooves to coil these films, with adjacent coils being spaced from each other.

3,656,844

SUN FOLLOWING DEVICE

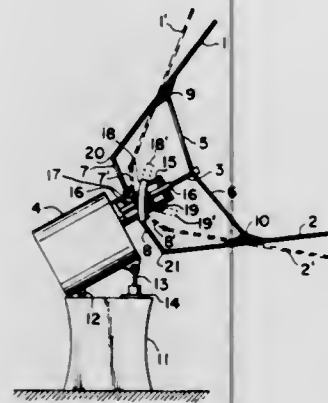
Ivan Botskor, Breisgan, Germany, assignor to Tibor Horvath and George Kalnay, a part interest to each

Filed June 26, 1969, Ser. No. 836,917

Int. Cl. G03b 21/00

U.S. Cl. 353-3

9 Claims



A heliostat has an axle parallel to the earth's axis which is driven to revolve once each 48 hours, the axle having two oppositely disposed mirrors mounted thereon to each reflect the sun's light on alternate days, the mirrors being automatically adjusted to compensate for the declination of the sun by means of gears and a cam driven by the rotation of the axle.

3,656,845

LIGHT-POINT-PROJECTOR

Ernst Koch-Bossard, Moosstrasse 11, CH6000 Luzerne, and Max August Pietsch-Faber, Im Klosterhof, CH8598 Bottighogen, Thugau, both of Switzerland

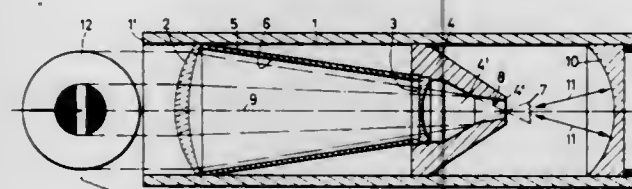
Filed Jan. 23, 1970, Ser. No. 5,318

Claims priority, application Germany, Nov. 13, 1969, P 19 57 108.5

Int. Cl. G03b 21/00

U.S. Cl. 353-42

10 Claims



Aiming projector for attachment to a gun, or the like, for assisting in aiming thereof by providing, from a single light source, a projected bright spot indicating the point of aim and generalized illumination of the area of aim to a lower intensity.

3,656,846

SLIDE METERING MECHANISM

John W. Hipelius, Skokie, and James H. Murray, Chicago, both of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Filed Dec. 30, 1969, Ser. No. 889,213

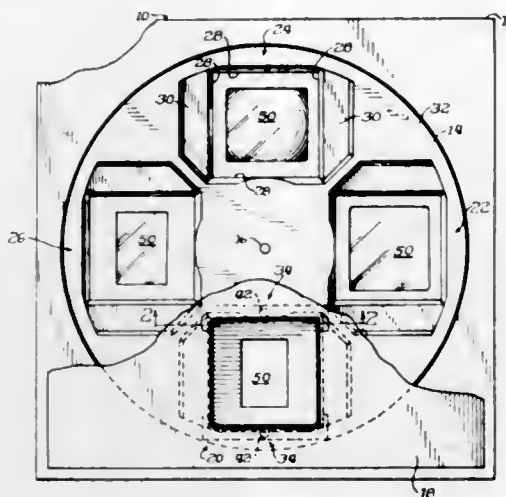
Int. Cl. G03b 23/00, 23/02

U.S. Cl. 353-104

3 Claims

This invention presents a mechanism for metering a single slide from a supply into a slide transport disc that moves the

slide through operative stations in a projector. The metering



mechanism is operative during both forward and reverse rotations of the slide transport disc.

3,656,847

ELEVATOR MECHANISM

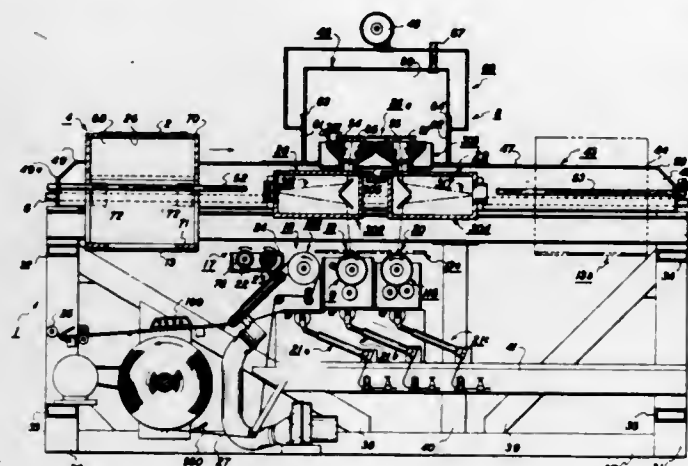
Raymond K. Egnaczak, Williamson; Charles H. Myers, Palmyra, and Edward A. Zawadzki, Melton, all of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,979

Int. Cl. B01k 5/00

U.S. Cl. 355-3

3 Claims



A lift mechanism is used for moving a work piece between operation and idle positions. The work piece is mounted on a platform which is slidably fit within a support structure. The platform is moved by the operation of a cam and cam follower in turn driven by a pneumatic cylinder. The potential energy of the work piece and platform is used to move the work piece to one of the desired positions. The work piece is a roller electrode raised into contact with a moving flat plate electrode. The two electrodes are used in a photoelectrophoretic imaging system to form and transfer an image.

3,656,848

NON-ALIGNED IMAGE OPTICAL SYSTEM FOR AN ELECTROSTATIC COPY MACHINE

Louis Bentzman, Levittown, Pa., assignor to Electrocopy Corporation, Philadelphia, Pa.

Filed Mar. 13, 1970, Ser. No. 19,273

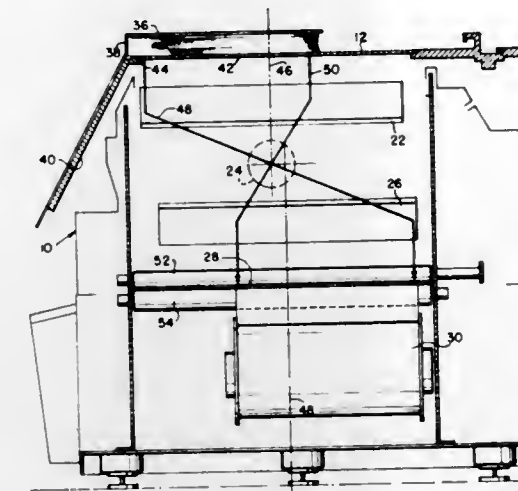
Int. Cl. G03g 15/04

U.S. Cl. 355-8

4 Claims

A non-aligned image in an optical system for use in an electrostatic copy machine including an upper mirror angularly disposed from the horizontal orientation of the machine and a lower mirror angularly disposed from the horizontal

orientation of the machine and a combination lens and mirror positioned in the light path between the upper mirror and the lower mirror, the said upper and lower mirrors and the



combination lens and mirror being centered in an optical axis in which the image is transversely offset from the central axis of the optical system and the copy machine.

3,656,849

MULTIPLE IMAGE SYSTEMS

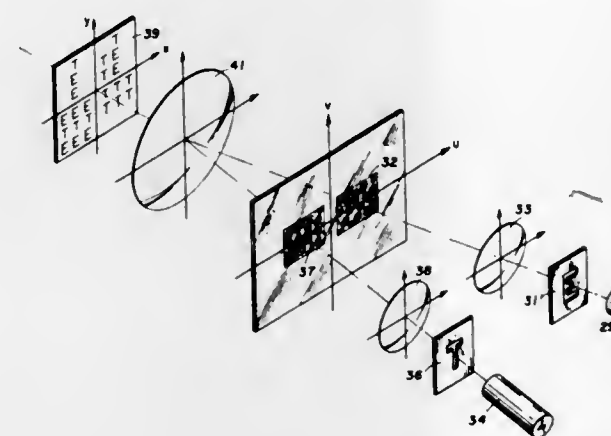
Sun Lu, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Original application Feb. 20, 1967, Ser. No. 617,349, now Patent No. 3,529,887, dated Sept. 22, 1970. Divided and this application May 15, 1970, Ser. No. 37,793

Int. Cl. G02b 27/22

U.S. Cl. 355-46

1 Claim



A multiple image pattern is found from a single image master illuminated by a source of monochromatic light by establishing the Fourier transform of the light disturbance at the master image on a Fourier transform hologram of an array of points corresponding with the array of images to be formed, and establishing the Fourier transform of the light disturbance at the hologram on a light sensitive source.

3,656,850

PHOTOGRAPHIC PRINTING APPARATUS

John N. Harman, Jr., La Canada, Calif., assignor to Drewry Photocolor Corporation, Burbank, Calif.

Filed June 1, 1970, Ser. No. 41,979

Int. Cl. G03b 27/44

U.S. Cl. 355-46

6 Claims

Photographic printing apparatus for printing a relatively large print and one or more relatively small prints of a single negative and of a predetermined size ratio in side-by-side relationship on a print paper. The apparatus includes a film

carrier and a print paper support. A relatively short focal length lens device is provided for receiving light transmitted through the frame of a film carried on the film carrier and focusing it on print paper positioned on the print paper support to form a relatively large image for printing the relatively large print. Light re-directing means is provided for receiving light transmitted through the film frame and directing it around the relatively short focal length device and one or



more relatively long focal length lens devices are provided for receiving such light and focusing it on the print paper to form one or more relatively small images adjacent the relatively large image to print the relatively small prints and to thereby enable the relatively large and relatively small prints to be printed side-by-side on the print paper to conserve print paper and minimize the amount of print paper trimming required.

3,656,851

COPYING APPARATUS

Shunichiro Kakii, and Akira Saito, both of Tokyo, Japan, assignors to Iwatsu Electric Company Limited, Tokyo, Japan

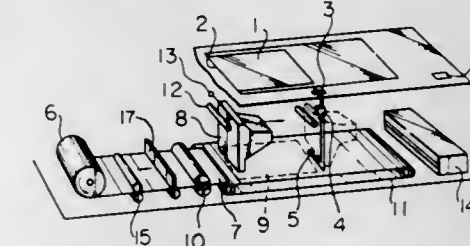
Filed Mar. 4, 1970, Ser. No. 16,391

Claims priority, application Japan, Mar. 10, 1969, 44/18173

Int. Cl. G03b 27/70

U.S. Cl. 355-66

10 Claims



A method and apparatus for copying an original including an optical exposure device reciprocating in a passage between the original and a sheet of copy paper. The exposure device moves in the same direction as the copy paper being supplied and starts from a fixed standard line to move to a stop line that varies with the length of the original to thereby determine and cut the length of the copy paper to be the same length as the original. The exposure device then returns to its starting position while scanning an image on the original.

3,656,852

APPARATUS FOR BRINGING TWO FILMS INTO INTIMATE CONTACT WITH EACH OTHER

Robert F. Oetting, North Hollywood, Calif., assignor to Culler-Hammer, Inc., Milwaukee, Wis.

Filed June 15, 1970, Ser. No. 46,303

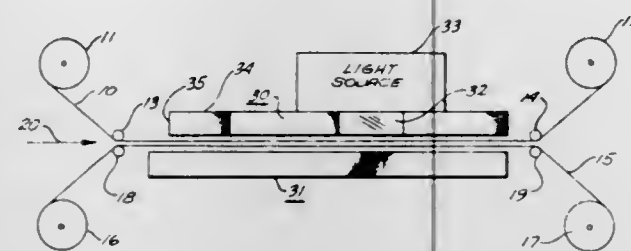
Int. Cl. G03b 27/20

U.S. Cl. 355-91

5 Claims

Two lengths of film are gradually forced into intimate contact from their centers outwardly to their edges and then held

in intimate, non-slipping contact from edge to edge while the information stored on one of the films is transferred to the other film. The films are transported between two adjacent, spaced platens adapted to form cushions of air that force the films together. One of the platens is shaped to converge in



the region where the films initially pass between the platens. Preferably, the converging platen has an apex that is aligned with the centers of the films. In one embodiment, the platen is a trough having converging sides at one end. In another embodiment, the platen is a microporous material through which air is forced.

3,656,853

INTERFEROMETRIC SYSTEM

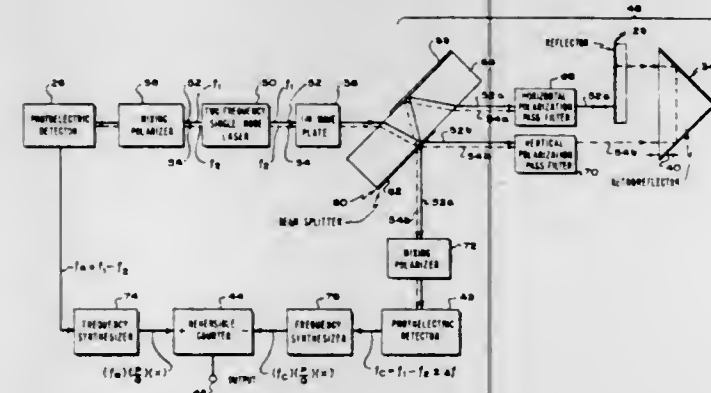
Alan S. Bagley, Los Altos Hills, Calif.; Leonard S. Cutler, Topsfield, Mass., and Joseph F. Rando, Oakland, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Original application Nov. 7, 1966, Ser. No. 592,589, now Patent No. 3,458,259. Divided and this application Mar. 10, 1969, Ser. No. 805,662. The portion of the term of this patent subsequent to July 29, 1986, has been disclaimed.

Int. Cl. G01b 9/02

U.S. Cl. 356-106

1 Claim



A portion of a first laser light beam of one optical frequency and a portion of a second laser light beam of a different optical frequency are mixed by a photoelectric device to produce an electrical reference signal having a countable intermediate frequency. Another portion of the first laser light beam traverses a fixed length optical path of an interferometer, and another portion of the second laser light beam traverses a variable length optical path of the interferometer. These other portions of the first and second laser light beams are mixed by another photoelectric device to produce an electrical information signal having the same countable intermediate frequency as the reference signal only while the optical length of the variable length optical path is not being changed. A reversible counter integrates the difference in frequency between the reference and information signals while the optical length of the variable length optical path is being changed to indicate the change in length of the variable length optical path.

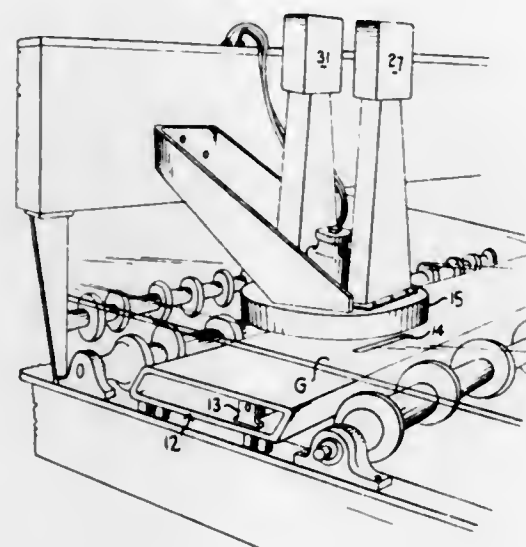
3,656,854
GLASS DEFECT DETECTION SYSTEM
Jack A. Bricker, Tarentum, and Hugh E. Shaw, Jr., New Kensington, both of Pa., assignors to PPG Industries Inc., Pittsburgh, Pa.

Filed June 11, 1969, Ser. No. 832,050

Int. Cl. G01n 21/40

U.S. Cl. 356-119

7 Claims



A glass-defect detection system comprising a light source, a stationary disc, a scanning disc and a photomultiplier. A light beam is transmitted from the light source through the piece of glass being tested. The scanning disc is rotated by a motor so that slots on the scanning disc are aligned with slots on the stationary disc to form an aperture. When there are no defects in the glass, light from the light source misses the aperture and no light reaches the photomultiplier. When there is a defect in the glass, the light is distorted within the glass so that a light beam passes through the aperture and to the photomultiplier. The greater the defect, the greater the amount of light that reaches the photomultiplier. In another embodiment, stress concentrations in the glass are detected by an apparatus including a light source that projects light toward two polarizers (one on either side of the glass), a scanning aperture (similar to the one mentioned above) and a separate photomultiplier. Light directed toward the polarizers is normally prevented from reaching the photomultiplier because the two polarizers are oriented about 90° to one another. When a stone with associated stress concentrations is present in the glass, light is transmitted through the polarizers to the scanning aperture and the photomultiplier receives a pulse of light.

3,656,855

OPTICAL POSITION DETECTOR

Webber I. Collart, Rocky River, and Tom L. Galanis, Mentor, both of Ohio, assignors to Harvey Hubbell Incorporated, Bridgeport, Conn.

Filed Mar. 23, 1970, Ser. No. 21,875

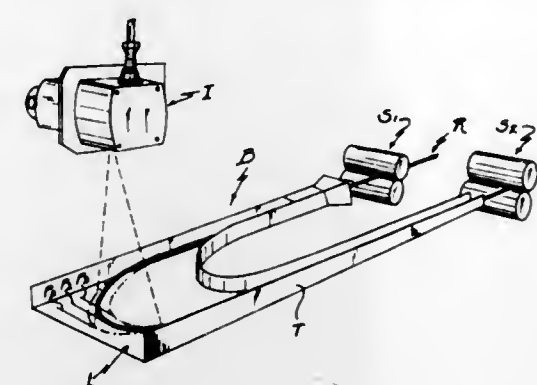
Int. Cl. G01b 11/00

U.S. Cl. 356-167

6 Claims

An optical position detector for monitoring the position of a radiating hot object such as a metallic heat emitting hot bar and/or rod product in a metal rolling mill, the monitoring detector including a scanning head having a rotating lens system that is focused on a heat sensitive photocell and which scans the position occupied by the hot object and develops a detection signal that is proportional to said occupied position. The sensing head also produces a reference signal. The reference signal and object detection signal are

phase related so as to generate an analog signal which is then representative of the detected position of the object being monitored, and which may be utilized as a control signal in the rolling mill.



3,656,856

COLORIMETER

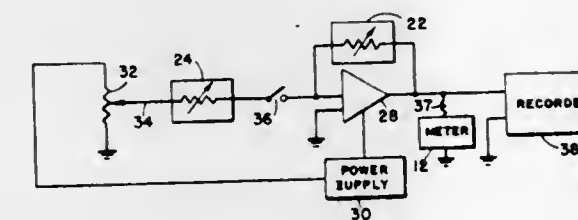
George M. Katz, Leonia, N.J., and Arthur L. Levy, Mount Vernon, N.Y., assignors to Scientific Specialties Ltd., Garden City, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,875

Int. Cl. G01n 21/22

U.S. Cl. 356-206

27 Claims



A colorimeter comprising a light source, an operational amplifier, a reference photoconductive cell connected between the input and output of the amplifier and a sample photoconductive cell connected to the input of the amplifier. The amplifier provides an output signal which is a function of the ratio of the amount of light falling on the reference photoconductive cell to the amount of light falling on the sample photoconductive cell. The output of the amplifier is connected to a suitable measuring device such as a meter or recorder which provides a measurement of the output signal.

3,656,857

A BALL POINT PEN INK RESERVOIR CONTAINING AN IMPROVED INK FOLLOWER

Daniel W. Seregely, Los Angeles, Calif., assignor to The Gillette Company, Boston, Mass.

Original application Oct. 18, 1967, Ser. No. 676,244, now Patent No. 3,526,522, dated Sept. 1, 1970. Divided and this application Dec. 2, 1969, Ser. No. 881,399

Int. Cl. B43K 7/08; B43k 7/10

U.S. Cl. 401-142

4 Claims

A large diameter ball point pen ink reservoir having a large diameter elongated tubular casing, one end of said tubular casing being open to the atmosphere, a column of viscous ink contained in said reservoir, and a plug of ink follower composition in said reservoir and in contact with the end of said column of viscous ink nearest the atmosphere, said ink follower composition being stable for a prolonged time under a wide range of temperatures and humidity, non-drying, non-reactive and immiscible with various inks and effective to prevent back leakage of ink from a reservoir, said ink follower composition including a liquid vehicle containing a uniformly suspended dispersion of a solid polymer in the form of microscopic, almost colloidal, particles, the size of

such particles being such that the resulting composition is translucent and the amount of said solid polymer being suffi-



3,656,858

SCREW THREAD CUTTING APPARATUS

Alf A. Eriksson, Nacka, Sweden, assignor to Aktiebolaget Svenska Precisioner, Nacka, Sweden

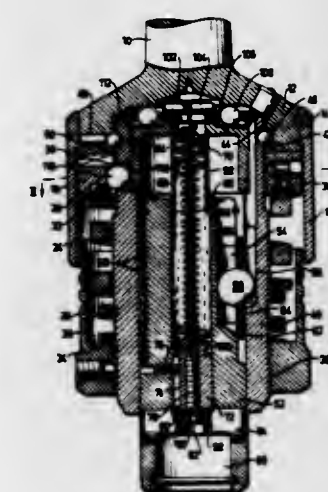
Filed Dec. 3, 1969, Ser. No. 881,683

Claims priority, application Sweden, Dec. 16, 1968, 17220/68

Int. Cl. B23g 1/00, 5/14

U.S. Cl. 408-139

2 Claims



In this apparatus the driving and driven parts are mounted for axial movement relative to one another, but are held resiliently in axial positions of rest by compression and tension springs, respectively. The compression spring is mounted in the driven part between a sleeve reciprocally mounted on the inner end of the driven part, and a plug adjustably threaded in the outer end of the driven part, so that by inserting a tool into the outer end of the driven part, the plug can be adjusted to vary the tension in the compression spring. The tension spring is also attached at one end to this plug so that its tension is adjusted simultaneously with that of the compression spring.

3,656,859

REAMER WITH REVERSIBLE BLADE

Erich Rietzier, Sigmaringen, and Dieter Kress, Aalen, both of Germany, assignors to Mapal Dr. Kress KG, Aalen, Germany

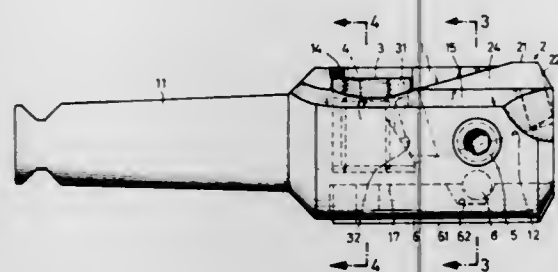
Filed Aug. 24, 1970, Ser. No. 66,550

Claims priority, application Germany, Aug. 23, 1969, P 19 42 955.1

Int. Cl. B23d 77/04

U.S. Cl. 408—179

7 Claims



A cutter head for a reamer carrying a reversible blade having multiple cutting edges, the blade being adjusted both in the direction of the axis of rotation and radially thereto by abutting engagement of an inactive cutting edge with a cam face on a sleeve which is adjusted radially in a bore of the cutter head.

3,656,860

DEVICE FOR CORRECTING BENDING OF A HORIZONTAL MACHINE-TOOL SUPPORT ELEMENT

Marcel Neuman, Collonges-au-Mont D'Or, France, assignor to C.H.M.P. Berthiez, Paris, France

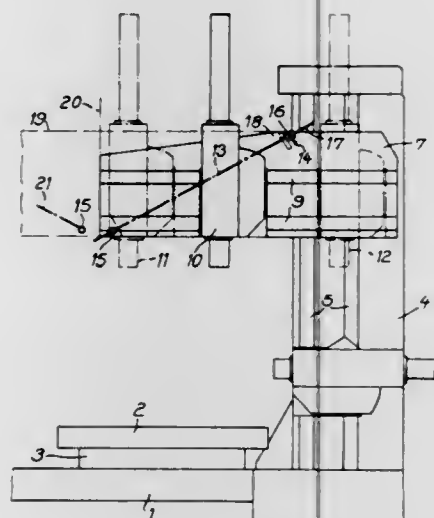
Filed Nov. 12, 1969, Ser. No. 875,756

Claims priority, application France, Nov. 25, 1968, 175203

Int. Cl. B23c 1/00

U.S. Cl. 408—234

7 Claims



Vertical bending stresses in machine tools having a column and a horizontal support element, such as an arm cantilevered off the column or a cross bar extending between two vertical columns, are corrected by providing at least one tie-rod disposed in the vertical plane of the support element, one end of the tie-rod being secured adjacent the lowermost surface of the support element and the other end of the tie-rod being adjacent the uppermost surface of the support element, the tie-rod thus being obliquely disposed to the column.

3,656,861

CENTRIFUGAL PUMP WITH MATING CASE PLATE VOLUTE HALVES AND CONSTANT SECTION IMPELLER

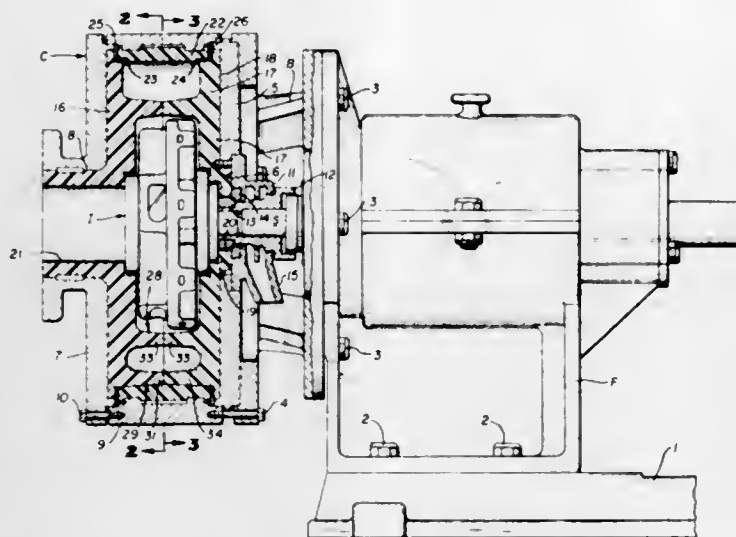
Irvin F. Zagar, Denver, Colo., assignor to A. R. Wilfley and Sons, Inc., Denver, Colo.

Filed Apr. 15, 1970, Ser. No. 28,735

Int. Cl. F04d 29/02, 29/66, 29/00

U.S. Cl. 415—109

9 Claims



A centrifugal pump having front and back case plates with one-half of a volute wall formed on each of the front and back case plates, the volute wall halves corresponding diametrically and in length such that when the case plates are disposed in abutting confronting relationship in an assembled pump the volute wall halves cooperate to form a complete volute passage. A radial force balancing partition is provided between an impeller confined by the case plates and the volute wall. The force balancing partition is similarly comprised of identical mating halves formed on the front and back case plates. The case plates house or confine an impeller having a constant wall thickness or cross-section throughout to substantially eliminate thermal shock in the impeller. The impeller includes recesses or cut-out areas in the opposite faces thereof to yield substantially greater hydraulic performance while at the same time reducing wear caused by abrasion.

3,656,862

SEGMENTED SEAL ASSEMBLY

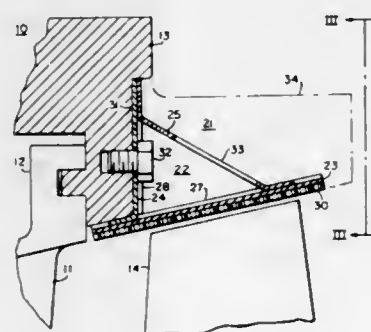
Thomas J. Rahaim, Claymont, and George M. Mierley, Sr., Wilmington, both of Del., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 2, 1970, Ser. No. 51,970

Int. Cl. F01d 11/08; F04d 29/08

U.S. Cl. 415—171

5 Claims



A light weight seal assembly divided into arcuate segments surrounds the tips of an annular row of rotating blades of an axial flow gas turbine. Each segment comprises formed sheet metal members brazed together and attached to the blade

3,656,865

ROTOR BLADE RETAINER

Esten W. Spears, Jr., assignor to General Motors Corporation, Detroit, Mich.

Filed July 21, 1970, Ser. No. 56,763

Int. Cl. F01d 5/32

U.S. Cl. 416—221

4 Claims

**3,656,863
TRANSPIRATION COOLED TURBINE ROTOR BLADE**

Angelo De Feo, Totowa Boro, N.J., assignor to Curtiss-Wright Corporation

Filed July 27, 1970, Ser. No. 58,478

Int. Cl. F01d 5/18

U.S. Cl. 416—97

3 Claims



A transpiration cooled turbine rotor blade, having a solid strut with spanwise and chordwise lands on the surface, thereof, and a porous sheath attached to the lands, and having provision for metering desired amounts of cooling air to selected portions of the blade surface in view of the centrifugal pumping action of the blade.

3,656,864

TURBOMACHINE ROTOR

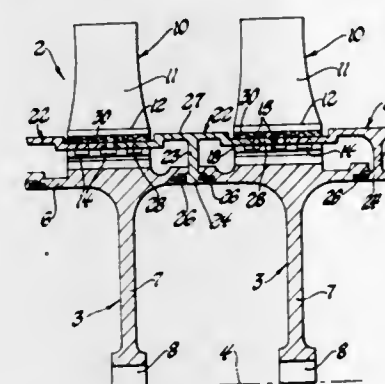
Joseph A. Wagle, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 9, 1970, Ser. No. 87,769

Int. Cl. F01d 5/30

U.S. Cl. 416—190

7 Claims



A rotor for a compressor or turbine of the axial-flow type in which the rotor wheels or drum sections have blade stalks integral with them and the blades, including blade platforms, are mounted on the stalks by circumferentially extending dovetail structure. A spacer ring between adjacent rotor wheels includes fingers extending under the blade platforms which may hold the blades in place on the stalks and which may bear vibration damping material in contact with the blade platforms. A ring of such blades engaging in dovetails in plural axially aligned drum sections may hold these assembled together.

3,656,867

ELECTROMAGNETIC PUMP FOR LIQUID METALS

Henri Carbonnel, Anthony, and Jean Le Frere, Villejuif, both of France, assignors to Groupement Atomique Alsacienne Atlantique, Plessis Robinson, France

Filed July 15, 1970, Ser. No. 54,946

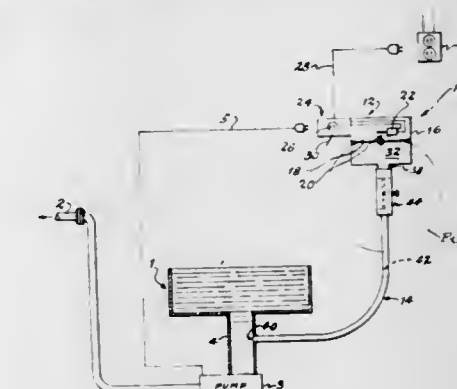
Claims priority, application France, July 16, 1969, 6924241

Int. Cl. H02n 4/20; H02k 45/00; G21d 7/02; H02k 1/12

U.S. Cl. 417—50

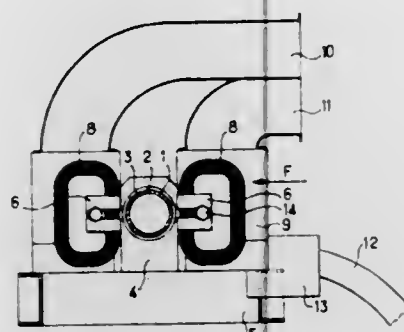
3 Claims

An electromagnetic pump comprising an impelling duct for liquid metals having a symmetry axis, made of a refractory



A control for preventing cavitation and cycling of electrically operated pumps employed for emptying sink drains or the like. The pump operation control includes a diaphragm operated device responsive to fluctuations in air pressure and a conduit for connecting the device to a drain pipe from which water is to draw upon operation of the pump. When water rises in the drain pipe to a point above the level of the inlet to the conduit, air trapped within the conduit is compressed by the water; the device upon sensing an increase in pressure within the conduit serving to effect energization of the pump.

material and equipped with preheating means and thermal insulation, a stator consisting of two magnetic yokes arranged on both sides of the duct and comprising laminated cores in parallel relation to a plane containing the axis of the duct and



having deep and uniformly spaced slots, each of which receives a flat coil in a direction perpendicular to the axis of the duct. In this manner, each of the coils can be removed by translation in a direction parallel to the axis of the duct after unclamping in a perpendicular direction.

3,656,868

METHOD OF PUMPING FLUIDS WITH AN ENERGY WAVE GENERATOR

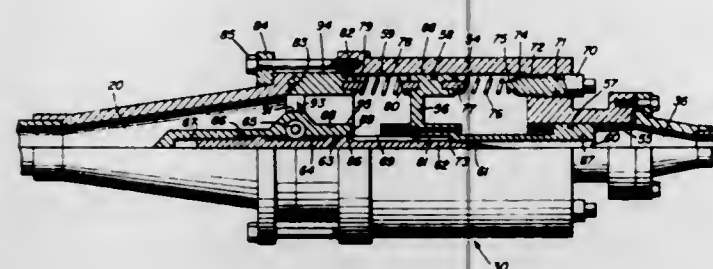
Clarence W. Brandon, Tulsa, Okla., assignor to Orpha B. Brandon, Nashville, Tenn., a part interest

Original application Dec. 1, 1967, Ser. No. 687,402, now Patent No. 3,473,344, which is a continuation of application Ser. No. 477,869, Aug. 6, 1965, now abandoned, which is a continuation-in-part of application Ser. No. 665,995, June 17, 1957, now Patent No. 3,302,720, and a continuation-in-part of 149,953, Nov. 3, 1961, now Patent No. 3,255,601. Divided and this application Aug. 7, 1969, Ser. No. 848,313

Int. Cl. F04b 17/00, 35/00

U.S. Cl. 417-53

8 Claims



A method of pumping fluids from lower pressures to higher pressures by means of an energy wave generator wherein the rarefactions of energy waves in the higher pressured fluid are an assisting means in the transfer of fluids from the lower pressure fluids, and wherein the wave generator has substantially equal pressure area relationships between the higher and lower pressures of fluids.

3,656,869

VARIABLE DISPLACEMENT HYDRAULIC PUMP

Allan S. Leonard, Westland, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 2, 1970, Ser. No. 24,985

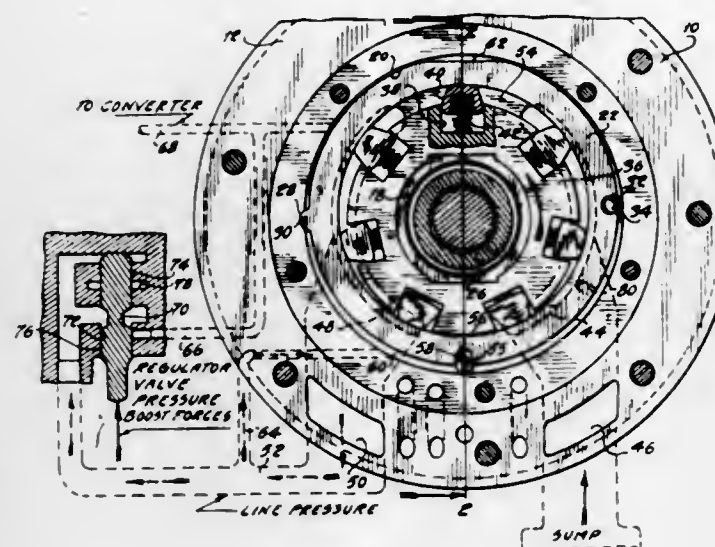
Int. Cl. F04b 49/00

U.S. Cl. 417-220

8 Claims

A variable-capacity, positive displacement pump having a rotor, pumping vanes or slippers carried by said rotor, a cam ring surrounding said rotor and cooperation therewith to define pumping chambers, a pump body surrounding said cam ring and connected thereto with a pivotal connection whereby the pump body and the cam ring define opposed

pressure chambers, and regulator valve means for controlling the pressures distributed to each of said pressure chambers



whereby the position of said ring with respect to said rotor may be changed to vary the displacement of the pump.

3,656,870
PUMP

Takeshi Kusakabe, and Akira Suzuki, both of Kariya-shi, Japan, assignors to Toyota Roki Kabushiki Kaisha

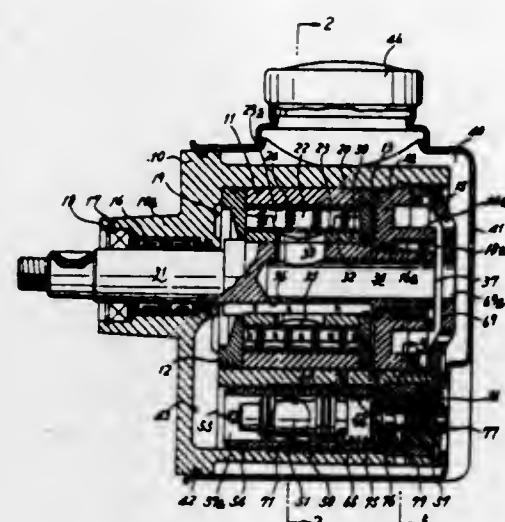
Filed Jan. 26, 1970, Ser. No. 5,461

Claims priority, application Japan, Jan. 29, 1969, 44/6568

Int. Cl. F04b 49/00

U.S. Cl. 417-300

4 Claims



A pump is provided for supplying fluid under pressure to power steering apparatus of a vehicle, the pump equipped with a control device for regulating the flow rate and the pressure of delivery fluid, such the control device comprising the combination of flow and pressure control valves which sets the flow rate and the maximum pressure of delivery fluid at most preferable values for the power steering apparatus. A drive shaft is rotatably mounted in a casing member and is provided with a concentric suction channel and a discharge channel in the outer peripheral surface thereof; the shaft carrying an eccentric rotor thereon forms a crescent-shaped clearance between the rotor and the casing member, and a plurality of abutments are loosely received in radial grooves circumferentially disposed with uniform spacing in the inner peripheral surface of the casing member.

3,656,871
PUMP UNIT

Konrad Valdemar Carlsson, Solna, Sweden, assignor to Stenberg-Flygt AB, Solna, Sweden

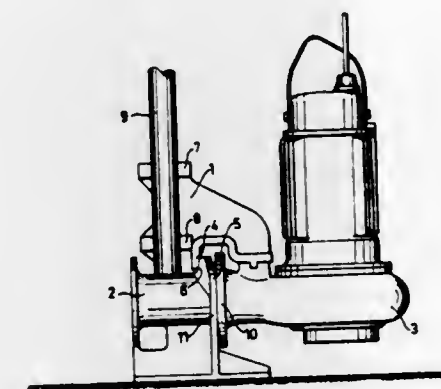
Filed Mar. 24, 1970, Ser. No. 22,296

Claims priority, application Sweden, Apr. 1, 1969, 4655/69

Int. Cl. F04b 17/00, 35/00

U.S. Cl. 417-361

3 Claims



An immersible centrifugal pump unit which when lifted out of and lowered into a liquid is steered on a guide. The pump has a liquid outlet with a connecting flange parallel to the guide. The flange is sealed against a flange of an outlet pipe when the pump is submerged and brought into contact with the outlet pipe. A gripper on the pump engages the flange on the outlet pipe to hold the pump flange against the flange of the outlet pipe. The uppermost part of the opposing flange surfaces are at a level not higher than the lowermost point of engagement of the gripper and the flange of the outlet pipe.

3,656,872

PUMPING SYSTEMS

Albert Jubb, Kenilworth, England, assignor to Rolls Royce Limited, Derby, England

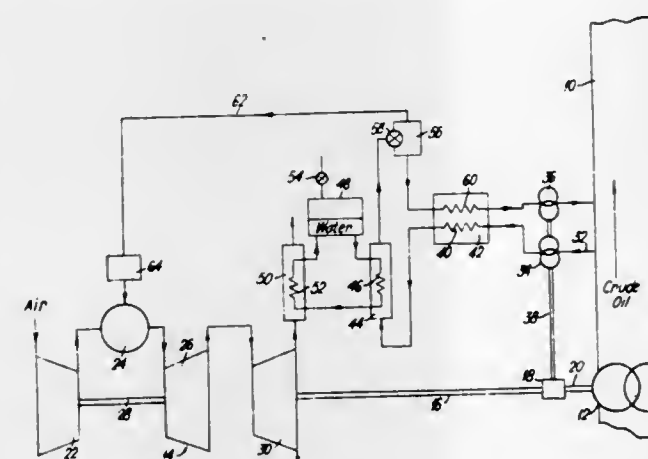
Filed Sept. 14, 1970, Ser. No. 71,755

Claims priority, application Great Britain, Sept. 18, 1969, 46,016/69

Int. Cl. F04b 17/00, 35/00

U.S. Cl. 417-364

5 Claims



A gas turbine engine is arranged to drive a pump which is positioned in a crude oil pipeline. An evaporator is adapted to receive some of the crude oil from which some of the lighter fractions of the oil are extracted by the evaporator which passes the lighter fractions to the engine as fuel.

The evaporator has a heater which includes two heat exchangers, in one of which the crude oil is heated by the

residue of crude oil from which the lighter fractions have been extracted and in the other one of which, the crude oil is heated by hot water which has been heated on a further heat exchanger by some of the exhaust gases from the gas turbine engine.

3,656,873

PULSATILE BY-PASS BLOOD PUMP

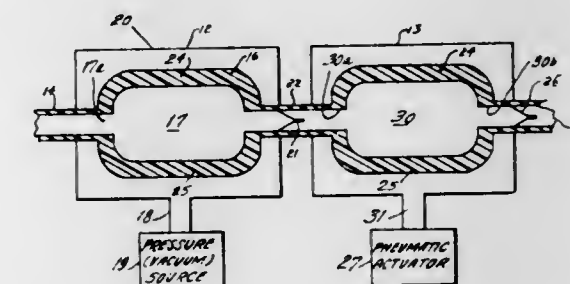
Peter Schiff, Box 117, Schwenksville, Pa.

Filed Nov. 6, 1970, Ser. No. 87,487

Int. Cl. F04b 43/06, 45/00; A61f 1/00; A61b 19/00

U.S. Cl. 417-395

18 Claims



A by-pass pump system especially adapted for use in assisting or temporarily replacing the circulatory function of the heart in which a pair of highly elastic collapsible containers are coupled to one another through a resilient flap valve. Each flexible chamber is positioned within an associated housing whose interior pressure is regulated to control the expansion and contraction of the flexible housings. Blood enters the first of said chambers causing the chamber to fill when the blood pressure is greater than the pressure of the surrounding housing. The one-way valve mechanism enables the blood filling the first flexible chamber to enter the second flexible chamber when the interior pressure of the second flexible chamber is lower than that of the first chamber. Conversely, if the pressure within the interior of the second resilient chamber is greater than that within the first flexible container, the one-way valve structure prevents reverse flow. Pneumatic means is coupled to the housing surrounding the second flexible container to cause the blood to be pumped through an outlet opening provided in the second flexible container in order to enter into the arterial system at a rate substantially equal to the normal pumping rate of the patient. A second one-way valve mechanism is provided in the aforesaid outlet opening to prevent reverse flow. The action of the flexible containers upon the blood is non-occlusive due to the pneumatic controls utilized, as well as the nature of the design of the chambers. The one-way valve mechanisms may alternatively be of a flap valve form or a form in which the closure portions of the valve are highly elastic to permit ready flow of the blood in a first direction while preventing flow in the reverse direction.

In one preferred design the one-way valve structures cooperate with their associated valve mounts to provide positive reliable operation and simple straightforward removal and insertion.

3,656,874

COMPRESSORS FOR REFRIGERATION SYSTEMS

Italo Pellizzetti, Corso Massimo D'Azeglio 10, Turin, Italy

Filed July 17, 1970, Ser. No. 55,805

Claims priority, application Italy, July 19, 1969, 52714 A/69;

Jan. 14, 1970, 67091 A/70; Feb. 20, 1970, 67564 A/70

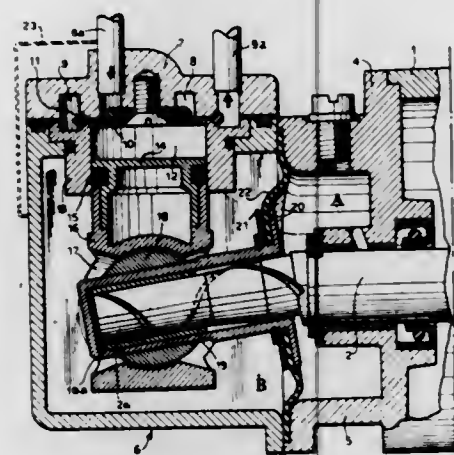
Int. Cl. F04b 17/00, 35/04; F16j 15/50

U.S. Cl. 417-415

7 Claims

A compressor for a sealed refrigeration system has a reciprocating piston operated by a drive shaft with an inclined end portion connected to the piston for example via a crank and slotted link. A non-rotatable coupling sleeve is

fitted on the inclined end of the drive shaft and sealingly connected to a deformable diaphragm surrounding the shaft and



hermetically sealing the bearing for the shaft from the interior of the compressor.

3,656,875

ROTARY PISTON COMPRESSOR

Friedrich Luck, Berlin, Germany, assignor to Borsig GmbH, Berlin-Tegel and Wankel GmbH, Lindau, Germany

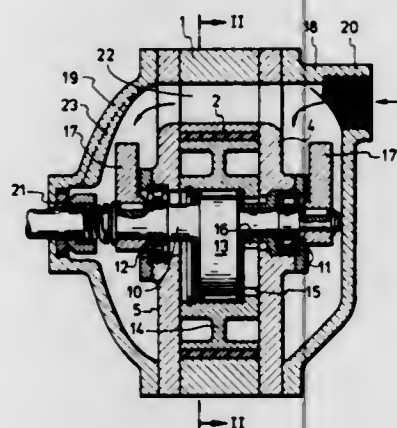
Filed Jan. 14, 1971, Ser. No. 106,335

Claims priority, application Germany, Jan. 19, 1970, P 20 02 075.1

Int. Cl. F01c 1/02, 21/04; F04c 29/02

U.S. Cl. 418-54

3 Claims



A circular piston compressor arranged as compressor in the closed circuit of a medium to which a limited quantity of lubricant is added and partially dissolved therein to lubricate the compressor. The compressor includes a stationary housing with trochoidal inner boundary, an eccentric shaft, and a rotary piston mounted on the eccentric of the eccentric shaft so that the axial centerline of the piston describes a circular path during rotation thereof. A cover is present on the drive side of the housing. A suction line of the compressor is arranged on the side of the housing opposed to the drive side so that at least a portion of the oil-mist permeated intake gas is directed substantially perpendicularly at the inside of the drive side housing cover. An end wall opposing the housing cover, and working chambers are present as an end intake port and a seal between the shaft and the housing cover. An annular chamber is arranged between the housing cover and the opposing end wall and bounding the working chambers so that the intake gas is deflected in the annular chamber at right angles in the direction of rotation of the piston toward the end intake port of the working chambers thus also traversing the region in which the shaft seal is installed.

3,656,876 ROTARY SCREW ENGINE HAVING ADJUSTABLE INTERNAL FEED AND ADJUSTABLE OUTLET CONTROL

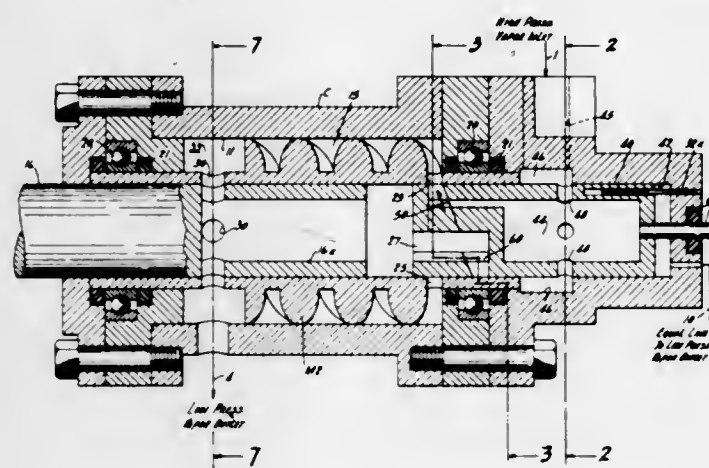
Erich J. Kocher, Milwaukee, Wis., assignor to Vilter Manufacturing Corporation, Milwaukee, Wis.

Filed Sept. 9, 1970, Ser. No. 70,759

Int. Cl. F01c 1/16; F03c 3/00; F04b 49/00

U.S. Cl. 418-185

5 Claims



An expansion engine of the rotary screw type having cooperative male and female rotors in which high pressure vapor enters the engine at the inlet end of the rotors through internal and centrally located inlet ports. A central and adjustable control piston functions to admit high pressure vapor to the interior of the rotors which then enters the cavities between the rotors for ultimate expansion. The control piston has an equalizing port for controlling the fluid pressure in the expansion chamber so it will not be less than the pressure in the exhaust chamber of the engine, thereby contributing to the efficiency of the engine.

3,656,877

MOLD CLAMPING DEVICE FOR INJECTION MOLDING MACHINE

Katashi Aoki, 6037 Oaza Minamijo, Sakaki-machi, Japan

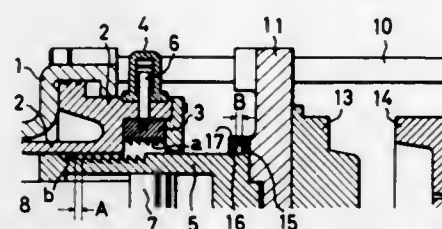
Filed Feb. 27, 1970, Ser. No. 14,993

Claims priority, application Japan, Feb. 28, 1969, 44/15174; Mar. 14, 1969, 44/19277

Int. Cl. B29f 1/00

U.S. Cl. 425-150

2 Claims



A mold clamping device for injection molding machines, in which a quick feed or closure ram is inserted in a mold clamping ram, and when a pair of molds is closed, said feed ram is pushed out from said clamping ram and said two rams are connected by means of a set of half nuts and a screw thread on the periphery of said feed ram engaging with each other, to attain a quick closure and tight clamping of the molds.

3,656,878

HIGH LUMINOSITY BURNER

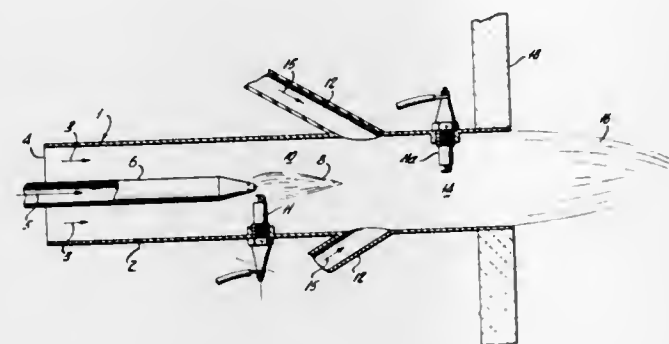
Franklin J. Wright, Watchung, N.J., assignor to Esso Research and Engineering Company

Filed Mar. 26, 1970, Ser. No. 22,812

Int. Cl. F23m 3/04

U.S. Cl. 431-10

5 Claims



A method and apparatus for burning, at increased luminosity intensities. A fuel such as natural gas whose combustion is normally characterized by a low luminosity flame. A first hydrocarbon fuel which may include a fixed amount of a free radical promoter is burned in a diffusion flame. The products of this combustion, which include soot particles, are burned along with a second fuel such as natural gas. The flame produced in this secondary combustion has a luminosity greater than that produced by the combustion of said second fuel in a single-stage burner.

3,656,879

METHOD OF MANUFACTURING A BURNER AND A BURNER THUS MANUFACTURED

Hendrik De Vries, Jr., Nijmegen, Netherlands, assignor to N. L. Application S.A., Fribourg, Switzerland

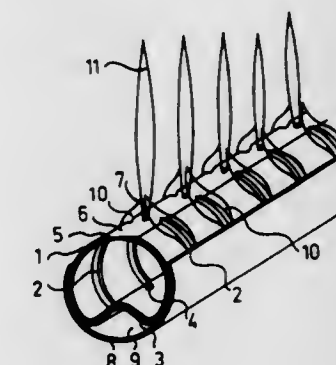
Filed Apr. 29, 1970, Ser. No. 2,703

Claims priority, application Netherlands, July 14, 1969, 6,910,775; Jan. 14, 1969, 6,900,555

Int. Cl. F23d 13/36

U.S. Cl. 431-349

26 Claims



A gas burner comprising a tube having a gas supply connection, there being a sleeve partly engaging the outside of the tube and partly spaced therefrom whereby to define a space between the sleeve and the tube presenting a gas expansion chamber, outlet ports in the tube and means placing the chamber in communication with the ports. The burner is manufactured by forming an outlet port in a tube, forming a longitudinal groove in the tube and placing a sleeve having grooves therein over the tube whereby to create the gas expansion chamber and placing the same in communication with the outlets.

CHEMICAL

3,656,880

UNIFORMLY DYED BLUE OR TURQUOISE WATER SWELLABLE CELLULOSIC FIBERS

John Blackwell, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 25, 1969, Ser. No. 879,901

Int. Cl. D06p 3/82

U.S. Cl. 8-21 C

3 Claims

Water swellable cellulosic fibers, for example, cotton, or blends or mixtures thereof with synthetic fibers, for example, polyester fibers, uniformly dyed to blue or turquoise shades with essentially water insoluble, nonvattable, 1,4-diamino-2,3-disubstituted anthraquinone dyes, for example, 1,4-diamino-2,3-bis(phenylthio)anthraquinone, said dyed fibers being fast to washing, dry-cleaning and crocking and having a reflectance color value (S') after scour of at least about 2.

3,656,881

LEATHER LUBRICATING PROCESS AND COMPOSITION

Robert W. Hemwall, Chatham, N.J., assignor to Shell Oil Company, New York, N.Y.

Filed June 2, 1969, Ser. No. 829,729

Int. Cl. C14c 5/00, 11/00

U.S. Cl. 8-94.23

5 Claims

Low-oil-content, fully lubricated leather is produced by (1) treatment of leather with water emulsions of mixtures of alkanolamine soaps, oils, surfactants having HLB values between 2 and 6, and coupling solvents; and (2) acidification of the leather.

3,656,882

ACRYLIC FIBER STABILIZATION CATALYZED BY CO(II) AND CE(III) CATIONS

John Perry Riggs, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Mar. 9, 1970, Ser. No. 17,965

Int. Cl. C01b 31/07

U.S. Cl. 8-115.5

16 Claims

A process is provided wherein the thermal stabilization of an acrylic fibrous material is accelerated by heating in an oxygen-containing atmosphere in the presence of a catalytic quantity of Co(II) and Ce(III) metallic cations which have been found capable of promoting the oxidative cross-linking of adjoining polymer molecules. The resulting stabilized fibrous materials are non-burning when subjected to an ordinary match flame, and may be utilized as fire resistant textile fibers, or optionally converted to a carbonized fibrous material by heating in an inert atmosphere at a more highly elevated temperature.

3,656,883

PROCESS FOR THE STABILIZATION OF ACRYLIC FIBERS

John Perry Riggs, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Mar. 9, 1970, Ser. No. 17,968

Int. Cl. D06m 9/00

U.S. Cl. 8-115.5

20 Claims

A process is provided wherein the thermal stabilization of an acrylic fibrous material is accelerated by heating in an ox-

xygen-containing atmosphere following treatment while in contact with an aqueous solution wherein a substantial quantity of molecular oxygen is generated in intimate association with the fibrous material through the catalyzed decomposition of hydrogen peroxide. The resulting stabilized fibrous materials are non-burning when subjected to an ordinary match flame, and may be utilized as fire resistant textile fibers, or optionally converted to a carbonized fibrous material by heating in an inert atmosphere at a more highly elevated temperature.

3,656,884

PROCESS FOR THE PREPARATION OF GRAFTED SOLID MATERIALS OF WATER-AFFINITIVE POLYMERS

Takaji Okaya, 1621, Sakaza; Hirotochi Miyazaki, 1652, Sakaza, both of Kurashiki City, and Tamotsu Eguchi, 19-19 Ekimoto-cho, Okayama City, all of Japan

Filed Aug. 12, 1968, Ser. No. 751,720

Claims priority, application Japan, Aug. 17, 1967, 42/53140 Int. Cl. D06m 1/00; C08f 15/00

U.S. Cl. 8—116

11 Claims

Process for the preparation of grafted solid materials of water-affinitive polymers such as polyvinyl alcohol, acetalized polyvinyl alcohol, polyamide, polyacrylonitrile and cellulose, which comprises immersing said solid material in an aqueous solution or suspension of an ester of acrylic acid or metacrylic acid at a temperature of 40°–120° C., in the presence of 20–1,000 ppb of molecular oxygen, as a reaction initiating component, in the aqueous solution or suspension. In this way, the graft polymerization reaction is initiated smoothly and high reaction rate of the graft polymerization is obtained without the substantial formation of homopolymer of the ester in the liquid phase.

3,656,885

HIGH STRENGTH WRINKLE RESISTANT COTTON FABRICS PRODUCED BY A PROCESS INVOLVING BOTH MONOSUBSTITUTION AND CROSSLINKING OF THE COTTON

Domenick Donald Gagliardi, East Greenwich, R.I., assignor to Cotton, Incorporated, Memphis, Tenn.

Filed Nov. 15, 1967, Ser. No. 683,135

Int. Cl. D06m 13/54, 13/40, 13/10

U.S. Cl. 8—116.3

10 Claims

Improvement in the wear resistance of cotton fabrics in so-called wash-wear or durable press garments is attained using a concept of treatment referred to as SSX involving swelling conducted to increase sites for chemical reactions, substitution to introduce bulky, plasticizing side groups and crosslinking the distended polymer network in cotton fibers to achieve more uniformly placed crosslinks than in prior known wrinkle resistance treatments.

3,656,886

CORROSION INHIBITORS

George C. Blytas, Kensington, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Jan. 12, 1970, Ser. No. 2,439

Int. Cl. C23f 11/10

U.S. Cl. 21—2.5

4 Claims

Corrosivity of non-aqueous solutions of copper ions useful in olefin separation processes is greatly reduced by addition of from about 0.5 to about 15 percent by weight of a metal salt of an ortho-hydroxy aromatic carboxylic acid to such solutions.

3,656,887

METHOD OF REMOVING HYDROGEN SULFIDE FROM GASEOUS MIXTURES

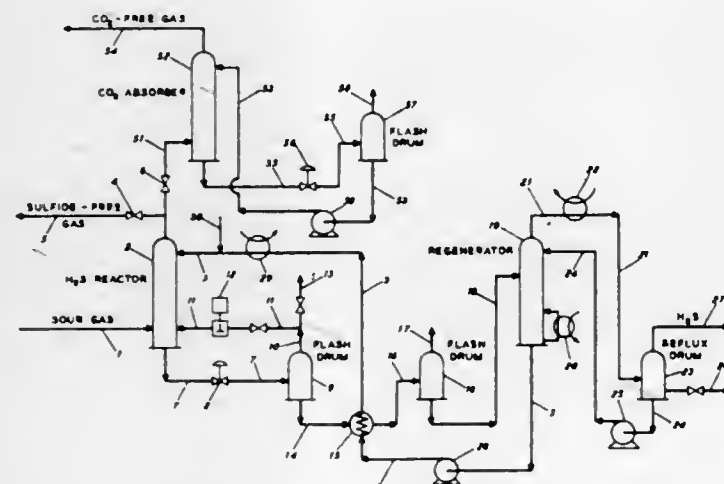
Shigetoshi Suzuki, San Francisco; Giok H. Tjon, Placentia, and Karl H. Kilgren, La Habra, all of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Aug. 21, 1969, Ser. No. 851,871

Int. Cl. B01d 53/16, 53/34

U.S. Cl. 23—2 R

8 Claims



The process for selectively removing H₂S and like sulfides from fluids containing them by contact with a cyanopyridine (e.g., a mixture of ortho and meta cyanopyridines) and an alkali hydrosulfide, preferably in a substantially hydroxyl-free solvent such as N-methyl pyrrolidone. Preferably, in the process an admixture of H₂S and CO₂ in natural gas is contacted with the cyanopyridine containing contacting solution to react the H₂S with said cyanopyridine, the CO₂ and/or like hydrocarbons are rejected from the contacting solution by mild heating and/or pressure reduction and thereafter H₂S is regenerated by heating the remaining solution.

3,656,888

LIQUID PHASE OXIDATION PROCESS

Henry F. Barry, Calvin J. Hallada, both of Ann Arbor, and Robert W. McConnell, South Lyon, all of Mich., assignors to American Metal Climax, Inc.

Filed Oct. 2, 1969, Ser. No. 863,197

Int. Cl. C22b 59/00

U.S. Cl. 23—15 W

7 Claims

A process for effecting an aqueous liquid phase oxidation of molybdenum disulfide to molybdenum oxide by agitating, at elevated temperature, a slurry of molybdenum disulfide particles in water, under pressure, in the presence of oxygen for a period of time sufficient to effect the conversion of at least a portion of the molybdenum disulfide to molybdenum oxide, and thereafter extracting the molybdenum oxide product from the reaction medium.

3,656,889

STABLE AQUEOUS SODIUM ALUMINATE SOLUTIONS

Edward W. Olewinski, Cicero, Ill., assignor to Nalco Chemical Company, Chicago, Ill.

Filed Oct. 12, 1970, Ser. No. 80,119

Int. Cl. C01f 7/02

U.S. Cl. 23—52

4 Claims

The use of a synergistic blend of tartaric and gluconic acids or their salts has been found to effectively stabilize aqueous sodium aluminate solutions.

3,656,890

CHLORINATED TRISODIUM PHOSPHATES

Arthur D. F. Toy, Stamford, Conn., and Russell N. Bell, Ard- sley, N.Y., assignors to Stouffer Chemical Company, New York, N.Y.

Filed Sept. 5, 1969, Ser. No. 855,757

Int. Cl. C01b 11/00; A01b 1/00; C01b 25/16

U.S. Cl. 23—50 R

6 Claims

Chlorinated trisodium phosphates of high available chlorine contents are produced by including small percentages, e.g. 0.5 percent of alkali metal silicate, e.g., sodium metasilicate in the batch containing sodium phosphates and sodium hypochlorite under chlorination conditions.

3,656,891

PROCESS FOR THE PRODUCTION OF POTASSIUM SULFATE AND BORAX

Elie M. Chemtob, Claremont, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

Filed Aug. 5, 1970, Ser. No. 61,218

Int. Cl. C01b 25/00

U.S. Cl. 23—59

9 Claims

Glaserite and sylvite are digested in the presence of borax in a metathesis reactor at a temperature above the crystallization temperature of borax to form a borax free potassium sulfate precipitate and a metathesis liquor containing borax. Residual potassium values in the metathesis end liquor are converted to glaserite by sulfate ion addition for recycle to the metathesis reactor. Cooling the resultant solution then precipitates borax.

3,656,892

METHOD OF PRODUCING SODA ASH

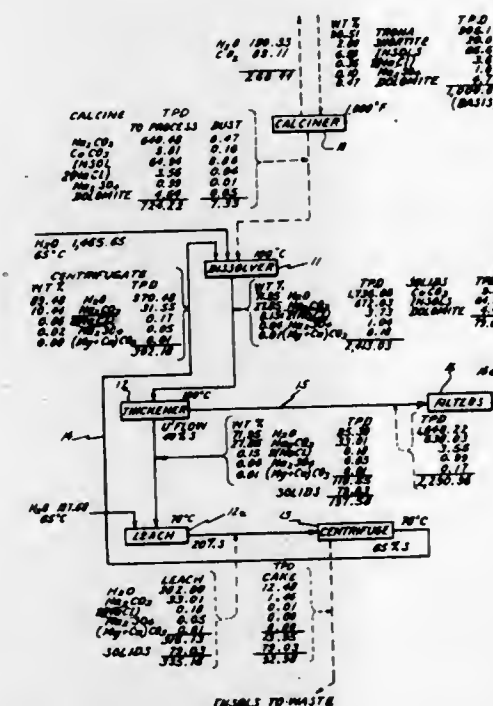
Douglas J. Bourne, and Frank E. Lamb, both of Tucson, Ariz., assignors to Duval Corporation, Houston, Tex.

Continuation of application Ser. No. 590,308, Oct. 28, 1966, now abandoned. This application Sept. 19, 1969, Ser. No. 863,673

Int. Cl. C01d 7/12

U.S. Cl. 23—63

6 Claims



This patent discloses a system for obtaining anhydrous sodium carbonate from crude sodium sesquicarbonate. The sesquicarbonate is calcined and impurities removed. The intermediate product, a solution of sodium carbonate, is evaporated under temperature conditions which result in growth of anhydrous sodium carbonate crystals. In the last stage of evaporation a co-solute of sodium hydroxide or sodium chloride is added to shift the phase boundary of sodium

carbonate sufficiently to permit the last stage of crystallization to be carried out at atmospheric pressure while still growing crystals of anhydrous sodium carbonate. The preferred co-solute is sodium hydroxide and a system is shown for treating a bleed of the sodium hydroxide liquor from the last stage of evaporation to remove therefrom undesirable contaminants.

3,656,893

ION EXCHANGE REMOVAL OF CYANIDE VALUES

Walter John Sloan, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed July 2, 1970, Ser. No. 52,141

Int. Cl. C01c 3/08, 3/00

U.S. Cl. 23—77

6 Claims

A method of removing cyanide values from aqueous solutions containing sodium or potassium cyanide, or the sodium or potassium salts of the complex cyanides of the metals copper, nickel, zinc, silver, gold and cadmium, utilizing a mixed bed of ion exchange resins.

3,656,894

PROCESS FOR THE PRODUCTION OF HIGH QUALITY SYNTHETIC CRYOLITE

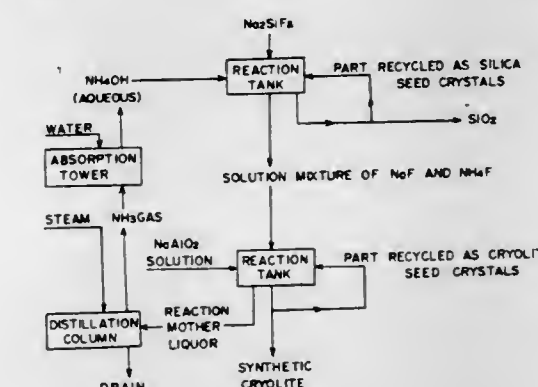
Makoto Kadotani, Ube, and Seishiro Isobe, Yamaguchi, both of Japan, assignors to Central Glass Co., Ltd., Ube-shi, Yamaguchi-ken, Japan

Filed May 8, 1970, Ser. No. 35,719

Int. Cl. C01f 7/54, 7/50; C01d 3/02

U.S. Cl. 23—88

6 Claims



Process for producing high quality synthetic cryolite which comprises mixing a fluoride mixed solution obtained by the ammoniation of sodium silico-fluoride and being free from a filtrable silica with a solution of sodium aluminate of an Na₂O/Al₂O₃ molar ratio above 1.0, the 6F/Al ratio in the mixed solution being maintained within the range between 1.0 and 1.2 thereby to adjust the pH of the mixed solution within the range of 8 to 12 without any neutralization procedure, and reacting the mixture at a temperature from 60° C. to the boiling point of the reaction solution in the presence of seeds of cryolite. The synthetic cryolite so obtained contains no chiolite and suffers from very little ignition loss.

3,656,895

RECOVERY OF CALCIUM FLUORIDE FROM FLUORSPAR ORE

Venacio V. Mercade, Metuchen, N.J., assignor to Engelhard Minerals & Chemicals Corporation, Township of Woodbridge, N.J.

Filed May 1, 1970, Ser. No. 33,868

Int. Cl. C01f 11/22

U.S. Cl. 23—88

5 Claims

Calcium fluoride is recovered from a finely mineralized fluor spar ore containing inclusions of barite within micron-size particles of fluorite. The ore is pugged and a fine-size fraction is recovered and roasted with a chloride salt,

preferably calcium chloride, and carbon. The roasted product is lixiviated with water to remove the barium chloride reaction product and treated with hydrochloric acid to extract residual impurities. Alternatively, the roasted product is extracted directly with the acid. The acid-extracted product may be further purified by extraction with a hydrosulfurous compound.

3,656,896

PROCESS FOR THE MANUFACTURE OF FINE PARTICULATE MADDRELL'S SALT

Winfried Kern, Hurth near Cologne; Oskar Gehrig, Mannheim, and Heinz Harnisch, Lovenich near Cologne, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Köln and Benckiser-Knapsack GmbH, Ludwigshafen am Rhine, Germany

Filed Nov. 4, 1970, Ser. No. 86,969

Claims priority, application Germany, Nov. 13, 1969, P 19 57 063.9

Int. Cl. C01b 25/30

U.S. Cl. 23—106

4 Claims

Production of fine particulate Maddrell's salt by subjecting coarsely granular Maddrell's salt to grinding. The ground Maddrell's salt is annealed for a period of between 0.5 and 4 hours at a temperature of between 360° and 420° C., and a product with a low fraction of water-soluble matter therein is obtained.

3,656,897

CONCENTRATION OF PHOSPHORIC ACID

Arnold G. White, Trill, British Columbia; Thomas E. Smith, Rossland, British Columbia, and Lyall C. Work, Dunnville, Ontario, all of Canada, assignors to Cominco Ltd., Montreal, Quebec, Canada

Filed June 2, 1969, Ser. No. 829,732

Claims priority, application Canada, June 4, 1968, 21,706

Int. Cl. C01b 25/18, 25/24

U.S. Cl. 23—165

1 Claim

A process for concentrating wet-process phosphoric acid by passing an alternating current between non-reactive, e.g. graphite, electrodes through an aqueous solution of wet-process phosphoric acid at an electrode surface current density in the range of about 5 to about 20 amperes per square inch, preferably about 7 to 15 amperes per square inch.

3,656,898

TRANSFORMATION OF PHOSPHORUS COMPOUNDS OBTAINED AS BY-PRODUCTS

Heinz Harnisch, Lovenich near Cologne; Ursus Thummler, Hurth near Cologne; Karl Traulsen, Knapsack near Cologne, and Gerhard Hartlapp, Hermulheim near Cologne, all of Germany, assignors to Knapsack Aktiengesellschaft, Knapsack near Cologne, Germany

Continuation of application Ser. No. 519,946, Jan. 11, 1966, now abandoned. This application May 14, 1969, Ser. No. 853,994

Claims priority, application Germany, Feb. 17, 1965, K 55 302

Int. Cl. C01b 25/12

U.S. Cl. 23—165

8 Claims

A process whereby substantially low-valent phosphorus-containing compounds in waste by-products obtained in the manufacture of mineral and organic phosphorus compounds are converted into useful phosphoric acid, polyphosphoric acid, or corresponding alkali metal salts thereof despite the presence of partially non-combustible material, organic pentavalent compounds, and non-phosphorus-containing compounds within said material; by introducing the by-products into an elemental phosphorus-oxygen flame having excess oxygen, the by-products being introduced in an amount so as not to exceed 50 percent by weight of the elemental phosphorus being burned in said flame.

3,656,899

PROCESS FOR THE MANUFACTURE OF NITROUS OXIDE

Hans Tulsco Baechle, Glashutten, Taunus, and Rudolf Kohlhaas, Frankfurt/Main, both of Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Mar. 27, 1970, Ser. No. 23,305

Claims priority, application Germany, Apr. 25, 1969, P 19 21 181.5

Int. Cl. C01b 21/22

U.S. Cl. 23—158

6 Claims

To produce N_2O , ammonium nitrate is decomposed in an aqueous, chloride-containing solution in nitric acid while an ammonia atmosphere is maintained above the reaction mixture. The preferred temperature range of the solution is 110°–125° C. The atmosphere of ammonia is maintained by introducing at least part of the required ammonia into the gas volume of the reaction vessel. The decomposition of the ammonium nitrate and the formation of N_2O is enhanced by the presence of catalytically active ions of manganese, copper, cerium, lead, bismuth, cobalt and nickel; manganese, especially in its bivalent form, being preferred.

3,656,900

PROCESS FOR THE CATALYTIC CONVERSION OF SULFUR DIOXIDE TO SULFUR TRIOXIDE WITH PRODUCTION OF SULFURIC ACID

Herbert Drechsel; Gustav Rowedder; Karl-Heinz Dorr, and Hugo Grimm, all of Frankfurt/Main, Germany, assignors to Metallgesellschaft AG, Frankfurt (Main), Germany

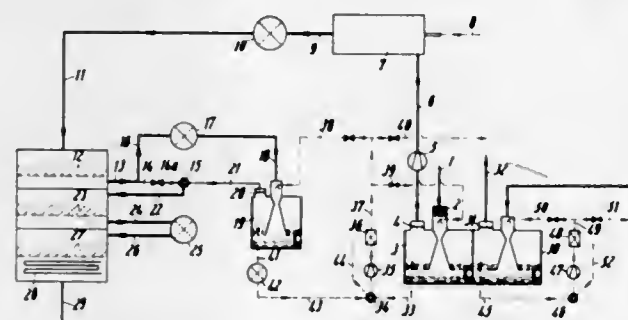
Continuation of application Ser. No. 686,249, Nov. 28, 1967, now abandoned. This application June 24, 1970, Ser. No. 56,052

Claims priority, application Germany, Dec. 3, 1966, M 71879

Int. Cl. C01b 17/76

U.S. Cl. 23—168

10 Claims



Process of effecting a catalytic conversion of SO_2 -containing gases to produce SO_3 and sulphuric acid wherein the SO_3 containing gases evolving from at least one conversion tray are split with part passing through cooling and absorption and part bypassing these operations. The gas leaving the absorber is recombined with the bypass stream and then fed to the next contact tray. Cooling of the split gas stream is accomplished to the extent that the gas leaving the absorber has such heat content that when it is combined with the bypass stream, the mixture will be at the proper temperature for feeding to the next contact tray.

3,656,901

METHOD OF MAKING SILICA PARTICLES

Herman Fred Kummerle, Toledo, Ohio, assignor to Owens-Illinois, Inc.

Filed Aug. 30, 1967, Ser. No. 664,246

Int. Cl. C01b 33/16; B01j 11/44

U.S. Cl. 23—182

16 Claims

Silica particles, e.g., in bead form, are prepared from an alkali-metal (preferably sodium) silicate in an aqueous-organic reaction medium at ambient (preferably) or higher temperature and at a pH within the range of from 4.5 to 10. The organic (preferably recoverable organic) medium is critical and

has a specifically defined bead-making capability. It provides a dispersed phase in which a silica "hydrosol" derived from an alkali-metal silicate is soluble and wherein it can polymerize to yield gelled particles of silica.

Examples of operative organic media are n-hexylamine, 2-ethylhexylamine, 2-methyl-5-ethylpyridine, n-hexyl Carbitol and n-hexyl Cellosolve. Organic media found to be inoperative are 2-methyl-1-pentanol, 1-hexanol, 5-ethylbutanol and n-butanol.

Descriptions are given of the two different types of silica products that are obtained; also, details of operating conditions and factors that influence the type of silica particles that result.

The silica products are useful as, for example, catalysts and catalyst supports, and in other applications wherein silica in particulate form is employed.

3,656,902

METHOD FOR TREATING A BROKEN-AWAY REFRACTORY LINING OF A METALLURGICAL FURNACE, CONSISTING OF DOLOMITE BRICKS

Adam Steen, 52, Spoelmaan, Heemskerk, Netherlands

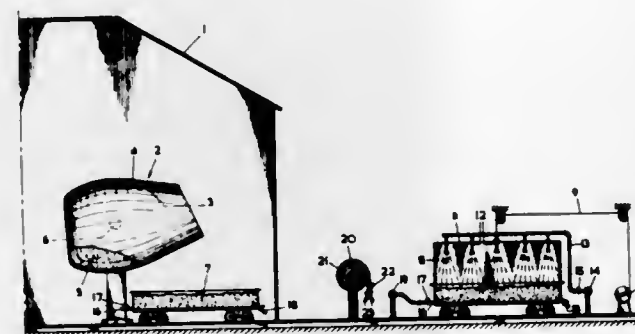
Filed Nov. 22, 1968, Ser. No. 778,171

Claims priority, application Germany, Nov. 25, 1967, P 15 83 267.4

Int. Cl. C01f 5/16, 11/02; C22b 1/16

U.S. Cl. 23—188

10 Claims



The broken-away worn out dolomite brick lining of metallurgical furnaces, together with the metal and clinker residues therein, are processed to recover useful substances therefrom by treating the broken lining in a hot condition with a quantity of water as liquid or steam or both, sufficient to enable the broken linings to actually absorb by weight from 10 to 20 parts of water per 100 parts of dolomite brick, said sufficient quantity being not more than 45 parts of water per 100 parts of dolomite brick, by weight, and the reaction being carried out at elevated temperature. This processing causes the brick to fall apart in a short time into a dry powder mass with the coarser steel and clinker residue parts present therein. After an hour's wait, the powder is separated by suction from the metal and clinker residues which remain behind, air preferably being injected into the mass to fluidize the powder during this operation. The recovered dolomite powder may be supplied to a sintering plant for fine ore. Apparatus for facilitating the process is also disclosed.

3,656,903

DIRECT PRODUCTION OF GRAPHITE FIBROUS MATERIALS FROM PREOXIDIZED ACRYLIC FIBROUS MATERIALS

Dagobert E. Stuetz, Westfield, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Apr. 10, 1969, Ser. No. 815,200

Int. Cl. C01b 31/07

U.S. Cl. 23—209.1

24 Claims

A rapid process is provided for the direct conversion of a preoxidized acrylic fibrous material containing at least about 7 percent bound oxygen by weight to a fibrous material of predominantly graphitic carbon. The preoxidized acrylic

fibrous material is initially impregnated with an organic protective agent and subsequently is passed through a reducing flame which imparts a minimum fiber temperature of at least 1,900°C. while the fibrous material is under tension at least sufficient to prevent visible sagging. In a preferred embodiment of the invention, the reducing flame is generated by a fuel-oxidant mixture, e.g., an acetylene and oxygen mixture.

3,656,904

GRAPHITIZATION PROCESS

Michael J. Ram, West Orange, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed June 10, 1970, Ser. No. 45,160

Int. Cl. C01b 31/07, 31/04

U.S. Cl. 23—209.1

31 Claims

An improved process is provided for the production of a continuous length of a graphitic fibrous material through the catalysis of the graphitization reaction. While a continuous length of fibrous material capable of undergoing graphitization is continuously passed through a heating zone provided with an inert gaseous atmosphere having a maximum temperature of at least 2,000° C., at least one gaseous stream containing a catalytic quantity of a volatile alkyl borate in vapor form which is capable of catalyzing the graphitization reaction is introduced into the heating zone.

3,656,905

HYDROGEN MANUFACTURE

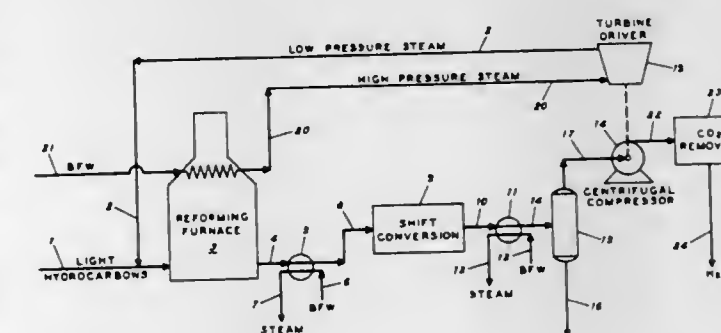
Calvin S. Smith, and William J. McLeod, both of El Cerrito, Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of application Ser. No. 788,262, Dec. 31, 1968, now Patent No. 3,532,467, which is a continuation-in-part of application Ser. No. 736,520, May 17, 1968, which is a continuation-in-part of application Ser. No. 665,106, Sept. 1, 1967, now abandoned. This application Nov. 2, 1970, Ser. No. 86,162

Int. Cl. C01b 1/02, 1/16, 21/00

U.S. Cl. 23—212 R

6 Claims



A process for producing high pressure hydrogen which comprises: (a) reforming hydrocarbons with low pressure steam to produce a gas stream comprising hydrogen and CO_2 ; (b) centrifugally compressing at least a portion of the gas stream comprising hydrogen and CO_2 to obtain a stream comprising compressed hydrogen and CO_2 ; (c) removing CO_2 from the compressed gas stream comprising hydrogen and CO_2 by absorbing CO_2 in a physical absorbent; (d) using high pressure steam to drive a turbine which turbine in turn drives the centrifugal compressor used to compress the hydrogen and CO_2 ; and (e) using low pressure exhaust steam from the turbine as said low pressure steam for reforming hydrocarbons in step (a). Preferably the low pressure steam is at a pressure between 50 and 500 psig, the high pressure steam is at a pressure between 200 and 2000 psig, and there is at least a 150 psi differential in pressure between the low and high pressure steam. According to a preferred embodiment, CO_2 is removed using a mixed absorbent comprising a chemical absorbent and a physical absorbent.

3,656,906

METHOD FOR DETECTING AND QUANTITATING THE PRESENCE OF CANNABINOIDS AND ANALOGS THEREOF IN BIOLOGICAL MATERIALS AND RESULTING PRODUCTS

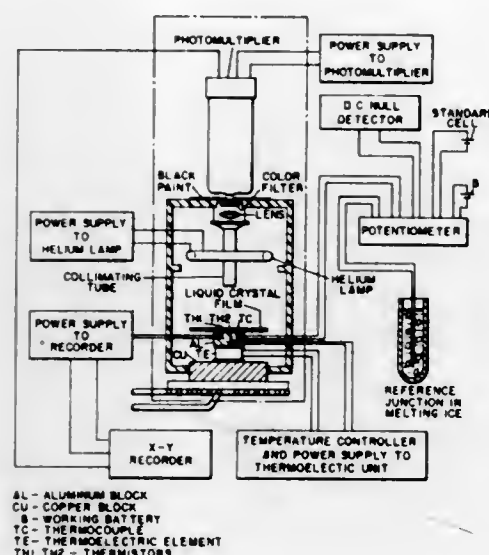
Francis J. Bullock, Acton, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.

Filed Apr. 13, 1970, Ser. No. 28,015
Int. Cl. G01n 3/122

U.S. Cl. 23-230 B

3 Claims

A method for detecting and quantitating submicrogram quantities of cannabinoids and their analogs in biological materials including blood plasma and urine. Detection system is based on the condensation of the cannabinoids with a polycarboxylic acid to give a highly fluorescent derivative, the intensity of the fluorescence being maximized in the pH range of 9-11.



3,656,907

MODIFIED KARL FISCHER REAGENT

Clive Stephen Delmonte, 12 High Road, Buckhurst Hill, England

Filed July 2, 1970, Ser. No. 52,009

Claims priority, application Great Britain, July 14, 1969, 35,246/69; Dec. 6, 1969, 59,701/69; Feb. 20, 1970, 8,347/70; Mar. 18, 1970, 13,126/70

Int. Cl. C09k 3/00; G01n 33/18

U.S. Cl. 23-230 R

12 Claims

A modified Karl Fischer reagent containing, as the reducing agent, a sulfoxide or an organic nitrite of relatively low vapor pressure, and a base which is not pyridine but is a substantially odorless base containing the pyridine skeleton.

3,656,908

METHOD OF DETERMINING THE CHROMIUM CONTENT OF AQUEOUS MEDIUMS

Charles A. Noll, Philadelphia; Edward C. Feddern, West Chester, both of Pa., and Louis J. Stefanelli, Pennsauken, N.J., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Dec. 1, 1970, Ser. No. 94,181

Int. Cl. G01n 21/20, 21/24, 33/18

U.S. Cl. 23-230 R

20 Claims

Method of determining the chromium concentration in an aqueous medium containing either or both trivalent chromium or hexavalent chromium. The method generally entails acidifying the aqueous medium, oxidizing any trivalent chromium present in the aqueous medium to hexavalent chromium, and adding to the medium a composition comprising a water-soluble cobaltous salt and a chelating agent of the acetic acid derivative type. The color intensity of the resulting medium is then measured and compared to the intensity of samples of aqueous medium containing known quantities of chromate in its hexavalent state which have been treated in the same manner. One of the other features of the invention is the composition used in the method.

3,656,909

CHOLESTERIC LIQUID CRYSTAL STABILIZERS FOR DETECTOR ELEMENTS

George D. Dixon, Monroeville, and Luciano C. Scala, Murrysville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 16, 1970, Ser. No. 11,449

Int. Cl. C09k 1/00; G01n 31/22; G02f 1/00

U.S. Cl. 23-253 TP

12 Claims

A sensing device is made by protectively packaging a cholesteric liquid crystalline material containing from about

0.3 to 7 weight percent of an ultraviolet radiation stabilizer

consisting of either aromatic azo or aromatic azoxy compounds, in a clear compatible protective polymeric material.

3,656,910

INDUCTION FURNACE HAVING IMPROVED SUSCEPTOR FOR USE IN THE CONTINUOUS PRODUCTION OF CARBONACEOUS FIBROUS MATERIALS

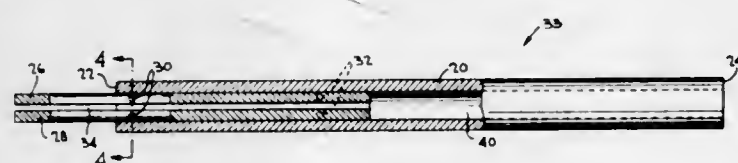
George R. Ferment, Dover, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed June 16, 1970, Ser. No. 46,675

Int. Cl. C01b 31/07

U.S. Cl. 23-259.5

12 Claims



A graphite susceptor for use in a tube furnace during the production of a continuous length of a carbonaceous fibrous material. The graphite susceptor has a passageway extending therethrough which includes an entrance portion and an exit portion with the cross-sectional area of the entrance portion being of a smaller cross-sectional area than that of the exit portion. In a preferred embodiment of the invention the cross-sectional area of the entrance portion has a rectangular configuration, and is adapted for use in the production of graphitic tapes consisting of a plurality of continuous graphite filaments.

3,656,911

CONTROL SYSTEM FOR HYDROGENATION REACTIONS

James W. Hobbs, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed June 8, 1970, Ser. No. 44,037

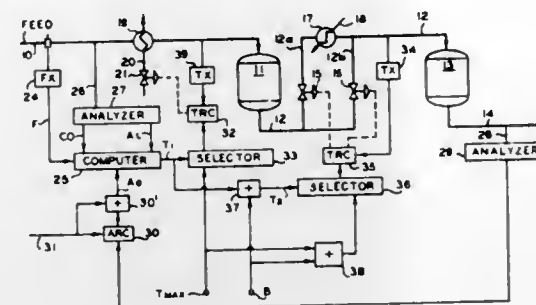
Int. Cl. C07b 1/00

U.S. Cl. 23-253 A

6 Claims

A control system for a selective hydrogenation reaction computes the desired feed input temperature to the reactor in response to measurements of flow rate and analyses of the

inlet and effluent streams. The temperature of the feed of a core that extends axially through the reactor tube to stream is regulated in response to a comparison of the com-



puted temperature with a measured temperature of the feed stream.

3,656,912

LIQUID SEPARATORY APPARATUS

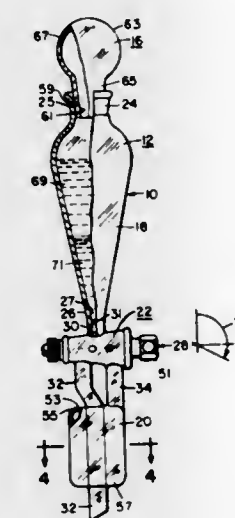
Ken F. Sugawara, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed May 14, 1970, Ser. No. 37,149

Int. Cl. G01f 11/00; G01k 3/00, 3/02

U.S. Cl. 23-259

13 Claims form an annular space through which the reactants flow.



A liquid separatory apparatus for analytical purposes including a first compartment, at least one second compartment, valve means interposed therebetween, and a closure means. The first compartment includes an inlet portion on one end, an outlet portion on the other end and serves to initially contain the liquid during its separation into at least two phases of differing density. Each second compartment has an inlet portion and an opening to atmosphere, with each inlet portion being operatively and separately connected by the valve means to the first compartment outlet portion; said valve means including a drain portion open to atmosphere. The closure means serves for closing the first compartment inlet portion and includes an opening to atmosphere while the second compartments serve as separate storage reservoirs for the desired phases of differing density while the undesired phases are drained from the apparatus. Each of the stored phases may then be separately transferred back to the first compartment upon partial inversion of the apparatus.

3,656,913

CATALYTIC REACTOR

Emil Blaha, Cheltenham, and Maurice R. Kitzen, Elkins Park, both of Pa., assignors to Sela Corporation, Dresher, Pa.

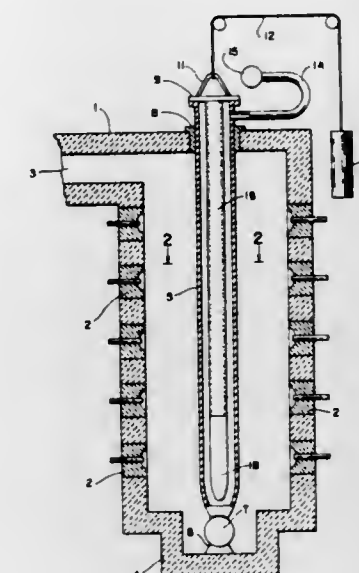
Filed Jan. 27, 1970, Ser. No. 6,254

Int. Cl. B01j 9/04

U.S. Cl. 23-288 M

5 Claims

A catalytic reactor in which the catalyst is on the surface



FILLED REACTION TUBE PROVIDED WITH TEMPERATURE SENSORS

Wilhelm Friedrichsen; Guenter Poehler; Gert Goeschel, all of Ludwigshafen, and Gerhard Schaefer, Limburgerhof, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

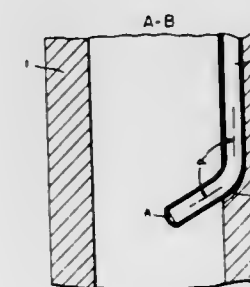
Filed Mar. 13, 1970, Ser. No. 19,420

Claims priority, application Germany, Mar. 15, 1969, P 19 13 267.3

Int. Cl. B01j 9/04; G01k 1/08, 1/14

U.S. Cl. 23-288 M

5 Claims



A catalyst-filled reaction tube provided inside with several temperature sensors, and the insertion of electric leads and their protecting tubes in axial recesses in the tube wall (which may be homogeneous or consist of several layers) without making holes in the tube wall.

3,656,915

CATALYTIC EXHAUST GAS TREATMENT APPARATUS

John F. Tourtellotte, Westfield, N.J., assignor to Chemical Construction Corporation, New York, N.Y.

Filed Apr. 30, 1970, Ser. No. 33,359

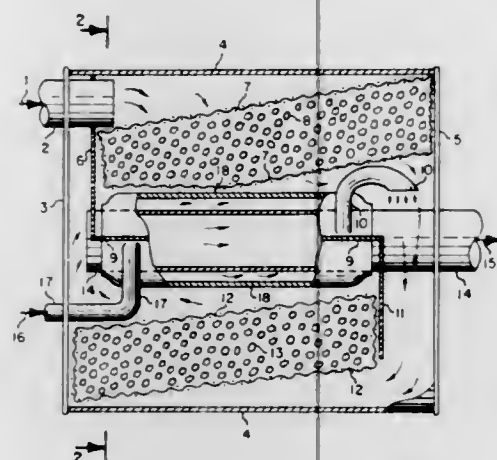
Int. Cl. B01j 9/04

U.S. Cl. 23-288 F

12 Claims

An apparatus for catalytically treating the exhaust gas from internal combustion engines in two stages, with the first catalyst stage reducing nitrogen oxides, and the second stage oxidizing hydrocarbons and carbon monoxide. Preheated air is injected into the exhaust gas stream between the stages,

and the final hot fully reacted exhaust gas serves to preheat the air. The entire apparatus is disposed in a single container:



having flat inclined catalyst beds and a central co-axial heat exchange section.

3,656,916

PRODUCTION OF PHOSPHONITRILIC CHLORIDES

Richard Schiedermaier; Karl Wintersberger, both of Ludwigshafen, and Gerd Wunsch, Speyer, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen, Rhine, Germany

Filed Apr. 8, 1970, Ser. No. 26,749

Claims priority, application Germany, Apr. 12, 1969, P 19 18 697.1

Int. Cl. C01b 21/52, 25/00

U.S. Cl. 23—357

4 Claims

Phosphonitrilic chlorides having the general formula: PNCI_2 , where n denotes an integer of at least 3 and which contain a high proportion of trimeric and tetrameric cyclic phosphonitrilic chlorides are prepared by reaction of phosphorus pentachloride with ammonia in an inert solvent. The solution should contain not more than 5 moles of phosphorus pentachloride per liter. Ammonia is introduced at a rate not exceeding 0.12 liter per minute per mole of the phosphorus pentachloride contained in the whole solution until one tenth to one third of the total amount of ammonia required has been introduced.

3,656,917

STEEL ALLOY TUBES

Osamu Kikkawa, and Akira Kambayashi, both of Yokohamashi, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Original application May 16, 1967, Ser. No. 683,720, now

Patent No. 3,554,734. Divided and this application Apr. 10,

1969, Ser. No. 815,215

Claims priority, application Japan, Sept. 10, 1966, 41/59491

Int. Cl. B21c 37/00

U.S. Cl. 29—193

6 Claims

Low carbon steel alloy tubes of high tensile strength. The steel alloy contains less than 0.23% carbon, less than 0.5% silicon, from 1.00 to 1.50% manganese, less than 0.040% phosphorus, less than 0.040% sulfur, less than 0.30% copper, less than 0.50% chromium, from 0.010 to 0.080% aluminum, and the remainder of iron and impurities in an amount and variety which do not impair the desired characteristics of the alloy. There is preferably not less than 0.20% silicon and from 1.00 to 1.35% manganese. This steel after being rolled into a steel plate is welded into a steel tube of high tensile strength. Also, the steel alloy is a killed steel and in particular an aluminum killed steel.

3,656,918

A COMPOSITE WELDED FERROUS ARTICLE

William T. De Long, and Paul T. Corcoran, both of West Manchester Township, York County, Pa., assignors to Teledyne, Inc., Los Angeles, Calif.

Filed Dec. 30, 1969, Ser. No. 889,321

Int. Cl. B32b 15/00

U.S. Cl. 29—196.1

1 Claim

A low carbon steel weld deposit containing chromium up to 1.0, preferably 0.05–0.6, per cent. by weight, nickel 6.5–11, preferably 7–9, per cent. by weight, molybdenum up to 1.0, preferably 0.2–0.8, per cent. by weight and vanadium up to .12, preferably 0.04–0.09, per cent. by weight.

Also a low carbon steel weld deposit consisting essentially of

Element	Percent by Weight	
	Broad	Preferred
Carbon.....	.03 — .12	.06 — .10
Manganese.....	.05 — 1.0	.1 — .8
Silicon.....	.20 — .70	.25 — .55
Chromium.....	up to 1.10	.05 — .6
Nickel.....	6.5 — 11.	7 — 9
Molybdenum.....	up to 1.0	.2 — .8
Vanadium.....	up to .12	.04 — .09
Phosphorus.....	.020 max.	.012 max.
Sulfur.....	.020 max.	.012 max.
Iron.....	Balance	Balance

which exhibits a yield strength of at least 130 ksi and Charpy V-notch energy absorption at -60° F. of at least 20 ft.-lbs. after heat treatment consisting of austenitizing at $1,500^\circ$ F. for 1 hour, water quenching, tempering at $1,100^\circ$ F. for 1 hour and water quenching.

3,656,919

COMPOSITE METAL HAVING A NICKEL ALLOY BASE WITH A DIFFUSED COATING

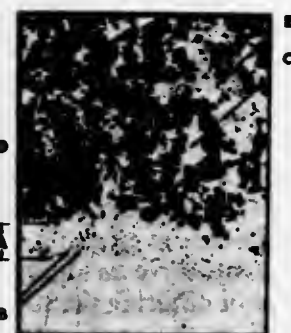
Joseph G. Lucas, Trumbull; William R. Freeman, Jr., Easton, and Warren A. Rentz, Trumbull, all of Conn., assignors to Avco Corporation, Stratford, Conn.

Original application Nov. 1, 1965, Ser. No. 506,292, now Patent No. 3,493,476. Divided and this application June 19, 1969, Ser. No. 834,789

Int. Cl. B32b 15/00

U.S. Cl. 29—197

6 Claims



A method of producing a sulfidation and oxidation resistant coating upon nickel base alloys, and article produced thereby wherein chromium and aluminum-silicon layers are imposed upon the base and then subject to such temperatures as will cause diffusion of these layers, resulting in a product wherein the base material is provided with a chromium rich intermediate layer and an aluminum rich exterior layer.

3,656,920

POWER SANDING DEVICE

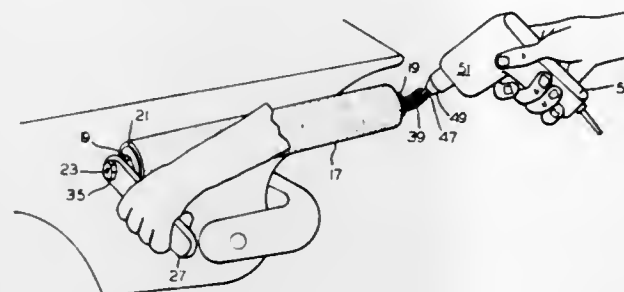
Hosea W. Helms, 7336 Lohmeyer Avenue, Maplewood, Mo.

Filed Aug. 15, 1969, Ser. No. 850,424

Int. Cl. B24b 23/00

U.S. Cl. 51—170 PT

13 Claims



A power sanding device for sanding irregular surfaces such as those of automobile bodies, comprising a rigid shaft rotatably journaled at one end in a radial handle, an abrasive cylinder comprising a pair of solid spools on said shaft and a resilient block between them, means for urging the spools toward each other to expand the resilient block and thereby releasably lock an abrasive sleeve on the spools for rotation with the shaft, and a flexible shaft secured to the end of the rigid shaft remote from the handle for driving connection to a portable electric drill whereby to permit the user to hold the abrasive cylinder generally parallel to his frontal plane and manipulate the sander with his arms and hands in natural, unstrained positions.

3,656,921

COATING GLASS PARTICLES WITH AN OXYGEN-CONTAINING COMPOUND TO PREVENT STICKING DURING HEATING

Oswin Burr Willcox, Landenburg, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 2, 1970, Ser. No. 42,856

Int. Cl. C03b 19/10, 29/00; C09c 1/36

U.S. Cl. 65—21

3 Claims

Glass particles are prevented from sticking to each other or to processing equipment when heated up to about the sintering temperature of the glass by maintaining on the surface of the glass particles at least a partial coating of at least one oxygen-containing compound having a melting point higher than that of the glass particles and present in the amount of at least 1 weight percent based on the weight of the glass particles.

3,656,922

MANUFACTURE OF GLASS CONTAINERS

Sydney Maurice Budd, Edgware, England, assignor to United Glass Limited, Staines, Middlesex, England

Filed Mar. 30, 1970, Ser. No. 23,996

Int. Cl. C03c 15/00, 17/00

U.S. Cl. 65—30

12 Claims

A method of manufacturing glass containers, e.g., glass bottles, comprises the steps of:

- forming the containers in a forming machine;
- immediately thereafter, and while they are still hot from the forming, contacting the containers with a metal-organic compound in liquid form and of high thermal stability such that substantially no decomposition of the metal-organic compound takes place on contact;
- subjecting the containers treated as in (b) to a heat treatment to cause the metal-organic compound to react with the glass and form a diffuse layer of reaction product within the glass surface; and
- treating the containers while at a temperature of at least 450° with a metal compound in liquid or vapor form which

decomposes rapidly on contact with the containers at the contacting temperature to produce a surface film of metal oxide.

Tin and titanium compounds are mentioned as suitable reagents, and steps (c) and (d) may take place simultaneously.

3,656,923

METHOD FOR STRENGTHENING PHOTOCHROMIC GLASS ARTICLES

Harmon M. Garfinkel, Horseheads; Loris G. Sawchuk, and Stanley D. Stookey, both of Corning, all of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed May 27, 1968, Ser. No. 732,036

Int. Cl. C03c 15/00; C03b 11/08; C03c 3/00

U.S. Cl. 65—30

15 Claims

This invention relates to the manufacture of glass articles which exhibit photochromic behavior and which exhibit very high mechanical strengths through the development of a surface compression layer therein by an ion exchange process. More particularly, this invention relates to glasses wherein silver halide crystals impart photochromic properties and wherein the ion exchange involves alkali metal and silver ions.

3,656,924

APPARATUS AND METHODS FOR MELTING GLASS COMPOSITIONS FOR GLASS LASER RODS

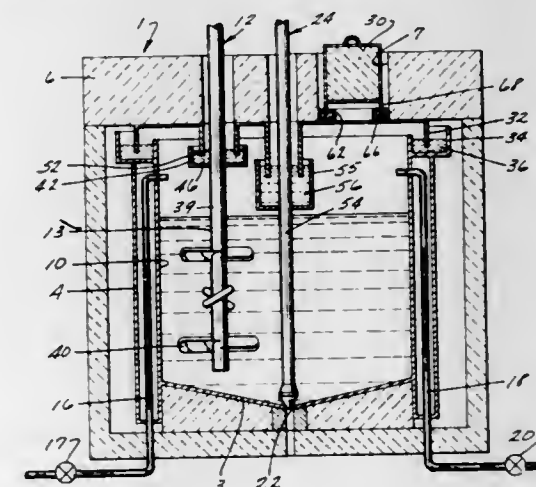
George C. Chapman, and James T. Le Sueur, both of Toledo, Ohio, assignors to Owens-Illinois, Inc.

Filed Nov. 17, 1969, Ser. No. 877,076

Int. Cl. C03b 5/18

U.S. Cl. 65—32

17 Claims



Methods of melting and refining molten glass for the production of glass laser rods, the glass having a relatively high lithia content of at least about 8 mole percent, the glass being melted in a platinum lined furnace having a roof, sidewalls and a bottom having a discharge opening and a plunger adapted to open and close the opening. The method includes the steps of (1) charging into the furnace by means of a charge opening and a charge tube raw glass batch materials in the form of oxides, (2) melting the batch materials to form molten glass and refining the same, (3) providing an atmosphere of inert gas above the molten glass by a flow of gas into the atmosphere, and using the inert gas to purge any air from the furnace atmosphere during the charging of the raw batch materials, (4) stirring the molten glass with stirrers having platinum surfaces on the portion thereof exposed to the molten glass furnace atmosphere, (5) sealing the charge tube, the stirrers and the plunger with molten glass seals to prevent air from coming into the furnace atmosphere and to prevent condensation of platinum vapors to thereby eliminate deposits of platinum containing material in the molten glass which could cause platinum inclusions, and (6) charging the molten refined glass through the discharge

opening for the production of high quality glass laser rods having a minimum of platinum inclusions.

3,656,925

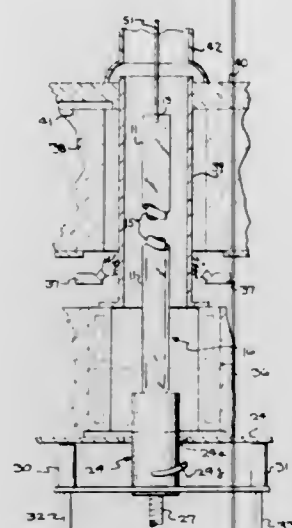
METHOD AND APPARATUS FOR JOINING TWO GLASS PARTS OR ARTICLES

Glenn H. Dunlap, Maumee, Ohio, assignor to Owens-Illinois, Inc.

Filed May 28, 1970, Ser. No. 41,284

Int. Cl. C03b 23/20

U.S. Cl. 65—36



A process for heat sealing together two preformed glass articles preferably adapted to be nested one within the other by a technique which envisions a precise and careful conditioning and treatment of the surfaces to be heat sealed, coupled with temperature control and impressment of particular low pressure conditions as in combination promote the heat sealing joinder of the surfaces and consequently the articles together in a manner as is yieldative of an ultimate produce in which the optical as well as other properties of the preformed glass, as imparted by the compositional makeup thereof, is relatively unimpaired and therefore of high quality. This method is accomplished by a device having an elongate compartment having heaters located outside, with a base to hold the glass cylinder which has an opening connected to a vacuum source at the bottom of the compartment.

3,656,926

COATING OF GLASS IN FLOAT GLASS METHOD AND APPARATUS

David Gordon Loukes, Eccleston Park, Prescot, and Alan Edwards, Widnes, both of England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England

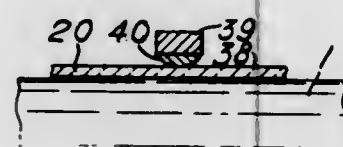
Filed June 26, 1969, Ser. No. 836,712

Claims priority, application Great Britain, June 24, 1968, 29,998/68

Int. Cl. C03b 18/00; C03c 17/00

U.S. Cl. 65—60

17 Claims



Glass is coated with, for example a metal or oxide coating, by releasing towards the glass surface a vaporized material for coating the glass, and by regulating the temperature of the glass relative to the temperature of the vapor the glass surface is made receptive to a coating of the vaporized material which condenses on the glass surface. The coating material, for example a body of molten silver, is located adjacent

the upper surface of the glass by a locating member extending transversely across the glass width. The locating member is connected to the terminals of an electric circuit to heat the silver and cause vaporization thereof, the vaporized particles being received by the glass surface.

3,656,927

METHOD AND APPARATUS FOR FLOAT GLASS MANUFACTURE

Jack Lawrenson, and David Jones, both of St. Helens, England, assignors to Pilkington Brothers Limited, Liverpool, Lancashire, England

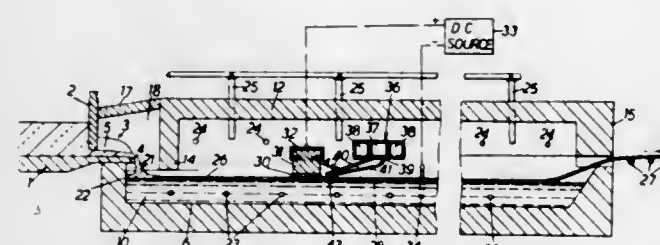
Filed Mar. 17, 1969, Ser. No. 807,516

Claims priority, application Great Britain, Mar. 27, 1968, 14,809/68

Int. Cl. C03b 18/00

U.S. Cl. 65—99 A

8 Claims



The surface of glass is modified by migration of an element from a molten electrically conductive body into the glass, and a continuous gaseous flow in the vicinity of the glass surface emerging from contact with the molten body removes harmful vapors originating from the molten body. The gaseous flow is induced by directing a laterally elongated opening toward the glass surface and the molten body, and causing gas to be either sucked into the opening or emitted therefrom to create a gas flow longitudinally of the glass surface.

3,656,928

PROCESS FOR CONTINUOUSLY INCORPORATING MODIFIERS INTO MOLTEN GLASS

German Artigas Gimenez, Aviles, Spain, assignor to Saint-Gobain, Neuilly-sur-Seine, France

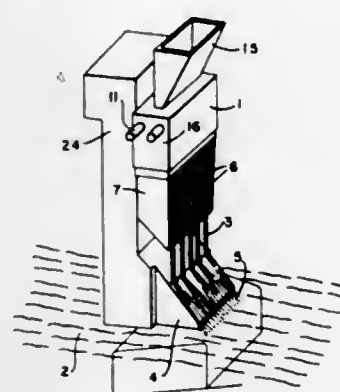
Filed Feb. 24, 1970, Ser. No. 13,386

Claims priority, application France, Feb. 21, 1969, 6904440

Int. Cl. C03b 5/26, 5/16

U.S. Cl. 65—121

5 Claims



Solid particulate material such as colorant to be added to and homogenized with molten glass in a melting furnace, is deposited into a reservoir over and subjected to the hot atmosphere of the furnace and thereby melted. The molten material or additive flows continuously from the reservoir in a plurality of small filaments which fall onto a smooth inclined planar surface of heat resistant material dipping into the molten glass. On the planar surface the filaments spread

out into a smoothly and downwardly flowing stream of uniform minute thickness which passes into the molten glass without turbulence and without entrainment of air bubbles. If required, additional heating means for the solid particulate additive or frit, may be provided.

3,656,929

FALLING FILM COOLING OF MOLTEN GLASS

Colin T. Gildea, Parbold near Wigan, England, assignor to Pilkington Brothers Limited, Liverpool, Lancashire, England

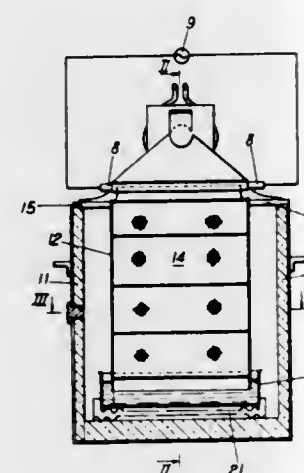
Filed May 12, 1969, Ser. No. 823,594

Claims priority, application Great Britain, May 29, 1968, 25,798/68

Int. Cl. C03b 17/00

U.S. Cl. 65—129

9 Claims



Molten glass is thermally conditioned by allowing it to run through a slit onto a metal film supporting member, such as a platinum plate or screen, the glass running into a falling curtain of glass running down the supporting member. The faces of the supporting member are enclosed within, opposed to and spaced from the radiant-heat absorbing walls of a chamber and are supported on a frame. The chamber walls having heating elements which are controlled to regulate the temperature of the walls and thereby control the temperature of the pool of molten glass collected at the bottom of the film supporting member.

3,656,930

MOSS PEAT CAKE FOR HORTICULTURE

James Martin, Dublin, Ireland, assignor to Bord NA Mona, Dublin, Ireland

Continuation of application Ser. No. 665,997, Sept. 7, 1967, now abandoned. This application Sept. 22, 1970, Ser. No. 74,530

Int. Cl. C05f 11/02

U.S. Cl. 71—24

5 Claims

Peat moss is prepared in the form of coherent cakes by drying granulated moss peat until the moisture content thereof is reduced to 10 to 30 percent by weight, and then compressing the thus-dried moss peat in a mold at a pressure between 1 and 4 British tons/in.² until upon releasing the pressure the moss peat has the form of a cake having between one-sixth and one-twelfth its bulk size before compression. The coherent cake is easily reconstituted by wetting, and to this end may include a non-ionic wetting agent.

3,656,931

PREPARATION OF AMMONIUM ORTHO-PHOSPHATE AGRICULTURAL SUSPENSIONS

William B. Dancy, Lakeland, Fla., assignor to International Minerals & Chemical Corporation

Filed Aug. 26, 1968, Ser. No. 755,395

Int. Cl. C05b 7/00, 9/00, 13/00

U.S. Cl. 71—33

8 Claims

Wet process phosphoric acid containing iron, aluminum or magnesium compounds as impurities is ammoniated to produce an ammonium phosphate having a gelatinous, colloidal component of iron, aluminum or magnesium ammonium phosphate, the ammonium phosphate is heated to dehydrate the gel structure under conditions to prevent the formation of polyphosphates, and the dried material is comminuted to finely divided particles that produce a stable aqueous suspension when dispersed in water. A water soluble magnesium compound may be added to the phosphoric acid, thereby providing magnesium ammonium phosphate in the product.

3,656,932

PROCESS FOR CONTROLLING UNDESIRE VEGETATION

Horst Scheuermann, Ludwigshafen am Rhine, and Adolf Fischer, Mutterstadt am Pfalz, both of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen and Rhineland-Pfalz, Germany

Filed Sept. 6, 1968, Ser. No. 758,103

Claims priority, application Germany, Sept. 15, 1967, P 16 42 231.4

Int. Cl. A01n 9/20

U.S. Cl. 71—105

6 Claims

A process for controlling undesired vegetation, in particular, a process for controlling undesired vegetation without damaging crop plants using substituted esters of N-phenylaminoacrylic acid.

3,656,933

ROASTING MATERIALS CONTAINING ROASTABLE SULFUR WITH ARSENIC AND/OR ANTIMONY

Herbert Wolf, Bad Duerkheim, and Wilhelm Goebele, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed June 3, 1969, Ser. No. 830,129

Claims priority, application Germany, June 12, 1968, P 17 67 753.1

Int. Cl. C22b 1/10

U.S. Cl. 75—9

2 Claims

A fluidized-bed method of roasting sulfidic materials containing arsenic and/or antimony with a gas containing oxygen with separate supply of the gas containing oxygen for the preroasting in a first stage and for the afterroasting in the second stage and with separate withdrawal of the roaster gas from the preroasting stage and from the afterroasting stage. The dusty portion of the roasted intermediate product from the first stage is introduced periodically into the fluidized bed of the second stage and, in timed relationship with this periodic introduction of the roasted intermediate product, air is periodically introduced into the gas space above the fluidized bed in the second layer in such an amount that it is adequate for complete roasting of the dusty roasted intermediate products suspended in this gas space.

3,656,934

ROTARY KILN REDUCTION OF LIMONITIC ORES

Walter Curlock, Neuilly, France, and James Alexander Evert Bell, Port Colborne, Ontario, Canada, assignors to The International Nickel Company, Inc., New York, N.Y.

Filed Mar. 12, 1970, Ser. No. 18,890

Claims priority, application Canada, May 28, 1969, 047216

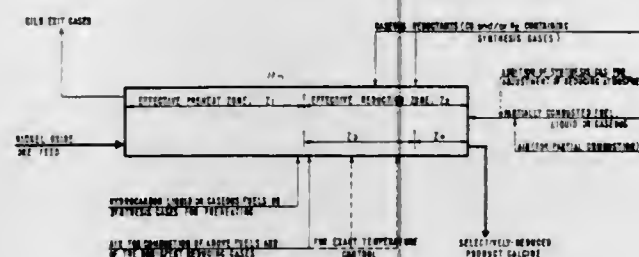
Int. Cl. C22b 23/02, 5/18

U.S. Cl. 75—82

5 Claims

Directed to the reduction of nickel-containing lateritic ores in a rotary kiln at high production rates to achieve selective

reduction of nickel contained in the ore wherein the ore is preheated to at least about 1,000° F. in a preheating zone in the kiln and is maintained at at least this temperature while it travels through the reduction zone and wherein within the



reduction zone the preheated ore is first subjected to a strongly reducing atmosphere and is then subjected to a moderately reducing atmosphere adjacent the discharge end of the kiln.

3,656,935

PROCESS FOR RECOVERING NICKEL FROM NICKEL ORES

Iwao Iwasaki, Minneapolis, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

Filed Apr. 24, 1970, Ser. No. 31,759

Int. Cl. C22b 23/02

U.S. Cl. 75—82

9 Claims

This invention provides a process for the treatment of nickel ores whereby the comminuted feed ore is mixed with a halide and an oil and the mixture is maintained at a temperature and for a length of time sufficient to metallize the nickel in the ore by the migration of the nickel from its finely dispersed state in the feed ore to aggregate in the form of globules of iron-nickel alloy. This permits the subsequent recovery and concentration of the nickel by magnetic separation and by other conventional physical separation procedures. By the application of this process the nickel present in very low grade nickel ores and in ores of a complex nature may be recovered and concentrated.

3,656,936

VANADIUM RECOVERY PROCESS

Frank C. Haas, Arvada, Colo., assignor to The Oil Shale Corporation, New York, N.Y.

Filed Oct. 14, 1970, Ser. No. 80,778

Int. Cl. C22b 55/00

U.S. Cl. 75—101 R

8 Claims

A process is provided for recovering vanadium values from highly alkaline, calcium-rich calcines, which are usually the roasted product of low-grade vanadium-bearing calcitic ores. The process involves slurrying the calcine in water and carbonating the slurry to a pH of 5.0 to 9.0 to extract the soluble vanadium species from the slurry. A basic anion exchange resin is added to the carbonated slurry thereby increasing the vanadium recovery by shifting the extraction equilibrium.

3,656,937

PROCESS FOR TREATMENT OF MATTES AND SULPHURATED NICKEL CONCENTRATES

Louis Gandon; Roger Jean, and Philippe Lenoble, all of Le Havre, France, assignors to Le Nickel, Paris, France

Filed Oct. 3, 1969, Ser. No. 863,569

Claims priority, application France, Oct. 21, 1968, 170692

Int. Cl. C22b 23/04

U.S. Cl. 75—101 R

3 Claims

Nickel containing concentrates, particularly nickel matte, containing by weight 55 to 75 percent nickel, 10 to 40 percent sulphur and a minor proportion of secondary metals in powder or pulp form are subjected to an oxidizing lixiviation with nitric acid preferably in the presence of oxygen, nitrous

vapors formed being regenerated to nitric acid and recycled. The solution from the oxidizing lixiviation is sulphated to substantially replace nitrate by sulphate; secondary metals, in particular iron, copper and cobalt are removed and pure hydrated nickel sulphate is crystallized from the solution. Preferably nickel hydroxide and carbonate are precipitated from the mother liquor from the crystallization of nickel sulphate and are used in the removal of iron and cobalt.

3,656,938

TREATMENT OF BITUMINOUS SANDS FOR RECOVERY OF HEAVY METALS THEREFROM

Stephen Penzes, Edmonton, Alberta, Canada, assignor to Canada Cities Service, Ltd., Alberta, Canada; Imperial Oil Limited; Atlantic Richfield Corporation and Royalite Oil Company, Limited, part interest to each

Filed Dec. 19, 1969, Ser. No. 886,746

Int. Cl. C22b 61/02

U.S. Cl. 75—101

4 Claims

Heavy metals, especially zircon, may be recovered from bituminous sands by introducing a fluid slurry of bituminous sand into a body of water whereby a froth containing bitumen and solids floats to the top of the water and is recovered therefrom. Solids are recovered from this froth and the recovered solids are treated with sodium hydroxide and then subjected to a flotation treatment using aeration gas. During the flotation treatment, solids other than heavy metal are selectively floated and heavy metals, especially zircon, remain in the bottom of the flotation zone from which they may be recovered.

3,656,939

RECOVERY OF PALLADIUM FROM RINSE WATER
Dennis R. Boehm, Grand Rapids, and Kenneth R. Hampel, Grandville, both of Mich., assignors to Gulf & Western Industrial Products Company, Grand Rapids, Mich.

Filed July 20, 1970, Ser. No. 56,707

Int. Cl. C22b 11/04

U.S. Cl. 75—108

6 Claims

A process for the essentially total removal of palladium cations in a cation exchange resin bed, followed by removal of chloride and palladium chloride anions in an anion exchange bed. Recovery of the precious metal is effected by mixing the solutions used to regenerate the ion-exchange beds in such proportion as to maintain a pH of less than 6 for the mixture, then adding a reducing agent to the precipitate palladium to the substantial exclusion of all other metals.

3,656,940

PROCESS FOR THE PURIFICATION OF NICKEL CONTAINING SOLUTIONS

Louis Gandon; Roger Jean, and Philippe Lenoble, all of Le Havre, France, assignors to Le Nickel, Paris, France

Filed June 5, 1969, Ser. No. 830,883

Claims priority, application France, June 21, 1968, 156168

Int. Cl. C22b 23/04

U.S. Cl. 75—119

6 Claims

Aqueous solutions containing nickel can be purified of metals capable of forming anionic complex chlorides, particularly iron and cobalt, by raising the chloride content of the solution to from 2N to 6N by adding a completely dissociated salt of hydrochloric acid followed by contacting the solution with an anion exchange resin at a temperature above 20° C. The process is particularly suitable for purifying the anolyte from an electrolytic process for the purification of ferro-nickel or nickel matte, the purified nickel containing solution being recycled to form the catholyte.

3,656,941

HYDROMETALLURGICAL TREATMENT OF SILICEOUS ZINC ORES

Ian George Matthew, Moonah, and Dagwin Elsner, Sandy Bay, both of Australia, assignors to Electrolytic Zinc Company of Australasia Limited, Melbourne, Victoria, Australia

Filed Mar. 4, 1969, Ser. No. 804,259

Claims priority, application Canada, Mar. 13, 1968,

34922/68

Int. Cl. C22b 23/04

U.S. Cl. 75—119

2 Claims

A process for the recovery of metal values from a siliceous zinc ore whereby the ore is treated with aqueous sulfuric acid in a continuous manner in a first and second stage, in at least two stirred vessels. The ore is leached to an end point pH in the range of 1.5–2.5 over a period of 1–6 hours in the first stage yielding a pulp which is continuously transferred to the second stage where the pH is held to 4.9–5.3 for a period of 1–14 hours, yielding a readily filterable pulp.

3,656,942

STEEL FOR LOW-TEMPERATURE SERVICE

Akira Kambayashi, and Shun-ichi Shimada, both of Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Kawasaki-shi, Kanagawa-ken, Japan

Filed June 17, 1970, Ser. No. 47,155

Claims priority, application Japan, June 21, 1969, 44/48793

Int. Cl. C22c 39/02, 39/36

U.S. Cl. 75—124

12 Claims

A steel having excellent notch toughness, for service at low temperatures, which can be used in the normalized or hardened and tempered condition and which contains 0.4–0.13 percent Carbon, 0.15–0.30 percent Silicon, 0.30–0.90 percent Manganese, 8.50–9.50 percent Nickel, 0.020–0.060 percent Aluminum, 0.008–0.020 percent Nitrogen. Balance, Iron and incidental impurities.

3,656,943

METHOD OF WELDING AND MATERIAL FOR USE IN PRACTICING METHOD

Julius Heuschkel, Irwin, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 541,899, Mar. 18, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 223,143, Sept. 12, 1962, now abandoned.

This application Nov. 13, 1967, Ser. No. 682,348

Int. Cl. C22c 39/20

U.S. Cl. 75—128 A

25 Claims

An alloy-steel filler material for arc welding to produce welds of high toughness over a temperature range from –200° F to +200° F and of tensile strength exceeding 100,000 pounds per square inch whose principal alloying components are carbon, manganese, nickel, chromium, molybdenum, vanadium and tungsten, in combination with low phosphorus, sulfur, silicon, nitrogen and oxygen and a weld of high toughness over the above temperature range and of tensile strength exceeding 100,000 lbs. per square inch having the above alloying components also in combination with low phosphorus, sulfur, silicon, nitrogen and oxygen.

3,656,944

METHOD OF PRODUCING HOMOGENEOUS INGOTS OF A METALLIC ALLOY

Maurice J. Brau, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 16, 1970, Ser. No. 11,644

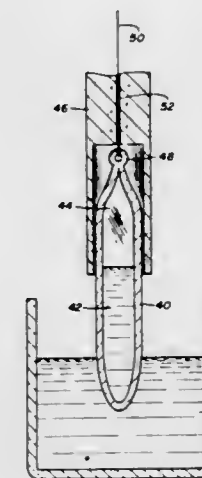
Int. Cl. C22c 1/00

U.S. Cl. 75—135

10 Claims

A method for producing homogeneous ingots of an alloy in which one of the components thereof has a high vapor pressure includes the step of sealing the desired alloy components in a quartz ampoule sufficiently large to include a vapor space therein and heating the ampoule and its contents to at

least a temperature at which the components will form a homogeneous liquid mixture. An example of an alloy which can be produced by the instant process is an alloy of cadmium, mercury and tellurium. The method of this invention also includes the steps of quenching the homogeneous alloy from the liquid to the solid state while maintaining a relative-



ly high vapor pressure in the vapor space in the ampoule above the space occupied by the alloy. The high vapor pressure can be maintained in the vapor space by thermally insulating the vapor space during the quenching step. The preferable form of quenching is by immersing only a portion of the space occupied by the alloy in a quenching bath, for example, a quenching oil.

3,656,945

HIGH STRENGTH ALUMINUM BRONZE ALLOY

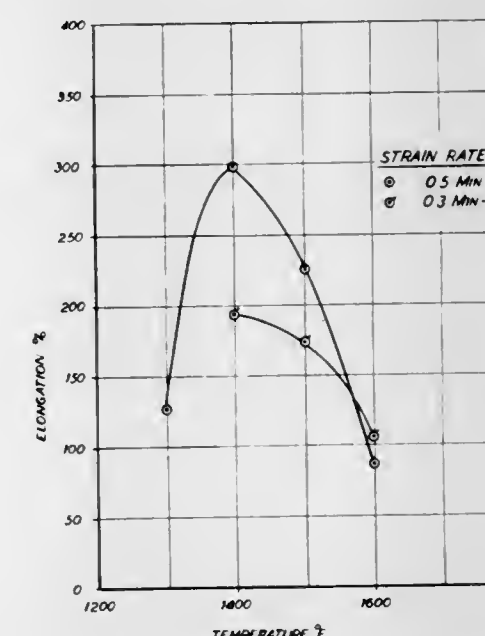
George H. Eichelman, Jr., Cheshire, Conn., assignor to Olin Corporation

Filed June 11, 1970, Ser. No. 45,441

Int. Cl. C22c 9/00, 9/06; C22f 1/08

U.S. Cl. 75—162

19 Claims



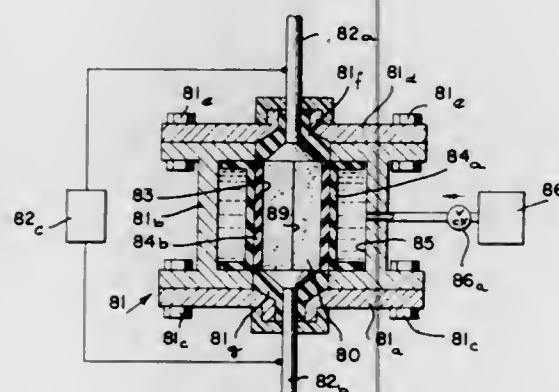
A high strength aluminum bronze alloy consisting essentially of 8.0 to 11.8 percent aluminum, 0.05 to 2.0 percent zirconium, 0.5 to 4.0 percent cobalt, 0.1 to 2.0 percent manganese, balance essentially copper, wherein the alloy has a metallographic structure containing 5 to 100 percent beta phase, remainder alpha phase, with a uniformly fine metallographic grain structure with a grain size of less than 0.065 mm., and a method of obtaining exceptional formability in these alloys.

3,656,946

ELECTRICAL SINTERING UNDER LIQUID PRESSURE
Kiyoshi Inoue, and Shinroku Saito, both of Tokyo, Japan, assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Mar. 4, 1968, Ser. No. 710,219
Claims priority, application Japan, Mar. 3, 1967, 42/13622
Int. Cl. B22f 3/14

U.S. Cl. 75-226

19 Claims



A method of electrical sintering of a mass particles of conductive or nonconductive powder in which the powder is compacted between the electrode by means of liquid pressure applied through a flexible membrane. The fluid pressure may be supplied within the body or from the outside and may follow the shrinkage of the mass which can be spark sintered or fused by resistance heating. An elongated element can bridge the electrodes for retention in the mass to form a reinforcing member or can serve as an auxiliary heating element. The body thereby sintered can be surrounded by a lightly compacted, porous layer of a heat resistant material (e.g., graphite) to form a force-transmitting medium between the membrane in the sinterable mass.

3,656,947

CODING OF ORIGINALS AND SENSITIVE PAPER IN A MULTI-COLOR ELECTROPHOTOGRAPHIC PROCESS
Seiji Matsumoto, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Apr. 7, 1970, Ser. No. 26,348
Claims priority, application Japan, Apr. 8, 1969, 44/27048
Int. Cl. G03g 13/00

U.S. Cl. 96-1.2

4 Claims

The provision of corresponding codes on originals and sensitive paper employed in the production of multi-colored copies by an electrophotographic process. The codes enable multiple copies of one color to be prepared before incorporation of further colors, by excluding any possibility of a mismatch between original and sensitive paper during subsequent exposures.

3,656,948

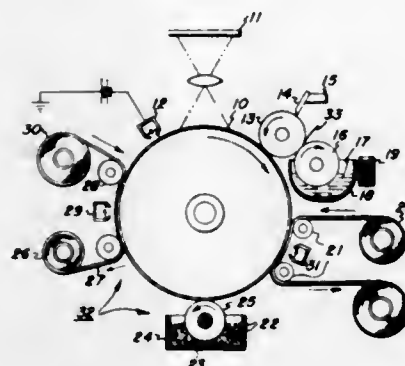
SELECTIVE REMOVAL OF LIQUID DEVELOPER IN A CYCLICAL ELECTROPHOTOGRAPHIC PROCESS
Joseph Mammino, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed Nov. 20, 1969, Ser. No. 878,495
Int. Cl. G03g 13/22

U.S. Cl. 96-1.4

14 Claims

An electrostatographic imaging surface is cleaned of liquid developer by selectively applying to the charged or image areas of the imaging surface a finely divided, dry, absorbent powder. The powder may be selectively applied by charging the powder to a polarity opposite that which the imaging sur-

face bears and presenting a charged powder loaded applicator adjacent the imaging surface such that the charged



powder is transferred to the imaging surface with an electrostatic assist from the residual charge on the imaging surface.

3,656,949

METHOD OF PRODUCING AN ELECTROPHOTOGRAPHIC AND ELECTROGRAPHIC RECORDING MEMBER

Satoru Honjo, and Nobuo Tsuji, both of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed June 10, 1969, Ser. No. 831,879
Claims priority, application Japan, June 10, 1968, 43/39800
Int. Cl. G03g 5/00

U.S. Cl. 96-1.5

17 Claims

Improved process for producing electrophotographic/electrographic recording members wherein prior to coating the recording layer the substrate is subbed with an aqueous coating mixture prepared by dissolving a water soluble, film forming polymeric material in an aqueous solvent system and mixing therein an aqueous emulsion of a water-insoluble polymeric material which is incompatible with the first polymeric material. The resulting subcoating forms a continuous film whereby the penetration of organic solvents are prevented into the substrate. Surface resistivity of the subbing layer does not exceed 10^{10} ohms/sq. at 40 percent relative humidity and room temperature.

3,656,950

COLOR PHOTOGRAPHIC PROCESSES

Richard L. Bent, and Rowland G. Mowrey, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 3, 1970, Ser. No. 94,993
Int. Cl. G03c 7/30, 7/32; C07c 87/58

U.S. Cl. 96-22

9 Claims

Color development processes with aqueous alkaline color developing compositions containing a 3-alkyl-N-alkyl-N-alkoxyalkyl-p-phenylenediamine color developing agent or a 3-alkoxy-N-alkyl-N-alkoxyalkyl-p-phenylenediamine color developing agent are advantageously used to produce good color reproductions with image dyes of superior stability to prolonged exposure to heat, humidity and/or light in multilayer, multicolor photographic elements coated on opaque supports and containing 65 mg to 375 mg of silver chlorobromide per m^2 in at least the red-sensitive layer and the green-sensitive layer.

3,656,951

PHOTORESIST COMPOSITIONS

Richard M. Anderson, and Robert A. Heimsch, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.
Filed Mar. 2, 1970, Ser. No. 15,856
Int. Cl. G03c 1/68, 1/70

U.S. Cl. 96-35.1

29 Claims

Photosensitive resist compositions comprising an alkene polymer, solvent soluble and solid at ambient temperatures, a

photosensitive halogen compound sensitizing agent and a metal organic compound and methods of photomechanical reproduction using such compositions on substrates such as metals, ceramics, glass, and wafers for producing printed circuit boards, integrated circuits, printing plates, chemically milled parts and shapes and the like.

3,656,952

NON-REVERSAL IMAGING PROCESS AND RECORDING ELEMENTS PRODUCED THEREBY

Richard A. Miller, White Bear Lake, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed July 19, 1968, Ser. No. 745,976
Int. Cl. G03c 5/24

U.S. Cl. 96-48 PD

14 Claims

A non-reversal imaging process wherein a recording element having a layer of a photosensitive composition which upon light exposure produces light-generated nuclei of a metal more noble than silver, i.e. Pd, Pt, Au, is exposed to an image. The exposed element is treated with a solution of trimethylamine borane, triethylamine borane, t-butylamine borane, pyridine borane, morpholine borane, sodium borohydride, lithium aluminum hydride or hydrazine to generate in the unexposed areas of the layer chemically reduced metal nuclei which are more highly catalytic to the electroless deposition of a non-noble metal than the light generated nuclei. Non-noble metal is then electrolessly plated selectively on the chemically reduced nuclei to produce a non-reversed image.

3,656,953

SILVER DYESTUFF BLEACHING PROCESS USING QUINOXALINE CATALYST

Hans-Peter Schlunke, Marly-le-Petit, and Karl Ronco, Riehen, both of Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Mar. 3, 1970, Ser. No. 16,207
Claims priority, application Switzerland, Mar. 13, 1969, 3820/69
Int. Cl. G03c 7/00

U.S. Cl. 96-53

16 Claims

A process for the manufacture of color photographic images according to the dyestuff bleaching process is provided. In this process the dyestuff bleaching is carried out in the presence of a dyestuff bleaching catalyst which is a quinoxaline substituted in the 2- and 3-positions by alkyl or aryl groups and also the benzene nucleus may be further substituted. These quinoxalines possess a good activity and effect an advantageous gradation.

3,656,954

PHOTOGRAPHIC MATERIAL WITH IMPROVED SURFACE PROPERTIES

Robrecht Julius Thiers, Brasschaat, and Jozef Frans Willems, Wilrijk, both of Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Filed Aug. 26, 1969, Ser. No. 853,211
Claims priority, application Great Britain, Mar. 17, 1969, 13,884/69
Int. Cl. G03c 1/76

U.S. Cl. 96-67

19 Claims

Photographic materials comprising a support, a light-sensitive silver halide emulsion layer on said support and thereover a hydrophilic colloidal protective coating is described. The photographic material will include resorcin in the emulsion layer and a poly-N-vinyl lactam or polyvinyl lactone in the emulsion layer or in the protective surface coating. The surface coating will include silica particles and a polycarboxylic aromatic sulphonic acid or water-soluble salt thereof.

The photographic material is free or substantially free from

milkyiness or cloudiness normally associated with photographic materials comprising resorcin, polyvinylactam or polyvinylactone, and silica.

3,656,955

SILVER HALIDE EMULSION SENSITIZED WITH PENTATHIEPANE

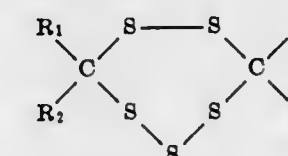
Yoshuke Ushimaru; Yosuke Nakajima; Mitsunori Sugiyama; Fumihiko Nishio, Kanagawa, and Shigeru Kobayashi, Osaka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 28, 1970, Ser. No. 68,041
Claims priority, application Japan, Aug. 28, 1969, 44/68219
Int. Cl. G03c 1/28

U.S. Cl. 96-107

9 Claims

A photosensitive silver halide photographic emulsion containing at least one compound selected from the group consisting of compounds having the formula



wherein each of R_1 , R_2 , and R_3 and R_4 is selected from the group consisting of a hydrogen atom, an alkyl group and an aralkyl group; and wherein R_1 and R_2 , or R_3 and R_4 can combine to form a cycloalkyl group, is disclosed.

3,656,956

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Nobuo Yamamoto; Fumihiko Nishio; Masaji Yoshida, and Hideo Kawano, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 30, 1969, Ser. No. 795,330
Claims priority, application Japan, Jan. 30, 1968, 43/5558
Int. Cl. G03c 1/72

U.S. Cl. 96-114

14 Claims

A photographic light-sensitive material wherein at least one emulsion layer contains polyglycidol. Improved stress resistance under low temperature and low humidity conditions is illustrated and desensitization, fogging, etc. are reduced.

3,656,957

PHOTOGRAPHIC SILVER HALIDE EMULSIONS CONTAINING K-SUBSTITUTED CARBOCYANINE DYES

Gene L. Oliver, and Leslie G. S. Brooker, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,549
Int. Cl. G03c 1/10

U.S. Cl. 96-127

6 Claims

An extensive range of μ -substituted carbocyanine dyes are prepared by reacting a μ -chloro-carbocyanine dye with a reagent having a reactive nucleophilic residue which replaces the μ -chloro substituent. The dyes which can be so prepared include novel dyes wherein the reactive nucleophilic residue is less nucleophilic than those presently employed. The resultant novel dyes are useful as coloring materials and as spectral sensitizers for photographic silver halide.

3,656,958

SILVER HALIDE EMULSIONS CONTAINING CARBOXY-ALKYL THIAZOLE OR SELENAZOLE RHODANINE MEROCYANINE SENSITIZING DYES

Henri Depoorter, Mortsel, Belgium, and Oskar Riester, Leverkusen, Germany, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Filed Mar. 23, 1970, Ser. No. 22,006

Claims priority, application Great Britain, Apr. 10, 1970,

18,508/69

Int. Cl. G03c 1/08

U.S. Cl. 96—139

6 Claims

Thiazole and selenazole rhodanine merocyanine dyes are provided which comprise in the 4,5-positions of the thiazole or selenazole nucleus at least one carboxy-substituted alkyl or aralkyl group, a 4,5-carboxy-alkylene or 4,5-carboxyalkyl-alkylene group or a fused-on arylene nucleus carrying a carboxy-substituted alkyl or aralkyl group, the carboxy group being either in its free acid form or in its salt form. These dyes in photographic silver halide emulsions provide superior sensitizing action in the blue region of the spectrum so that they are extremely suitable for increasing the blue-sensitivity of silver halide emulsions. Their sensitizing action is not adversely affected by the presence of color couplers, which makes them especially suitable for sensitizing the blue-sensitive layer of light-sensitive papers used in color photography.

3,656,959

PHOTOGRAPHIC SILVER HALIDE EMULSION

Shiro Kimura; Yoshiyuki Nakazawa; Akira Sato, and Yasuharu Nakamura, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 27, 1968, Ser. No. 755,745

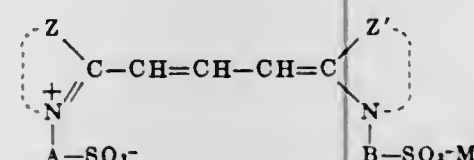
Claims priority, application Japan, Aug. 29, 1967, 42/55439

Int. Cl. G03c 1/10

U.S. Cl. 96—127

7 Claims

A photographic silver halide emulsion containing at least one unsymmetrical benzimidazolocarbo-cyanine sensitizing dye represented by the general formula:



Z and Z' are non-metallic groups necessary to complete a benzimidazole nucleus, A and B are polymethylene groups or alkylpolymethylene groups, and M is a cation. Preferred dyes are set out in the specification.

3,656,960

PHOTOGRAPHIC SILVER HALIDE EMULSIONS CONTAINING μ -CHLOROCARBOCYANINE DYES

Gene L. Oliver, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,550

Int. Cl. G03c 1/18

U.S. Cl. 96—134

5 Claims

Meso-Carbo-cyanine dyes having a chloro-substituent in the meso-position (such as 9-chloro-3,3'-diethylthiacarbo-cyanine chloride) are useful as photographic silver halide sensitizing dyes. They can be prepared by condensing two heterocyclic quaternary salts, of the types used in preparing cyanine dyes, which are salts of non-nucleophilic anions and which are substituted, at the nuclear position desired for attachment to the intervening trimethine chain, with substituents such as chloro and 2-(2-chloropropenyl) substituent respectively.

3,656,961

DIRECT POSITIVE SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE ELEMENTS

Yoshihide Hayakawa, Saltama; Hideo Kawano, Kanagawa, and Hiroto Kato, Kanagawa, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 7, 1970, Ser. No. 1,302

Claims priority, application Japan, Jan. 25, 1969, 44/5582

Int. Cl. G03c 1/28

U.S. Cl. 96—108

14 Claims

A light-sensitive, direct positive, photographic silver halide element comprising a support having thereon a silver halide emulsion layer containing a salt selected from the group consisting of a soluble salt and a complex salt of a metal belonging to Group 8 of the periodic table and a condensed polycyclic quinone compound.

3,656,962

SILVER HALIDE EMULSION CONTAINING LEAD OXIDE AS OPTICAL SENSITIZER

Boris Levy, Wayland, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sept. 22, 1970, Ser. No. 74,380

Int. Cl. G03c 1/02

U.S. Cl. 96—120

8 Claims

Spectral sensitization of silver halides dispersed in a colloid binder is achieved by providing orthorhombic lead oxide in intimate physical contact with the silver halide crystals.

3,656,963

HYDROLYZED PROTEIN OF REDUCED DUSTINESS AND PROCESS

William D. Roberson, Harbor Beach, Mich., assignor to Hercules Incorporated, Wilmington, Del.

Filed Oct. 22, 1969, Ser. No. 868,621

Int. Cl. A23l 1/22

U.S. Cl. 99—14

3 Claims

A relatively dustless substantially dry composition including hydrolyzed protein and, as a dust proofing agent, a polyoxyethylene sorbitan monoester of a fatty acid, and process of preparing said composition.

3,656,964

SOLUBLE COFFEE PROCESS

Michael H. Mansky, Upper Montclair, N.J., and Esra Pitchon, Flushing, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Nov. 10, 1969, Ser. No. 875,497

Int. Cl. A23l 1/08

U.S. Cl. 99—71

12 Claims

A process for producing a soluble coffee has been discovered in which a unique use of standard percolation columns results in an improved process. The process involves using two fresh columns, volatile aromatics being stripped from one fresh column and taking a double draw-off from every other fresh column in order to obtain a steeper concentration gradient in the resultant extract. The extract is split into high and low concentration portions and subjected to further processing.

3,656,965

PROCESS AND APPARATUS FOR CONTROLLING THE EXPANSION OF PUFFABLE MATERIALS

Palmer K. Strommer; Kenneth J. Valentas, and Herbert Neal Dunning, all of Minneapolis, Minn., assignors to General Mills, Inc.

Filed June 2, 1969, Ser. No. 829,550

Int. Cl. A23l 1/18

U.S. Cl. 99—81

18 Claims

A process and apparatus for forming a puffed product from particles of a puffable material. The volumetric expansion and the bulk density of the particles is controlled or

3,656,970

STEAK-PREPARING AND BROILING METHOD

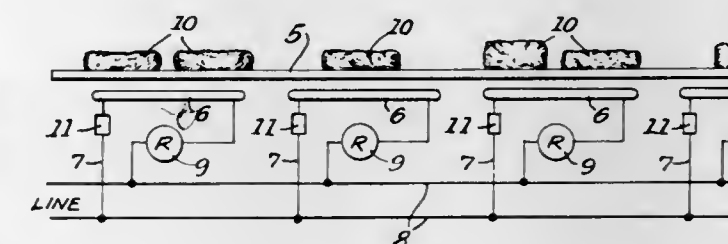
Ross C. Wood, 433 California St., El Segundo, Calif.

Filed Aug. 28, 1969, Ser. No. 853,689

Int. Cl. A22c 18/00

U.S. Cl. 99—107

4 Claims



3,656,966

FOOD CHIP AND PROCESS FOR MAKING IT

Murray E. Ball, Rockford, and LeRoy M. Demy, St. Paul, both of Minn., assignors to General Mills, Inc.

Continuation-in-part of application Ser. No. 680,826, Nov. 6, 1967, now abandoned. This application Mar. 25, 1970, Ser. No. 22,481

Int. Cl. A23l 1/10, 1/18

U.S. Cl. 99—83

11 Claims

A process for making a ready-to-eat food chip from cereal grain such as wheat or rye, by cooking a mixture of whole wheat, or whole rye, which has been cut into pieces, water, flavoring ingredients, and a small amount of another grain such as rice if desired, thereby forming a dough, shaping the dough into pieces or chips, drying the pieces, expanding or puffing the pieces by deep fat frying them in oil, and dusting the resulting chips with salt.

3,656,967

PROCESS FOR PREPARING A BAKED TWO-PHASE PRODUCT

Ralph L. Barton, Battle Creek, Mich., and John C. Erwin, St. Anne, Ill., assignors to General Foods Corporation, White Plains, N.Y.

Continuation of application Ser. No. 526,646, Dec. 21, 1965, now abandoned. This application Jan. 21, 1970, Ser. No. 4,792

Int. Cl. A21d 13/08

U.S. Cl. 99—86

1 Claim

A food comestible comprised of a humectant-containing filling enveloped in a baked dough crust, the relative moisture equilibria of the crust and the filling being such that moisture is transferred from the dough to the filling when the comestible is heated.

3,656,968

PROCESS FOR MAKING FOOD SANDWICH

Donald F. Allen, Racine, Wis., assignor to Kl-Ada of America, Inc., Racine, Wis.

Filed July 14, 1969, Ser. No. 841,497

Int. Cl. A21d 13/00

U.S. Cl. 99—87

4 Claims

Preparation of a food sandwich consisting of a filling in a thin-walled bun with a hole extending into the bun along and adjacent to the filling so that flavoring material inserted into the hole will be in contact with the filling. A thin sheet of dough is wrapped around the filling and an adjacent skewer so that one end of the skewer protrudes from the dough. After cooking, the skewer is removed to produce the hole for the flavoring material.

3,656,969

BREADED VEGETABLE METHOD

Herbert Horn, Mattoon, Ill., assignor to Horn's Poultry, Inc.

Filed Nov. 3, 1969, Ser. No. 873,498

Int. Cl. A23l 1/12; A23b 7/04

U.S. Cl. 99—100

1 Claim

A breaded vegetable product, such as breaded pearl onion, is provided by covering the outer surface of a water-wet vegetable with wheat flour and applying a first coating of adherent batter. A fine breadier is applied over the first batter coating and then a second batter coating is applied, e.g., by dipping. A final application of coarse breadier is applied over the second batter coating and the coated vegetable is dried or permitted to dry and then laced on a stick, e.g., a bamboo skewer, and the combination is then frozen. The frozen product can be stored in frozen condition and later taken from storage and deep fat fried to produce a tasty snack.

3,656,973

NON-NUTRITIVE FUNCTIONAL SUGAR SUBSTITUTE

Richard M. L. Paterson, Syracuse, N.Y., and Michael J. Skrypa, Florham Park, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

Filed July 18, 1968, Ser. No. 745,675

Int. Cl. A23l 1/26

U.S. Cl. 99—141 A

13 Claims

Use of a glucoside-sweetener mixture as a functional sugar substitute, particularly in the preparation of low-calorie food compositions, comprising a food material and a non-nutritive glucoside-sweetener mixture.

3,656,974

POWER DRIVEN STIRRER

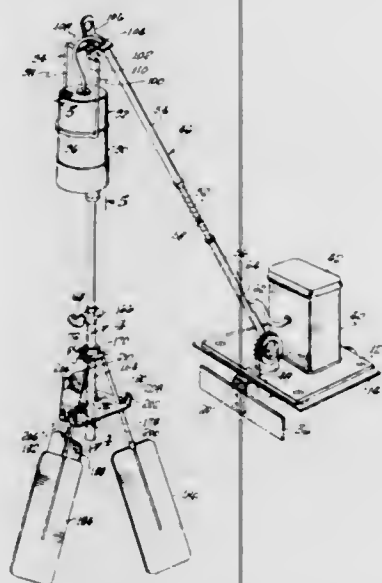
Richard F. Mihalyi, 1412 N. Havenhurst Drive, Hollywood, Calif., and Yale R. Wexler, 9779 Oak Pass Road, Beverly Hills, Calif.

Filed Nov. 28, 1969, Ser. No. 880,593

Int. Cl. A47j 43/07; B01f 7/18

U.S. Cl. 99—348

5 Claims



The device is a power driven stirrer particularly for food products in a vessel having a source of heat under it. The device provides an impeller or mixer which is rotated relatively slowly by a motor that is battery driven to avoid cords and any possibility of shocks resulting from shorts. The motor and the impeller are suspended in the manner of a pendulum over the vessel with adjustments provided to vary the height of suspension and the position of suspension so that the impeller can be centered in the vessel. The motor and impeller are supported from a bracket support attachable to the periphery of the vessel in which mixing is to take place.

3,656,975

COATING COMPOSITION

Fred L. Phelps, Jr., North Wales, and James M. Klotz, Quakertown, both of Pa., assignors to Teleflex Incorporated, North Wales, Pa.

Filed Feb. 16, 1970, Ser. No. 11,884

Int. Cl. C09d 5/10

U.S. Cl. 106—1

2 Claims

The coating composition of this invention consists essentially of a dispersion of aluminum powder and zinc oxide in an aqueous solution of soluble alkali metal silicate containing dissolved chromate. The relative proportions of the ingredients in the preferred compositions are in the range of from about 100 to 500 grams aluminum powder and 30 to 100 grams zinc oxide per liter aqueous solution containing from about 200 to 1200 grams alkali metal silicate and from about 1 to 5 grams chromate. After application the coating compositions of this invention are cured to water insolubility by heat. The compositions are ideally suited for coating metals, particularly ferrous base metal, and provide excellent corrosion and abrasion resistance.

3,656,976

STABLE FLUOROPHOSPHATE OPTICAL GLASS

Tetsuro Izumitani, Tokyo, and Seichi Toda, Hanno, both of Japan, assignors to Haya Glass Works, Limited, Tokyo, Japan

Filed May 15, 1970, Ser. No. 37,763

Claims priority, application Japan, May 24, 1969, 44/40455

Int. Cl. C03c 3/00

U.S. Cl. 106—47 Q

4 Claims

Fluoro-phosphate optical glass having an extremely low

tendency to devitrify, a high water-durability and a low brittleness is produced by incorporation boron oxide in the binary system phosphoric anhydride-metal fluorides, wherein said metal fluorides consists of alkaline earth metal fluorides such as MgF_2 , BaF_2 and CaF_2 , and aluminum fluoride with or without alkali metal fluoride or fluorides.

3,656,977

REFRACTORY COMPOSITION

Alfred P. Dreyling, and Lewis J. Dreyling, both of East Brunswick, N.J., assignors to Quigley Company, Inc.

Continuation-in-part of application Ser. No. 751,506, Aug. 9, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 391,182, Aug. 21, 1964, now abandoned.

This application Oct. 1, 1969, Ser. No. 862,817

Int. Cl. C04b 35/04, 35/42

U.S. Cl. 106—55

2 Claims

A refractory material is premixed with a binder consisting essentially of a mixture of sodium silicate and ammonium pentaborate, to give a refractory composition having a relatively short setting time when mixed with a given amount of water which setting time is predetermined by selecting a weight ratio for the silicate and the pentaborate within a given range.

3,656,978

FIRECLAY REFRACTORY ARTICLES

Berhl E. Wishon, Bethel Park, and Donald P. Crosby, Pittsburgh, both of Pa., assignors to Dresser Industries, Inc., Dallas, Tex.

Original application June 4, 1968, Ser. No. 734,268, now Patent No. 3,527,450. Divided and this application Apr. 6, 1970, Ser. No. 31,069

Int. Cl. C04b 33/00

U.S. Cl. 106—67

2 Claims

Fireclay refractory shapes bonded with alumina trihydrate and phosphoric acid.

3,656,979

WATER-REPELLENT CEMENT AND SOILS

Wilhelm K. Striebel, Glnshelm, and Werner Loch, Neubeckum/Westphalia, both of Germany, assignors to Dyckerhoff Zementwerke Aktiengesellschaft, Wiesbaden-Amoneburg, Germany

Filed Jan. 6, 1969, Ser. No. 789,372

Claims priority, application Germany, Jan. 8, 1968, P 16 46 502.4

Int. Cl. C04b 13/24

U.S. Cl. 106—95

6 Claims

A hydrophobic cement especially suited for soil stabilization which comprises a certain amount of a mixture of tertiary, saturated, aliphatic monocarboxylic acids of certain carbon atom content. The improved stabilized soils comprising the cement.

3,656,980

4-TERTIARY-CATECHOL-AQUEOUS SOLUTION COMPOSITION

Tetsuya Harada, Chiba; Nobuo Fuzinami, Ichihara; Koichi Hasegawa, Chiba, and Akira Shibata, Ichihara, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Aug. 10, 1970, Ser. No. 62,609

Claims priority, application Japan, Aug. 12, 1969, 44/63305

Int. Cl. C08h 17/28

U.S. Cl. 106—285

3 Claims

A homogeneous 4-tertiary-butyl-catechol aqueous solution composition comprising 4-tertiary-butyl-catechol, water and a saturated hydrocarbon having five or more carbon atoms.

3,656,981

PRODUCTION OF FINELY DIVIDED ORGANICALLY MODIFIED SILICAS

Helmut Beschke, Frankfurt/Main; Hans Pfeiffer, Neu Isenburg; Horst Ferch, Bruchkobel, and Edith Eisenmenger, Offenbach/Main, all of Germany, assignors to Deutsche Gold-Und Silber-Schneideanstalt vormals Roessler, Frankfurt am Main, Germany

Continuation-in-part of application Ser. No. 646,452, June 16, 1967. This application Apr. 24, 1970, Ser. No. 31,737

Claims priority, application Germany, June 18, 1966, D 50343

Int. Cl. C09c 3/00

U.S. Cl. 106—288 B

6 Claims

A finely divided organically modified silica is formed by adding an inorganic acid at an elevated temperature to an aqueous alkali methyl silicate solution in contact with a water-soluble reactive organic polymer which is present in an amount of from about 3 to about 24 percent by weight relative to the weight of the thus precipitated silica.

3,656,982

PEARLESCENT PIGMENT

Douglas W. Chapman, Normandy; Wilbur H. McKellin, Creve Coeur, and R. Dean Overley, St. Louis, all of Mo., assignors to Mallinckrodt Chemical Works, St. Louis, Mo.

Filed May 4, 1970, Ser. No. 34,585

Int. Cl. C09c 3/02

U.S. Cl. 106—291

8 Claims

The luster, compressibility and other cosmetically important properties of various pearlescent pigments are substantially improved by coating the surface of the pigment particles with a composition comprising a precipitated water-insoluble metal stearate and a surfactant.

3,656,983

SHELL MOLD COMPOSITION

Harry V. Sullinski, Philadelphia, Pa., assignor to The United States of America as represented by the Secretary of the Army

Continuation-in-part of application Ser. No. 8,697, Feb. 4, 1970, now abandoned, which is a continuation-in-part of application Ser. No. 780,605, Dec. 2, 1968, now abandoned.

This application Oct. 14, 1970, Ser. No. 80,793

Int. Cl. B28b 7/34

U.S. Cl. 106—38.3

10 Claims

Composition for making shell molds for precision casting of metals containing silica, aqueous colloidal silica and graphite in sufficient amounts to control certain properties of the finished mold.

3,656,984

GLASS-CERAMIC PRECURSORS

Lewis Charles Hoffman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 717,412, Mar. 29, 1968, now Patent No. 3,586,522, which is a continuation-in-part of application Ser. No. 646,414, June 1, 1967, now abandoned. This application Dec. 18, 1970, Ser. No. 99,510

Int. Cl. C03c 3/04, 3/10, 5/02

U.S. Cl. 106—53

3 Claims

Novel glass-ceramics are prepared from glasses which consist essentially of critical proportionate amounts of SiO_2 , PbO , Al_2O_3 , TiO_2 and BaO ; optional components thereof include ZnO , PbF_2 , SrO , ZrO_2 , Ta_2O_5 , WO_3 , CdO , SnO_2 and Sb_2O_3 . The glasses are used, e.g., in particulate form, in preparing screen-printable crossover dielectric compositions, and as the inorganic binder component in preparing screen-printable conductor or resistor compositions, each of which may be fired to produce these novel glass-ceramics.

3,656,985

PORTLAND CEMENT COMPOSITION HAVING AN ACCELERATED SET

Bernard Bonnel, St. Cloud, and Christian Hovasse, Decines, both of France, assignors to Progil, Paris, France

Filed Dec. 1, 1970, Ser. No. 94,157

Claims priority, application France, Dec. 2, 1969, 6941443

Int. Cl. C04b 13/24

U.S. Cl. 106—90

4 Claims

A composition for quickening the setting of Portland cement constituted by 0.5 – 5 parts of alkali aluminate and 0.05 – 2 parts of hydroxylated organic acid.

3,656,986

CHROME PIGMENTS

Charles Harold Buckley, and John Mitchell, both of Manchester, England, assignors to Imperial Chemical Industries Limited

Filed May 11, 1970, Ser. No. 36,473

Claims priority, application Great Britain, May 12, 1969, 24,086/69

Int. Cl. C09c 1/20; C08h 17/04

U.S. Cl. 106—302

8 Claims

Chrome pigments of improved durability, especially to atmospheric sulphurous acid, are obtained by adding to a stirred aqueous suspension of a chrome pigment at an initial pH between 1.8 and 8.0 a source of silicate ions, a source of trivalent antimony ions, and an organic hydroxy acid, and adjusting the pH to between 5 and 10.5 by addition of a water-soluble basic compound.

3,656,987

ARTICLE FOR REINFORCING CLOTH

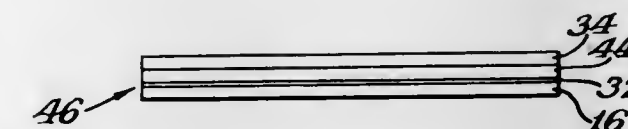
George W. Stewart, Waco, Tex., assignor to A. B. Ellis, a part interest

Continuation-in-part of application Ser. No. 638,070, May 12, 1967, now abandoned. This application Jan. 30, 1970, Ser. No. 7,056

Int. Cl. B41m 3/12

U.S. Cl. 117—3.4

2 Claims



An article and method useful for providing a flexible, substantially transparent reinforcing layer for cloth material. The article has a flexible paper base, an intermediate release layer, a layer of thermosetting material coated on said release layer and an outer layer of vinyl material on the thermosetting layer. Upon application of heat to the uncoated side of the paper, the thermosetting and vinyl layers are released from the release layer and transferred as a reinforcing patch to cloth material. The process for making this article comprises applying a layer of thermosetting material to a silicone coated paper product, drying the thermosetting layer and coating the thermosetting layer with a vinyl material, and then partially curing the vinyl so that it may be later reactivated for transfer to the cloth material.

3,656,988

METHOD FOR THE FABRICATION OF HOLES IN A WORKPIECE BY MEANS OF LASER-BEAMS AND APPARATUS FOR THE PERFORMANCE OF THE AFORESAID METHOD

Jurg Steffen, Zurich, and Arnold Hofer, Muttentz, both of Switzerland, assignors to Watch Stones Co., Ltd., Berne and Turlabor AG, Zumikon, Switzerland

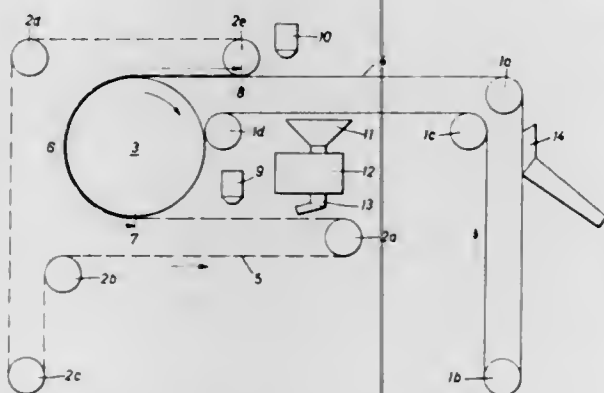
Filed Feb. 19, 1970, Ser. No. 12,691

Claims priority, application Switzerland, Feb. 27, 1969, 2951/69; 2956/69

Int. Cl. B44d 1/52, 1/02

U.S. Cl. 117-5.5

8 Claims



A method for producing holes in a workpiece by means of a laser beam which comprises the steps of coating at least one face of the workpiece with an organic agent prior to contact of the laser beam with the workpiece in order to thereby prevent a fusion of the workpiece material ejected in liquid state with an outer face of such workpiece during the boring process.

There is also disclosed an apparatus used in the performance of this method and for coating both sides of disc-shaped workpieces which incorporates two band members guided above one another at a spacing along a predetermined path. This spacing of the band members is smaller than the height of the workpieces. One of the band members has a smooth surface and the other an adhesive surface, and two coating locations are arranged such that one is before and the other behind the aforementioned predetermined path.

3,656,989

PRODUCTION OF METAL-IMPREGNATED POROUS COKE MATERIALS

Kenneth Frederick Layland, Nechells, Birmingham, England, assignor to Fosco International Limited, Birmingham, England

Filed Mar. 12, 1970, Ser. No. 19,123

Claims priority, application Great Britain, Mar. 19, 1969, 14,538/69

Int. Cl. B44d 1/44; C23c 1/10; C23f 17/00

U.S. Cl. 117-16

9 Claims

Metal impregnated porous materials, e.g. magnesium impregnated coke, are produced by immersing pieces of porous material in molten metal and then dumping them into a fluidized bed of granular material to quench them.

3,656,990

ELECTROSOLOGRAPHY

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Continuation-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned, and a continuation-in-part of 460,377, June 1, 1965, now Patent No. 3,520,681, which is a continuation-in-part of application Ser. No. 403,002. This application Aug. 30, 1965, Ser. No. 483,675

Int. Cl. G03g 13/00

U.S. Cl. 117-17.5

8 Claims

An imaging member comprising a fracturable layer contacting a solvent soluble layer overlying a substrate, said frac-

turable layer spaced apart from said substrate is imaged by forming an electrostatic image on said member and then contacting said member with a solvent for said solvent soluble layer to form an imagewise pattern of material from said fracturable layer on said substrate.

3,656,991

PROCESS OF TREATING WATER SWELLABLE CELLULOSIC MATERIALS

John Blackwell, Kennett Square, Pa.; William Henry Gumprecht, Wilmington, Del., and Roy Emerson Starn, Jr., West Chester, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 25, 1968, Ser. No. 778,761

Int. Cl. C09k 3/28; D06m 7/00

U.S. Cl. 117-33.3

25 Claims

A process for treating water swellable cellulosic materials, or mixtures or blends thereof with synthetic materials, with preformed agents selected from flame retarding agents, biocides, ultraviolet light absorbing agents, fluorescent brighteners and water proofing agents to provide treated materials which are fast to aqueous washing and drycleaning, said process comprising contacting said cellulosic material in any sequence with water in an amount sufficient to swell the cellulose, at least an effective amount of a preformed treating agent of low water solubility and of the aforesaid type, and a solvent for said treating agent, said solvent being an ethylene glycol or a polyethylene glycol, e.g., diethylene glycol monomethyl ether; being at least partially miscible with water; having a boiling point above about 150° C. at atmospheric pressure; and being present in an amount sufficient to maintain swelling of the cellulose if the water is removed, provided that at some stage during the process the interior of the swollen cellulose is contacted with a solution of the treating agent in aqueous solvent or solvent.

3,656,992

METHOD OF COATING CELLULAR CORE STRUCTURES

Peter Henry Lynam, Linto, and Kelth Noakes, Cambridge, both of England, assignors to CIBA (A.R.L.) Limited, Duxford, Cambridge, England

Filed Feb. 17, 1970, Ser. No. 12,148

Claims priority, application Great Britain, Feb. 28, 1969, 11,006/69

Int. Cl. B32b 3/12, 3/100

U.S. Cl. 117-43

16 Claims

A method of providing cellular core structures with fillets of adhesive, to core structures so provided with fillets, and to assemblies of such core structures and facing panels. The core structures are used in the aircraft and other industries as bonds to high strength facing panels.

3,656,993

PREPARATION OF COATED REGENERATED CELLULOSE FILM

Bernard S. Edwards, and Vernon C. Haskell, both of Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 4, 1970, Ser. No. 43,511

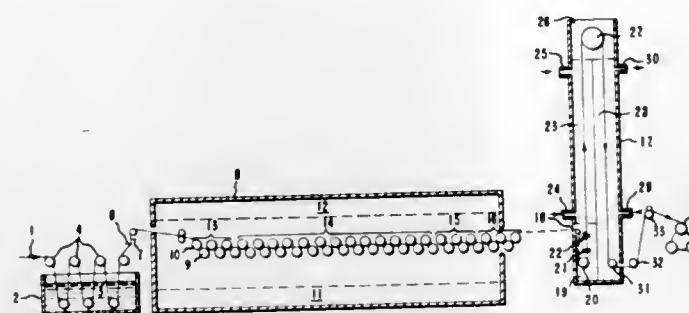
Int. Cl. B44d 1/092

U.S. Cl. 117-56

6 Claims

A process for preparing coated regenerated cellulose film which comprises successively softening the regenerated cellulose gel-state web with polyethylene glycol, drying the web

with controlled shrinkage, coating the web and humidifying the web while permitting at least about ½ percent longitu-



dinal shrinkage. The resulting coated product exhibits improved permanent shrinkage properties.

3,656,994

OXYBENZYL POLYESTER COATINGS

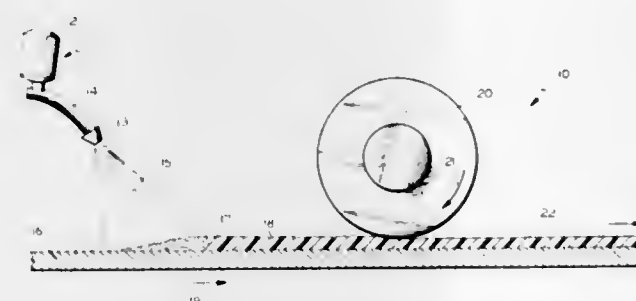
James Economy, Buffalo; Steve G. Cottis, Buffalo, and Bernard E. Nowak, Lancaster, all of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed May 28, 1969, Ser. No. 828,693

Int. Cl. B32b 15/08; B44d 1/44, 1/097

U.S. Cl. 117-62

11 Claims



A process for reducing the porosity of an oxybenzyl polyester film by subjecting the surface of the film to a shearing action.

3,656,995

CHEMICAL VAPOR DEPOSITION COATINGS ON TITANIUM

Carl D. Reedy, Jr., Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed May 2, 1969, Ser. No. 821,506

Int. Cl. C23c 11/00, 13/00; C21d 1/56

U.S. Cl. 117-69

37 Claims

A process for coating titanium-containing substrates with a dense, adherent, chemically vapor deposited coating by initially effecting a protective, adhesion-promoting, intermediate layer on the titanium surface and subsequently depositing from the vapor phase a metal nitride, carbide, or carbonitride coating on the intermediate film. For example, a titanium article may be initially nitrided to provide a titanium carbonitride protective layer and titanium nitride, titanium carbide, or titanium carbonitride may subsequently be deposited from the vapor phase onto this film to provide a dense, adherent, protective coating on the titanium article. The barrier layer serves to promote adhesion between the titanium substrate and the final overlay and to prevent reaction between the substrate and such a reaction ingredient as titanium tetrachloride, which is preferred constituent for supplying titanium in the titanium carbide, nitride, or carbonitride final coating.

3,656,996

ANTISTATIC POLYESTER FILM

August Jean Van Praesschen, Antwerp, and Lucien Janbaptist Van Gossum, Kontich, both of Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Filed Apr. 10, 1970, Ser. No. 27,452

Claims priority, application Great Britain, Apr. 11, 1969, 18,682/69

Int. Cl. B32b 27/06; C09k 3/16

U.S. Cl. 117-68

6 Claims

The tendency of polyester films to attract dust and develop scratches is reduced by applying to each side of such films a coating having a perceptible thickness of at most 0.1 μ and essentially consisting of 70 to 90 percent by weight of a waxy material having a melting point about 75° C and 30 to 10 percent by weight of an antistatic compound.

3,656,997

COATED GELATIN CAPSULES AND PROCESS FOR PRODUCING SAME

Gunter Cordes, Monheim, Germany, assignor to Sanol-Arzneimittel Dr. Schwarz GmbH, Monheim, Germany

Filed May 11, 1970, Ser. No. 36,458

Claims priority, application Germany, May 14, 1969, P 14 24 647.0

Int. Cl. A61k 9/04; B44d 1/14

U.S. Cl. 117-73

4 Claims

Gelatin capsules filled with an active ingredient or ingredients are protected against solution in the stomach in order that they may reach the intestines and be absorbed therein by providing said capsules with a primary lacquer containing a soluble film-forming colloidal material soluble both in water and in organic solvents and then with a lacquer unaffected by gastric juices and soluble in intestinal juices.

3,656,998

PACKAGING FOIL AND PROCESS FOR PRODUCING SAME

Gerhard Ottmann, and Clemens Lilienbeck, both of Wuppertal-Barmen, Germany, assignors to Dr. Kurt Herberts & Co., Vorm. Otto Louis Herberts, Barmen, Germany

Filed Feb. 25, 1970, Ser. No. 14,237

Claims priority, application Sweden, Feb. 26, 1969, 2607/69

Int. Cl. B32b 27/08; B44d 1/14

U.S. Cl. 117-75

18 Claims

Packaging foil comprising a flexible support foil, a top layer of a vinyl polymer, and an adhesion promoter or primer between the support foil and top layer, wherein the primer is a mixture of a chlorine or fluorine containing polymer, an organic compound of at least two isocyanate groups, and a reaction product having terminal hydroxyl groups and derived from a linear polyester with terminal hydroxyl groups and an organic diisocyanate.

3,656,999

COATED ROLLER AND METHOD OF COATING

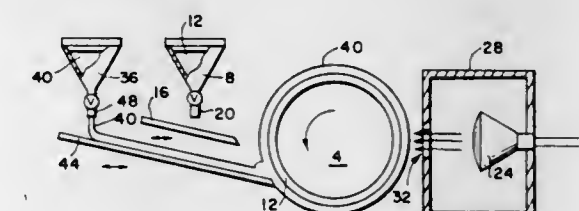
Christian B. Lundsager, Ashton, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Nov. 24, 1969, Ser. No. 879,141

Int. Cl. B44d 1/50

U.S. Cl. 117-93.31

17 Claims



Industrial rollers are prepared by photocuring a coating of photocurable composition on a metallic core. As the core

cylinder is rotated, a thin layer of photocurable composition containing an epoxy polyene is fed intermittently or continuously onto the rotating cylinder, where it can optionally be smoothed by a doctor blade. That layer is applied as an adhesive layer. Then at least one complete layer of another photocurable composition is fed onto the coated rotating cylinder. The coating is photocured by an ultraviolet light source, which is preferably located on the cylinder side opposite the places where the photocurable compositions are applied, so that premature hardening does not occur in the feed stock. Multiple, consecutive layers of the second photocurable composition can be built up on the coated core, each (after the first) being placed upon a partially hardened photocured sublayer. In this manner, the photocured material on the rigid core can be built up to any desired and practical thickness. The photocured surface of the roller can be ground and buffed to make a final product of accurately controlled dimensions.

3,657,000

METHOD FOR PAINTING INNER SURFACE OF PIPE

Kimiaki Kasano, Amagasaki-shi, Hyogo-ken, and Ichiro Kaya, Sakai-shi, Osaka-fu, both of Japan, assignors to Kansai Paint Company Limited, Hyogo-ken, Japan

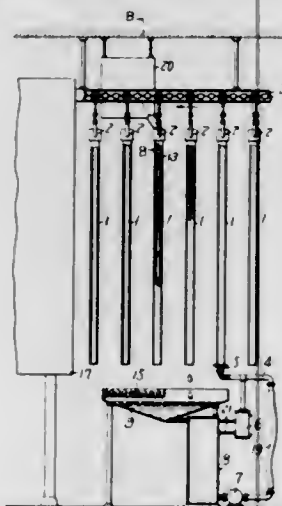
Filed June 23, 1969, Ser. No. 835,705

Claims priority, application Japan, July 2, 1968, 43/46399

Int. Cl. B44d 1/09, 1/02

U.S. Cl. 117-97

3 Claims



A method and apparatus for interior painting of pipe, particularly of small diameter, is characterized by filling of a pipe with both ends open with paint, hanging the pipe vertical and passing a ball of a diameter smaller than the inside diameter of the pipe from the upper end of the pipe to fall down by its gravity through the pipe and strip off excessive paint so as to form a film of uniform thickness of paint of the inner surface of the pipe.

3,657,001

PROCESS FOR HOT SPRAYING A THERMOSETTING ACRYLIC ENAMEL MODIFIED WITH CELLULOSE ACETATE BUTYRATE

Fred W. Parker, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 780,190, Nov. 29, 1968, now abandoned. This application Dec. 22, 1970, Ser. No. 100,831

Int. Cl. B44d 1/08

U.S. Cl. 117-105.1

11 Claims

The process for hot spraying a paint of a thermosetting acrylic enamel modified with cellulose acetate butyrate comprises the following steps:

1. heating the paint having a high solids content of film-forming materials to about 50°-100° C. to reduce the viscosity of the paint;

wherein the film-forming materials of the paint consist essentially of:

- A. an acrylic polymer containing styrene, methyl methacrylate, a soft constituent, such as an alkyl acrylate or an alkyl methacrylate other than methyl methacrylate, a hydroxy containing constituent which is either a hydroxy alkyl acrylate or a hydroxy alkyl methacrylate, and an α,β -unsaturated monocarboxylic acid;
 - B. cellulose acetate butyrate; and
 - C. a thermosetting nitrogen containing resin;
2. spraying the paint onto a substrate with an air spray gun using a specific atomization pressure and a specific fluid flow; and

3. baking the coating substrate.

The novel process is particularly useful for applying a finish at a high solids content to automobiles and trucks in the manufacturing plant and in repair garages and has the advantage of using substantially less solvent than conventional finishes and thereby reduces air pollution.

3,657,002

SHRINKPROOFING WOOL FABRICS

John D. Blodger, and Ian MacGugan, both of Detroit, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich.

Filed Aug. 5, 1969, Ser. No. 851,772

Int. Cl. D06c 29/00; D06m 15/52

U.S. Cl. 117-141

11 Claims

A method for rendering wool fabric shrink resistant comprising treating the fabric with an aqueous emulsion of chain-extended urethane pre-polymers in surfactant-containing aqueous solution, drying the fabric, and thereafter curing the treated fabric.

3,657,003

METHOD OF RENDERING A NON-WETTABLE SURFACE WETTABLE

John Thomas Kenney, Trenton, N.J., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Feb. 2, 1970, Ser. No. 8,022

Int. Cl. B44d 1/02

U.S. Cl. 117-120

21 Claims

Aqueous wetting solutions comprise stable colloids, the solid phase of which is a hydrous oxide of one or more selected elements. The solid, particulate phase of the colloid is produced by a controlled hydrolysis and nucleation reaction which continues until solid phase particles having appropriate size and surface chemistry result. Application of the wetting solutions to any known non-wettable surface renders such surface wettable, via deposition of the particles of the solid phase onto the surfaces by short order forces. The rendering of the surfaces wettable is accomplished without effecting a physical or chemical change of the surface.

3,657,004

METHOD FOR PRODUCING HIGHLY PURE GALLIUM ARSENIDE

Hans Merkel, Erlangen, and Siegfried Leibenzeder, Erlangen-Buchenbach, both of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Jan. 8, 1970, Ser. No. 1,399

Claims priority, application Germany, Jan. 11, 1969, P 19 01 319.5

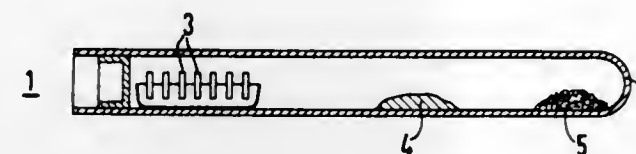
Int. Cl. C23c 11/00, 13/00; H01 7/36

U.S. Cl. 117-201

5 Claims

Method of depositing gallium arsenide upon substrate wafers in a closed reaction system using water as the trans-

port medium. The water together with B_2O_3 is placed in a



reaction vessel along with gallium arsenide and the wafers to be coated. The ratio of boron oxide to water is $1:10^{-5}$.

3,657,005

ELECTROGRAPHIC RECORD MEDIUM

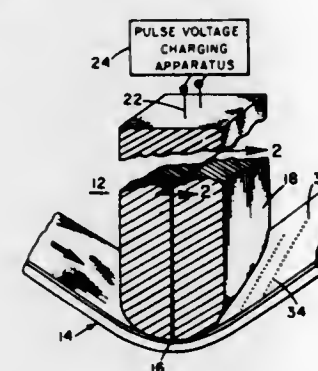
Arling Dix Brown, Jr., Cleveland Heights, and John Blumenthal, Wickliffe, both of Ohio, assignors to Clevite Corporation

Filed Dec. 29, 1967, Ser. No. 694,654

Int. Cl. H01f 11/02, 10/06

U.S. Cl. 117-201

7 Claims



For use in an electrostatic recording system with voltage charging apparatus having charging electrodes, an electrographic record medium is provided having spacer means, a portion of which projects above the outer surface of a dielectric layer of the record medium. The spacer means space the outer surface of the dielectric layer from the charging electrodes during the voltage charging of a defined area of the outer surface of the dielectric layer.

3,657,006

METHOD AND APPARATUS FOR DEPOSITING DOPED AND UNDOPED GLASSY CHALCOGENIDE FILMS AT SUBSTANTIALLY ATMOSPHERIC PRESSURE

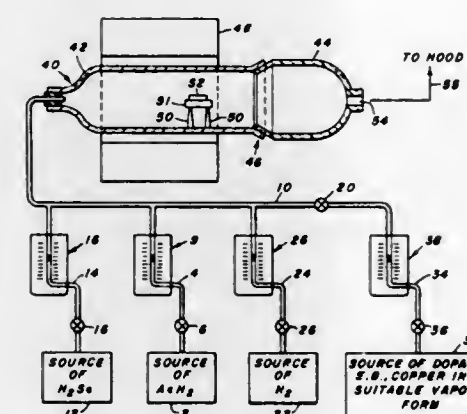
Peter D. Fisher, 3325 St. Paul Street, Baltimore, Md.; James C. Word, IV, 8325 E. Columbus Ave., Scottsdale, Ariz. 85251, and Haden J. Bourg, Jr., 199 Plymouth Lane, Apt. B, both of Glen Burnie, Md.

Filed Nov. 6, 1969, Ser. No. 874,646

Int. Cl. C23c 13/04

U.S. Cl. 117-201

7 Claims



Glassy chalcogenide films like copper-doped arsenic selenide, useful in vidicons and amorphous, current-controlled switches and hitherto obtainable only through time-consum-

ing vacuum-deposition techniques, are obtained by heating and reacting in an open tube a first compound (arsine, stibine, phosphine, or the like) with a second compound (hydrogen selenide, hydrogen sulfide, or the like). Hydrogen gas is preferably used as a flush gas, and the dopant is preferably supplied in vapor form so that the amount thereof in the film can be readily controlled.

3,657,007

METHOD FOR PRODUCING AN INSULATING LAYER ON THE SURFACE OF A SEMICONDUCTOR CRYSTAL

Erich Pammer, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Nov. 28, 1969, Ser. No. 880,561

Claims priority, application Germany, Dec. 3, 1968, P 18 12 455.5

Int. Cl. H01 7/28; H01b 3/10

U.S. Cl. 117-201

3 Claims



Method of producing an insulating layer on the surface of a semiconductor crystal. The protective layer comprising a metal oxide, is precipitated through oxidation of a gaseous, halogen free organic compound of the metal Me, upon which the oxide is based, with at least one Me-C bond. The precipitation is effected at the surface of the heated semiconductor crystal whereby the rest of the components of the organic compound remain in the gaseous phase.

3,657,008

POLYESTER WIRE INSULATION

Clyde E. Gleim, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Feb. 2, 1970, Ser. No. 8,015

Int. Cl. B44d 1/16, 1/18, 1/42

U.S. Cl. 117-218

5 Claims

The invention relates to insulation coatings for wire consisting of an outer jacket coating of highly crystallizable polyester resin and an undercoat of softer less crystallizable polyester resin.

3,657,009

PROCESS FOR ALUMINIZING THE SCREEN OF A CATHODE RAY TUBE

Robert A. Hedler, and Malcolm E. Magill, both of Seneca Falls, N.Y., assignors to Sylvania Electric Products Inc.

Continuation-in-part of application Ser. No. 422,558, Nov. 31, 1964, now abandoned. This application Apr. 12, 1968, Ser. No. 721,077

Int. Cl. H01j 31/20

U.S. Cl. 117-33.5 CM

3 Claims

An improved process for aluminumizing the screen of a cathode ray tube wherein rapid and uniform dampening of the applied phosphor screen is accomplished prior to lacquering by rinsing with an aqueous solution of an organic solvent wherein the solvent content ranges substantially from one to twenty percent by volume. The solvent is at least one selected alcohol or ketone being a 1, 2, 3, 4 or 5 carbon chain compound having one functional radical group with a melting point below -11° centigrade and a molecular weight ranging between 32.0 and 89.0. After rinsing, a lacquer film is applied over the screen upon which a thin aluminum film is disposed. Subsequent baking removes the lacquer material from the screen.

3,657,010

HEATING CORN SYRUP SOLIDS WITH ACIDS TO PRODUCE A DRY POWDER

William A. Mitchell, Lincoln Park, N.J., and William C. Seidel, Monsey, N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Jan. 26, 1970, Ser. No. 5,955
Int. Cl. C13k 1/00

U.S. Cl. 127-70

7 Claims

Hydrolyzed starch materials such as corn syrups are heated in the presence of acid to a temperature of about 300° F. to 370° F. The resultant product is allowed to cool and solidify; it may then be ground to a dry powder. The powder so produced can be stored in paper envelopes under rather severe temperature humidity conditions and will remain dry and will not clump.

3,657,011

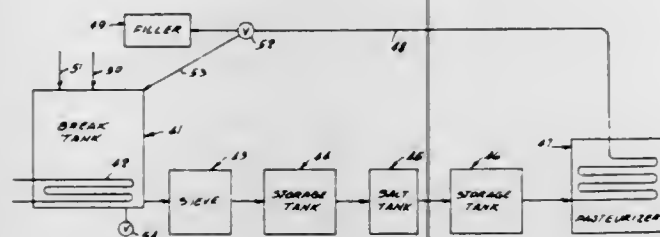
METHOD OF CLEANING AND SANITIZING FOOD PROCESSING DEVICES

Donald J. Orr, 952-14th Avenue, S.W., Rochester, Mich.
Original application May 11, 1967, Ser. No. 637,676, now Patent No. 3,511,706, dated May 12, 1970. Divided and this application Jan. 27, 1970, Ser. No. 10,106

Int. Cl. B08b 3/10, 9/08, 7/02

U.S. Cl. 134-17

5 Claims



A cleaning method for a series of food processing devices consisting of preparing a cleaning solution of proper concentration and temperature at a central location and passing the solution through the series of devices one after another and then passing a sanitizing solution through the devices. The method further includes utilizing thermo-shock treatment to remove baked or burned on contaminations from the devices.

3,657,012

PROCESS FOR DECONTAMINATING RADIOACTIVE OBJECTS

Jean-Louis Verot, Saint-Cyr L'Ecole, and Rene Sarfati, Paris, both of France, assignors to Uguine Kuhlmann, Paris, France
Filed Aug. 14, 1968, Ser. No. 752,504

Claims priority, application France, Aug. 17, 1967, 118019
Int. Cl. B08b 3/00

U.S. Cl. 134-26

11 Claims

A process for decontaminating radioactive objects by washing them in a solution of α -amino (alkane-phosphonic) acid and a tensio-active substance that has been neutralized to a pH from 7 to 7.5 and diluted to a 10 percent concentration. The wash effluents are decontaminated by adding to the effluents sufficient calcium-ions to displace the rare earths and strontium from their complexes with α -amino (alkane-phosphonic) acid and thereafter scrubbing.

3,657,013

ELECTROCHEMICALLY ACTIVE MATERIAL, CONSISTING CHIEFLY OF NICKEL HYDROXIDE, FOR POSITIVE ELECTRODES IN ALKALINE ACCUMULATORS, AND PROCEDURE FOR ITS MANUFACTURE

Ake Lennart Melin, Oskarshamn, Sweden, assignor to Svenska Ackumulator Aktiebolaget Jungner, Oskarshamn, Sweden

Filed Feb. 26, 1970, Ser. No. 14,548

Claims priority, application Sweden, Mar. 11, 1969, 3353/69
Int. Cl. H01m 43/04

U.S. Cl. 136-28

7 Claims

Electrochemically active material consisting essentially of nickel hydroxide for use as a positive electrode in alkaline accumulators, the electrochemically active material containing from 0.05 to 5.0 percent by weight, based on the weight of the nickel hydroxide, of a sulfate of at least one metal selected from the group consisting of barium, strontium, mercury and antimony, the electrochemically active material being substantially free of residual alkali metal sulfate, and a process for producing the same are disclosed.

3,657,014

POROUS ELECTRODE-SUPPORT FOR ALKALINE ACCUMULATORS

Peter Faber, Kahl, Main, Germany, assignor to Rheinisch-Westfälisches Elektrizitätswerk, Essen, Germany

Continuation of application Ser. No. 834,683, June 19, 1969.
This application Oct. 19, 1970, Ser. No. 82,089

Claims priority, application Germany, June 20, 1968, P 17 71-646.0

Int. Cl. H01m 35/04

U.S. Cl. 136-64

4 Claims

A porous electrode support for alkaline accumulators consisting of a sintered mass of chemically nickel-coated graphite particles with a particle size of 5 to 200 μ . A reinforcing fiber layer is sintered to the particles and can consist of synthetic resin or vitreous fibers coated with nickel. Preferably the fiber reinforcing mats or webs are provided on both faces of the flat support.

3,657,015

HYDRAZINE FUEL CELL AND PROCESS OF OPERATING SAID FUEL CELL

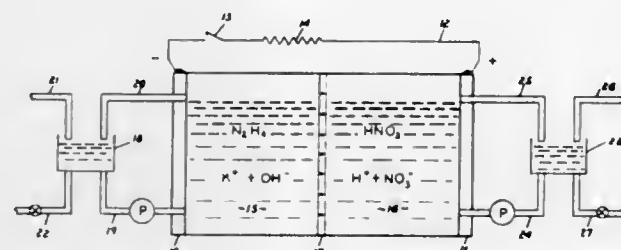
Franklin Veatch, Lyndhurst; Ernest C. Milberger, Maple Heights, and Robert D. Presson, Cleveland, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed May 2, 1960, Ser. No. 26,185

Int. Cl. H01m 27/26, 27/30

U.S. Cl. 136-83 R

10 Claims



1. A process for conversion of chemical energy directly into electrical energy which comprises the steps of supplying an aqueous solution of hydrazine to the interface between an anode and an aqueous electrolyte in a fuel cell, supplying an oxidizing agent to the interface between a cathode and an aqueous electrolyte in said fuel cell said anode and cathode being ionically connected, and electrically connecting said anode and cathode through an electrical load.

3,657,016

SOLID STATE BATTERY HAVING A RARE EARTH FLUORIDE ELECTROLYTE

Arnys Clifton Lilly, Jr., and Calvin O. Tiller, both of Richmond, Va., assignors to Phillip Morris Incorporated, New York, N.Y.

Continuation-in-part of application Ser. No. 878,287, Nov. 20, 1969. This application June 12, 1970, Ser. No. 45,804
Int. Cl. H01m 11/00

U.S. Cl. 136-83

11 Claims

A solid state battery comprising an oxygen-impermeable casing containing an electrochemical cell having a cathode, an anode of a material forming stable fluorides and a rare earth fluoride electrolyte. The battery is formed by thin film deposition of the cell elements and is self-limiting as respects output current under load.

3,657,017

SELF-FEEDING SEA WATER BATTERY

Albert E. Ketler, Jr., 318 North 6th Street, Indiana, Pa.
Filed Oct. 20, 1970, Ser. No. 82,389

Int. Cl. H01m 17/00

U.S. Cl. 136-100 R

17 Claims

A galvanic cell or battery is powered by a centrally disposed anode and an outwardly, edgewise-spaced and disposed group of outwardly disposed cathodes of dissimilar electrolytically reactive metal, and has lever-operated lifting means or spring means for automatically adjusting the relation between the cathodes and the anode as the anode is destructively worn away during power generating utilization of the battery. The adjusting means is adapted to exert lateral, radial or axial pressure on the group of cathodes to urge them against insulating means which defines a desired operative spacing between the anode and the group of cathodes. Wire screen material is folded or wound about and is secured on a centrally positioned metal backing member to provide cathode elements.

3,657,018

ALKALINE GALVANIC CELL HAVING A COVER MADE OF AN ELASTICALLY RESILIENT LAMINATE

Paul Ruetschl, Yverdon, Switzerland, assignor to Leclanche S.A., Yverdon, Vaud, Switzerland

Filed Apr. 21, 1970, Ser. No. 30,411

Claims priority, application Switzerland, May 2, 1969, 6756/69; May 9, 1969, 6756/69

Int. Cl. H01m 21/00

U.S. Cl. 136-111

7 Claims

An alkaline galvanic cell having a positive electrode containing a heavy metal oxide in contact with a metallic housing and a negative electrode containing an amalgamated zinc in contact with a cover, said cover being formed from an elastically resilient laminate having an exterior side consisting of a layer of nickel or a layer of a rust-proof nickel alloy and having a thickness of 0.05 to 0.5 mm. and an interior side consisting of a layer of copper, zinc, tin, lead or their alloys and having a thickness of 0.05 to 0.5 mm. at least one layer of said laminate consisting of a spring alloy.

3,657,019

ELECTRIC PRIMARY ELEMENT AND METHOD OF MANUFACTURING THE SAME

Fritz Alf, Bad Homburg, and Wolfgang Brill, Dusseldorf, both of Germany, assignors to Varta GmbH, Ellwangen/Jagst, Germany

Filed Nov. 18, 1969, Ser. No. 877,629

Claims priority, application Germany, Nov. 19, 1968, P 18 09 600.9

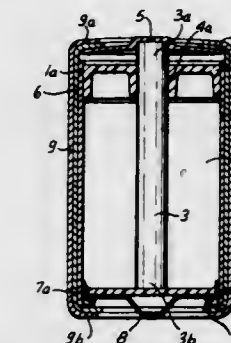
Int. Cl. H01m 1/02

U.S. Cl. 136-133

14 Claims

A tubular member constituting a first electrode contains a depolarizing agent and a second electrode axially extending

therethrough. One of the open ends of the tubular member is sealed with a first flexible disc with an end portion of the second electrode projecting outwardly through the disc and provided with an electrically conductive cap which overlies the disc. The other open end of the tubular member con-



stitutes a radially inwardly extending annular bead which fluid-tightly engages and retains a second flexible disc and a contact disc which overlies the second flexible disc and engages the bead of the tubular member. A dielectric and a protective casing surround the tubular member.

3,657,020

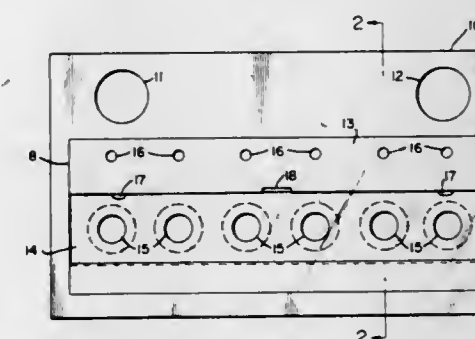
STORAGE BATTERY COVERS

John L. Harrah, 79 West Glendale St., Bedford, Ohio
Filed Apr. 10, 1970, Ser. No. 24,438

Int. Cl. H01m 1/02, 1/06

U.S. Cl. 136-170

2 Claims



A cover for automotive storage batteries and more specifically to a battery cover having an integrally formed transparent panel portion to determine the electrolyte level of the batteries and having a series of open holes to allow filling the battery with electrolyte or water. The open holes each have an integral, downwardly extending tube-like portion opening into and leading to each of the battery cells. The open holes are closed with the application of a detachable air vented closure.

3,657,021

EMERGENCY POWER PACK

John P. Mathews, Port Credit, Ontario, Canada, assignor to Mallory Battery Company of Canada Limited, Clarkson, Ontario, Canada

Filed Apr. 20, 1970, Ser. No. 29,848

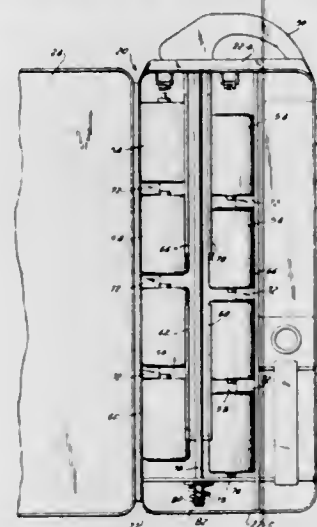
Int. Cl. H01m 1/04

U.S. Cl. 136-173

8 Claims

An emergency power pack for a gas furnace, with a plurality of reserve type batteries in the power pack, kept normally inactive in a wall-mounted box, and rendered active by a simple manually operable lever on the outside of the box, with a co-operative electronic system for controlling the energy from said battery when rendered active, to supply pulse power initially to operate electrical controls for sole-

noid valves, and to then reduce the power supplied from the battery to the solenoids to be merely enough to hold the elec-



trical controls in operated positions, thereby to reduce the drain on the battery as a power supply.

3,657,022

PROCESS FOR THE MANUFACTURE OF COLD-ROLLED STEEL STRIP WITH SUPERIOR MECHANICAL WORKABILITY, ESPECIALLY DEEP FORMING PROPERTIES

Haruo Kubotera; Kazuhide Nakaoka; Kaoru Watanabe, and Teruhisa Tanaka, all of Kawasaki, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan
Continuation of application Ser. No. 567,334, July 20, 1966, now abandoned. This application Nov. 12, 1969, Ser. No. 871,559

Claims priority, application Japan, Aug. 10, 1965, 40/48225
Int. Cl. C21d 1/74

U.S. Cl. 148-2

1 Claim

Process for the manufacture of cold-rolled steel sheets with superior mechanical workability, especially deep-forming qualities, comprising subjecting cold-rolled steel strips to a preliminary annealing step at a temperature below the A_1 -transformation point until the carbon content of said strips is reduced to less than 0.06%, and further subjecting said strips to a second annealing step at a temperature between the A_1 -transformation point and the A_3 -transformation point.

3,657,023

COMPOSITION FOR BLACKENING COPPER

John J. Grunwald, 150 Roydon Road, New Haven, Conn., and Edmund E. Horner, 105 Crestview Drive, Watertown, Conn.

Filed May 15, 1970, Ser. No. 48,766

Int. Cl. C23f 7/12

U.S. Cl. 148-6.15 R

19 Claims

Novel blackening compositions comprising a peroxodiphosphate compound and an alkali metal hydroxide are utilized to produce on copper surfaces a soft, velvet-black coating which can be mechanically rubbed to form a smooth, black finish. The coating process is carried out by immersing the copper article in the aqueous blackening bath at a temperature of about 150° to about 210° F. for about 3 to about 30 minutes.

3,657,024

STEEL FOR ELECTRICAL APPLICATIONS AND NOVEL ARTICLE

Lester J. Regitz, Penn Township, Westmoreland, Pa., assignor to United States Steel Corporation
Continuation-in-part of application Ser. No. 591,982, Nov. 4, 1966, now abandoned. This application Dec. 5, 1969, Ser. No. 882,729

Int. Cl. C22c 39/02

U.S. Cl. 148-315

3 Claims

A ductile non-oriented electrical sheet containing up to 0.025% carbon, 1.5 to 2.75% silicon, 1.5 to 6% aluminum

with the balance iron and normal impurities, and having the combined silicon and aluminum content within the range 3 to 7.5%, and an aluminum content equal to or greater than the silicon content. Upon a controlled atmosphere anneal, a complex oxide of iron, silicon and aluminum is formed on the sheet surface which provides a high degree of electrical resistance across the surface of the sheet.

3,657,025

NICKEL-IRON BASE MAGNETIC MATERIAL WITH HIGH INITIAL PERMEABILITY AT LOW TEMPERATURES

Friedrich Pfeifer, Oberlissigheim, Kreis, Hanau, Germany, assignor to Vakuumschmelze GmbH, Hanau, Germany

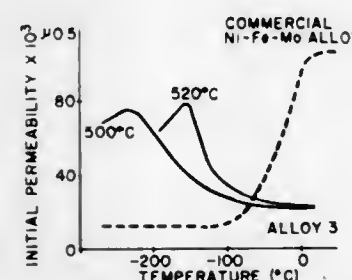
Filed Mar. 17, 1969, Ser. No. 807,652

Claims priority, application Germany, Apr. 11, 1968, P 17 58 152.1

Int. Cl. H01f 1/14

U.S. Cl. 148-31.55

6 Claims



A nickel-iron base alloy is described to which controlled amounts of copper, manganese and molybdenum may be added. By proper selection of composition and heat treatment high initial permeabilities are obtained at cryogenic temperatures.

3,657,026

HIGH INITIAL PERMEABILITY FE-48NI PRODUCT AND PROCESS FOR MANUFACTURING SAME

David A. Colling, Murrsville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 28, 1969, Ser. No. 845,134

Int. Cl. H01f 1/16; C22c 19/00

U.S. Cl. 148-120

7 Claims

A process is described for producing iron-nickel magnetic alloys having a high initial permeability. Various steps including air melting, vacuum remelting with critical control of the carbon oxygen and sulfur levels are employed along with the secondary recrystallized microstructure to achieve the desired results.

3,657,027

INJECTION MOLDABLE FLAMMABLE COMPOSITION AND DEVICES MADE THEREFROM

Eleanor F. Horsey, Chevy Chase, Md.; Joseph W. Warwick, Washington, D.C., and Horst W. Rauhut, Crystal Lake, Ill., assignors to The United States of America as represented by the Secretary of the Army

Filed Apr. 9, 1969, Ser. No. 814,584

Int. Cl. C06c 7/00

U.S. Cl. 149-19

9 Claims

An injection moldable flammable composition consisting of a powder comprising 30-80 percent of red phosphorus and 70-20 percent of a polymeric binder comprising polyethylene, polypropylene, or copolymer thereof. Flammability and stability may be increased by the addition of lesser quantities of polystyrene and ignition aids and anti-oxidants such as aluminum oxide. Flammable strikers and other useful devices may be molded from this composition.

3,657,028

PLASTISOLS AND PROPELLANTS CONTAINING ALKYLENE DIHYDRAZINES

Calvin E. Pannell, Lafayette, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Apr. 11, 1964, Ser. No. 367,606

Int. Cl. C06d 5/06

U.S. Cl. 149-19

6 Claims

5. In a solid rocket propellant grain comprising a fuel, oxidizer and binder the improvement which comprises a binder consisting essentially of a relatively non-volatile high nitrogen hydrazine substituted plasticizer material and a hydrophilic polymer, said plasticizer material being liquid at the temperature of formulating said composition and said hydrophilic polymer yielding an extensible, elastic material when blended with said plasticizer, the relative proportions of said plasticizer and said polymer ranging from about 15/1 to 1/3 on a weight basis, said binder being from about 10 to about 60 weight percent of the total propellant gain.

3,657,029

PLATINUM THIN-FILM METALLIZATION METHOD

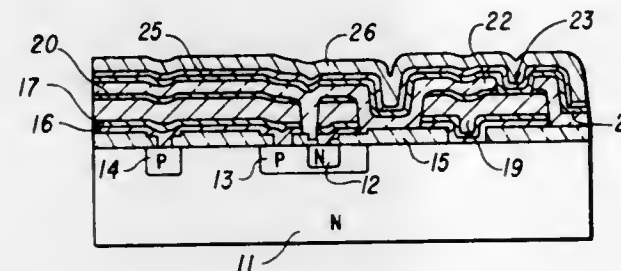
Clyde R. Fuller, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 31, 1968, Ser. No. 788,187

Int. Cl. C23f 1/02; B44d 1/18; C23b 5/64

U.S. Cl. 156-11

10 Claims



Platinum thin-film metallization is selectively etched with aqua regia, using a chromium or titanium film as an etch-resistant mask. In a specific embodiment, an integrated circuit structure is metallized with successive layers of titanium, platinum, gold and a metal selected from molybdenum, tungsten, rhenium and corrosion-resistant alloys thereof. The system is particularly suited for the formation of insulated "cross-over" metallization, or multi-level interconnecting metallization.

3,657,030

TECHNIQUE FOR MASKING SILICON NITRIDE DURING PHOSPHORIC ACID ETCHING

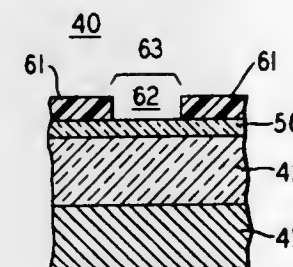
Roy Arlie Porter, Whitehall, Pa., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed July 31, 1970, Ser. No. 59,979

Int. Cl. H01f 7/50

U.S. Cl. 156-13

5 Claims



A technique for passivating silicon nitride to phosphoric acid etchants during the formation of semiconductor devices is disclosed. The technique consists of exposing a silicon

nitride surface to a diffusion source consisting of either a boron or phosphorous containing source material. The silicon nitride surface is exposed to the diffusion source, at a temperature ranging from 750-1,140° C, for a period of time sufficient to form a diffused source-rich layer of silicon nitride having the desired depth. The source-rich film is then oxidized in a wet oxygen or steam ambient, at a temperature ranging from 850-1,100° C, for a period of time sufficient to form a passivating film. The passivating film is immune from attack by phosphoric acid but can be etched with hydrofluoric acid.

3,657,031

PRODUCTION OF BONDED NONWOVENS BY THE WET METHOD

Hans Reinhard, Limburgerhof; Gerhard Welzel, Mannheim; Hans-Ulrich Frank, and Rudolf Stephan, both of Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed June 27, 1969, Ser. No. 837,313

Claims priority, application Germany, June 29, 1968, P 17 69 699.0

Int. Cl. B29j 5/00

U.S. Cl. 156-62.2

9 Claims

Textile nonwovens can be prepared with particular advantage by treatment of textile fibers suspended in an aqueous medium with dissolved quaternary organic ammonium salts and with water-soluble salts of polymers having carboxyl groups of vinylpyrrolidone polymers, precipitation of binder polymers dispersed in water onto the treated suspended fibers, separation of the aqueous medium from the fibers and drying the bonded fibers.

3,657,032

METHOD FOR CONTINUOUSLY MANUFACTURING REINFORCED PLASTIC BOARD

Shigeo Watanabe, and Tomomi Yamaguchi, both of Fukushima-shi, Japan, assignors to Nitto Boseki Co. Ltd., Fukushima-shi, Japan

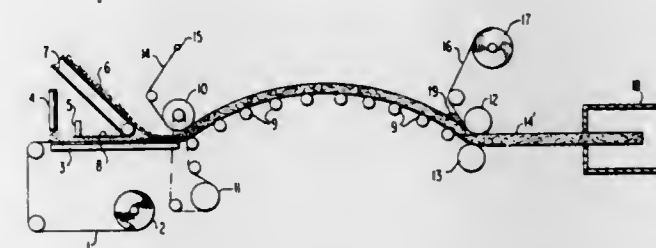
Filed Nov. 8, 1968, Ser. No. 774,279

Claims priority, application Japan, Nov. 8, 1967, 42/71442

Int. Cl. B32b 17/04

U.S. Cl. 156-62.4

5 Claims



Method for continuously manufacturing reinforced plastic boards and by a liquid resin impregnation step which comprises successively depositing a layer of a heat-hardenable synthetic resin and a layer of fibrous material onto a lower inert film, and maintaining the thus formed composite in intimate contact over an arcuate path by depressing the composite with a plurality of arcuately deposited filamentary members which contact the composite, depositing an upper inert film onto the composite, compressing the upper and the lower film-contained unit, whereby excess resin solution is intimately saturated into the fibrous mat. The filamentary members are removed from the compressed composite by the passage of the reinforced plastic board from the processing area. Apparatus for continuously manufacturing reinforced plastic board is also disclosed in the specification.

3,657,033

METHOD AND APPARATUS FOR CONTINUOUS CUTTING AND JOINING OF THERMOPLASTIC SHEET MATERIAL

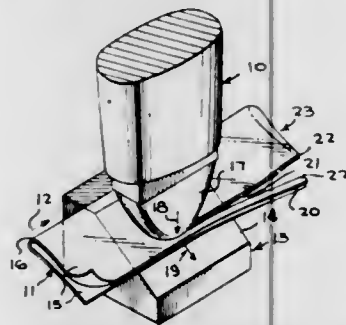
Thomas B. Sager, Plymouth Valley, Pa., assignor to Ultrasonic Systems, Inc., Farmingdale, N.Y.

Filed Mar. 26, 1969, Ser. No. 810,638

Int. Cl. B29c 27/08

U.S. Cl. 156—73

5 Claims



A method and means for continuously cutting and sealing thin gauge thermoplastic sheet material using kinetic energy produced by a horn of reduced sealing area.

3,657,034

METHOD OF PRODUCING SHEET MATERIALS SIMILAR TO LEATHER

Osamu Fukushima; Yoshitami Saito, and Yuya Enomoto, all of Kurashiki, Japan, assignors to Kurashiki Rayon Co., Ltd., Kurashiki, Japan

Filed Sept. 10, 1969, Ser. No. 856,809

Claims priority, application Japan, Sept. 20, 1968, 43/68,655; Oct. 13, 1968, 43/79491; Nov. 15, 1968, 43/83947

Int. Cl. B32b 5/18

U.S. Cl. 156—77

7 Claims

Leather-like sheet materials having good moisture permeability and having appearance, texture, touch, drape and grain break similar to those of leather are produced by applying a layer of a solution of a polymer capable of being coagulated in a wet process onto a support; immersing the polymer solution applied to the support into a coagulation bath to coagulate the polymer solution layer into a porous structure; bonding a substratum to the surface of the resulting porous film which has not been in contact with the support and removing the support from the film.

3,657,035

WATER ABSORBENT WEB AND ITS PRODUCTION

Alfred Politzer, Fairview Park; Galib-Bey Atam Alibeckoff, Lakewood, and Pao-Chi Wang, Bay Village, all of Ohio, assignors to Nylonge Corporation, Cleveland, Ohio

Filed July 23, 1969, Ser. No. 844,153

Int. Cl. B32b 3/106, 23/06

U.S. Cl. 156—78

7 Claims

A web which is soft and rapidly and highly water absorbent when both wet and dry is produced by sandwiching under pressure a layer of cellulose pulp fiber reinforced, foamed viscose between thin fleeces of unbonded cotton fibers and regenerating the viscose cellulose. The product is a reticulated matrix of regenerated cellulose and dispersed pulp fibers with the fleece fibers embedded in the opposite faces of the regenerated cellulose layer.

3,657,036

METHOD FOR PRODUCTION OF RIGID POLYURETHANE ARTICLES

James A. Mullenhoff, West Seneca, and Walter E. Voisinnet, Colden, both of N.Y., assignors to National Gypsum Company, Buffalo, N.Y.

Filed Oct. 2, 1969, Ser. No. 863,252

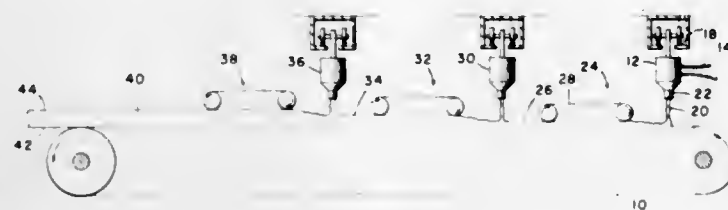
Int. Cl. B32b 5/18

U.S. Cl. 156—79

8 Claims

A continuous method for the production of rigid polyurethane foam panels having a density gradient across their

thickness is described. The panels are comprised of a plurality of layers intimately bonded together with at least two of the individual layers having densities which are not substantially the same. The variance in the density of the layers is achieved by utilizing non-foamable as well as foamable polyurethane compositions or by varying the formulated foam density of, and/or the degree of restraint exerted against the vertical expansion of successively deposited quantities of foamable polyurethane composition. The panels are made on a continuously advancing means by successively depositing, and forming layers therefrom, a plurality of accurately metered amounts of foamable or non-foamable polyurethane forming compositions. Rigid polyurethane foam



panels comprised of any number of individually formed layers and possessing a variety of density characteristics can be made according to the method.

The polyurethane foam panels can be given decorative surface appearances simultaneously with the production thereof. A continuous sheet of a material having a surface design embodied therein is disposed over, and advanced forwardly with the continuously advancing means on which the integral foam panels are manufactured. The panel is formed on the textured or embossed sheet with the panel surface which contacts the sheet readily acquiring the surface characteristics thereof.

3,657,037

METHOD OF JOINING CORNERS BETWEEN PLASTIC-COVERED WOODEN SECTIONS

Bo Sergius B. Blomquist, Enskede, Sweden, assignor to Hyresgasternas Sparkasse-och Byggnads-foreningars Riksförbund u.p.a., Stockholm, Sweden

Filed June 27, 1969, Ser. No. 837,214

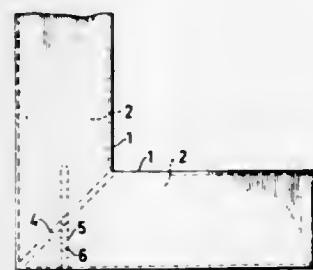
Claims priority, application Sweden, Aug. 15, 1968,

11,026/68

Int. Cl. B29c 11/00

U.S. Cl. 156—92

9 Claims



This invention aims at joining corners between plastic-covered wooden sections and the main object of the invention is to provide tightly welded corner joints of the plastic covering while leaving between adjacent ends of the wooden parts at said corner a gap into which thermosetting resin is injected through at least one hole bored through the welded joint at the outside of the corner so as to glue together the end surfaces of said wooden sections on hardening of the resin.

3,657,038

METHOD OF BONDING EMPLOYING HIGH FREQUENCY ALTERNATING MAGNETIC FIELD

David Reginald Lightfoot, Silver Springs, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed June 26, 1969, Ser. No. 836,803

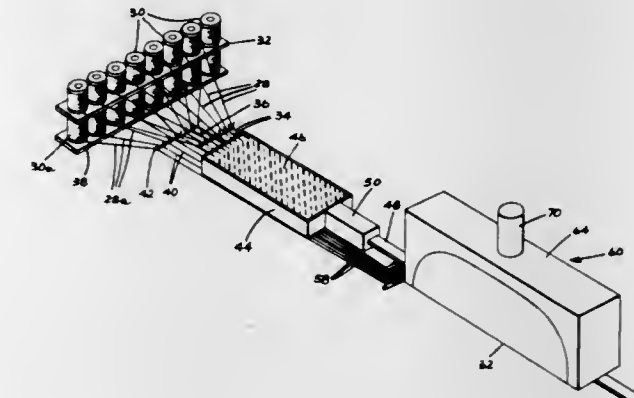
Claims priority, application Great Britain, July 31, 1968, 36,582/68; 36,583/68; 36,584/68

Int. Cl. B32b 17/00

U.S. Cl. 156—106

13 Claims

This invention is directed to a method for effecting adhesion between two substrates, at least one of which is glass, which comprises forming an assembly to be bonded by interposing between the substrates and in contact with both, a thermally activatable adhesive composition containing particles of a material which is ferromagnetic or electrically conductive or both, and subjecting the assembly to the action of a high frequency alternating magnetic field until the adhesive has become activated.



3,657,039

METHOD OF MANUFACTURING A PNEUMATIC TIRE

John C. Smithkey, Jr., North Canton, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Original application Oct. 16, 1967, Ser. No. 675,489, now

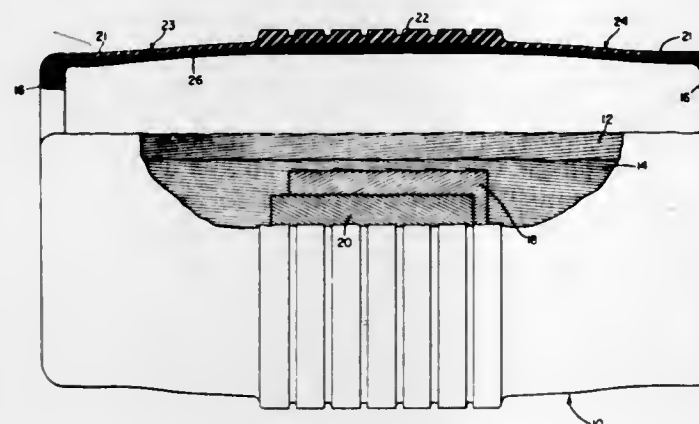
Patent No. 3,540,510. Divided and this application Mar. 9,

1970, Ser. No. 17,680

Int. Cl. B29h 5/02, 17/14

U.S. Cl. 156—123

5 Claims



A method of manufacturing a pneumatic tire which when inflated has dimensions generally associated with a conventional pneumatic tire but when deflated has an outer diameter and a section width substantially the same, and in any event not substantially greater, than the maximum width and diameter of the rim on which the tire is mounted. The tire is built by the flat band method of construction and is molded at least substantially in the cylindrical shape in which it was built. The sidewalls are sufficiently flexible that they may be folded into an S-shape and underneath the tread when the tire is deflated.

The foregoing abstract is not to be taken as limiting the invention of this application, and in order to understand the full nature and extent of the technical disclosure of this application, reference must be made to the accompanying drawings and the following detailed description.

3,657,040

METHOD OF FABRICATING REINFORCED PLASTIC BOWS HAVING DIFFERENT DRAW WEIGHTS

Samuel M. Shobert, 17760 Dragoon Trail, Mishawaka, Ind.

Filed Feb. 6, 1970, Ser. No. 9,358

Int. Cl. B32b 5/08, 5/12; F41b 5/00

U.S. Cl. 156—178

5 Claims

An archery bow of reinforced plastic in which each limb includes two contiguous elongated strata of glass fiber concentrations, one stratum defining the back side and the other

the belly side thereof, said other stratum constituting the body portion of the limb. At least a portion of the glass fibers are in the form of strands of glass roving extending longitudinally of the limbs. The average number of strands per unit cross-sectional area of the body portion is less than the average number of strands per unit cross-sectional area of said one stratum, the resin material in both being identical.

The draw weight of the bow is at least partially determined by the number of strands in said one stratum. The method of fabricating the archery bow of the invention comprises the step of selectively changing the number of strands of glass fiber in said one stratum in a given design of bow whereby draw weight with minimum stacking can be realized in a facile and economical manner.

3,657,041

PROCESS FOR MAKING HELICALLY WRAPPED INSULATION

Harold J. Reynolds, Jr., Raritan, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Original application Oct. 17, 1968, Ser. No. 768,398, now

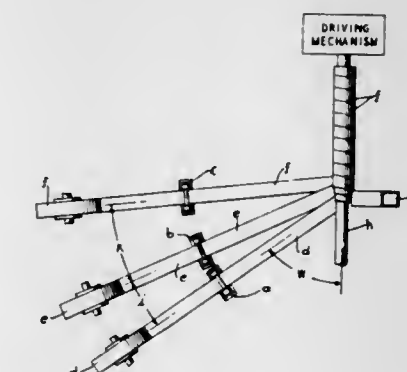
abandoned. Divided and this application Jan. 5, 1971, Ser.

No. 103,970

Int. Cl. B65h 8/104

U.S. Cl. 156—190

4 Claims



A process for producing a helical laminated tape preferably having at least one strip overlappingly superimposed on another strip of about the same width, including the step of dusting any remaining exposed area of the overlapped tape before forming adjacent coils, whereby subsequently formed adjacent coils do not become bonded during a subsequent cure, thereby resulting in a stepped and tiered tape having overlapping edges for enhanced heat and fire protection, and being easily uncoiled from or subsequently recoiled on any desired cylindrical or tubular mounting means.

3,657,042

PROCESS FOR MANUFACTURE OF LAMINATED SECTIONS

Marc Rerolle, and Jean Besson, both of Lyon, France, assignors to Seprisy Societe Europeenne Pour la Transformation de Produits de Synthese, Paris, France

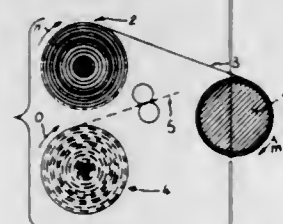
Filed Jan. 7, 1969, Ser. No. 789,488

Claims priority, application France, Jan. 24, 1968, 49563

Int. Cl. B31c 9/00

U.S. Cl. 156—190

2 Claims



Laminated sections are made by winding a sheet of paper or fabric and a plastics film on to a mandrel in the cold, without any addition. The first and last turns or the spool may be of plastics film alone. Unwinding may be prevented by an adhesive strip on the last turn. The spool after winding is removed and heated at any later time to fuse the plastics film and bond the layers together. A label may be sealed under the last layer of film. A packaging container is made from the section by crimping a disc of similar laminated material on the bottom of the section and heating to ensure liquid-tightness.

3,657,043

METHOD OF LABELING CONTAINERS

Theodor Plotz, Hosel, and Alfred Sendt, Gutersloh, both of Germany, assignors to Feldmuhle Aktiengesellschaft, Dusseldorf, Germany

Filed May 14, 1970, Ser. No. 37,290

Claims priority, application Germany, May 20, 1969, P 19 25 621.4

Int. Cl. B31f 1/00

U.S. Cl. 156—196

6 Claims



Labels of polyethylene are made from flat, thin sheet stock by imprinting one face of the sheet with a mirror image of the desired indicia, molding the sheet stock until the printed face assumes the three-dimensionally curved, concave shape of a one-way bottle or similar non-developable surface of a container, maintaining the molded shape while applying the printed face to the conforming bottle surface, and adhesively fastening the label to the surface. The indicia are visible through the transparent plastic and are protected by the same.

3,657,044

METHOD OF THERMOPLASTIC COATING OF MOLDED PULP

Max E. Singer, Mattapan, Mass., assignor to Keyes Fibre Company

Continuation of application Ser. No. 376,150, June 18, 1964, now abandoned. This application July 16, 1969, Ser. No. 847,502

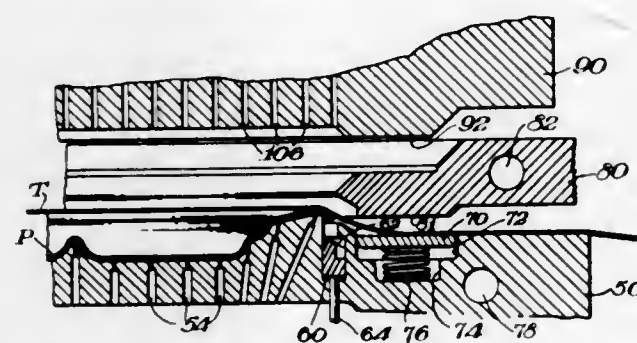
Int. Cl. B29c 17/04; B32b 1/02, 1/04, 31/04, 31/20

U.S. Cl. 156—212

5 Claims

A method of coating a contoured portion of a generally porous molded pulp article having sloping side and flat bot-

tom wall portions with generally imperforate thermoplastic material to achieve a superior bonded product. First the article to be coated is placed against an open-face suction die, a flat continuous sheet of thermoplastic material is then placed in overlying relationship with the exposed portion of the die-supported article, the temperature of the thermoplastic material is raised to the range where it is sufficiently ductile to closely conform with the contoured portion of the molded pulp article, the thermoplastic material is suction adhered into intimate physical contact with the article without undesirable pleats or folds, a closed chamber is created around the article and its adhered thermoplastic material with the open-face suction die forming a portion thereof, the pressure within the closed chamber is increased to act against the exposed portion of the thermoplastic material with a pressure at least twice atmospheric pressure, and finally the temperature of the thermoplastic material continues to be raised until



a mechanical bond with the contacted pulp is effected which is characterized in the finished product by a substantially uniform penetration of thermoplastic material into the adjacent pulp material on the sloping side as well as the flat bottom wall portions and the penetration of fibrous pulp material into the adjacent side of the thermoplastic material is also substantially uniform as to both quantity and depth of penetration on the side as well as the bottom wall portions so that a substantially equal amount of force is required to forceably separate the thermoplastic as a sheet from a given area of the bottom wall portions and from a given area of the side wall portions, and so that a substantially uniform amount of pulp material per area unit adheres to the thermoplastic material from the side as well as the bottom wall portions at any place over the bonded surface of the thermoplastic material when it is forceably separated as a sheet from the remainder of the product.

3,657,045

METHOD OF FABRICATING FACETED PIN BUNDLES FOR MOLDING CENTRAL TRIPLE REFLECTORS

Otto Brudy, 559 Askin Boulevard, Windsor 11, Ontario, Canada

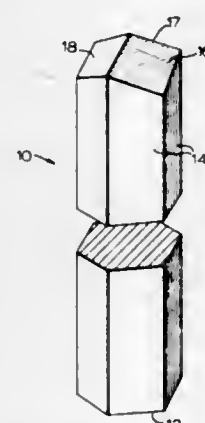
Filed Nov. 24, 1969, Ser. No. 879,096

Claims priority, application Great Britain, July 10, 1969, 34,891/69

Int. Cl. B29c 27/00; G02b 5/12

U.S. Cl. 156—296

4 Claims



A method of fabricating a core for molding central triple reflectors. A number of hexagonal, cubically faceted pins are

assembled into a bundle, and clamped into a mold so that the mold walls and the bottom ends of the pins define a recess. A quantity of binding material is placed in the recess and then is compressed against the bottom ends of the pins to drive some of the binding material between the individual pins. The binding material is then hardened and bonds the bundle of pins together.

3,657,046

PROCESS FOR ADHERING RUBBER TO RUBBER OR METAL WITH HALOGENATED TERPOLYMER OF ETHYLENE- α -OLEFIN-NON-CONJUGATED DIOLEFIN

Junji Furukawa; Shinzo Yamashita, both of Kyoto; Kunihiko Ikkaku; Norio Kitahara, both of Kobe; Shozo Maeda, Nishinomiya, and Shigeru Tajima, Ashiya, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan and Sakai Chemical Industry Co., Ltd., Kobe, Japan

Continuation-in-part of application Ser. No. 640,325, May 22, 1967. This application Feb. 4, 1970, Ser. No. 8,751

Int. Cl. C09j 3/12, 5/02

U.S. Cl. 156—315

10 Claims

A lowly or highly unsaturated rubber, such as ethylene-propylene-non-conjugated diolefin terpolymer, isoprene-isobutylene rubber, natural rubber, polyisoprene rubber, polybutadiene rubber, styrene-butadiene rubber, polychloroprene rubber, acrylonitrile-butadiene rubber, is strongly adhered to the same or a different rubber or a metal, such as mild steel or brass, by using, as an adhesive, a halogenated terpolymer of ethylene, an α -olefin other than ethylene, such as propylene, and a non-conjugated diolefin, such as dicyclopentadiene or divinylbenzene, ethylenenorbornene, 1,4-hexadiene, said halogenated terpolymer having a halogen content of 13 to 50 % by weight. A conventional primer may or may not be used to adhere to the rubber to the metal with the halogenated terpolymer. Adhesion is effected by heating an assembly consisting of the substrates to be bonded and the adhesive interposed therebetween under pressure.

3,657,047

ADHERING WITH AZIDO ISOCYANATE COMPOUNDS

David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Sept. 22, 1969, Ser. No. 860,018

Int. Cl. C09j 5/06, 3/16

U.S. Cl. 156—322

5 Claims

Sulfonazide-isocyanate compounds of the formula $(N_3O_2S)_x - R - (NCO)_y$

where R is a polyvalent aliphatic radical and x and y are integers from 1 to 10 are used to adhere polymers to substrates selected from siliceous materials, metals and other polymer substrates. Rubber tires are reinforced with polyester tire cord which has been modified with a sulfonazide-isocyanate compound.

3,657,048

METHOD OF BONDING ELASTOMERIC MATERIALS

John C. Gardner, Lymm, England, assignor to J. H. Fenner & Co. Limited, Marfleet, Hull, England

Filed Nov. 25, 1968, Ser. No. 778,816

Claims priority, application Great Britain, Nov. 28, 1969, 53,995/67

Int. Cl. C09j 3/00

U.S. Cl. 156—331

3 Claims

Polyvinyl chloride is bonded to natural or synthetic elastomers by means of a solution grafted copolymer of an acrylic monomer and a synthetic elastomer. If the elastomer is natural rubber or a sulphur modified chloroprene elastomer, a solution grafted copolymer of methyl methacrylate, butadiene and preferably also acrylonitrile, is used. If the elastomer is a non-sulphur modified chloroprene rubber, a solution grafted copolymer of methyl methacrylate and chloroprene rubber is used.

3,657,049

TROUGHED STRIP MONITORING TYPE SPEED CONTROL FOR CONTINUOUS ETCHER

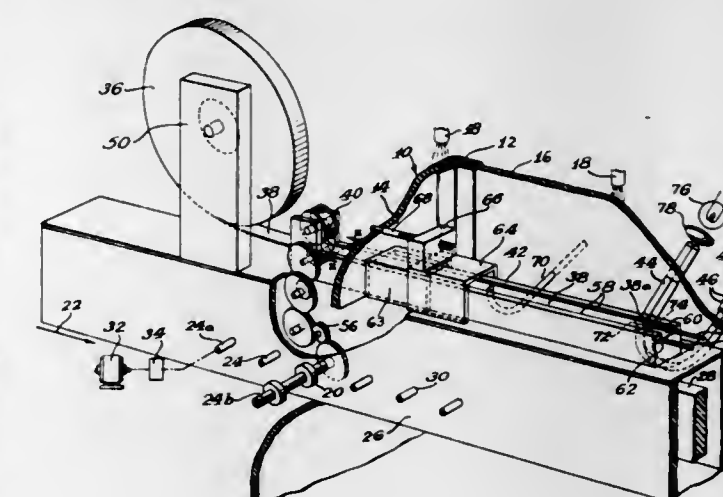
Robert C. Benton, State College, and Blair W. Heffner, Petersburg, both of Pa., assignors to Chemcut Corporation, State College, Pa.

Filed Jan. 13, 1970, Ser. No. 2,574

Int. Cl. H05k 3/00; B23p 15/00

U.S. Cl. 156—345

8 Claims



Automatic speed control apparatus is disclosed which monitors the degree of material removal from a control element strip fed thereto while the strip is being etched away and which, in response to the degree of material removal sensed thereby, and controls the conveying speed of articles being conveyed while being etched in a conveyerized type continuous etcher. The fed strip is thin stock preferably troughed for longitudinal stiffness against buckling and, when push-fed through a spray etching chamber, dissolves away to a point of discontinuity which is reached at or about the location of a monitoring or sensing point in the chamber where a sensing mechanism senses that the body of the strip has or has not undergone the last degree of material dissolution.

3,657,050

BONDING DEVICE EMPLOYING TEMPORARY MAGNETIC ATTACHING MEANS

Edgar P. Regan, Jr., Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 12, 1969, Ser. No. 798,673

Int. Cl. B32b 31/00

U.S. Cl. 156—350

7 Claims

An apparatus and method for bonding a first object to the surface of a second magnetic object. Magnets on the first object attach the first object to the magnetic object, spaced therefrom by the magnets, while a special ejector system compresses an adhesive material into the space to secure the two objects together.

3,657,051

TRANSFER PRINTING ADDRESSING MACHING

John P. McCarthy, Randolph, Mass., assignor to Dymo Industries, Inc., Emeryville, Calif.

Filed May 27, 1969, Ser. No. 828,226

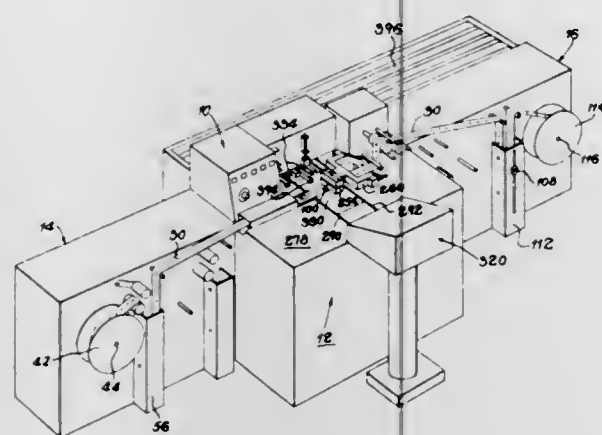
Int. Cl. B41m 5/18

U.S. Cl. 156—384

9 Claims

An addressing machine in which a list of addresses of fusible material are transferred from the surface of an elongate relatively transparent address tape to an elongate relatively opaque label tape or directly to envelopes by the application of heat, leaving behind sufficient material on the address tape to enable the address tape itself to be divided into legible address labels. The address tape and label tape or envelopes are advanced intermittently to a printing station where they are

juxtaposed between a heated pad and a platen. The heated pad reciprocates to apply heat to the juxtaposed portions of pressure being applied thereto in a hot stamping operation. Air is blown into the object for a period of time and released



the tapes (or tape and envelope). The machine is arranged for ready use as a tape-to-tape address transfer machine or a tape-to-envelope address transfer machine.

3,657,052

DEVICE FOR PRODUCING NONWOVEN CARPETS

Alfons Debonnet, Rollegem-Kapelle, Belgium, assignor to Makropatent Trust reg., Vaduz, Liechtenstein

Filed Apr. 28, 1969, Ser. No. 819,585

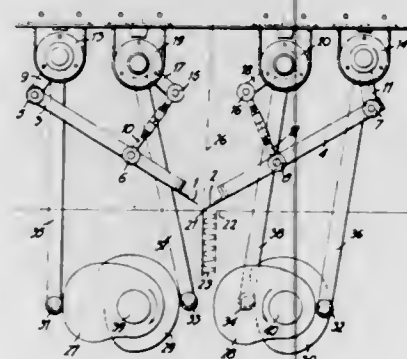
Claims priority, application Belgium, Jan. 6, 1969, 48,677;

Mar. 5, 1969, 48,866

Int. Cl. D04h 11/08

U.S. Cl. 156—435

1 Claim



Device for the production of nonwoven carpets wherein two folding blades are each connected to a system of oscillating levers, whereby each system is controlled by a set of cams in such a way that one folding blade is temporarily maintained in its lowest position whilst the second folding blade starts a downward movement and deviates the set of threads.

3,657,053

MECHANISM FOR RIGIDIFYING A COLLAPSIBLE OBJECT

Rubin Warsager, 483 Forest Street, Kearny, N.J.

Filed Mar. 27, 1970, Ser. No. 23,188

Int. Cl. B32b 31/20, 31/12

U.S. Cl. 156—540

8 Claims

A mechanism for rigidifying a collapsible object to be decorated to prevent the object from collapsing as a result of

at the proper time to permit the object to be placed under pressure when a foil is pressed onto its surface.

3,657,054

DECORATING MACHINE FOR TRANSFERRING A DECORATIVE MATERIAL TO AN ARTICLE

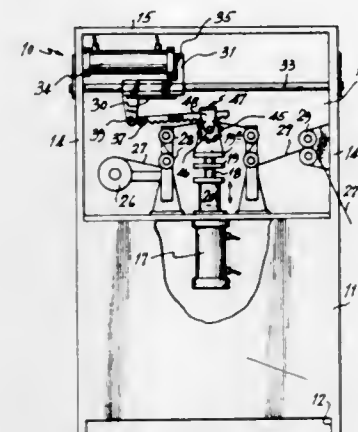
Rubin Warsager, 483 Forest Street, Kearny, N.J.

Filed Mar. 27, 1970, Ser. No. 23,396

Int. Cl. B65c 3/16, 9/18

U.S. Cl. 156—542

5 Claims



A hot stamping machine for transferring a decorative material to an article in which a pair of rack gears are attached to a carriage holding a die which reciprocates. The rack gears drive two driven gears at the same velocity thereby rotating the object to be decorated and the transfer tape having the decorative material thereon at the same rate of speed to insure a good quality transfer of tape. The object to be decorated is moved up and down into and out of contact with the die. A rack guide is used to maintain the rack gear and the gear driving the object in constant mesh despite the up and down movement of the object.

3,657,055

HEAT SEALING STATION

Matthew Nichols, Norristown, Pa., assignor to Sauter Packaging Company, Souderton, Pa.

Filed June 23, 1970, Ser. No. 49,002

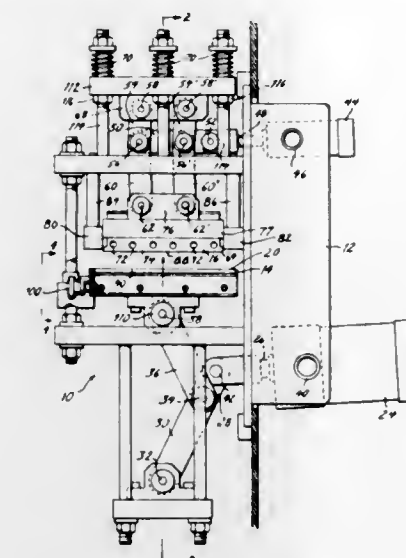
Int. Cl. B30b 15/34, 5/00

U.S. Cl. 156—583

14 Claims

A heat sealing station for laminating superimposed elongate webs of material including an upper heat seal unit and a lower pressure platen in vertical registry, the lower pressure platen having vertical reciprocal motion below the web and the upper heat seal unit having vertical reciprocal motion

above the web, the upper heat seal unit further being characterized by resilient mounting construction to cooperate with a rigid transparent sheet, such as glass or polycarbonate, by interposing a polymerizable polyurethane resin between the



and to absorb the forces generated by operation of the lower pressure platen.

3,657,056

ULTRASONIC SUTURING APPARATUS

Ronald H. Winston, New York, N.Y.; Stephen Schultz, Chapel Hill, N.C., and Thomas Q. Garvey, III, Chevy Chase, Md., assignors to Ultrasonic Systems, Inc., Plainview, N.Y.

Original application Dec. 11, 1967, Ser. No. 689,634, now

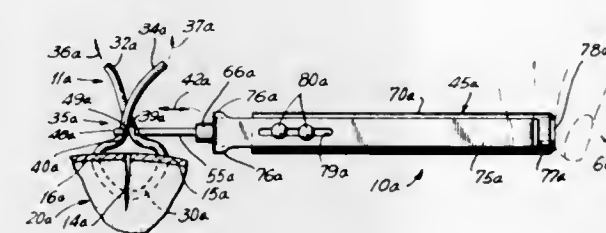
Patent No. 3,513,848, dated May 26, 1970. Divided and this

application Mar. 11, 1970, Ser. No. 18,519

Int. Cl. B29c 27/08; B32b 31/16

U.S. Cl. 156—580

7 Claims



The invention deals with the method and apparatus for forming sutures utilizing ultrasonic vibrational energy as well as the sutures formed thereby. The sutures are formed in biological organisms, such as humans, in a manner to substantially eliminate the loosening of the suture after its formation. In one form of the invention, tie offs in the form of knots as presently practiced are eliminated and overlapping portions of the suture are ultrasonically bonded or welded together without first forming a knot. In another form of the invention the ultrasonic vibrational energy is applied to the knot portion of the suture to prevent slippage and loosening thereof as stresses are applied thereto by normal body movement or in particular by the muscular system. The ultrasonic mechanical vibrations are applied to thermoplastic suture materials that are in either the plastic or metallic family, or of a natural or synthetic polymeric material.

3,657,057

LAMINATED WINDOWS

Norman Shorr, Pittsburgh, and Harry E. Littell, Jr., Allison Park, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

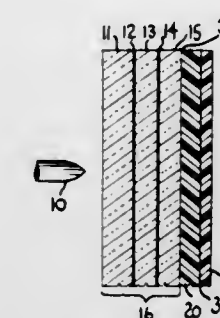
Filed June 17, 1969, Ser. No. 834,037

Int. Cl. B32b 17/10, 27/40

U.S. Cl. 161—2

12 Claims

Improving the adhesion of a cured sheet of polyurethane to



cured polyurethane sheet and the rigid transparent sheet prior to lamination.

3,657,058

INTEGRAL VIBRATION DAMPING STRUCTURE FOR INDUCING SIGNIFICANT SHEAR DEFORMATION

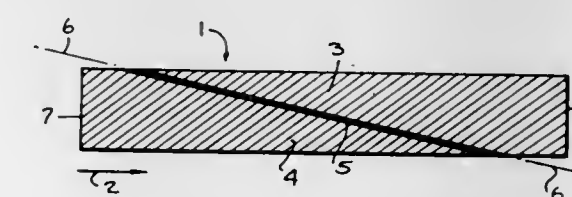
Noboru Tokita, Wayne, N.J., and Edwin R. Hahn, Grosse Pointe, Mich., assignors to Uniroyal, Inc., New York, N.Y.

Filed June 19, 1970, Ser. No. 47,779

Int. Cl. B32b 3/14

U.S. Cl. 161—37

15 Claims



An integral vibration damping structure, comprising a thin layer of damping material interposed between and adhered to a pair of overlapping, elongated rigid members, the layer of damping material being disposed at an angle other than about 90° to the direction of propagation of the vibration to be damped and being deformed in shear when subjected to such vibration, thereby substantially reducing such vibration.

The foregoing abstract is neither intended to define the invention disclosed in this specification, nor is it intended to be limiting as to the scope of the invention in any way.

3,657,059

QUASI-ISOTROPIC SANDWICH CORE

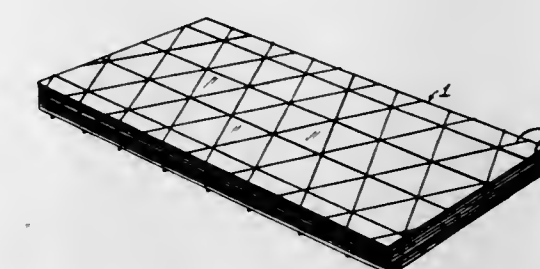
Irving E. Figge, Newport News, Va., assignor to The United States of America as represented by the Secretary of the Army

Filed May 20, 1970, Ser. No. 39,596

Int. Cl. B32b 5/12, 5/26

U.S. Cl. 161—47

7 Claims



A structural core consisting of a winding of fibrous filaments which are wound upon a jig, each filament being disposed upon the preceding one whereby the winding defines parallel rows of tetrahedrons, half of which point upwards, the other half downwards. Sandwiched, in spaced

relation, between the windings of filaments are sheets of fibreglas cloth. The dimensions of the sheets are coextensive with the dimensions of the winding.

3,657,060 EMBROIDERED EMBLEM WITH THERMOPLASTIC ADHESIVE

Thomas I. Haigh, Bucks County, Pa., assignor to The Penn Novelty Company, Philadelphia, Pa.
Filed Aug. 25, 1970, Ser. No. 66,715
Int. Cl. B32b 3/02, 3/14

U.S. Cl. 161—73 5 Claims
An embroidered emblem which comprises a fabric base with an embroidered design thereon and a thermoplastic material laminated thereto. The emblem can be fastened to a garment by applying sufficient heat and pressure to melt the thermoplastic material. The method for preparing the laminated emblem comprises the steps of applying heat and pressure to the thermoplastic material while it is in contact with the emblem and then permitting it to cool while still under pressure. A similar technique is utilized for bonding the emblem to a garment.

3,657,061 REINFORCED CARBON AND GRAPHITE BODIES

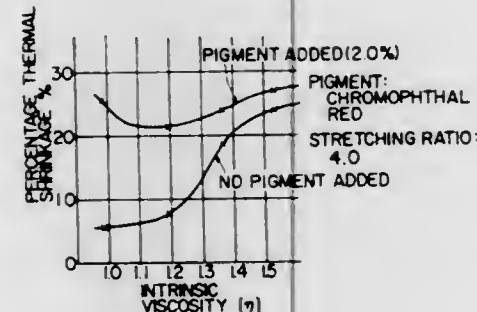
Walter H. Carlson, Grand Island, and Leo C. Ehrenreich, Buffalo, both of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.
Filed Dec. 13, 1966, Ser. No. 601,306
Int. Cl. D03d 15/00, 11/00

U.S. Cl. 161—81 6 Claims
A high strength carbon or graphite body formed from a carbon or graphite fiber composite shape having fibers running in three dimensions and a carbon or graphite matrix. The fiber composite is formed by needling layers of carbon or graphite fibers to position some of the fibers of each layer into a running direction substantially perpendicular to the running direction of the layers.

3,657,062 CRIMPABLE, COLORED POLYPROPYLENE COMPOSITE FIBERS

Shozo Eshima; Isao Fujimura, and Hidenori Nakagawa, all of Shigaken, Japan, assignors to Chisso Corporation, Osaka, Japan
Filed Jan. 23, 1970, Ser. No. 5,291
Claims priority, application Japan, Jan. 31, 1969, 44/7185
Int. Cl. D01d 5/28

U.S. Cl. 161—173 10 Claims



These crimpable, coloured polypropylene composite fibers have such a structure that the first portion consisting of polypropylene having a high degree of polymerization and containing pigment and the second portion consisting of polypropylene having a low degree of polymerization and an intrinsic viscosity of 1.35 or less and being substantially free

of a pigment, are joined together in an asymmetrical relation with respect to the fiber axis.

Yarns of a high bulkiness, a high elongation and shrinkage and good touch can be prepared from the present composite fibers.

3,657,063 PROCESS AND ARTICLE COMPRISING A LAYER OF A TERNARY COMPOSITION OF HAFNIA; ZIRCONIA AND TITANIA BONDED TO A SILICA SUBSTRATE

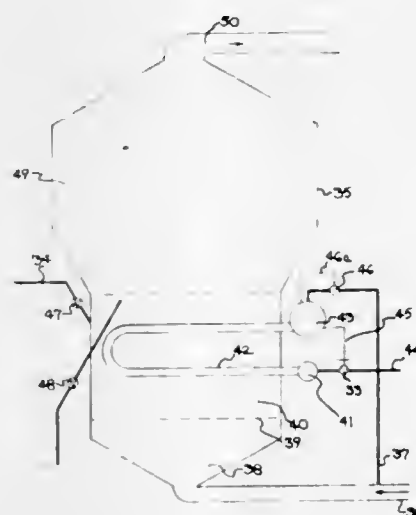
Sherman D. Brown, Simi; Thomas F. Schroeder, Los Angeles, both of Calif., and Earl E. Conabee, Morris Plains, N.J., assignors to North American Rockwell Corporation, by said Brown and said Schroeder
Filed Nov. 20, 1967, Ser. No. 686,377
Int. Cl. B32b 17/06

U.S. Cl. 161—192 8 Claims
An article of manufacture consisting of a high thermal shock resistant composite, said composite formed of a first layer of a composition of low expansion particulate oxide layer intimately bonded to a second layer of a low expansion preformed silica material. The particulate oxide layer consists essentially of 60 to 85 mole percent hafnia, 10 to 30 mole percent zirconia and 10 to 30 mole percent titania.

3,657,064 DIRECT OXIDATIVE CONVERSION OF SODIUM SULFIDE TO SODIUM SULFITE BY ABSORBING THE HEAT OF REACTION IN A FLUIDIZED BED SYSTEM USING ADIABATIC COOLING

Phillip E. Shick, Toledo, Ohio, assignor to Owens-Illinois, Inc.
Filed Sept. 18, 1969, Ser. No. 859,041
Int. Cl. D21c 11/00, 11/12

U.S. Cl. 162—30 11 Claims



Process for simultaneously producing sulfite pulping chemical from a spent pulping medium by the exothermic oxidative conversion of sodium sulfide to sodium sulfite and for the control of the temperature in exothermic reaction and also for employing the exothermic reaction heat to make steam to be mixed with air for use in said oxidation process. Ground particles of a spent pulping smelt are treated in a fluidized bed reactor in intimate contact with moving air enriched with steam for about 10 seconds to 2 hours, wherein the weight ratio of steam to air ranges from about 0.2 to 1 to 1.2 to 1. The temperature in the reactor is adiabatically controlled and the heat of reaction generated in the reactor is absorbed by adiabatic cooling to form the steam used in the reactor.

3,657,065 DELIGNIFICATION AND BLEACHING OF CELLULOSE PULP WITH OXYGEN GAS IN AN ALLSALINE MEDIUM IN THE PRESENCE OF A PROTECTOR

Leon Smith, Petersfield Springs; David W. Calvert, Westdene, Benoni, both of Republic of South Africa; Andre Robert, Meylan, and Andre Viallet, Grenoble, both of France, assignors to South African Pulp and Paper Industries, Limited and L'Air Liquide, Societe Anonyme pour L'Etude et L'Exploitation des Procédes Georges Claude
Filed June 11, 1969, Ser. No. 832,477
Claims priority, application Republic of South Africa, June 13, 1968, 68/3771
Int. Cl. D21c 9/10

U.S. Cl. 162—65 10 Claims
A method of delignifying and bleaching a chemical or semi-chemical cellulose pulp with oxygen gas in an alkaline medium, preferably sodium hydroxide, and in the presence of a protector, the method being characterized in that the protector is selected from the group consisting of silica; an alkali metal silicate, such as sodium silicate; an alkaline earth metal silicate, such as magnesium silicate; an alkaline earth metal phosphate, such as magnesium phosphate; an alkaline earth metal oxide, such as magnesium oxide; an alkaline earth metal peroxide; an alkaline earth metal hydroxide or a material forming an alkaline earth metal hydroxide, such as magnesium hydroxide or a material forming magnesium hydroxide in situ; and a soluble salt of magnesium other than magnesium carbonate.

3,657,066 WET-STRENGTHENED CARBOXYLATED CELLULOSIC MATERIALS CONTAINING MELAMINE FORMALDEHYDE RESIN AND A PROCESS FOR PREPARING THE SAME

Marcel Chene, True Marcel Benoit, Grenoble; Jean Pierre Quiles, Lenomeau Fleuri-villa 93, Momtombmot 38, and Jean Francis Lafaye, 30 rue Edouard Voillant, Grenoble 38, all of France
Filed Dec. 29, 1969, Ser. No. 888,982
Int. Cl. D21d 3/00

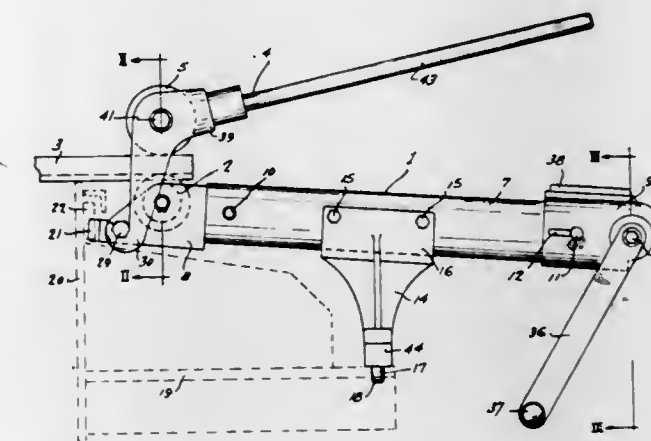
U.S. Cl. 162—166 3 Claims
A method of preparing fibrous cellulosic materials containing resins such as trimethylolmelamine so as to improve bonding between fibers and the wet state and conditioned state resistances, said method being one in which cellulose fibers are oxidized with an alkali metal periodate to form aldehyde groups in the 2 and 3 positions, and the aldehyde containing cellulose fibers are then further oxidized with an alkali metal chlorite to form carboxyl groups in the 2 and 3 positions, and the resin precursor is reacted in acidic medium and is mainly retained by an ion exchange mechanism on cellulose fibers, those fibers then being used on paper or cardboard machines; and the new products so obtained.

3,657,067 APPARATUS FOR INSTALLING AND REMOVING FOILS FROM PAPER MAKING MACHINES

Derrick Ronald Woodward, Pointe Claire, Quebec, Canada, assignor to JWI Ltd.
Filed Dec. 12, 1969, Ser. No. 884,524
Claims priority, application Canada, Aug. 21, 1969, 060090
Int. Cl. D21g 9/00

U.S. Cl. 162—199 8 Claims
A foil-gripping device attached laterally of a foil unit on the side of a paper making machine which includes a friction roller attached to a tube and support column and positioned to engage the underside of the drainage foil, and a pressure roller connected to the tube by hooked members and operable to apply pressure to the upper side of the drainage foil by a movable lever arm. A drive chain housed within the tube is

connected to the friction roller and functions to turn the roller and thereby move the drainage foil laterally of the

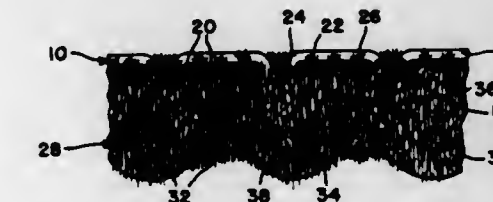


paper making machine when the pressure roller contacts the upper surface of the drainage foil.

3,657,068 PAPERMAKING FELT

Michael Ivanowicz, Piqua, Ohio, assignor to The Orr Felt Company, Piqua, Ohio
Filed Jan. 7, 1970, Ser. No. 1,241
Int. Cl. D21f 3/00

U.S. Cl. 162—358 5 Claims



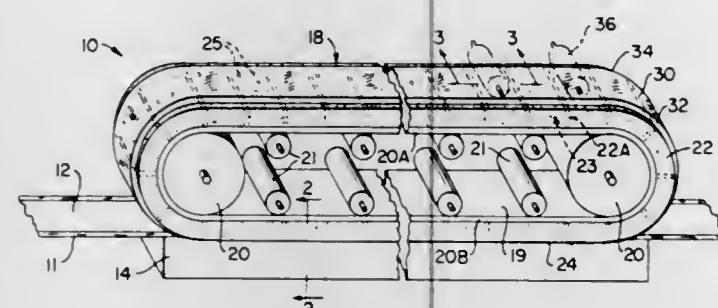
A papermaking felt has an essentially three-layer construction including a cushion of non-woven batting material interposed between a relatively fine woven finish fabric and a preferably coarser woven wear fabric, and these respective portions of the felt are anchored together by one or more needling operations. The finish fabric is fine enough weave to prevent undesirable marking of a sheet of paper, and the wear fabric is strong enough in construction to resist the abrasion and wear and open enough to permit water to pass freely through the felt. The intermediate batt is thick enough to resist compression occasioned by the high pressures of normal paper machine speeds and joins the finish and wear fabrics in unitary construction to prevent the fabrics from shifting relative to each other during operation.

3,657,069 METHOD AND APPARATUS FOR TREATMENT OF SHEET-LIKE MATERIAL

Robert R. Candor, 5940 Munger Rd., Dayton, Ohio, and James T. Candor, 5440 Cynthia Lane, Dayton, Ohio
Filed Dec. 18, 1969, Ser. No. 886,090
Int. Cl. D21f 11/00, 5/08

U.S. Cl. 162—205 10 Claims
A sheet-like material such as a paper web or fabric web is treated with a fluid, for example, hot air or liquid dye. The material is carried by a permeable felt wire on which it is subjected to both pressure and direct fluid flow from a movable nozzle element. The nozzle element includes an endless support member driven by a pair of rollers and an outer flexible, chambered belt or sheet. The chambers of the flexible belt are provided with inlets through which the treating fluid, under pressure, is delivered thereto. The chambers are further provided with outlets or openings which allow the

treating fluid to pass from the chambers. A porous sheet or belt is placed and secured around the flexible, chambered belt. In operation the sheet-like material passes through the apparatus on the permeable wire with the nozzle element



moving in unison therewith. The treating fluid passes from the chambered belt, through the porous sheet into the material, with the pressure from the treating fluid maintaining the flexible belt, the porous sheet and material in a substantially sealed relation throughout the apparatus.

3,657,070

MICROBIOLOGICAL PREPARATION OF OPTICALLY ACTIVE 9-OXO-5(S)-HYDROXY-DECANOIC ACID AND THE LACTONE THEREOF

Julius Berger, Passaic, and Michael Rosenberger, Bloomfield, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed July 22, 1970, Ser. No. 57,371
Int. Cl. C12d 13/00

U.S. Cl. 195—30

7 Claims

Optically active 9-oxo-5(S)-hydroxy-decanoic acid is prepared by selective microbiological reduction of 5,9-dioxodecanoic acid. The product acid is converted to levorotatory 9-oxo-5(S)-hydroxy-decanoic acid lactone by treatment of the reaction medium with a strong mineral acid. The aforesaid lactone is useful as an intermediate in the total synthesis of medicinally valuable, optically active steroids.

3,657,071

FRACTIONATION OF PROTEINS

Hans Ulrich Bergmeyer, Tutzing/Oberbayern, Bahnhofstrasse 5a., and Hans Mollering, Tutzing/Oberbayern, Waldschmidtstrasse 5., both of Tutzing/Oberbayern, Germany

Filed Nov. 12, 1968, Ser. No. 775,197
Int. Cl. C07g 7/02

U.S. Cl. 195—66 R

1 Claim

Process for fractionating proteins comprising subjecting a protein containing material to a sequence of treatment steps involving salts containing no heavy metal ions and uranyl acetate.

3,657,072

EPOXIDATION OF CIS-PROPENYLPHOSPHONIC ACID

Raymond F. White, Englishtown, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Filed Nov. 5, 1969, Ser. No. 874,387
Int. Cl. C12d 9/00

U.S. Cl. 195—81

10 Claims

Cis-propenylphosphonic acid and its salts are converted to (-)(cis-1,2-epoxypropyl)phosphonic acid by intimately contacting said acid or salts with epoxidizing enzymes of molds. The epoxyphosphonic acid and its derivatives are valuable antibiotics against gram-positive and gram-negative bacteria.

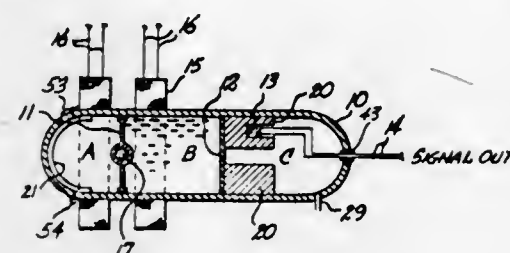
3,657,073 APPARATUS FOR DETECTING VIABLE ORGANISMS

George M. Burton, Burton; Gerald M. Christensen, and Arthur J. Pilgrim, both of Bellevue, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 12, 1966, Ser. No. 549,717
Int. Cl. C12b

U.S. Cl. 195—127

9 Claims



A three chamber sterilization efficiency detector having a first chamber containing viable organisms that are subjected to the sterilization process; a second chamber separated from the first by an openable partition containing nutrient media; and a third chamber separated from the second by a semi-permeable partition containing means for detecting the products of the life processes of the organisms. After sterilization, the openable partition is opened to allow the nutrient media to contact the organisms and support the life processes of any surviving organisms and the products of such life processes pass through the semi-permeable partition to be detected in the third chamber.

3,657,074

PURIFICATION OF PYRUVALDEHYDE

John S. Warner, Columbus, Ohio, assignor to Wm. Wrigley, Jr. Company, Chicago, Ill.

Filed Mar. 21, 1968, Ser. No. 714,807
Int. Cl. B01d 3/34

U.S. Cl. 203—52

10 Claims

A process for the purification of pyruvaldehyde which comprises the gradual addition of a crude aqueous solution of pyruvaldehyde, containing amounts of color bodies, and polymeric products to a water-immiscible liquid maintained at a temperature of about 80° C. to about 200° C. at atmospheric or reduced pressure, and preferably of an inert atmosphere, and collecting the pyruvaldehyde. The purified pyruvaldehyde is recovered as the aqueous phase from a condensed azeotype. Suitable water-immiscible liquids include mineral oil, petroleum solvents, tetrachloroethane, orthodichlorobenzene, and other high-boiling hydrocarbons and halohydrocarbons.

3,657,075

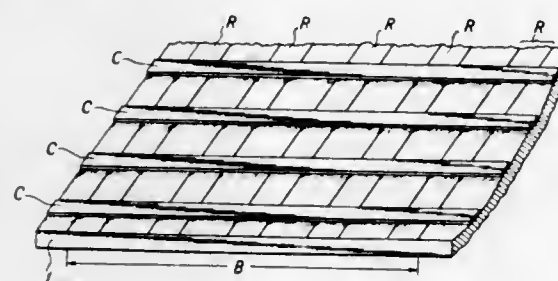
METHOD OF FABRICATING MEMORY MATRIX PLANES USING FERROMAGNETIC THIN FILM

Shintaro Oshima; Toshihiko Kobayashi, both of Tokyo-to, and Tetsusaburo Kamibayashi, Kitaadachi-gun, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo-to, Japan

Filed Sept. 18, 1968, Ser. No. 760,529
Claims priority, application Japan, Sept. 18, 1967, 42/59423
Int. Cl. C23b 5/48, 5/46

U.S. Cl. 204—15

7 Claims



A method of fabricating a memory matrix plane using ferromagnetic thin films, in which a composite film comprising

a ferromagnetic thin film, a copper layer, and a chromium layer, is deposited on a glass substrate and is photoetched so as to obtain spaced parallel lines. Ferromagnetic layers are electroplated on the separate lines to coat the copper layer, and the chromium layer together with the ferromagnetic thin film at each of the separate lines, thereby obtaining row lines. Column lines are deposited, through an insulation layer, on the row lines so as to be orthogonally arranged to the row lines by evaporative deposition or adhesive deposition.

3,657,076

METHOD OF BONDING QUARTZ TO METAL

Marvin Bernstein, Asbury Park, N.J., assignor to The United States of America as represented by the Secretary of the Army

Filed Dec. 17, 1970, Ser. No. 99,288
Int. Cl. C23b 7/00, 5/60; B23k 31/02

U.S. Cl. 204—16

5 Claims

A quartz surface is bonded to a metallic surface such as stainless steel. The method involves the sequential vacuum evaporation of chromium, copper and chromium, and copper onto the quartz surface to form in superposition, a chromium film, a copper-chromium film, and a copper film in that order on the quartz surface. The quartz surface bearing these superimposed films is then placed in electrical and physical contact with the stainless steel surface to which it is to be bonded and immersed in an electroplating solution of an electroplatable metal. An electrode composed of said electroplatable metal is also immersed in the electroplating solution. The exposed stainless steel surface is then electrically connected to the negative terminal of a suitable power supply, and the electrode of said electroplatable metal electrically connected to the positive terminal of the power supply. A variable current limiting resistor and milliammeter are series connected to the terminals of the power supply and a suitable plating current is then passed through the solution.

3,657,077

PROCESS FOR THE TREATMENT OF ANODIC OXIDIZED ALUMINUM SURFACES

Hans Gunther Germscheid, Hoesel, and Roland Geisler, Dusseldorf-Holthausen, both of Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

Filed July 8, 1970, Ser. No. 53,317
Claims priority, application Germany, Sept. 2, 1969, P 19 44 452.1
Int. Cl. C23f 17/00

U.S. Cl. 204—35 N

4 Claims

An improvement in the treatment of anodic oxidized aluminum surfaces with subsequent sealing with hot water or steam. The improvement comprises either an intermediate treatment or a combined treatment with the sealing of the aluminum surfaces at temperatures of from 150° C to 100° C with a solution of dextrin. The treatment prevents the formation of sealing films without impairing the anodic oxide coating or the quality of the after-sealing.

3,657,078

METHOD OF PRODUCING CYLINDER LINERS WITH DIFFERENT DEGREES OF ROUGHNESS IN HIGH AND LOW PRESSURE AREAS

Ernest W. Schweikher, Waterbury, Conn., assignor to Chromium Corporation of America, Waterbury, Conn.

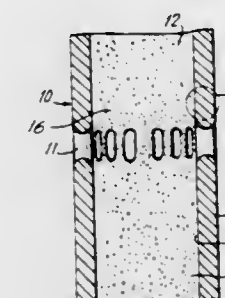
Filed July 30, 1969, Ser. No. 854,345
Int. Cl. C23f 17/00

U.S. Cl. 204—35 R

7 Claims

A lining is provided for an internal combustion engine cylinder in which different degrees of roughness are imparted to those portions of the lands of the liner surface subjected to low and high pressures. The lands of the low pressure portions of the cylinder liner have a high degree of roughness for providing lubrication pockets for cooling the compression

rings and for providing lapping of the rings during break-in so as to conform those surfaces in relative movement with each other. The lands of the high pressure portions of the cylinder liner have a low degree of roughness for reducing the oil retaining capacity thereof adjacent the combustion chamber



3,657,079

NOVEL PROCESS AND PRODUCT

Hyman Chessin, Birmingham, and Robert Francis Gempel, Detroit, both of Mich., assignors to M & T Chemicals Inc., New York, N.Y.

Filed Feb. 6, 1969, Ser. No. 797,258
Int. Cl. C23b 5/06

U.S. Cl. 204—51

4 Claims

This invention relates to novel compositions and to a process of preparing an iridescent chromium plated article which comprises passing current from an anode to a cathode through an aqueous chromium plating solution which contains at least one chromium compound providing chromium metal ions for electroplating chromium and a hexavalent molybdenum compound to produce an iridescent chromium surface on said cathodic article.

3,657,080

MIST SUPPRESSION IN ELECTROPLATING SOLUTIONS

Hyman Chessin, Birmingham, Mich., assignor to M & T Chemicals Inc., New York, N.Y.

Filed Sept. 25, 1968, Ser. No. 762,624
Int. Cl. C23b 5/06

U.S. Cl. 204—51

8 Claims

In accordance with certain of its aspects, this invention relates to novel compositions and to a process for suppressing mist formation in an aqueous composition which comprises incorporating hydrophobic particles having a particle size of 0.002-100 microns into said aqueous compositions. The process is applicable, for example, to chromium electroplating solutions.

3,657,081

PROCESS FOR RECOVERY OF METALS

W. Church Holmes, 100 South St., Sausalito, Calif.

Filed Nov. 9, 1970, Ser. No. 88,088
Int. Cl. C22b 31/00; B01k 1/00

U.S. Cl. 204—105 R

7 Claims

The process of recovering antimony from stibnite concentrate and other minerals or products containing the same which comprises contacting the concentrate with a solution of an alkali metal sulphide in a leaching circuit, electrolyzing the resultant pregnant solution in a diaphragm cell by utilizing said solution as the catholyte and a solution of the barren, or stripped catholyte and caustic alkali as the anolyte,

whereby oxidation products of sulphide sulphur are formed in the anolyte, treating all or part of the resulting oxidized anolyte with chlorine gas for the precipitation of its contained antimony and sulphide sulphur prior to its discard, recovering the antimony content of the precipitate and returning the same to the leaching circuit, and removing sufficient sulphur in the process as sodium sulphate and elemental sulphur to maintain the sulphide sulphur content of the leaching solution at a predetermined level.

3,657,082

TREATMENT OF FIBROUS MATERIALS

Henry Wells, Wantage, and William James Colclough, Didcot, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Dec. 27, 1968, Ser. No. 787,558

Claims priority, application Great Britain, Jan. 3, 1968, 525/68

Int. Cl. C01d 7/34

U.S. Cl. 204—130

2 Claims

In order to improve the surface characteristics of carbon fibers, e.g. their adhesion to a resin matrix, they are treated by immersion in an aqueous oxidising agent, e.g. a hypochlorite.

3,657,083

DISC JET ELECTROPOLISHING APPARATUS AND METHOD

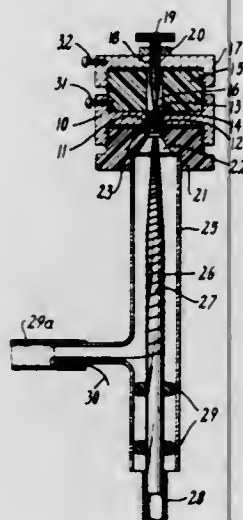
Jay Michael Larson, Rte. 1, Box 600, Monroe, N.Y.; Douglas Hugh Polonis, 46th N.E., Seattle, Wash., and Raymond Taggart, 6445 N.E. 130th Place, Seattle, Wash.

Filed Sept. 30, 1970, Ser. No. 76,678

Int. Cl. C23b 3/06; B01k 3/00

U.S. Cl. 204—140.5

7 Claims



Jet electropolishing apparatus and method for preparation of thin foil specimen discs for transmission electron microscopy, including means responsive to passage of electrolyte through the specimen for terminating both the flow of electric current and the flow of electrolyte.

3,657,084

METHOD OF MOUNTING ELECTRODE

Ernst Beer, Zorgvlietstraat 176, The Hague, Netherlands, and Henri Bernard Beer, Vogelengangstraat 33, Kalmthout, Belgium

Continuation of application Ser. No. 665,178, Sept. 1, 1967, now Patent No. 3,513,082, which is a continuation of application Ser. No. 341,003, Jan. 29, 1972, now abandoned. This application Dec. 3, 1969, Ser. No. 881,767. The portion of the term of this patent subsequent to May 19, 1988, has been disclaimed.

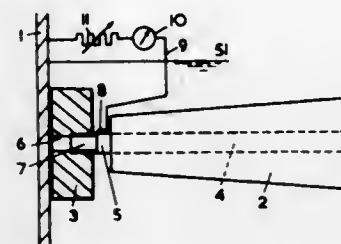
Int. Cl. C23f 13/00

U.S. Cl. 204—147

4 Claims

A method of cathodically protecting a ferrous metal object against corrosion in an electrolyte. A magnet of high dielec-

tric ceramic material has a protecting electrode mounted thereon and is placed with the electrode thereon against the object to be protected with the magnet directly against the object. The electrode is electrically connected to the object



to be protected through a path outside the magnet. The electrode is secured tightly to the object by the magnet and it also acts to electrically insulate the electrode from the object to be protected.

3,657,085

METHOD OF MARKING A TRANSPARENT MATERIAL

Dietrich Hoffmeister, Oberkochen, and Fritz Schleich, Wasseralfingen, both of Germany, assignors to Carl Zeiss-Stiftung, Carl Zeiss, Wuerttemberg, Germany

Filed Mar. 6, 1969, Ser. No. 804,848

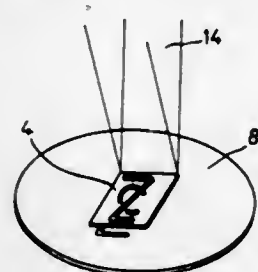
Claims priority, application Germany, Mar. 13, 1968, P 16

96 714.9

Int. Cl. B01j 1/10

U.S. Cl. 204—157.1 R

8 Claims



An identification mark is made on a transparent workpiece, such as a lens for spectacles, by irradiating the material in a pattern desired for an identification mark with radiations which produce localized permanent stresses in the material that are visible by double refraction in polarized light. Suitable irradiation may be provided by corpuscular radiation, as by an electron beam, or electromagnetic radiation, as by laser beams. The radiation is preferably applied in an amount to produce the stresses within the material, not on the surface.

3,657,086

RACEMIZATION OF OPTICALLY ACTIVE TRANSCYCLOPROPANECARBOXYLIC ACIDS AND THEIR DERIVATIVES

Masanao Matsui, Tokyo, and Kenzo Ueda, Nishinomiya, both of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Mar. 16, 1970, Ser. No. 20,059

Claims priority, application Japan, Mar. 24, 1969, 44/22559

Int. Cl. B01j 1/10

U.S. Cl. 204—158 R

3 Claims

A method for racemizing optically active trans-cyclopropanecarboxylic acids and their derivatives comprising dissolving the compound in an inert solvent which is transparent to ultraviolet rays and irradiating the solution with ultraviolet rays in the presence of a photo-sensitizer.

3,657,087

METHOD FOR OXIDIZING A MERCAPTAN COMPOUND DISPERSED IN AIR

John W. Scott, 2020 Edson Drive, Beaumont, Tex.

Filed July 24, 1969, Ser. No. 844,274

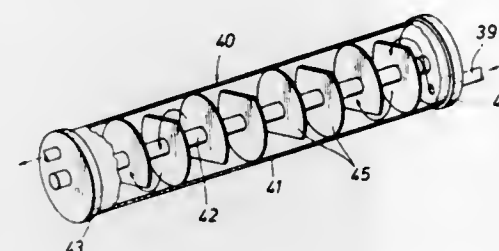
Int. Cl. B01j 1/10

U.S. Cl. 204—158 R

7 Claims

An apparatus and method for oxidizing low concentrations of mercaptan compounds in air at ambient or room tempera-

ture by using ultra-violet light, preferably from a low pressure mercury vapor lamp to supply the activation energy. The dispersion of the mercaptan compound and air is flowed through a reactor chamber and contacted with the ultra-violet light therein. Means may also be provided for contacting the dispersion with mercury vapor in the chamber to thereby increase the rate of oxidation. The resulting effluent



from the method and system has a reduced concentration of noxious odor producing compounds, such that the method and system may be used in reducing air pollution, for example.

3,657,088

MOULDING AND COATING MASSES HARDENABLE BY UV IRRADIATION

Hans-Georg Heine; Karl Fuhr, both of Krefeld; Hans Rudolph, Krefeld-Bockum, and Hermann Schnell, Krefeld-Uerdingen, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation-in-part of application Ser. No. 837,865, June 30, 1969, now abandoned. This application Dec. 17, 1969,

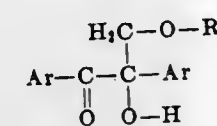
Ser. No. 885,986

Int. Cl. B01j 1/00; C08d 1/00

U.S. Cl. 204—159.15

6 Claims

The invention relates to compounds and mixtures of compounds polymerisable by UV-irradiation which contain α -substituted benzoin of the formula



in which Ar stands for the unsubstituted phenyl radical or a phenyl radical substituted by lower alkyl having up to about 4 carbon atoms, methoxy, ethoxy or halogen, and R stands for hydrogen or acetyl, and the production of polymeric compounds thereof.

3,657,089

PROCESS FOR PRODUCTION OF FIBROUS CARBIDES, NITRIDES OR BORIDES OF TITANIUM AND ZIRCONIUM

Takehiko Takahashi, 4-81, Ueda-Umemorizaka, Tenpaku-cho, Syowa-ku, and Kozo Sugiyama, 1-8, Naruko-cho, Midou-ku, both of Nagoya-Aichi, Japan

Filed Jan. 6, 1970, Ser. No. 1,026

Claims priority, application Japan, Jan. 7, 1969, 44/1169

Int. Cl. B01k 1/00; C01b 31/30, 35/00

U.S. Cl. 204—164

7 Claims

A process for producing fibrous carbides, nitrides and borides of titanium or zirconium wherein the reaction is affected by subjecting a titanium or zirconium halide to an electrical discharge of 0.1mA to 20mA between electrodes with an alternating current of less than 3,000 cycles per second.

3,657,090
FERROELECTRIC POLING OF FILLED TUNGSTEN BRONZES

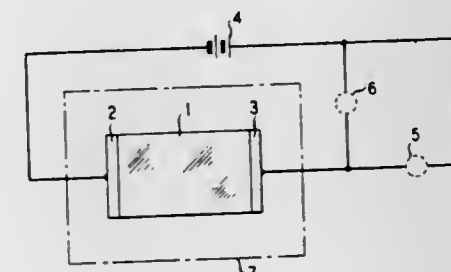
Hyman Joseph Levinstein, Berkeley Heights; Shobha Singh, Summit, and Le Grand Gerard Van Utert, Morris Township, Morris County, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 22, 1970, Ser. No. 4,913

Int. Cl. C04b 35/00

U.S. Cl. 204—164

8 Claims



Poling of ferroelectric tungsten bronze-like crystalline material in which the cation sites are substantially filled is expedited by electrolysis at temperatures in excess of the ferroelectric Curie temperature for periods of the order of one hour for bodies one centimeter in length. Electrolysis is carried out in an atmosphere which will yield positive ions such as H^+ , D^+ and Li^+ which migrate through the body during processing.

3,657,091

ELECTROPHORETIC IMAGING METHOD EMPLOYING A PERIODIC ELECTRIC FIELD

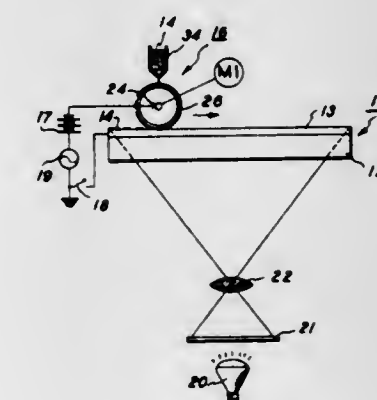
Edward Forest, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Oct. 3, 1968, Ser. No. 764,715

Int. Cl. C23b 13/00; G03g 13/00

U.S. Cl. 204—181

15 Claims



Method and apparatus for improving image density, contrast and quality and photographic speed in an electrophoretic imaging system utilizing a particulate suspension for forming the image. The method and apparatus stress a thin layer of the electrophoretic suspension of particles in a carrier on an electrode during imaging by applying a high frequency pulsed or varying electric field across the imaging suspension.

3,657,092

PROCESS FOR ELECTRODEPOSITION

Hannes Fischer, Wiesbaden-Biebrich, and Alfred Kuhlkamp, Hofheim/Tanus, both of Germany, assignors to Chemische Werke Albert, Wiesbaden-Biebrich, Germany

Filed Aug. 18, 1969, Ser. No. 851,094

Claims priority, application Germany, Aug. 20, 1968, P 17 96 033.9

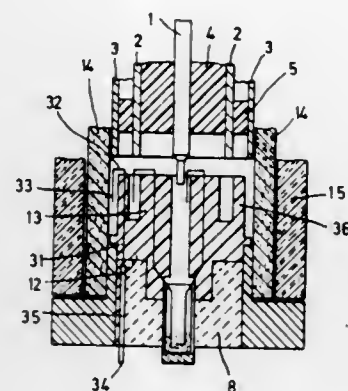
Int. Cl. B01k 5/02

U.S. Cl. 204—181

10 Claims

A process for electrodepositing a water-insoluble synthetic condensation resin having a particle size of at least $0.1\ \mu$ and generally at most $30\ \mu$ from a suspension of said resin in an aqueous medium onto the surface of an electrically conductive article. Preferred resins are phenolic resins, polyester resins and polyamide resins. In a specific embodiment polyvinyl phosphonic acid or its sodium salt or phosphoric acid either alone or in combination may be used as additives. The electrodeposited coatings may be stoved at a temperature above the softening temperature of the resin. Articles coated by this process.

layer of powdery material providing thermal contact between the thermo-couple junction and the housing. Three contact elements are respectively connected to the two thermo-cou-



ple leads and another electrode, and make respective electrical contact with the central, intermediate, and external tubes of the holder.

3,657,093

ION SELECTIVE ELECTRODE FOR ACTIVITY DETERMINATION OF CATIONS WHICH DO NOT FORM AS IONIC SEMICONDUCTORS

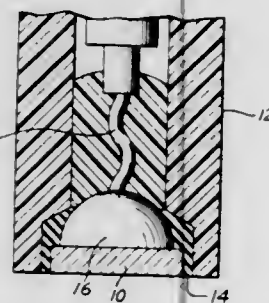
Gerard M. Farren, Lombard, Ill., assignor to The Perkin-Elmer Corporation

Filed Mar. 3, 1970, Ser. No. 16,073

Int. Cl. G01n 27/46

U.S. Cl. 204—195

6 Claims



A solid membrane ion-selective electrode is described which is capable of measuring the activity of a cation, e.g., Ca^{++} , which does not form an ionic semiconductor. A low solubility fluoride salt of the cation which is not an ionic semiconductor is mixed with another fluoride salt of lower solubility which is an ionic semiconductor to form an imporous membrane. With a suitable contact on one face of the membrane, an electrode results which is responsive to the desired cation in a selective reversible manner.

3,657,095

ELECTRODE SYSTEM FOR MEASURING ION ACTIVITY HAVING SENSING AND UNKNOWN SOLUTIONS IN DIRECT CONTACT

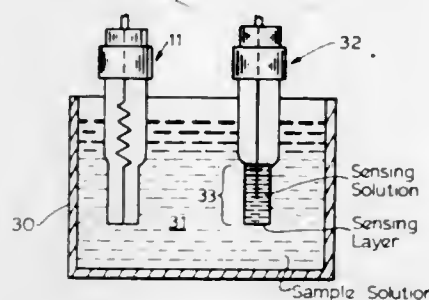
Daniel C. Tosteson, Durham, N.C., assignor to Duke University, Inc., Durham, N.C.

Filed July 14, 1969, Ser. No. 841,393. The portion of the term of the patent subsequent to Oct. 26, 1988, has been disclaimed.

Int. Cl. G01n 27/30

U.S. Cl. 204—195

5 Claims



Measurement of the activity of a particular chemical species of ion, e.g. potassium ion, in an aqueous solution is obtained by means of a selective element which contains an ion selective macrocyclic compound and which is dissolved to form a non-aqueous phase. During sensing, the aqueous and non-aqueous phases make direct contact.

3,657,094

DEVICE FOR MEASURING OXYGEN CONCENTRATION IN A METALLIC BATH

Andre Nicolas Hans, Wareme, and Philippe Felix Catoul, Horion-Hozemont, both of Belgium, assignors to Centre Nationale de Recherches Metallurgiques, Brussels, Belgium

Filed Aug. 31, 1970, Ser. No. 68,208

Claims priority, application Belgium, Apr. 7, 1970, 748,622; July 16, 1970, 42,919

Int. Cl. G01n 27/46

U.S. Cl. 204—195

23 Claims

The device is a probe comprising a measurement cell detachably connected to a holder. The holder has three electrically conductive co-axial tubes separated by insulating spacers. The cell has a heat resistant sheath which receives the external tube of the holder. Received within the sheath is a housing having a cavity which extends through it and receives the central tube of the holder. A hollow tube held by the housing contains an electrode, a thermo-couple, and a

3,657,096

REFERENCE ELECTRODE CONSTRUCTION

William Earl Proctor, Jr., Norristown, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Dec. 19, 1969, Ser. No. 886,555

Int. Cl. G01n 27/30

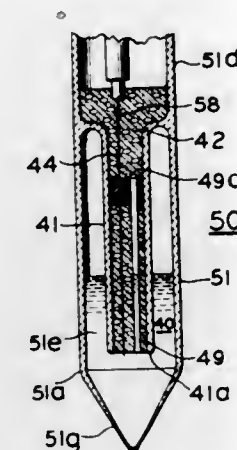
U.S. Cl. 204—195

9 Claims

A reference electrode structure comprised of a tube, preferably glass, having an immersion end and a connector end. A substantial portion of the length of the tube is filled from its immersion end with a solidified mass of a suitable molten metal salt, such as silver chloride. An electrical conductor at least an end of which consists of the metal of the metal salt, such as silver, extends completely through the solidified mass of metal salt and projects from each end of the mass of metal salt. The portion of the conductor which consists of the metal of the metal salt is disposed in and pro-

jects from the mass of metal salt at the immersion end of the tube. The other end of the conductor is available for connecting the electrode structure to a measuring system. The

tains a separate compartmentalized wheel for each inlet stream of amalgam. The compartmentalized wheel is caused to rotate and to drop the mercury from separate streams of



structure may be incorporated as a part of a glass electrode structure or a reference half-cell including a salt-bridge tube with a liquid junction.

3,657,097

SELECTIVE PLATING MACHINES

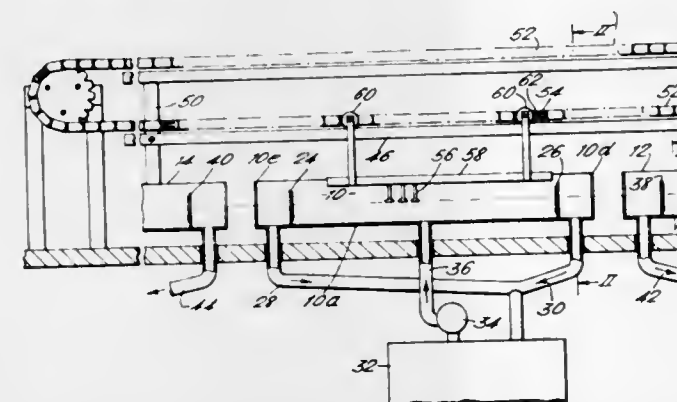
Alfred James Baldock, Crowthorne, and John Joseph Miles, Huyton, both of England, assignors to Kirkby Process and Equipment Limited, Kirkby, Lancashire, England

Filed Feb. 4, 1970, Ser. No. 8,598

Int. Cl. C23b 5/68; B01k 3/00

U.S. Cl. 204—202

10 Claims



Electro-plating machines are described, which enable plating to be carried out selectively, but using tanks for electrolytes and other treating liquids which include weirs adjustable in height so as to allow adjustment of the heights of the treating liquids. The objects to be plated are desirably mounted from a trackway, preferably formed by the current busbar, and are moved along the trackway by means of a transport system.

3,657,098

BIPOLAR ELECTROLYSIS CELLS WITH MERCURY CATHODE AND HAVING NOVEL AMALGAM SPLITTING VESSEL

Carl W. Raetzsch; John F. Van Hoozer, and Hugh Cunningham, all of Corpus Christi, Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

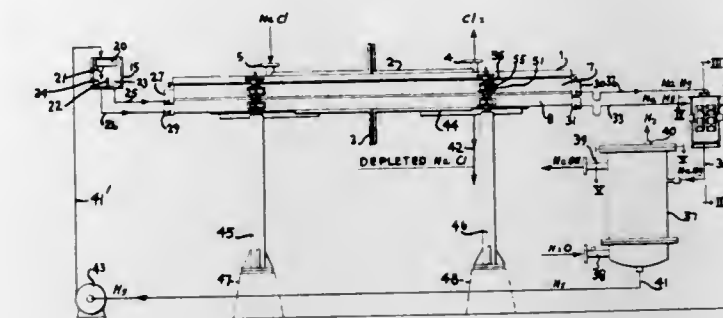
Original application Nov. 12, 1964, Ser. No. 410,579, now abandoned. Divided and this application Jan. 31, 1969, Ser. No. 795,665

Int. Cl. C22d 1/04; B01k 3/00

U.S. Cl. 204—219

1 Claim

Disclosed is a bipolar, mercury cathode, electrolytic cell for the electrolysis of brine. Mercury amalgam is removed from each individual cell through separate lines and fed to a mercury amalgam splitter. Mercury amalgam splitter con-



different electrical potentials into a common mercury pool at a single potential. The mercury pool is electrically insulated from separate streams.

3,657,099

ELECTROLYTIC CELL FOR PRODUCING ADIPONITRILE BY ELECTROLYTIC HYDRODIMERIZATION OF ACRYLONITRILE

Maomi Seko, Tokyo; Akira Yomiyama, Nobeoka; Tetsuya Miyake, Nobeoka; Koji Nakagawa, Nobeoka; Muneo Yoshida, Nobeoka, and Koji Inada, Nobeoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

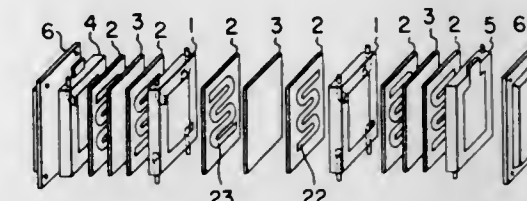
Filed May 1, 1970, Ser. No. 33,630

Claims priority, application Japan, May 7, 1969, 44/34499

Int. Cl. B01k 3/10

U.S. Cl. 204—253

10 Claims



An electrolytic cell for producing adiponitrile by electrolytic hydrodimerization of acrylonitrile, which comprises one or more sets of an anode plate, a cation exchange membrane and a cathode plate superposed with each other, and at least one duct formed between said anode plate and said membrane and between said cathode plate and said membrane through which electrolyte is passed at a high flowing rate, said duct having at least one turning portion which is positioned outside of an electric current path flowing across the anode and cathode plates.

3,657,100

CURRENT-CARRYING SPARGER FOR INTRODUCING FEED TO POROUS ELECTRODE

William V. Childs, Bartlesville, Okla., assignor to Phillips Petroleum Company

Original application June 24, 1968, Ser. No. 739,508, now abandoned. Divided and this application Aug. 26, 1970, Ser. No. 67,059

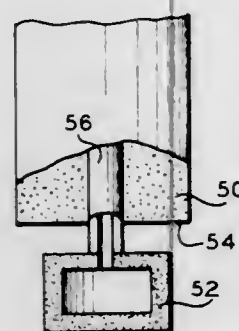
Int. Cl. B01r 3/04; C23b 5/74

U.S. Cl. 204—284

5 Claims

In an electrochemical process, the reaction takes place within the confines of a porous electrode element. The feed

materials are introduced into the bottom of this porous electrode element by means of a sparger which is positioned



beneath the electrode element but within the bulk of the electrolyte and which is a current-carrying component of the electrode assembly.

3,657,101

SPARGER FOR INTRODUCING FEED ADJACENT TO BOTTOM OF POROUS ELECTRODE

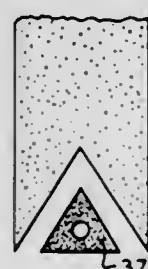
Homer M. Fox; Forrest N. Ruehlen, and Keith A. Williams, all of Bartlesville, Okla., assignors to Phillips Petroleum Company

Original application June 24, 1968, Ser. No. 739,476, now abandoned. Divided and this application Aug. 28, 1970, Ser. No. 67,951

Int. Cl. B01r 3/04; C23b 5/74

U.S. Cl. 204—284

19 Claims



In an electrochemical process, the reaction takes place within the confines of a porous electrode element. The feed materials are introduced into the bottom of this porous electrode element by means of a sparger which is positioned within the bulk of the electrolyte adjacent a bottom surface of said electrode element.

3,657,102

ELECTROLYTIC ANODE

Carl D. Keith, Summit; Alfred J. Haley, Jr., Florham Park, and Robert M. Kero, Cranford, all of N.J., assignors to Engelhard Minerals & Chemicals Corporation

Continuation-in-part of application Ser. No. 786,438, Dec. 23, 1968. This application Nov. 28, 1969, Ser. No. 880,932

Int. Cl. B01k 3/04

U.S. Cl. 204—290 F

5 Claims

An improved anode for the electrolysis of brines is comprised of a corrosion resistant valve metal substrate, a thin porous adherent exterior coating of a refractory oxide which is inert to the electrolysis cell environment, and between the substrate and exterior coating a thin layer of ruthenium oxide.

ERRATUM

For Class 204—299 see: Patent No. 3,657,260

3,657,103

ELECTRODE IMAGING SYSTEM

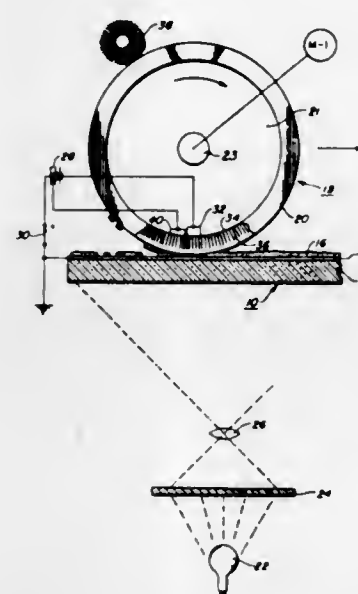
Donald J. Fisher, Fairport, N.Y., and Robert G. Davies, Clarksville, Va., assignors to Xerox Corporation, Rochester, N.Y.

Filed May 2, 1969, Ser. No. 821,257

Int. Cl. B44c 1/04; B01d 59/42, 5/00

U.S. Cl. 204—299

16 Claims



Method and apparatus for improving imaging and eliminating corona arcing during imaging of an electrophoretic imaging system employing a blocking electrode having individually insulated electrical conductive portions behind a blocking layer and a commutating means to activate the conductive portions such that an electric field is generated in a manner preventing air ionization or corona arcing between electrodes of the imaging system.

3,657,104

BIFUNCTIONAL CATION EXCHANGE MEMBRANES AND THEIR USE IN ELECTROLYTIC CELLS

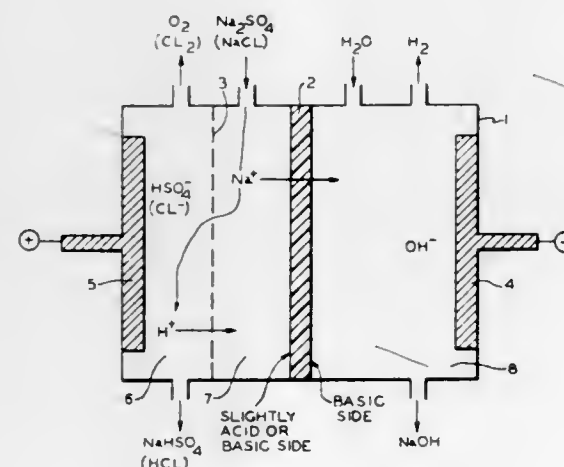
Russell B. Hodgdon, Jr., Sudbury, Mass., assignor to Ionics, Incorporated, Watertown, Mass.

Filed Nov. 5, 1970, Ser. No. 87,093

Int. Cl. B01d 13/02

U.S. Cl. 204—301

1 Claim



A cation exchange membrane containing functional groups of both the sulfonic acid and carboxylic acid radicals which allows the membranes to maintain its conductivity

throughout the entire pH range. This unique property gives this high capacity -pH insensitive membrane particular value in electrolytic cells as hydraulic diaphragms to separate a basic solution from an acid solution as is encountered in caustic-chlorine cells or other type cells which electrolytically decompose neutral salt solutions such as sodium sulfate into their basic and acidic components of caustic soda and sodium acid sulfate. The capacity of this membrane is much higher than the presently known sulfonic acid salt types.

3,657,105

ELECTRODIALYSIS APPARATUS

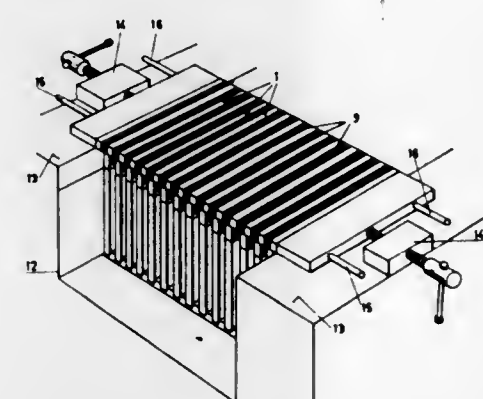
Willem In 't Veld, Beverwijk, Netherlands, assignor to Werkspoor Water N.V., Amsterdam-Buitenveldert, Netherlands

Filed Nov. 2, 1970, Ser. No. 86,232

Int. Cl. B01d 13/02

U.S. Cl. 204—301

2 Claims



An electrodialysis apparatus with diluate and concentrate chambers, the one type being formed by a free fluid space, the other type by membrane bags hanging in said space.

3,657,106

ELECTRO-OSMOSIS SYSTEM

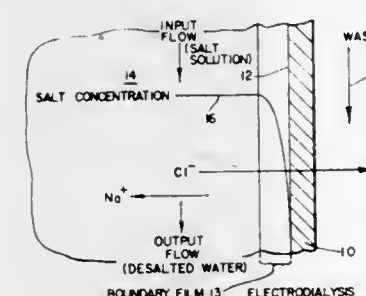
Jack D. Smith, Boston, Mass., assignor to American Bioculture, Inc.

Filed June 5, 1969, Ser. No. 830,688

Int. Cl. B01d 13/02; C02b 1/82

U.S. Cl. 204—301

10 Claims



A desalting system making use of electro-osmosis is similar to conventional electrodialysis arrangements in that the input solution is passed between a pair of membranes one of which is anion permeable and the other cation permeable, an applied electric field causing the anions and cations to leave the solution by migrating through the respective membranes. However, unlike conventional electrodialysis membranes, the membranes are also relatively permeable to water. The resulting flow of water toward and through the membranes materially increases the rate at which ions are transported to the membranes and correspondingly increases the rate at which ions are removed from the input solution.

3,657,107

APPARATUS FOR OXIDIZING A METAL HALIDE

John Dennis Herriman, Great Ayton, and Alan Lawrence Hare, Redcar, Teesside, both of England, assignors to British Titan Limited, Billingham, England

Original application Mar. 11, 1966, Ser. No. 533,527, now

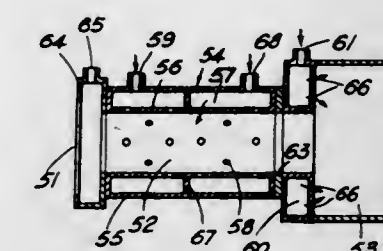
Patent No. 3,464,792, dated Sept. 2, 1969. Divided and this

application Apr. 25, 1969, Ser. No. 819,167

Int. Cl. C22d 7/08

U.S. Cl. 204—323

8 Claims



An apparatus for oxidizing a metal halide, such as titanium tetrachloride, includes an electric arc device adapted to heat a gas passed therethrough to at least 2,000° C. and having an orifice through which the heated gas passes to an injection device defining a primary reaction zone which includes a metal wall having a plurality of inlets communicating with the reaction zone, the inlets being fed from a common supply manifold, the injection zone communicating with a second reaction zone, with heat exchange means positioned between the first and second reaction zones.

3,657,108

REGENERATION OF METAL HALIDE CATALYST

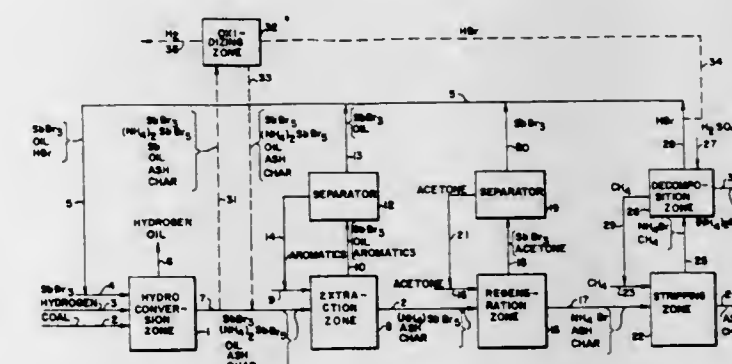
Thomas E. Klovsky, El Sobrante, and Wilfried J. Petzny, Berkeley, both of Calif., assignors to Shell Oil Company, New York, N.Y.

Filed Apr. 27, 1970, Ser. No. 31,982

Int. Cl. C10g 1/06

U.S. Cl. 208—10

14 Claims



A process for regenerating metal halide catalysts deactivated in hydroconversion of nitrogen-containing feedstocks by the formation of metal halide-ammonium halide complexes is disclosed. Regeneration is effected by contacting the complex with an electron donor solvent for metal halide at conditions at which the solvent effects decomposition of the complex and separation of the resultant metal halide and ammonium halide decomposition products by dissolving the metal halide.

3,657,109

MOTOR FUEL PRODUCTION

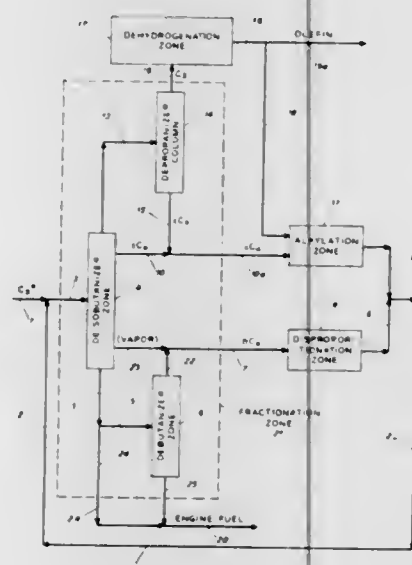
Bruce O. Beyaert, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Oct. 8, 1969, Ser. No. 864,807

Int. Cl. C10g 39/00

U.S. Cl. 208-80

7 Claims



A combination process for obtaining motor fuel from a mixture of hydrocarbons comprising isobutane and normal butane involving alkylation and paraffin disproportionation and preferably also light hydrocarbon dehydrogenation.

3,657,110

PROCESS FOR HYDROCRACKING NITROGEN-CONTAINING FEEDSTOCKS

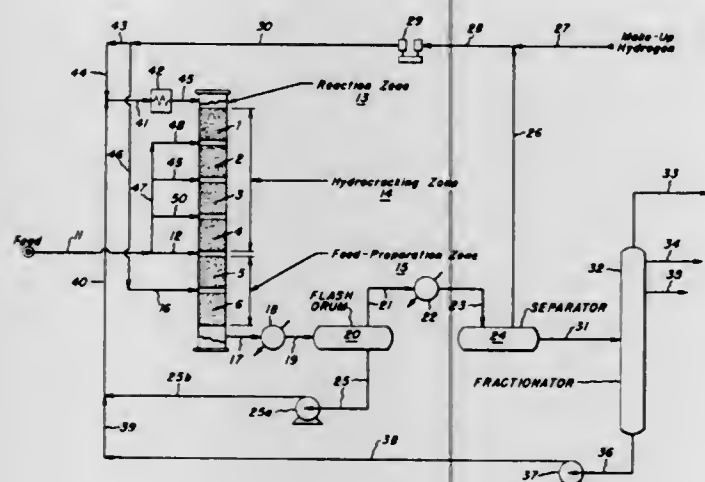
Robert J. Hengstebeck, Valparaiso, Ind., assignor to Standard Oil Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 546,447, Apr. 29, 1966, now abandoned. This application Jan. 5, 1970, Ser. No. 544

Int. Cl. C10g 23/00

U.S. Cl. 208-89

20 Claims



The process comprises introducing a first portion of a feedstock containing at least 20 parts per million of nitrogen into a feed-preparation zone to reduce the nitrogen and sulfur contents thereof; treating the effluent from the feed-preparation zone to separate a hydrogen-containing light gas and a heavy bottoms fraction from the effluent; introducing the treated effluent into a hydrocracking zone; and introducing a

second portion of the feedstock containing at least 20 parts per million of nitrogen into the hydrocracking zone at a plurality of points spaced along the length of the hydrocracking zone to provide an increasing amount of nitrogen along the length of the hydrocracking zone in the direction of flow through the hydrocracking zone. The nitrogen-containing feedstock is introduced into the hydrocracking zone at a plurality of points along its length to control effectively the rate of reaction in the hydrocracking zone. The heat of the controlled hydrocracking reaction is used effectively to reduce external heat supplied to the hydrocarbons prior to their entry into the hydrocracking zone.

3,657,111

SLURRY PROCESS FOR HYDROCARBONACEOUS BLACK OIL CONVERSION

William K. T. Gleim, Island Lake, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

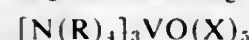
Filed Feb. 24, 1970, Ser. No. 13,838

Int. Cl. C10g 13/06, 23/06

U.S. Cl. 208-108

7 Claims

A catalytic slurry hydrorefining process of a hydrocarbonaceous charge stock containing hydrocarbon-insoluble asphaltenes is effected by dissolving in the charge stock an oxyvanadate salt having the following structural formula:



wherein "X" is a cyano, or thiocyno radical, and "R" is hydrogen, or an alkyl group containing up to 10 carbon atoms. The slurry is formed in situ at hydrorefining conditions with hydrogen containing hydrogen sulfide resulting in colloiddally dispersed vanadium sulfide.

3,657,112

HYDRODESULFURIZATION OF HEAVY HYDROCARBON OIL WITH HYDROGEN PRESATURATION

William F. Franz, Gardiner, and Howard V. Hess, Glenham, both of N.Y., assignors to Texaco Inc., New York, N.Y.

Filed June 22, 1970, Ser. No. 48,465

Int. Cl. C10g 23/00

U.S. Cl. 208-211

6 Claims

In the hydrogenation of residue-containing hydrocarbon oils, coke formation is suppressed by predissolving hydrogen in the oil at a temperature below 700° F. and carrying out the hydrogenation at a temperature above 700° F.

3,657,113

SEPARATING FLUIDS WITH SELECTIVE MEMBRANES

Arnold F. Stancell, Highland Park, and Arthur T. Spencer, Providence, both of N.J., assignors to Mobile Oil Corporation

Filed Feb. 3, 1970, Ser. No. 8,411

Int. Cl. B01d 13/00

U.S. Cl. 210-23

17 Claims

Gaseous or liquid components are concentrated or separated from others differing in molecular size or shape and/or solubility characteristics in homogeneous multicomponent mixtures (e.g., concentrating hydrogen in a hydrogen-methane mixture) by permeation through an ultrathin cross-linked plasma-discharge polymerized layer of high permselectivity and controlled thickness supported on or bonded to a face of a fluid-permeable substrate. Membranes are prepared by ionizing and polymerizing vaporized monomeric organic compounds (e.g., benzonitrile) at low subatmospheric pressures by a plasma glow discharge which deposits and bonds unbroken cross-linked coatings of about 0.1 to 0.5 micron total thickness onto thicker preformed substrates (e.g., films of polymeric siloxanes or polyphenylene oxide) of adequate strength.

3,657,114

ETHYLENE POLYMERS OF IMPROVED GLASS, TRANSPARENCY & HEAT-SEALABILITY CONTAINING A ZINC SALT OF A FATTY ACID

Vernon J. Smith, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of application Ser. No. 754,959, Aug. 23, 1968, now abandoned. This application Sept. 25, 1970, Ser. No. 75,675

Int. Cl. C08f 29/02, 45/00

U.S. Cl. 260-23 H

8 Claims

Ethylene polymers having improved gloss and decreased haze which have incorporated therein from about 20 to about 400 parts per million of a zinc salt of a fatty acid having 7-22 carbon atoms. These polymers exhibit better printability after surface treatment than the same polymers without the fatty acid zinc salt and exhibit better heat sealability than do polymers containing more than the specified amounts of fatty acid zinc salt.

3,657,115

SEMIPERMEABLE MEMBRANES THEIR USE AND METHOD FOR PREPARATION WHEREIN THE MEMBRANES ARE STRETCHED DURING THE INITIAL GELATION PERIOD

Serop Manjikian, and Michael I. Foley, both of Del Mar, Calif., assignors to The United States of America as represented by the Secretary of the Interior

Filed Jan. 27, 1971, Ser. No. 110,157

Int. Cl. B29d 7/24, 27/04; C08b 3/06

U.S. Cl. 210-23

4 Claims

Semipermeable membranes are prepared by casting a cellulose ester from a solution of the ester, and subsequently stretching the membrane, during its initial gelation period, in a direction at a right angle to the direction of casting. The resulting membranes exhibit superior selectivity in desalination of water by reverse osmosis.

3,657,116

PROCESS FOR THE SEPARATION OF BLOOD COMPONENTS

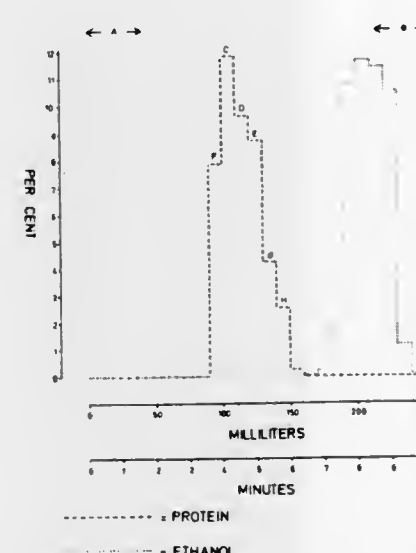
Wolfgang Haller, 5400 Pooks Hill Road, Bethesda, Md.

Continuation-in-part of application Ser. No. 10,752, Feb. 12, 1970. This application May 5, 1971, Ser. No. 140,329

Int. Cl. B01d 15/08

U.S. Cl. 210-31 C

3 Claims



A process for separating blood components, wherein an auxiliary substance is added to blood plasma or serum to precipitate fractions thereof. The auxiliary substance-con-

taining fractions are introduced into a chromatographic column filled with a porous solid, and are eluted from the column with an aqueous solvent. The eluant is collected into fractions containing the pure serum or plasma components, free from the auxiliary substance. The porous substance is glass, produced by heat treating, comminuting and leaching with acid and alkali the solidified product of melting together B₂O₃, SiO₂ and RO, wherein R is an alkali metal, alkaline earth metal or heavy metal.

3,657,117

GEL CHROMATOGRAPHY

Klaus Pfizner, and Friedrich Kraficzky, both of Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

Filed Dec. 22, 1969, Ser. No. 887,365

Claims priority, application Germany, Dec. 21, 1968, P 18 16 380.9

Int. Cl. B01d 17/06

U.S. Cl. 210-31

43 Claims

Cross-linked polymers suitable for gel chromatography are preferably prepared by pearl polymerization from hydroxyalkyl- or hydroxyalkoxyalkyl-acrylate or methacrylate monomers having up to 5 hydroxyl groups, at least one of which is acyl-substituted. The invention is directed to:

- the monomers and their preparation;
- formation of gels from the monomers; and
- use of the gels for gel chromatography.

3,657,118

PROCESS FOR THE DETERMINATION OF CATECHOLAMINE AND SEROTONIN METABOLITES

Friedrich Kraficzky, and Roland Helger, both of Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

Filed Sept. 9, 1970, Ser. No. 70,929

Claims priority, application Germany, Sept. 9, 1969, P 19 45 471.8

Int. Cl. B01d 15/08

U.S. Cl. 210-31

19 Claims

Chromatograms of high definition and good separation for the determination of catecholamine and serotonin metabolites in body fluids, e.g., urine, are obtained using as the adsorbent chromatographic grade cellulose impregnated with polyethylenimine. The chromatogram is preferably developed using a multicomponent solvent mixture containing water, a solvent substantially immiscible in water, a solvent miscible with water and the substantially water-immiscible solvent, and an acid, e.g., chloroform/n-butanol/ethanol/glacial acetic acid/water in a 5/55/10/15/15 volume ratio.

3,657,119

POLLUTION CONTROL DEVICE

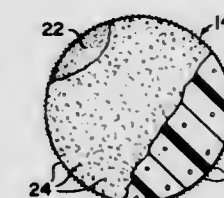
Joseph E. Turbeville, 4303 Jetton, Tampa, Fla.

Filed May 22, 1970, Ser. No. 39,848

Int. Cl. C02b 9/02; E02b 15/04

U.S. Cl. 210-36

13 Claims



A system for controlling pollution of a body of water which involves the collection, containment and relocation of the

pollutant such as oil from the water surface. Buoyant, water resistant ferromagnetic particles are distributed over the polluted area to adhere to the oil. A magnetic field generated via a magnetic net or parallel series of magnetic grids is then applied to collect the oil coated particles and, if desired, transport them to a more convenient area for disposal.

ERRATUM

For Class 210—40 sec:
Patent No. 3,657,125

3,657,120

METHOD OF STABILIZING BROMINE-CONTAINING FIRE EXTINGUISHING HALOGENATED HYDROCARBON COMPOSITION

Peter Porst, Neuruppin, Germany, assignor to VEB Feuerloschgeratewerk Neuruppin, Neuruppin, Germany
Filed Mar. 23, 1970, Ser. No. 22,077

Int. Cl. A62d 1/00; C23f 11/10

U.S. Cl. 252—8

6 Claims

Bromine-containing halogenated hydrocarbons, especially bromocarbons, bromochlorocarbons, bromofluorocarbons and bromochlorofluorocarbons, are stabilized by incorporating in them 0.05 to 0.15 weight percent of an aromatic polyhydric alcohol of the phenol type (preferably pyrocatechol) and 0.025 to 0.075 percent by weight of an aromatic carboxylic acid (preferably benzoic acid). The stabilized composition is noncorrosive to steel when saturated with moisture, even under high oxygen pressure, and is especially suitable for long-term storage in metal vessels as a fire-extinguishing composition.

3,657,121

PURGE FOR PREVENTING PIPELINE CONTAMINATION

John J. Gannon, Berkeley, and Enver Mehmedbasich, El Cerrito, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Apr. 1, 1970, Ser. No. 24,802

Int. Cl. C09k 3/00; E21b 43/28

U.S. Cl. 252—8.3

9 Claims

Surface active contaminants adsorbed on the interior surface of a pipeline can be desorbed therefrom and effectively removed by introducing into the line an effective quantity of wet aliphatic alcohol (C₂—C₄ alcohol) containing a small amount of either a dimer acid of a C₁₆—C₂₀ ethenoid fatty acid or a C₄—C₂₀ alkyl amine salt of a partially esterified phosphoric acid.

3,657,122

DRILLING FLUID

Mahmoud S. Kablaoui, and Jack H. Kolaian, both of Wappingers Falls, N.Y., assignors to Texaco, Inc., New York, N.Y.

Filed June 16, 1970, Ser. No. 46,805

Int. Cl. C10m 3/14

U.S. Cl. 252—8.5 C

3 Claims

An aqueous drilling fluid dispersant and a method of drilling wells using as the drilling fluid dispersant a dihydroxy substituted phenyl alkyl ketone, namely, 1,2-dihydroxy-4-acetylbenzene, 1,2-dihydroxy-4-propionylbenzene, and mixtures thereof.

3,657,123

LUBRICANT COMPOSITIONS

Michael A. Stram, Chicago, Ill., assignor to Atlantic Richfield Company, New York, N.Y.

Filed Mar. 23, 1970, Ser. No. 21,993

Int. Cl. C10m 1/28

U.S. Cl. 252—34.7

20 Claims

Water-soluble salts (e.g., alkali metal, ammonium or water-soluble amine salts) of styrene-maleic anhydride

copolymer half-esters are employed in aqueous solutions as coolants and lubricants for metal-working operations e.g., metal cutting and abrading. The copolymers are esterified with both a fatty alcohol having from 10 to 22 carbon atoms and a lower alkoxy polyethylene glycol. Metal-working lubricant compositions are also formulated which comprise these salts along with extreme pressure agents such as amine salts of fatty acids and organic phosphate esters. Other additives may also be employed in the lubricating compositions of this invention.

3,657,124

CALCIUM ALKYLPHENOLATE MANUFACTURE

Doris Love, Fishkill, N.Y., assignor to Texaco Inc., New York, N.Y.

Filed Sept. 14, 1970, Ser. No. 72,120

Int. Cl. C10m 1/20; C01m 1/54

U.S. Cl. 252—42.7

10 Claims

Method of preparing a lubricating oil composition of detergent properties containing a calcium salt of alkylphenol comprising introducing into a mixture of an alkoxyalkanol and a member selected from the group consisting of calcium oxide and calcium hydroxide, an oxygen containing gas to form an activated mixture and contacting said activated mixture with an alkylphenol and hydrocarbon oil of lubricating viscosity to form said composition.

3,657,125

COLLECTION OF OILS

Robert L. Strickman, River Vale, N.J., assignor to Strickman Industries, Inc., Orangeburg, N.Y.

Continuation-in-part of application Ser. No. 868,916, Oct. 23, 1969. This application July 15, 1970, Ser. No. 55,243

Int. Cl. C02b 9/02

U.S. Cl. 210—40

1 Claim

Oils, particularly petroleum oils may be removed from water, from beaches and from wildlife, by contacting the oils with a collector comprising granular polyurethane particles substantially devoid of cellular structure. Preferably the collector particles are of a jagged, spiny, craggy nature. When applied to an oil contaminant, the collector particles agglomerate the oil into a gel which can be skimmed or otherwise removed easily.

3,657,126

OIL AND WATER-BASE LUBRICANT: THAT, AS TO IMPROVEMENTS IN OIL AND WATER-BASE LUBRICANTS

David W. Sawyer, Oakmont, Pa., assignor to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 781,271, Dec. 4, 1968, now abandoned. This application Apr. 17, 1970, Ser. No. 29,641

Int. Cl. C10m 1/26

U.S. Cl. 252—49.5

11 Claims

Use of glycol, tallow and tall oil esters in a mineral oil base lubricant which can be emulsified and used to produce a water-base lubricant useful in metal drawing and ironing operations.

3,657,127

UREIDO THICKENED GREASE

Hubert J. Liehe, Whiting, and Wilbur L. Hayne, Hammond, both of Ind., assignors to Standard Oil Company, Chicago, Ill.

Filed July 25, 1969, Ser. No. 845,028

Int. Cl. C10m 5/20

U.S. Cl. 252—49.6

5 Claims

Certain properties of lubricant greases prepared by thickening a lubricating oil with a thickener prepared by reacting stoichiometric amounts of an abietyl amine and a polyisocyanate are improved by incorporating in such lubricant greases an excess of the polyisocyanate.

3,657,128

SYNERGISTIC FUNCTIONAL FLUID COMPOSITIONS

Robert W. Street, Clayton, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 739,912, June 17, 1968, now abandoned, which is a continuation of application Ser. No. 497,195, Oct. 18, 1965, now abandoned.

This application Aug. 1, 1969, Ser. No. 850,689

Int. Cl. C10m 1/46, 1/30

U.S. Cl. 252—49.9

16 Claims

Functional fluid compositions comprising at least one halogenated compound, certain phosphate esters and certain bright stock petroleum fractions which have excellent lubricity, fire-resistance, and homogeneity and are particularly useful as lubricants and hydraulic fluids.

3,657,129

LUBRICATING COMPOSITIONS

Frank J. Obermeier, West St. Paul, Minn., assignor to Economics Laboratory, Inc., St. Paul, Minn.

Filed May 5, 1969, Ser. No. 822,030

Int. Cl. C10m 1/20, 1/32

U.S. Cl. 252—51.5 R

9 Claims

Lubricating compositions which contain significant amounts of chlorinated oils (e.g. paraffin oils which have been chlorinated to more than 40 percent chlorine) are improved for use as metal-working lubricants by the inclusion therein of additive amounts (e.g. 5 weight percent) of one or more ethoxylated fatty amines (e.g. a tertiary amine having one C₁₂—C₁₈ fatty alkyl group or radical and 2 polyoxyethylene groups or radicals attached to the amine nitrogen atom). The improved lubricating compositions have a reduced tendency to corrode the metal being worked and are self-emulsifying, thereby permitting the improved lubricating compositions to be removed from the worked metal by aqueous or solvent methods (e.g. water washing).

3,657,130

LIQUID DEVELOPER FOR ELECTRO- PHOTOGRAPHY

Hazime Machida, Akira Tsurugi, Zenjiro Okuno, and Akinori Mizuno, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

No Drawing. Filed Feb. 3, 1970, Ser. No. 8,398

Claims priority, application Japan, Feb. 8, 1969,

44/9,536

Int. Cl. G03g 9/04

U.S. Cl. 252—62.1

3 Claims

A liquid developer for electrophotography comprising a carrier liquid and a toner dispersed in said carrier liquid, said toner consisting substantially of finely-divided particles having a definite color, at least one coating agent as coated on the surfaces of said particles and selected from the group consisting of a synthetic rubber, a natural rubber, polycondensates of said two rubbers and vinyl polymers having an insolubility against said carrier liquid, and a graft-polymer having an affinity with said carrier liquid and consisting of at least one vinyl monomer selected from the group consisting of polymeric vinyl monomers, said graft-polymer being graft-copolymerized to said coating agent.

3,657,131

MAGNETIC GARNETS

Alain Lagrange, Jean Nicolas, and Roland Sroussi, Paris, France, assignors to CSF Thomson, Paris, France

Filed Apr. 13, 1970, Ser. No. 27,769

Claims priority, application France, Apr. 17, 1969, 6911989

Int. Cl. C04b 35/00

U.S. Cl. 252—62.57

2 Claims

Magnetic materials of garnet structure and having compositions corresponding to the general formula:



where

$$0.5 \leq x \leq 0.85$$

$$0.1 \leq y \leq 0.5$$

and intended in particular for ultra-high frequency applications.

3,657,132

CABLE OIL HAVING ETHYLENE-PROPYLENE POLYMER DISPERSED THEREIN

Henri Gourlaouen and Marcel Ostyn, Mont Saint Aignan, France, assignors to Esso Research and Engineering Company

No Drawing. Filed Aug. 27, 1969, Ser. No. 853,546

Claims priority, application France, Aug. 28, 1968, 164,442

Int. Cl. H01b 3/22, 7/00

U.S. Cl. 252—63

8 Claims

The solid material formed during the copolymerization of ethylene and propylene in mol ratio of 6:4 to 3:7 in the presence of a catalyst and solvent, which copolymerization is terminated when the weight ratio of solvent to total dissolved copolymer is from 10:7 to 1:3, is used for thickening insulating oils to render them suitable for use in filled cables.

3,657,133

PRESERVATIVE FOR ELASTOMERS

James R. Miller, Florissant, Mo., assignor to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 524,846, Feb. 3, 1966. This application Dec. 27, 1967, Ser. No. 693,759

Int. Cl. C09k 3/00, 3/02

U.S. Cl. 252—76

5 Claims

Functional fluids not damaging to elastomers, i.e. rubber seals, consist essentially of a major amount of a mineral lubricating oil and a minor amount each of (1) an oil soluble alkaline earth metal salt of a condensation product of an alkyl phenol and an aldehyde and (2) a long-chain aliphatic polar containing compound, i.e. aliphatic alcohols, monocarboxylic acids and polyalkylene glycols.

3,657,134

DEFLOCCULATION OF SOLID MATERIALS IN AQUEOUS MEDIUM

Thomas M. King, St. Louis, and Howard L. Vandersall, Ballwin, Mo., assignors to Monsanto Company, St. Louis, Mo.

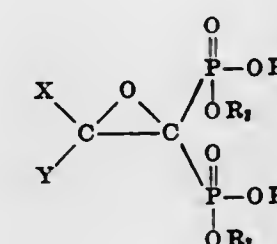
No Drawing. Filed Apr. 13, 1970, Ser. No. 27,980

Int. Cl. C10m 3/38; B01j 13/00; C04b 33/12

U.S. Cl. 252—8.5 C

15 Claims

Epoxy ethane polyphosphonates having the formula



wherein X and Y are hereinafter defined and R is hydrogen or a metal ion, are disclosed as deflocculating agents in aqueous vehicles or systems containing finely divided solid materials such as oil well drilling muds.

3,657,135

PROCESS FOR BINDING OF DUST IN MINES
Hans Lewer, Waldstr. 53, Witten-Annen, Germany; Hanspeter Dust, Deutz Kalkerstr. 66, Cologne-Deutz, Germany; and Martin Thoenes, Farnweg 20, Bergisch Gladbach, Germany

No Drawing. Filed Mar. 13, 1970, Ser. No. 19,514
Claims priority, application Germany, Mar. 26, 1969, P 19 15 333.4

Int. Cl. C09k 3/22

U.S. Cl. 252—88

10 Claims

Process for binding of dust in mines using finely powdered hygroscopic salts which are applied to the surfaces of the galleries and are distinguished by the addition—prior to their application—of 1 to 20% by weight related to the quantity of the hygroscopic salt, of finely distributed water, whereby the final product is to contain 74 to 90% by weight of hygroscopic salt.

3,657,136

METHOD OF CONTROLLING FOAM IN ACRYLONITRILE PRODUCTION

Hillel Lieberman, Andalusia, and John W. Henderson, Philadelphia, Pa., assignors to Betz Laboratories, Inc., Treves, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 809,931, Mar. 24, 1969. This application Dec. 29, 1969, Ser. No. 888,813

Int. Cl. B01d

U.S. Cl. 252—321

10 Claims

The present disclosure is directed to a method of defoaming and inhibiting foam formation experienced in acrylonitrile production systems. The method of process generally comprises in its broadest sense, adding to said system a composition comprising at least one hydrocarbon oil, at least one alkaline earth metal hydroxide and at least one fatty acid containing from about 12 to about 22 carbon atoms. The composition may also contain water and a polyether polyol. The composition, of course, is added to said systems in an amount sufficient to control the foam.

3,657,137

NUCLEAR FUEL COMPRISING URANIUM DIOXIDE IN A POROUS CERAMIC OXIDE MATRIX

Thomas J. Burke, Jack Belle, and John C. Clayton, Pittsburgh, Pa., assignors to the United States Atomic Energy Commission

No Drawing. Filed June 4, 1964, Ser. No. 374,227

Int. Cl. C09k 1/30

U.S. Cl. 252—301.1

2 Claims

A new ceramic-type nuclear fuel consisting of particles of uranium dioxide embedded in a matrix of zirconium oxide wherein the uranium dioxide particles are partially separated from the matrix by an annular void is prepared by mixing uranium trioxide with calcium-oxide-containing zirconium dioxide powder and a small quantity of a binder, pressing the mixture and firing the mixture in an atmosphere of hydrogen.

3,657,138

VISIBLE-EMITTING CERIUM-ACTIVATED CALCIUM ALUMINUM OXIDE PHOSPHOR

Martin Robert Royce, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 22, 1970, Ser. No. 4,826

Int. Cl. C09k 1/18

U.S. Cl. 252—301.4 R

3 Claims

A phosphor consisting essentially of calcium aluminum oxide activated solely by cerium. The phosphor may be described by the molecular formula $\text{Ca}_3\text{Al}_2\text{O}_6 \cdot x\text{Ce}$, where-

in x is in the range of 0.0005 to 0.1 mole. The disclosure includes a cathode-ray tube having a viewing-screen structure comprised of the new phosphor.

3,657,139

PYRENE DERIVATIVES AS OPTICAL BRIGHTENERS

Peter John Brocklehurst and Eric Hemingway, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,501
Claims priority, application Great Britain, Dec. 10, 1968, 58,662/68

Int. Cl. C09k 1/02

U.S. Cl. 252—301.2 W

6 Claims

Pyrene-1-carboxylic acids and derivatives of these, such as 1-cyanopyrenes and esters and thioesters of the carboxylic acids, are optical brightening agents for polymeric materials. Particularly effective brightening agents are the cyanoalkyl esters, especially cyanomethyl esters, prepared from salts of the corresponding acids by reaction with chloroalkylcyanides.

3,657,140

CERIUM ACTIVATED SOLID SOLUTION YTTRIUM GALLIUM OXIDE PHOSPHOR

Edward F. Gibbons, 450 Yorkshire Blvd., Dearborn Heights, Mich. 48127; and Douglas E. Smith, 524 3rd St. 48123; and Tseng Y. Tien, 660 Archwood Drive 48103, both of Ann Arbor, Mich.

No Drawing. Filed May 26, 1970, Ser. No. 40,747

Int. Cl. C09k 1/68

U.S. Cl. 252—301.4 R

6 Claims

A solid solution of yttrium aluminum oxide and yttrium gallium oxide with a small amount of cerium ion emits bright yellow light when excited by cathode rays. The phosphor is easily manufactured in the form of a fine uniformly divided powder that has a high resolution and a decay time of less than about 70 nanoseconds.

3,657,141

EUROPIUM-SAMARIUM COACTIVATED STRONTIUM FLUOROBORATE PHOSPHOR

Charles F. Chenot, Towanda, Pa., assignor to Sylvania Electric Products Inc., Seneca Falls, N.J.

Filed Aug. 12, 1970, Ser. No. 63,128

Int. Cl. C09k 1/66

U.S. Cl. 252—301.4 R

9 Claims

A strontium fluoroborate phosphor coactivated by europium and samarium is disclosed wherein the phosphor can be characterized as follows:



wherein w is from about 0.90 to about 0.99, x is from about 0.50 to about 1.00, y is from about 3.00 to about 4.50, z is from about 5.00 to about 7.45, u is from about 0.005 to about 0.05, and v is from about 0.005 to about 0.10. The phosphor is useful in low-pressure or high-pressure electric discharge devices.

3,657,142

ZINC SULFIDE PHOSPHORS

Stanley M. Poss, 302 Wilmot Drive, Towanda, Pa. 18848

No Drawing. Continuation of application Ser. No. 812,925, Apr. 2, 1969. This application Apr. 19, 1971, Ser. No. 135,414

Int. Cl. C09k 1/12

U.S. Cl. 252—301.6 S

7 Claims

Zinc sulfide phosphors are disclosed that consist essentially of a major amount of zinc sulfide as the host, from

about 0.001% to about 0.05% by weight of copper and as a co-activator an amount of metal selected from the group consisting of from about 0.01% to about 0.09% by weight of silver and from about 0.004% to about 0.009% by weight of bismuth. A process for producing said phosphors is disclosed that comprises forming a blend of zinc sulfide, copper salts and the foregoing other metal salts, heat treating under controlled temperature and atmospheric conditions and cooling under controlled atmospheric conditions.

3,657,143

MANUFACTURE OF MINUTE CAPSULES, EN MASSE, AND DEWATERING THEIR WALLS

Victor A. Crainich, Jr., Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed Feb. 2, 1970, Ser. No. 7,980

Int. Cl. B01j 13/02; B44d 1/02; C08h 19/02

U.S. Cl. 252—316

5 Claims

A method is disclosed for preparing minute capsules, en masse, in a liquid manufacturing vehicle, said capsules having walls comprising a complex of gelatin and derivatives of sulfosuccinates or organic phosphate esters. Further, as an additional embodiment, a method is disclosed for treating water-swollen gelatin-containing capsule walls with derivatives of sulfosuccinates or organic phosphate esters in order to reduce the water concentration therein.

3,657,144

ENCAPSULATION PROCESS

Noble H. Yoshida, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio

No Drawing. Filed June 5, 1967, Ser. No. 643,397

Int. Cl. B01j 13/02; B44d 1/02

U.S. Cl. 252—316

5 Claims

A novel method is provided for encapsulating, en masse, in walls of polymeric material, minute solid or liquid particles by a liquid-liquid phase separation technique employing liquid evaporation. Separation of a polymer-rich wall-forming liquid phase from a manufacturing vehicle and subsequent encapsulation of intended capsule core entities dispersed in the vehicle are accomplished by evaporation of a solvent liquid component. Components of the liquid-liquid phase separation process carried on by evaporation include (a) polymeric film-forming material; (b) a suspending liquid which is not a solvent for the polymeric material; and (c) a relatively volatile solvent liquid which is miscible with the suspending liquid and is a solvent for the polymeric material.

3,657,145

DEMULSIFICATION WITH LINEAR POLYMERIC PHOSPHORUS-CONTAINING ESTERS

Franklin E. Mange and Rudolf S. Buriks, St. Louis, and Patrick M. Quinlan, Webster Groves, Mo., assignors to Petrolite Corporation, Wilmington, Del.

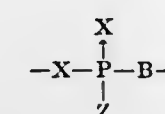
No Drawing. Original application Dec. 1, 1967, Ser. No. 687,127, now Patent No. 3,578,731. Divided and this application June 5, 1970, Ser. No. 43,973

Int. Cl. B01d 17/04

U.S. Cl. 252—345

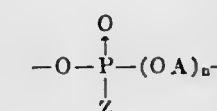
6 Claims

Linear polyesters of a phosphorus-containing acid and a diol as illustrated by a polyester having repetitive units of the formula:



where X is oxygen or sulfur; B is a diol residue; Z is hydrogen in the case of a phosphite ester i.e. H; a hydrocarbon or a substituted hydrocarbon group in the case of a phosphonate ester i.e. R; an oxyhydrocarbon or a substituted oxyhydrocarbon group in the case of a phosphate ester i.e. —OR; a thiohydrocarbon or a substituted thiohydrocarbon group in the case of a thiophosphate ester i.e. —SR.

The preferred polyester has repeating units of the formula



where OA is the residue of an alkylene oxide or a substituted alkylene oxide; n is an integer, for example 1–300 or more, such as about 2–250, for example about 3–200, but advantageously about 5–130, and Z is hydrogen, a substituted group (R), for example, alkyl, aryl, cycloalkyl, alkaryl, aralkyl, heterocyclic, including substituted derivatives thereof, etc.; alkoxy or aryloxy group (OR) for example methoxy, propoxy, isopropoxy, 2-ethylhexoy, etc., phenoxy, etc.

The polyesters are employed as demulsifiers as well as for other uses.

3,657,146

SOAP PRODUCTION

Cornelis Willem Fransen, Utrecht, and Daniel Marten van Kampen, Vlaardingen, Netherlands, assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Nov. 1, 1968, Ser. No. 772,803

Claims priority, application Netherlands, Nov. 3, 1967, 6714945

Int. Cl. C11d 11/00, 13/00

U.S. Cl. 252—369

5 Claims

A process for direct production of a soap of water content not in excess of 25% for household and toilet uses, by saponification at 120–180° C. under 2–10 atm. of a fatty acid, natural or synthetic, using aqueous alkali solution of controlled water content.

3,657,147

NOVEL STANDARDS FOR N.M.R. SPECTROSCOPY

Ludwig Pohl, Frankfurter, and Manfred Eckle, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

No Drawing. Filed July 22, 1969, Ser. No. 843,824

Claims priority, application Germany, July 27, 1968, P 17 73 928.5; Aug. 1, 1968, P 17 73 959.2; Mar. 21, 1969, P 19 14 385.2

Int. Cl. C07d 103/02; G01n 27/78, 33/08

U.S. Cl. 252—408

10 Claims

For N.M.R. determinations, there are provided improved standards as follows:

- 1,1,3,3,5,5 - hexakis - (trideuteromethyl)-1,3,5-trisila-cyclohexane,
- $\alpha,\alpha,\beta,\beta$ - tetradeutero - β - (trimethylsilyl) - propionic acid,
- $\alpha,\alpha,\beta,\beta,\text{O}$ - pentadeutero - β - (trimethylsilyl) - propionic acid,
- an alkali metal salt of (b),
- an alkali metal salt of (c),
- β -(trimethylsilyl)-propionic acid, and
- an alkali metal salt of (f).

3,657,148

ALKYLATION CATALYST COMPLEX, ITS PREPARATION AND USE

Matthew L. Becker, Philadelphia, and Robert F. Chapman, Lafayette Hills, Pa., assignors to Atlantic Richfield Company, New York, N.Y.

No Drawing. Filed Oct. 23, 1969, Ser. No. 868,920

Int. Cl. C07c 3/56

U.S. Cl. 252—429

6 Claims

Alkylation catalyst complex and its method of preparation by reacting benzene and an alkylate fraction with aluminum chloride in the presence of anhydrous hydrogen chloride. The catalyst is particularly suitable for use in a process for the alkylation of an aromatic hydrocarbon.

3,657,149

CATALYST COMPOSITIONS

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Original application Oct. 14, 1968, Ser. No. 767,476. Divided and this application Apr. 17, 1970, Ser. No. 29,660

Int. Cl. C07f 7/22, 5/06

U.S. Cl. 252—431 R

9 Claims

Catalyst compositions comprising complex organoaluminate compounds of silicon, tin and phosphorus and a liquid diluent which compositions are particularly useful as epoxide polymerization catalysts are described. These compositions can be prepared by reacting, in a liquid diluent which can be an inert organic diluent or an ether that coordinates with the complex organoaluminate, a lithium organoaluminate with a halogen-containing compound of silicon, tin or phosphorus, as for example by reacting lithium diethylaluminate with dimethyldichlorosilane, stannic chloride, dichlorophenylphosphine oxide, etc., or by reacting a triorganoaluminum such as triethylaluminum with dimethylsilanediol, ortho phosphoric acid, stannic hydroxide, etc.

3,657,150

SOLID CATALYSTS CONTAINING SILICUM PHOSPHATE, THEIR MANUFACTURE AND USE

Bernard Juguin and Jean Francois Le Page, Ruell-Malmaison, France, assignors to Institut Français du Pétrole des Carburants et Lubrifiants, Ruell-Malmaison, France

No Drawing. Filed Oct. 27, 1969, Ser. No. 869,860

Claims priority, application France, Oct. 31, 1968, 172,358

Int. Cl. B01j 11/82

U.S. Cl. 252—435

13 Claims

For alkylating or isomerizing mono- or polyolefins, e.g. production of isooctene from butene, there are provided novel catalyst consisting essentially of a silica carrier impregnated with phosphoric acid, the molar ratio of P_2O_5 to SiO_2 being relatively low, between 0.6 and 0.95, and the content of the crystalline C form of silicon phosphate being relatively high, 75–95%. These catalyst which are both highly active and selective are prepared by heating a mixture of silica impregnated with phosphoric acid to 550–1000° C., and then contacting the resultant heated mixture with steam at 100–300° C. For the best mechanical properties of the catalyst, the silica carrier should have an SiO_2 content of 96–99% by weight.

3,657,151

CATALYST MANUFACTURE

Edward D. Noble, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 15, 1970, Ser. No. 3,239

Int. Cl. B01j 11/40, 11/82

U.S. Cl. 252—437

9 Claims

A process for producing catalysts with larger average pore diameters which comprises (a) forming a hydrogel

comprising at least one inorganic oxide, (b) adding a detergent to the hydrogel, and (c) carrying out at least part of the drying of the hydrogel after the detergent is added to the hydrogel. Preferably the detergent is a non-ionic high molecular weight detergent composed only of carbon, hydrogen, and oxygen.

3,657,152

CATALYST AND PROCESS FOR THE PREPARATION OF 1,3-CYCLOHEXANEDIAMINES

Moses Cenker, Trenton, and Peter T. Kan, Livonia, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed May 26, 1969, Ser. No. 827,952

Int. Cl. B01j 11/82

U.S. Cl. 252—443

6 Claims

A process and a catalyst for the preparation of 1,3-cyclohexanediamines are provided. The process comprises hydrogenating 1,3-phenylenediamines in the presence of an alkali-promoted catalyst consisting of cobaltous oxide, calcium oxide, and sodium carbonate at elevated temperature and under moderate pressure to form 1,3-cyclohexanediamines. The aliphatic diamines are useful as intermediates in the preparation of polyurethane, polyurea, polyurethane-polyurea and polyamide coatings, sealants, and elastomers.

3,657,153

PROCESS FOR THE PREPARATION OF A CATALYST FOR THE REFORMING AND AROMATIZATION OF BENZINES

Victor Bucur, Traian Mircea Filotti, Eugenia Georgescu, Theodora Mazare, Ion Ghejan, Ion Zirna, Elena Lygia Popescu, and Toma Ioszt, Ploiesti, Rumania, assignors to Institutul de Cercetari Pentru Prelucrarea Titelului, Ploiesti, Rumania

No Drawing. Filed Apr. 1, 1970, Ser. No. 24,847

Claims priority, application Rumania, Apr. 8, 1969, 59,666/69

Int. Cl. B01j 11/40

U.S. Cl. 252—455 R

2 Claims

A method of producing a catalyst for the reforming and aromatization of hydrocarbons which comprises reacting alumina containing between 4% and 40% water by hydration with a silicon halide, preferably silicon tetrachloride so that 0.05% to 5% silica is contained in the finished catalyst. Platinum is then deposited upon the silica-containing support.

3,657,154

MICROSPHERICAL ZEOLITIC CRACKING CATALYST

Walter L. Haden, Jr., Metuchen, and Frank J. Dzierzanowski, Somerset, N.J., assignors to Engelhard Minerals & Chemicals Corporation, Woodbridge Township, N.J.

No Drawing. Continuation-in-part of application Ser. No. 416,925, Dec. 8, 1964. This application Sept. 9, 1969, Ser. No. 856,458

The portion of the term of the patent subsequent to

Apr. 14, 1987, has been disclaimed

Int. Cl. B01j 11/40

U.S. Cl. 252—455 Z

3 Claims

A zeolitic molecular sieve cracking catalyst composition in the form of small, highly attrition-resistant, essentially spherical particles (microspheres) is composed of ion-exchanged synthetic crystalline faujasite and an alkali-leached, alumina-enriched, silica-alumina residue of kaolin clay which had previously been calcined at elevated temperature.

3,657,155

PRODUCTION OF ATTRITION RESISTANT SOLID CATALYSTS CONTAINING ANTIMONY OXIDE SUITABLE FOR USE IN A FLUIDIZED BED REACTION

Takachika Yoshino, Kanagawa, Shigeru Saito, Tokyo, and Yutaka Sasaki and Yoshimi Nakamura, Kanagawa, Japan, assignors to Nitto Chemical Industry Co., Ltd., Tokyo, Japan

No Drawing. Filed Aug. 5, 1969, Ser. No. 847,731

Claims priority, application Japan, Aug. 5, 1968, 43/54,952

Int. Cl. B01j 11/06, 11/32, 11/40

U.S. Cl. 252—456

31 Claims

Process for preparing an attrition resistant solid catalyst containing antimony oxide, suitable for use in a fluidized bed essentially comprising the heat treatment of a slurry containing an antimony compound, a ferric compound, a polyvalent metal compound and a silica sol.

3,657,156

COBALT OXIDE CATALYSTS

Cornelius Marthinus Stander, Birchleigh, Kempton Park, Transvaal, Republic of South Africa, assignor to African Explosives and Chemical Industries Limited, Johannesburg, Transvaal, Republic of South Africa

No Drawing. Filed June 23, 1970, Ser. No. 49,194

Claims priority, application Republic of South Africa, July 4, 1969, 69/4,754

Int. Cl. B01j 11/08, 11/22

U.S. Cl. 252—466 J

10 Claims

A process for making active cobalt oxide containing catalysts as shaped bodies comprising heating a mixture of constituents including a substance from which cobalt oxide can be formed to a first elevated temperature sufficient to produce a binding agent within the mixture, comminuting the resulting material, shaping the material into bodies and heating the shaped bodies at a second elevated temperature for a period of time sufficient to complete the reaction between the constituents.

3,657,157

RANEY NICKEL ACTIVATION USING ACID NEUTRALIZATION AND PRODUCT

William Johan Melndert Pieters, Denville, N.J., John Freel, Oakmont, Pa., and Robert Bernard Anderson, Ancaster, Ontario, Canada, assignors to W. R. Grace & Co., New York, N.Y.

No Drawing. Filed Oct. 21, 1970, Ser. No. 82,833

Int. Cl. B01j 11/22

U.S. Cl. 252—466

3 Claims

Raney nickel-aluminum alloys are leached with alkali. The leach solution is immediately neutralized by means of titration with an organic acid such as lactic acid. The solution pH is adjusted to between 7.2 and 8.0. The catalyst is removed from the solution and washed with absolute ethanol. The novel Raney nickel catalyst has an increased activity over known Raney nickel catalysts, and was produced in a much shorter time than are known Raney nickel catalysts.

3,657,158

POLYMERIZATION OF EPOXIDES WITH DIHYDROCARBON ZINC PRE-REACTED WITH A POLYHYDRIC PHENOL

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 18,862, Mar. 31, 1960. This application Mar. 25, 1970, Ser. No. 22,690

Int. Cl. C08g 23/06, 23/14

U.S. Cl. 260—2

7 Claims

Oxiranes are polymerized using as the catalyst the product obtained by reacting a dihydrocarbon zinc compound, such as diethylzinc, with a polyhydric phenol such as

resorcinol or pyrogallol, in a molar ratio of polyhydric phenol to zinc compound of from about 0.2:1 to about 1.2:1. Higher molecular weight polymers and/or higher yields of polymers are obtained than when the dihydrocarbon zinc compound is used without pre-reacting it with the polyhydric phenol.

3,657,159

EPOXIDE POLYMERIZATION CATALYSTS COMPRISING COMPLEX ORGANOALUMINATE COMPOUNDS OF SILICON, TIN OR PHOSPHORUS

Edwin J. Vandenberg, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 767,476, Oct. 14, 1968. This application Aug. 27, 1970, Ser. No. 67,607

Int. Cl. C08g 23/14

U.S. Cl. 260—2 EP

12 Claims

Complex organoaluminate compounds of silicon, tin and phosphorus which are particularly useful as epoxide polymerization catalysts are described. These compounds can be prepared by reacting a lithium organoaluminate with a halogen-containing compound of silicon, tin or phosphorus, as for example by reacting lithium diethylaluminate with dimethyldichlorosilane, stannic chloride, dichlorophenylphosphine oxide, etc. or by reacting a trialkylaluminum such as triethylaluminum with dimethylsilanediol, methylphosphonic acid, stannic hydroxide, etc.

3,657,160

NON-STAINING RECLAIMS

Allen E. Crepeau, Oxford, Conn., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed May 4, 1970, Ser. No. 34,620

Int. Cl. C08f 47/24

U.S. Cl. 260—2.3

5 Claims

This invention deals with a process for reclaiming scrap vulcanized rubber, and particularly with the improvement which comprises heating the scrap at reclaiming temperatures in the presence of an aldehyde or aldehyde donor and in the presence of a resorcinol material.

3,657,161

POLYCARBODIIMIDE-POLYISOCYANURATE FOAM

David L. Bernard and Anthony J. Doheny, Jr., Pittsburgh, Pa., assignors to Baychem Corporation, New York, N.Y.

No Drawing. Filed Oct. 31, 1967, Ser. No. 679,549

Int. Cl. C08g 22/46, 22/34

U.S. Cl. 260—2.5 AW

8 Claims

Polycarbodiimide polyisocyanurate foams which have improved resistance to burning and which are useful as plastic foam building insulation. From about 3 to about 45% of the total carbodiimide and isocyanurate groups in the foam plastic are preferably carbodiimide groups. The foams are prepared by polymerizing an isocyanate in the presence of a blowing agent, a catalyst which promotes the formation of carbodiimide groups and a catalyst which promotes the formation of isocyanurate groups.

3,657,162

PROCESS OF MAKING EXPANDABLE POLYMERIC STYRENE PARTICLES

Arnold B. Finestone and Michal Niechwadowicz, Leominster, Mass., assignors to Foster Grant Co., Inc., Leominster, Mass.

No Drawing. Continuation-in-part of application Ser. No. 455,614, May 14, 1965. This application Dec. 6, 1968, Ser. No. 783,175

Int. Cl. C08j 1/26

U.S. Cl. 260—2.5 B

14 Claims

A process for the manufacture of expandable plastic beads suitable for use in the production of cellular molded

products by aqueous suspension polymerization in which a volatile liquid blowing agent is incorporated into the plastic beads within a short period after a polymer bead stage of 50% and before a polymer bead stage of 80% has been reached and a non-hydrocarbon inert non-condensable gas is added to the reaction chamber prior to absorption of the bulk of the blowing agent by the polymer beads.

3,657,163

EXPANDABLE POLYSTYRENE COMPOSITION FOR INJECTION MOLDING

Hiroshi Kishikawa, Toyonaka-shi, Shintaro Ishikawa, Takatsuki-shi, and Kenji Miyawaki, Ibaraki-shi, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

No Drawing. Filed Oct. 21, 1968, Ser. No. 769,405
Claims priority, application Japan, Oct. 19, 1967, 42/67,556

Int. Cl. C08c 17/08; C08d 13/08; C08f 47/10

U.S. Cl. 260—2.5 E 20 Claims

An expandable polystyrene composition for injection molding consisting of 50–95 parts by weight of a polystyrene resin and 5–50 parts by weight of an ethylene-propylene copolymer and 0.1–5 parts by weight of a decomposable blowing agent or 0.1–10 parts by weight of a gaseous or liquid blowing agent, based on 100 parts by weight of the sum of both of the resins. Foamed polystyrene moldings produced by injection molding and the foaming of said composition have excellent heat stability.

3,657,164

COPOLYMERS CONTAINING BLOWING AGENTS AND DERIVED FROM ALKENYL AROMATIC AND VINYL POLYSILOXANES AND PROCESS FOR THEIR MANUFACTURE

Horst Jastrow, Frankfurt am Main, and Werner Weber, Mainz, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed May 20, 1969, Ser. No. 826,276
Claims priority, application Germany, May 24, 1968, P 17 70 487.9

Int. Cl. C08f 33/02, 35/02, 47/10

U.S. Cl. 260—2.5 B 2 Claims

The invention relates to a process for the manufacture of thermoplastic copolymer beads containing blowing agents, said copolymers being derived from mixtures of from 70% by weight to 99.9% by weight of styrene, from 0% by weight to 30% by weight of acrylonitrile, acrylic or methacrylic acid esters and from 0.01% by weight to 0.1% by weight of polysiloxanes containing vinyl groups, and to the products of this process used in the manufacture of cellular plastics.

3,657,165

PROCESS FOR PREPARATION OF ETHYLENIC RESIN FOAM

Isamu Kawai, Ageo-shi, Atsuro Nishikawa, Osaka-fu, Osamu Takagi, Kuki-machi, Minami-Saitama-gun, and Akira Iwata and Kohei Sugiyama, Osaka-fu, Japan, assignors to Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

No Drawing. Filed Oct. 7, 1969, Ser. No. 864,549
Claims priority, application Japan, Oct. 11, 1968, 43/74,489; July 1, 1969, 44/52,314

Int. Cl. C08f 47/10, 29/04

U.S. Cl. 260—2.5 E 5 Claims

A process of producing an ethylenic resin foam by mixing and kneading an ethylenic resin with a volatile organic foaming agent under heating and pressure to form a flowable gel and releasing the pressure by extruding out the gel, characterized by the use as said foaming agent of a mixture comprising (A) dichlorodifluoromethane and (B) at least one compound selected from

the group consisting of aliphatic hydrocarbons having a boiling point of about 0–70° C. and chlorofluorohydrocarbons having a boiling point of about 0–70° C., said foaming agent having a saturated vapour pressure of less than 25 kg./cm.² at 100° C.

3,657,166

PRODUCTION OF FOAMED THERMOPLASTIC WITH CARBONIZED CELLULAR STRUCTURE

William A. Caldwell, Olathe, Kans., assignor to Phillips Petroleum Company

No Drawing. Filed Oct. 8, 1969, Ser. No. 864,878
Int. Cl. C08f 29/04, 47/10

U.S. Cl. 260—2.5 HA 5 Claims

A foamed thermoplastic material with carbonized cellular structure is formed either by mixing a foamable thermoplastic resinous material and a polybasic organic acid and an ammonium salt, or by mixing a foamable thermoplastic resinous material and an ammonium salt of a polybasic organic acid and elevating the temperature to the carbonizing temperature of the organic acid. In a specific embodiment, a mixture of polyethylene and ammonium citrate is raised to the decomposition temperature of the ammonium citrate to produce a foamed polyethylene with fine cellular structure which is colored by the elemental carbon produced in the decomposition reaction.

3,657,167

SUGAR DITHIOACETAL POLYDISULFIDES AND PROCESS OF MAKING

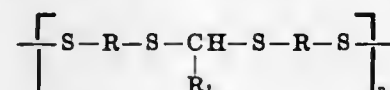
Robert Eugene Gramera, Dublin, Calif., assignor to CPC International Inc., Englewood Cliffs, N.J.

No Drawing. Continuation-in-part of application Ser. No. 694,119, Dec. 28, 1967. This application Dec. 10, 1969, Ser. No. 883,999

Int. Cl. C08b 25/00; C08g 1/00

U.S. Cl. 260—9 33 Claims

A polymeric composition comprising sugar dithioacetal polydisulfides having the following structural formula:



where R₁ is the non-aldehyde residue of a sugar, R is an inert divalent radical, generally hydrocarbon, and n is an integer ranging from about 50 to about 1000. Also disclosed is a method of preparing the above composition by reaction of an aldehyde-bearing sugar and a dithiol compound in the presence of a solvent and an oxidant. Also disclosed is the polymerization of dithiol compounds by the same method and a method of preparing sugar polydithioacetals by reaction of a sugar dithioacetal with a dithiol compound in the presence of a Lewis acid catalyst wherein both transdithiolacetalation and polymerization take place.

3,657,168

NONBUBBLING ADHESIVE COMPRISING AN AQUEOUS DISPERSION OF POLYVINYL-ACETATE-THERMOSETTING CROSS-LINKING RESIN AND A CRITICAL AMOUNT OF HYDROXYPROPYL CELLULOSE

Peter Spiros Columbus, Whitestone, N.Y., and Carl Reinhold Erikson, Worthington, Ohio, assignors to Borden, Inc., Columbus, Ohio

No Drawing. Continuation-in-part of application Ser. No. 698,705, Jan. 18, 1968. This application Nov. 23, 1970, Ser. No. 92,207

Int. Cl. C08b 21/32

U.S. Cl. 260—14 3 Claims

The instant invention relates to nonbubbling, heat curable water-based polyvinyl acetate thermosetting resin ad-

hesives comprising, in addition to the resin noted, water-soluble hydroxypropyl cellulose in an amount sufficient to form a nonelastic continuous film on the adhesive surface when exposed to curing temperatures.

3,657,169

STABILIZATION OF METAL CHROMATE PIGMENTS IN WATER-BASED RESINS

Morris Levine, Cleveland Heights, Ralph M. Brane, Bay Village, and Roland W. Hight, Cleveland, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 725,496, Apr. 30, 1968. This application Oct. 22, 1970, Ser. No. 83,252

Int. Cl. C08g 51/04

U.S. Cl. 260—18 4 Claims

Aqueous coating compositions of polycarboxylic acids solubilized with water-soluble alkaline materials and pigmented with metal chromate pigments are stabilized against gelation and seeding by the addition of lead pigment compounds. Metals coated with the compositions are highly resistant to corrosion and the compositions can be coated on to substrates using various methods including dip coating and electrodeposition.

ERRATUM

For Class 260—23 H see:
Patent No. 3,657,114

3,657,170

STABILIZATION OF UNVULCANIZED OIL-EXTENDED INTERCONNECTED LINEAR-RUBBERY-POLYMERS

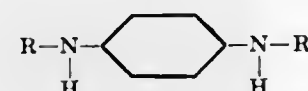
Arthur E. Oberster, North Canton, Ohio, and Ervin E. Schroeder, Lake Charles, La., assignors to The Firestone Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation-in-part of application Ser. No. 663,219, Aug. 25, 1967, which is a continuation-in-part of application Ser. No. 611,831, Jan. 26, 1967. This application Mar. 13, 1970, Ser. No. 19,493

Int. Cl. C08d 11/04

U.S. Cl. 260—23.7 M 4 Claims

An unvulcanized oil-extended interconnected linear-rubbery-polymer is stabilized by means of a synergistic mixture of (a) a substantial amount of a fatty acid having 12 to 22 carbon atoms per molecule and (b) a substantial amount of a compound having the formula



in which R is a phenyl, tolyl, straight-chain-alkyl, branched-chain-alkyl, cycloalkyl or hydroxy-alkyl group containing 3 to 8 carbon atoms, and R' is a straight-chain-alkyl, branched-chain-alkyl, cycloalkyl or hydroxy-alkyl group containing 3 to 8 carbon atoms.

3,657,171

HOT MELT COATING COMPOSITION

Dorothy E. White, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Oct. 8, 1969, Ser. No. 864,877

Int. Cl. C09j 3/26

U.S. Cl. 260—27 6 Claims

Disclosed are hot melt compositions comprised of a hydrocarbon wax, an ethylene/vinyl acetate copolymer,

and a metal salt of a carboxylic acid such as sodium benzoate.

3,657,172

SUSPENSION EMULSION CORE-SHELL INTER-POLYMERS CONTAINING VINYL CHLORIDE

Ruth E. Gallagher, Dobbs Ferry, N.Y., and Jesse C. H. Hwa, Stamford, Conn., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 876,928, Nov. 14, 1969. This application Feb. 16, 1970, Ser. No. 11,852

Int. Cl. C08f 15/26

U.S. Cl. 260—29.6 RB 21 Claims

Rubber-containing interpolymers are prepared by the suspension polymerization of a vinyl monomer, such as vinyl chloride, in the presence of an aqueous emulsion of particles comprising a hard inner core of a polymer having a glass transition temperature (T_g) above about 25° C. and an outer layer comprising a crosslinkable rubber having a T_g of less than about 25° C. The resulting interpolymer particles are particularly useful as high impact plastics and as modifiers for the reinforcement of relatively rigid types of plastics.

3,657,173

OIL AND WATER REPELLENT COMPOSITIONS

Albert R. Eanzel, Brussels, Belgium, and John Preston, Wiggan, England, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Mar. 3, 1970, Ser. No. 16,253

Int. Cl. C08f 45/24

U.S. Cl. 260—29.6 F 8 Claims

A composition which is in the form of an emulsion or which can readily be converted into an emulsion on shaking, suitable for imparting oil and/or water repellency to an article which comprises a fluorine-containing polymer having oil and/or water repellency properties, a major amount of a halogenated solvent which is perchloroethylene, trichloroethylene, 1,1,2-trichloro-1,2,2-trifluoroethane, carbon tetrachloride, methylene chloride, methyl chloroform, monochlorobenzene, ortho-dichlorobenzene, 1,1,2,2-tetrachloro-1,2-difluoroethane or 1,1,1-trichloro-2,2,3,3,3-pentafluoropropane; a minor amount of an alkanol of 1 to 5 carbon atoms, and water.

3,657,174

FILM-FORMING EMULSIONS OF COPOLYMERS

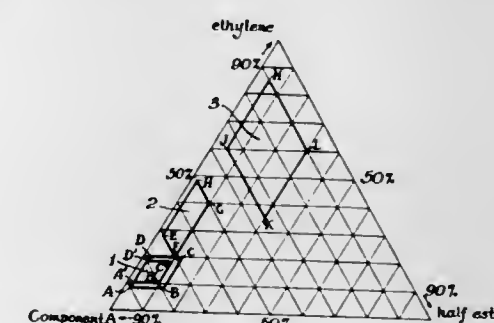
Dietrich Glabisch, Opladen, Herbert Bartl, Cologne-Stammheim, and Heinrich Meckbach, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 12, 1967, Ser. No. 689,957

Claims priority, application Germany, Jan. 7, 1967, F 51,152

Int. Cl. C08f 35/00

U.S. Cl. 260—29.6 4 Claims



Stable aqueous film-forming emulsions containing a copolymer of ethylene, a half ester of an α,β -unsaturated

dicarboxylic acid or a salt thereof, vinyl chloride and vinyl ester in specified proportions useful for coating, impregnating and finishing a variety of substrates.

3,657,175

CARBOXYLIC ACID LATTICES PROVIDING UNIQUE THICKENING AND DISPERSING AGENTS

Carl A. Zimmerman, Dover, Del., assignor to Standard Brands Chemical Industries, Inc., Dover, Del.

No Drawing. Filed June 26, 1969, Ser. No. 836,956

Int. Cl. C08f 37/08

U.S. Cl. 260—29.6 T

10 Claims

A latex composition comprising a stable aqueous dispersion of a copolymer prepared in an acid aqueous medium by emulsion polymerization of monomeric material containing from about 20% to about 55% by weight of methacrylic acid, from about 3% to about 35% by weight of an ester of an ethoxylated alcohol, e.g., an ester of maleic anhydride and dinonylphenoxypoly(ethyleneoxy)-ethanol, and a balance comprising at least 35% by weight of styrene, butadiene or mixtures thereof.

Thickening agents having exceptional thickening efficiency and polymeric emulsifiers are prepared from this latex composition by adjusting the composition to an alkaline pH.

3,657,176

STABLE POLYACRYLAMIDE DISPERSIONS

Lanny A. Robbins, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Apr. 9, 1970, Ser. No. 27,162

Int. Cl. C08f 29/00

U.S. Cl. 260—29.6 M

3 Claims

Fluid compositions which are resistant to gelling and remain easily dispersible in water during extended storage consist of particulate linear polyacrylamide containing 10–50 percent of acrylate moieties in its molecular structure dispersed in essentially saturated aqueous calcium chloride.

3,657,177

WIRE ENAMEL OF AN AROMATIC POLYSULFONE RESIN AND A HEAT REACTIVE CONDENSATE

Paul L. Adesso, Mount Prospect, Ill., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 25, 1970, Ser. No. 49,945

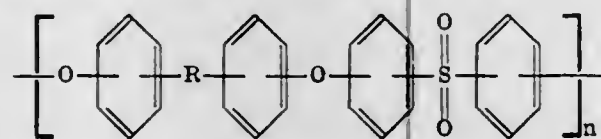
Int. Cl. C08g 51/26, 51/28, 51/32

U.S. Cl. 260—30.4 R

3 Claims

A coating composition that is resistant to elevated temperatures and can be utilized as a coating for metals, as a wire enamel, as an impregnant for forming circuit boards and as a high temperature adhesive is the subject of this invention. The composition is particularly useful as an over-coat over conventional wire enamels, such as polyimides, polyamides, polyamides-imides, polyesters, polyester-amides, polyesterimides, which are utilized in the winding of motors, generators, electrical coils and the like, these over-coated wires can be fused together to form a particularly strong, temperature resistant bond between the wires. The coating composition contains as the film-forming constituent:

(A) an aromatic polysulfone resin which has the following recurring structural unit:



where R is alkylene radical having 1–4 carbon atoms; and

(B) a heat reactive condensate having terminal $-\text{CH}_2\text{OH}$ groups.

POLYPIVALOLACTONE FIBERS AND A METHOD FOR THEIR MANUFACTURE

Tohru Kitazawa, Osaka, Hiroshi Maeda, Kobe, and Hideo Yoshidome and Hidehiko Sakata, Osaka, Japan, assignors to Kanegafuchi Boseki Kabushiki Kaisha, Tokyo, Japan

No Drawing. Original application July 27, 1967, Ser. No. 656,350. Divided and this application June 1, 1970, Ser. No. 54,052

Claims priority, application Japan, July 29, 1966, 41/49,782, 41/49,783, 41/49,784

Int. Cl. C08g 51/50

U.S. Cl. 260—30.6 R

3 Claims

A drawn, tenacious polypivalolactone fiber having a density of 1.17 at the most and a sufficient heat-setting ability which comprises a polymer consisting essentially of polypivalolactone which can be obtained by uniformly incorporating a polymer consisting essentially of pivalolactone with a small amount of at least one organic compound selected from the group consisting of tricresyl phosphate, trixylenyl phosphate, trinonylphenyl phosphite and trioctadecyl phosphite, extruding the mixture through an orifice of a spinneret, applying high draft to the extruded mixture while it is still in a molten or plasticized state to thereby form undrawn fibers, and thereafter, drawing said undrawn fiber. Said uniform admixture of said compound leads to broadened ranges of the conditions suitable for spinning, improved feasibility of operation, retardation of crystallizing velocity of the polymer after being spun and solidified, and markedly improved orientation.

3,657,179

FLAME RETARDANT ANTIMONY COMPOSITIONS

Paul C. Yates, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 30, 1970, Ser. No. 93,863

Int. Cl. C08k 1/34

U.S. Cl. 260—30.8 DS

21 Claims

Solutions of pentavalent antimony-alpha-hydroxy carboxylic acid compounds or of hydrous pentavalent antimony sols stabilized with an alpha-hydroxy carboxylic acid in polar organic solvents suitable for spinning or casting organic polymers are useful for dispersing flame-retarding pentavalent antimony compounds in polymeric structures.

3,657,180

SLIP AGENTS FOR POLYESTER FILM

Gerald Cohn, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed Jan. 8, 1970, Ser. No. 1,569

Int. Cl. C08g 51/36

U.S. Cl. 260—31.8 XA

5 Claims

The process of preparing a linear condensation polyester resin containing therein slip agents comprising the addition of a monovalent metallic compound, or a mixture of a monovalent metallic compound and a divalent metallic compound followed by a dicarboxylic acid slurry to a bis glycol ester and condensing the glycol ester to form a polyester resin that when extruded to film displayed good slip characteristics.

3,657,181

ACOUSTICALLY TRANSPARENT COMPOSITION COMPRISING A THERMOPLASTIC POLYMER AND ORGANIC FLUORINE CONTAINING COMPOUND

Richard G. Riedesel, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,446

Int. Cl. C08f 29/22

U.S. Cl. 260—33.6 F

5 Claims

A material having acoustic transparency useful as a sonar window or lens comprising a homogeneous mixture

of a thermoplastic material and an organic fluorine-containing material. The thermoplastic material has a density not greater than 1.5 and a sound transmission velocity not greater than 2.0×10^5 centimeters per second, but greater than the velocity of sound in water. The organic fluorine-containing material has a density greater than about 1.5 and a velocity of sound transmission less than water. The fluorine-containing material contains not more than 65% by weight of fluorine.

3,657,182

COMPOSITIONS AND A PROCESS FOR PREPARING WATER DISPERSIBLE POLYMERS

Colln S. Jolly, Burlington, Ontario, Canada, assignor to Alchem Limited, Burlington, Ontario, Canada

No Drawing. Filed Jan. 29, 1971, Ser. No. 111,101

Int. Cl. C09d 5/02

U.S. Cl. 260—33.4 R

14 Claims

Compositions of finely divided solid, water-soluble, polymers of high molecular weight uniformly coated with a surfactant and mixed with anhydrous sodium sulfate are readily dispersed in water. A method for improving the water dispersibility of a finely divided, solid, water-soluble polymer is disclosed.

3,657,183

STABILIZATION OF POLY(VINYL CHLORIDE)

Joseph Anthony Stretanski, Clinton, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 477,321, Aug. 4, 1965. This application Apr. 24, 1969, Ser. No. 819,531

Int. Cl. C08f 45/60

U.S. Cl. 260—45.8 NZ

4 Claims

The stabilization of rigid poly(vinyl chloride) by incorporation therein of a stabilizer comprising (a) 0.1 to 10.0% based on the weight of the rigid poly(vinyl chloride) of an alkanolamine or a lower alkylene oxide adduct thereof and (b) 0.1 to 3.0% based on the weight of the rigid poly(vinyl chloride) of an ultraviolet light absorber. In the preferred embodiments, a heat stabilizer is also used.

3,657,184

POLYURETHANE ELASTOMERIC COMPOSITIONS EXHIBITING IMPROVED LIGHT STABILITY

Hiroyuki Segawa, Shoji Kurosaki, and Takuo Kawaguchi, Kurashiki, Japan, assignors to Kuraray Co., Ltd., Osaka, Japan

No Drawing. Filed June 11, 1970, Ser. No. 45,551

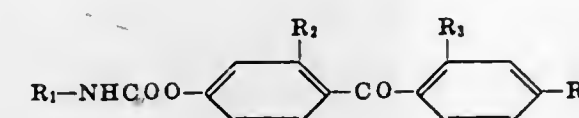
Claims priority, application Japan, June 27, 1969, 44/51,243

Int. Cl. C08g 51/60

U.S. Cl. 260—45.85

8 Claims

Polyurethane elastomers are stabilized against degradation upon exposure to ultraviolet rays by incorporating therein from 0.1 to about 20% by weight, based on the elastomer, of a benzophenone having the general formula:



3,657,185

COPOLYMERS OF PHENYLINDAN DICARBOXYLIC ACID AND AN AROMATIC DIHYDROXY COMPOUND

Robert L. Wear, West St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Filed Apr. 2, 1970, Ser. No. 25,254

Int. Cl. C08g 17/08, 33/10

U.S. Cl. 260—47 C

4 Claims

Polymers containing the esterified residue of phenylindan dicarboxylic acid and an aromatic dihydroxy compound may be solvent cast to provide films, are heat resistant and have useful dielectric properties.

3,657,186

POLYIMINOBENZOXAZINEDIONES AND METHOD OF PREPARATION

James M. Craven, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Aug. 26, 1970, Ser. No. 67,230

Int. Cl. C08g 22/06, 22/26, 33/02

U.S. Cl. 260—47 CB

5 Claims

A novel polyiminobenzoxazinedione composition which is the reaction product of a multifunctional isocyanate and a multifunctional aromatic o-hydroxynitrile.

3,657,187

THIADIAZOLYLAZO COMPOUNDS

Max A. Weaver and David J. Wallace, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 16, 1969, Ser. No. 833,745

Int. Cl. C09b 29/08; D06p 3/26

U.S. Cl. 260—158

8 Claims

Monoazo compounds having an alkylthio-, alkoxy-, cycloalkylthio-, cycloalkoxy-, arylthio-, or aryloxy-1,3,4-thiadiazolyl diazo component and a m-toluidine coupling component and nitrogen atom of which is substituted by the group $-(\text{CH}_2)_n-\text{X}$ wherein n is 2 or 3 and X is hydrogen, pyrrolidinono, acylamido, carbamoyl, or alkanoyloxy. The azo compounds are useful for dyeing polyamide materials bright, fast red to pink shades and exhibit excellent fastness to light and improved build-up and migration.

3,657,188

CONTINUOUS PRODUCTION OF RESOLES

Carl C. Perkins, Jr., Prairie Village, Kans., assignor to Butler Manufacturing Company, Kansas City, Mo.

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,860

Int. Cl. C08g 5/06, 5/18

U.S. Cl. 260—60

6 Claims

A new, low viscosity, low water content phenol aldehyde resole and a method of producing the resole continuously

by controlling the temperatures and time of reaction. The time of reaction is controlled by both moving the reactants from one zone to another and by neutralizing prior to removal of excess water.

3,657,189
POLYMERIZATION OF A GASEOUS FORMALDEHYDE

Shinichi Ishida, 22-4, Denenchofu-5-chome, Tokyo, Japan; Norimasa Fujita, 23, Tatemachi, Kanagawa-ku, Yokohama, Japan; Yoshisada Oshima, 14-3-305, Hatanodai-6-chome, Shinagawa-ku, Tokyo, Japan; and Teturo Tanaka, 181, Kamiotanaka, and Mitito Hiruta, 819, Chitose, both of Kawasaki-shi, Japan

Filed Aug. 28, 1970, Ser. No. 67,837

Claims priority, application Japan, Sept. 8, 1969, 44/70,543

Int. Cl. C08g 1/02
U.S. Cl. 260—67 FP 3 Claims

Gaseous formaldehyde monomer rapidly polymerizable at a temperature lower than the ceiling temperature of the polymer produced is polymerized in a liquid polymerization medium by blowing the monomer into a liquid polymerization zone through a gas passage heated to a temperature higher than the ceiling temperature of the polymer, and keeping a gas blowing nozzle connecting to the polymerization zone and its neighbor at a temperature higher than the boiling point of the polymerization medium but lower than the thermal decomposition temperature of the monomer.

3,657,190
METHOD FOR FORMING PYRRONE MOLDING POWDERS AND PRODUCTS OF SAID METHOD

Charles T. Hughes, Carlisle, and Robert J. McHenry, Acton, Mass., assignors to Avco Corporation, Cincinnati, Ohio

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,445

Int. Cl. C08g 20/32
U.S. Cl. 260—65 7 Claims

The present invention relates to the formation of improved pyrrone resins of the ladder or semi-ladder structure. The technique involves initial formation of fully cyclized prepolymers having an average degree of polymerization of about 1.5, one with acidic terminal groups, another with amine terminal groups. Thereafter the prepolymers are intimately admixed on a 1:1 stoichiometric basis. The resulting powder mixture is molded at elevated pressures and temperatures to form a fully cyclized resin.

3,657,191
PROCESS FOR THE MODIFICATION OF TERMINAL GROUPS OF POLYESTERS

Rudolf Titzmann, deceased, late of Bobingen, Germany, by Hella Titzmann, nee Hahner, Bobingen, Klaus Titzmann and Jörg Titzmann, Frankfurt am Main, and Michael Titzmann, Munich, heirs, and Hans Thaler, Strassberg, and Josef Walter, Bobingen, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed June 9, 1970, Ser. No. 44,905

Claims priority, application Germany, June 9, 1969, P 19 29 149.7

Int. Cl. C08g 17/14
U.S. Cl. 260—75 T 4 Claims

The present invention relates to a process for the manufacture of linear polyesters having an improved stability

with respect to compounds with active hydrogen. Polyesters of this type are obtained by reacting polyesters with ethylene carbonates or monofunctional glycidyl ethers. The reaction is first carried out within a temperature range lying 10° to 60° C. below the softening point of the polyester and is then terminated during the melting- and melt-spinning process.

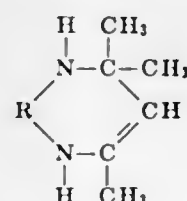
3,657,192
STERICALLY HINDERED SECONDARY DIAMINE CURING AGENTS FOR POLYURETHANE COMPOSITIONS

Walter F. Schulz, Joliet, Ill., and Herwart C. Vogt, Grosse Ile, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Continuation-in-part of application Ser. No. 699,319, Jan. 22, 1968. This application Aug. 24, 1970, Ser. No. 66,404

Int. Cl. C08g 22/00
U.S. Cl. 260—77.5 AM 7 Claims

Sterically hindered heterocyclic secondary diamines prepared by the reaction of mesityl oxide with a vicinal diamine and corresponding to the formula:



wherein R is the alkylene, cycloalkylene or arylene, organic residue of the vicinal diamine are used as chain extender for urethane urea polymers to provide products with improved properties and pot life.

3,657,193
POLYESTERS CONTAINING DIALKYL SUBSTITUTED SULFO-CARBOXYLIC ACIDS

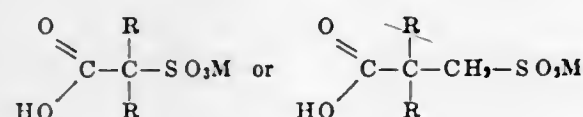
John R. Caldwell, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed June 24, 1970, Ser. No. 49,511

Int. Cl. C08g 17/04, 17/08
U.S. Cl. 260—76 7 Claims

A high thermal stability textile fiber produced from a polymer of

- (A) a dicarboxylic acid component consisting essentially of at least 80 mole percent terephthalic acid, or an esterifiable derivative thereof,
(B) a diol component selected from the group consisting of ethylene glycol, 1,4-butanediol, and 1,4-cyclohexanedimethanol, and
(C) from about 1-25 mole percent, based on the total moles of dicarboxylic acid component of a high thermal stability dye improving additive, or an esterifiable derivative thereof, corresponding to the structure



wherein

R is a monovalent alkyl radical having from 1-4 carbon atoms, and
M is an ion of a divalent metal or an alkali metal.

3,657,194
SOLUTION POLYMERIZATION OF LAURYL LACTAM

Michel Biensan, Billere, and Philippe Bruant, Pau, France, assignors to Société Nationale des Petroles d'Aquitaine, Courbevoie, France

Filed Dec. 23, 1969, Ser. No. 887,556

Claims priority, application France, Dec. 31, 1968, 182,521

Int. Cl. C08g 20/18
U.S. Cl. 260—78 L 10 Claims

A process for the production of a polyamide in the form of a fine powder by heating a stirred solution of a monomeric lactam in an inert solvent containing an anionic polymerization catalyst and an anionic polymerization activator between 70°-150° C. is improved by starting the heating at 70°-95° C. and thereafter increasing the temperature whereat at each level of temperature T the amount p% of polymer powder present in the polymerization medium, expressed as a percentage of the total amount of polymer and monomer in the medium, is at least 0.5T-40.

3,657,195
CONTINUOUS PROCESS FOR THE AFTER CONDENSATION OF POLYHEXAMETHYLENE ADIPAMIDE

Helmut Doerfel and Hans Dieter Zettler, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Feb. 19, 1969, Ser. No. 800,554

Claims priority, application Germany, Feb. 22, 1968, P 17 20 349.5

Int. Cl. C08g 20/38
U.S. Cl. 260—78 SC 3 Claims

A process for the production of high molecular weight nylon 6,6 by continuous further condensation of low molecular weight nylon 6,6 in a self-cleaning screw extruder reactor provided with at least one degassing orifice at elevated temperature and a pressure of from 50 mm. Hg to 2 atmospheres gauge and while supplying through the screws an amount of energy of from 0.02 to 0.2 kilowatt hours per kilogram of polyamide.

3,657,196
HALF ESTER OF AN EPOXY RESIN AND UNSATURATED DICARBOXYLIC ACID ANHYDRIDE

Newton C. Foster, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application Oct. 27, 1967, Ser. No. 678,703, now Patent No. 3,557,246, dated Jan. 19, 1971. Divided and this application Aug. 28, 1970, Ser. No. 67,693

Int. Cl. C08g 30/12, 45/04
U.S. Cl. 260—78.4 EP 7 Claims

Compositions of months-long catalyzed pot life at room temperature and hence especially suitable for coating large objects, are made by mixing (a) the product of the uncatalyzed half-esterification of epoxy resin with an olefinically unsaturated dicarboxylic acid anhydride (e.g., maleic anhydride) with (b) a coreactive vinyl monomer (e.g., styrene), (c) a polycarboxylic anhydride containing no olefinic unsaturation (e.g., NADIC methyl anhydride [NMA] viscous liquid methylbicyclo [2.2.1] heptene-2,3-dicarboxylic anhydride isomers) and (d) polymerization catalysts and inhibitors. Upon heating, the composition cures to a thermoset resin. The basic composition is modified with fillers and additives for use as potting compounds, encapsulants, castings, laminate adhesives, etc.

3,657,197
PHOTOSENSITIVE PROPARGYL POLYMER DERIVATIVES

Nathan D. Field, Allentown, and Harlan B. Freyermuth, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed May 7, 1970, Ser. No. 35,551

Int. Cl. C08f 27/08
U.S. Cl. 260—78.5 T 3 Claims

A light-sensitive solvent soluble film-forming polymer containing a propargyl group is disclosed. The propargyl group-containing polymers can be used as a photoresist with or without a sensitizer. In another aspect of the disclosure, a sensitizer-stabilizer comprising a xanthene-9-one or a thioxanthene-9-one is disclosed.

3,657,198
PROCESS FOR THE PREPARATION OF AROMATIC POLY-N-ALKYL URETHANES

Kurt Weirauch, Krefeld, Heinrich Krimm, Krefeld-Bockum, Gunther Lenz, Krefeld, and Hermann Schnell, Krefeld-Uerdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Sept. 25, 1970, Ser. No. 75,696

Claims priority, application Germany, Sept. 27, 1969, P 19 49 011.0

Int. Cl. C08g 22/04
U.S. Cl. 260—77.5 B 6 Claims

Reaction of substantially equimolar proportions of N, N'-dimethyl-N,N'-dialkyldiaminophenyl compounds with bis-chlorocarbonic acid esters of aromatic dihydroxy compounds at temperatures between about 50 and about 350° C. to produce the title products which are useful as thermoplastic molding materials for producing films and foils.

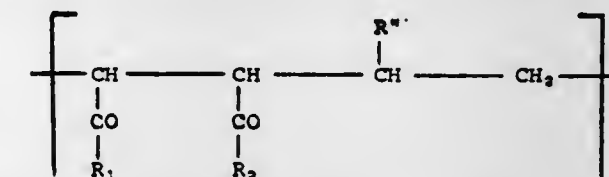
3,657,199
NOVEL COMPOSITIONS

Adnan A. R. Sayigh and Fred A. Stuber, North Haven, and Henri Ulrich, North Branford, Conn., assignors to The Upjohn Company, Kalamazoo, Mich.

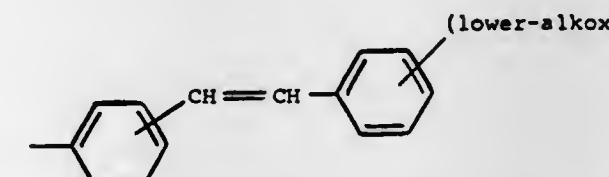
No Drawing. Continuation-in-part of abandoned application Ser. No. 829,094, May 29, 1969. This application Nov. 27, 1970, Ser. No. 93,447

Int. Cl. C08f 27/08, 27/12
U.S. Cl. 260—78.5 T 6 Claims

Light sensitive ester-amide polymers are provided. The polymers are characterized by the recurring unit:



wherein one of R₁ and R₂ represents —O— (lower-alkyl) and the other of R₁ and R₂ represents —NHR wherein R is a stilbene residue having the formula:



n=1 to 3, and R''=lower-alkoxy or phenyl. The polymers have an average molecular weight within the range

of about 100,000 to about 1,250,000. The above ester-amide polymers undergo cross-linking on exposure to ultraviolet light and can be used in photo-resist systems. The above ester-amide polymers are prepared by reacting the appropriate vinyl ether-maleic anhydride or styrene-maleic anhydride copolymer with the appropriate amino-stilbene and esterifying the intermediate amide amine salt with a lower-aliphatic alcohol.

3,657,200

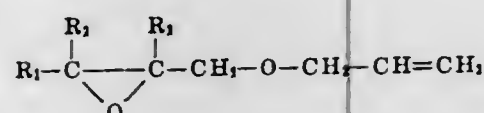
COPOLYMERS OF SULFUR DIOXIDE WITH ALLYL EPOXYALKANE ETHERS

William Ross Moore and Ralph Rolland Langner, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Nov. 4, 1970, Ser. No. 86,940

Int. Cl. C08f 13/06

U.S. Cl. 260—79.3 A 4 Claims
Copolymers of sulfur dioxide with compounds of the formula



wherein R_1 , R_2 and R_3 are independently hydrogen or methyl groups. These copolymers are useful as permanent sizing agents for natural and synthetic fabrics.

3,657,201

NOVEL ALTERNATING COPOLYMER HAVING SULFONIC ACID GROUP AND A METHOD FOR PRODUCING THEREOF

Kenji Takeya, Yoshihiro Uno, and Akira Yamane, Okayama, Japan, assignors to Sumitomo Chemical Company, Ltd., and Japan Exlan Company Ltd., both of Osaka, Japan

No Drawing. Filed Mar. 24, 1970, Ser. No. 22,367

Claims priority, application Japan, Mar. 26, 1969, 44/23,425

Int. Cl. C08f 13/00

U.S. Cl. 260—79.3 MU 16 Claims
An alternating copolymer comprising unsaturated compounds containing a sulfonic acid group (monomer of Group A) and non-substituted or substituted conjugated vinyl compounds (monomer of Group B) is prepared from the monomers of Group A such as vinylsulfonic acids, allylsulfonic acids, styrenesulfonic acids, vinyloxy-sulfonic acids, and allyloxysulfonic acids and the monomers of Group B such as acrylonitrile, acrylic acid, thioacrylic acid, or their derivatives using an organometallic halide such as organoaluminum halide or organoboron halide or modified catalyst thereof. The product copolymer is useful for shaping a film, fibers, or other molding or for modifying the moldings, or useful as an ion exchange resin or a readily dyeable polymer.

3,657,202

ETHYLENE/SULFUR DIOXIDE BIPOLYMERS AND METHOD OF MAKING

Clarence Frederick Hammer and Thomas Fujio Sashihara, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 23, 1970, Ser. No. 32,741

Int. Cl. C08f 13/06

U.S. Cl. 260—79.3 A 3 Claims
Bipolymers of ethylene and sulfur dioxide which are essentially free of 1:1 molar ratio of ethylene and sulfur dioxide are provided. Processes for preparing these bipolymers are also provided. The bipolymers consist essentially of at least about 50 percent by weight ethylene and about 0.1 to 50 percent by weight sulfur dioxide. The absence of 1:1 molar ratio of ethylene and sulfur dioxide are evidenced by the bipolymers having an absorption

band at about 16 to 17 μ in the infrared spectra and being essentially free of two absorption bands between 13.5 and 14 μ in the infrared spectra, respectively. By varying the amount of the highly polar sulfur dioxide in the bipolymers, shaped articles (e.g., molded articles and films) from the bipolymers or from blends of the bipolymers with other solid organic polymers, such as a vinyl chloride polymer, can be flexible or rigid, and possess improved properties of polyethylene.

3,657,203

SYNTHETIC HYDROCARBON ELASTOMERS HAVING IMPROVED BUILDING TACK

Robert Edward Tarney, Hockessin, and John J. Verbanc, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 29,645, Apr. 17, 1970. This application Dec. 11, 1970, Ser. No. 97,319

Int. Cl. C08f 17/00

U.S. Cl. 260—5 18 Claims
Synthetic hydrocarbon elastomers are tackified by uniformly dispersing therein an N,N'-disubstituted-p-arylene diamine, a 1,2-dihydro-2,2,4-trialkyl quinoline, 1,4-di-2,4-cyclopentadien-1-yl-butene or a diester of 5-norbornene-2-methanol and a dicarboxylic acid, and exposing the resulting mixture to a greater than ambient concentration of ozone or to ultraviolet light in the presence of oxygen. Optionally, the elastomer can contain selected resins uniformly dispersed therein which enhance the generation and retention of building tack.

3,657,204

CURABLE AMORPHOUS OLEFINIC TERPOLYMERS FROM ALPHA-OLEFINS AND POLYCYCLIC POLYENES

Sebastiano Cesca, Arnaldo Roggero, and Ermanno Cinelli, San Donato Milanese, Italy, assignors to Snam Progetti S.p.A., Milan, Italy

No Drawing. Filed Dec. 18, 1969, Ser. No. 886,390

Claims priority, application Italy, Dec. 18, 1968, 25,239/68

Int. Cl. C08f 5/00, 15/40

U.S. Cl. 260—80.78 21 Claims
A new amorphous olefinic terpolymer that is readily curable, and which may be prepared by polymerizing a mixture of two different alpha-olefins having up to ten carbon atoms and a polycyclic polyene represented by the formula $A-(CH_2)_n-B$ wherein A is a radical comprising at least one ring having an endomethylene group, B is a cycloolefin radical and n is 0 to 5, is disclosed.

3,657,205

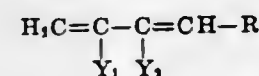
PREPARATION OF HIGH 1,4-POLYPENTADIENES

Morford C. Throckmorton, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

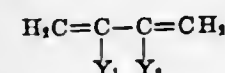
No Drawing. Filed Sept. 3, 1970, Ser. No. 69,468

Int. Cl. C08d 1/14, 3/08, 3/12

U.S. Cl. 260—82.1 10 Claims
There is disclosed a process for homopolymerizing at least one diolefin of the general formula:



wherein Y_1 and Y_2 are selected from the group consisting of hydrogen and alkyl radicals having from 1 to 4 carbon atoms and R is selected from alkyl (including cycloalkyl), alkaryl, arylalkyl and aryl groups, containing from 1 to 8 carbon atoms, or copolymerizing with at least one diolefin of the general formula



wherein Y_1 and Y_2 are selected from the group consisting of hydrogen and alkyl radicals having from 1 to 4 carbon atoms, by contact, under solution polymerization conditions with a catalyst comprising (1) an organoaluminum compound from the class consisting of triorganoaluminum and diorganoaluminum hydride compounds, (2) an organometallic compound, the metal ion of which is selected from the class consisting of metals of Group III-B of the Periodic System.

3,657,206

JOINING DEAD POLYMERS

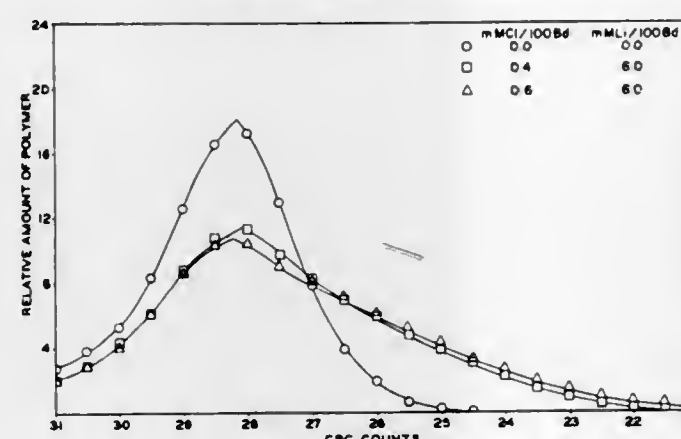
Adel F. Halasa, Bath, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Continuation-in-part of application Ser. No. 575,967, Aug. 30, 1966. This application Oct. 8, 1969, Ser. No. 864,699

Int. Cl. C08d 5/02, 5/04

U.S. Cl. 260—85.1 9 Claims

JOINING OF DEAD POLYBUTADIENE POLYMER WITH SEC-BUTYLCHLORIDE AND BUTYLLITHIUM



Dead polymers, whether liquid or solid, with a molecular weight of 1,000 to 2,000,000, derived at least in part from a diene monomer, are joined with halogenated joining agents to produce a rubber of greater molecular weight.

3,657,207

HOMO- AND COPOLYMERS OF 4-VINYL-AZETIDINONE-2 AND PROCESS FOR THEIR MANUFACTURE

Herbert Bestian, Frankfurt am Main, Eduard Kaiser, Kelkheim, Taunus, and Helmut Korbanka, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Oct. 13, 1969, Ser. No. 865,968

Claims priority, application Germany, Oct. 25, 1968, P 18 05 045.8

Int. Cl. C08f 5/00, 17/00

U.S. Cl. 260—88.3 L 3 Claims
Homo- and copolymers of 4-vinyl-azetidinone-2 are provided which are polymerized at the vinyl group in the presence of free radical initiators and carry lateral lactam rings.

3,657,208

TERNARY CATALYST SYSTEMS FOR THE POLYMERIZATION OF CYCLIC OLEFINS

William Allen Judy, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Continuation of abandoned application Ser. No. 755,375, Aug. 26, 1968. This application Nov. 2, 1970, Ser. No. 86,002

Int. Cl. C08f 1/14, 7/02, 15/04

U.S. Cl. 260—88.2 R 15 Claims
A method for the ring opening polymerization of unsaturated alicyclic compounds containing at least four and not more than five carbon atoms in the cyclic ring

and unsaturated alicyclic compounds containing at least eight carbon atoms and at least one double bond in the cyclic ring is disclosed, which comprises subjecting such unsaturated alicyclic compounds to a catalyst system comprising (A) at least one transition metal salt from the group of tungsten halides, tungsten oxyhalides, molybdenum halides and molybdenum oxyhalides, (B) at least one organometallic compound wherein the metal is selected from groups Ia, IIa, IIb, IVa and Va of the Periodic System and (C) at least one Lewis acid of the formula $M-X_n$ where M is a metal from the group of aluminum, zinc, gallium, tin and antimony; X is a halogen and n equals the valence of M.

3,657,209

POLYMERIC MATERIAL AND METHOD OF PREPARING SAME

Earl J. Carlson and Samuel E. Horne, Jr., Akron, Ohio, assignors to Goodrich-Gulf Chemicals, Inc., Pittsburgh, Pa.

No Drawing. Filed Apr. 21, 1955, Ser. No. 503,028

Int. Cl. C08d 3/06

U.S. Cl. 260—94.3 5 Claims
This invention is concerned with the polymerization of butadiene in an inert liquid hydrocarbon in the presence of 0.5 to 20% by weight of butadiene of a catalyst comprising $TiCl_4$ and $AlR'R''R'''$.

3,657,210

PROCESS FOR CONTROLLING THE INTRODUCTION OF INITIATOR IN THE HIGH-PRESSURE POLYMERIZATION OF ETHYLENE

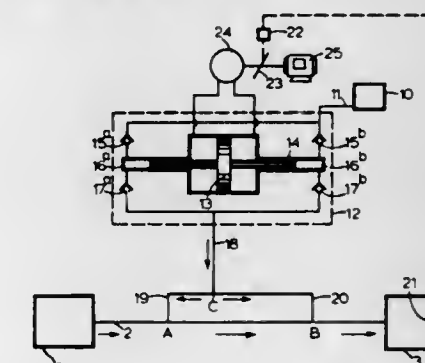
Jan H. K. Minkhorst, Munstergeleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

Filed Aug. 20, 1970, Ser. No. 65,475

Claims priority, application Netherlands, Aug. 25, 1969, 6912911

Int. Cl. C08f 3/04, 1/60

U.S. Cl. 260—94.9 P 4 Claims



A process for mixing an initiator solution with ethylene under pressure as it travels to a high pressure polymerizer, where the initiator solution is introduced into the ethylene stream at different points and traveling different distances from the initiator source thereby controlling the high-pressure polymerization of ethylene is disclosed.

3,657,211

CONTINUOUS PRODUCTION OF ETHYLENE HOMOPOLYMERS

Klaus Steigerwald and Oskar Buechner, Ludwigshafen, and Friedrich Urban and Helmut Pfannmueller, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Feb. 11, 1970, Ser. No. 10,586

Claims priority, application Germany, Feb. 22, 1969, P 19 08 964.6

Int. Cl. C08f 3/04, 1/60

U.S. Cl. 260—94.9 R 4 Claims
Production of ethylene homopolymers by polymerization of ethylene under the action of organic hydropor-

hydro - 5H - imidazo[2,1-a]isindol - 5 - ones which are useful intermediates in the preparation of dihydroimidazoisindolols which are pharmacologically active as anti-depressants and anorexants.

3,657,222

PHENETHYL TRIAZEPINE COMPOUND

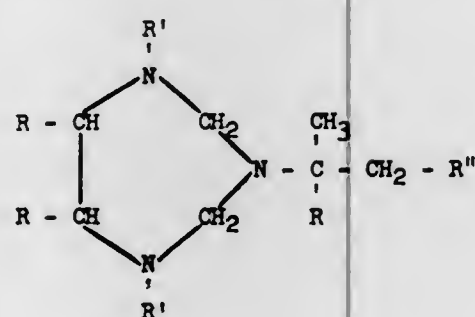
Stanley J. Strycker, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Continuation-in-part of application Ser. No. 602,597, Dec. 19, 1966. This application Dec. 17, 1969, Ser. No. 885,967

Int. Cl. C07d 55/54

U.S. Cl. 260—239 BC

5 Claims

The present invention is directed to a phenethyl triazepine compound of the formula



In the above and succeeding formulae in the present specification and claims, each R independently represents hydrogen or methyl; R' represents nitro, alkylsulfonyl, phenylsulfonyl, or substituted phenylsulfonyl; and R'' represents phenyl or substituted phenyl with the proviso that when R' is nitro, the side chain R is methyl and R'' is other than phenyl. The products of the present invention are useful as agents to control the growth of plants. In addition, these products are useful as agents to modify and control the behavior of warm blooded animals.

3,657,223

PROCESS FOR THE PREPARATION OF BENZODIAZEPIN-2-ONE DERIVATIVES

Joseph Hellerbach and André Szente, Basel, Switzerland, and Armin Walser, West Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Filed Jan. 9, 1970, Ser. No. 1,843

Int. Cl. C07d 53/06

U.S. Cl. 260—239.3

10 Claims

Process for the preparation of benzodiazepin-2-ones comprising effecting ring expansion of the novel 2-oxo-3-aminoquinoline intermediates via acid or heat treatment. The end products are useful as sedatives, tranquilizers, anti-convulsants and muscle relaxants.

3,657,224

METHOD FOR THE PRODUCTION OF PENICILLINS

Leon John Heuser, Robbinsville, N.J., assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Continuation-in-part of application Ser. No. 729,535, May 16, 1968, which is a continuation-in-part of application Ser. No. 654,690, July 20, 1967. This application Sept. 10, 1970, Ser. No. 71,226

Int. Cl. C07d 99/16

U.S. Cl. 260—239.1

18 Claims

This invention relates to a new process for the production of penicillin compounds. The process comprises reacting an imine derivative of 6-aminopenicillanic acid or a salt thereof with an acylating agent, such as an acyl ha-

lde or acid anhydride, and hydrolyzing the intermediate reaction product to obtain the desired penicillin compound.

3,657,225

2,3-EPITHIO-5 α -ANDROST-6-ENE COMPOUNDS

Taichiro Komeno, Osaka-shi, Japan, assignor to Shionogi & Co., Ltd., Osaka, Japan
No Drawing. Continuation-in-part of application Ser. No. 769,412, Oct. 21, 1968. This application Dec. 24, 1969, Ser. No. 888,031

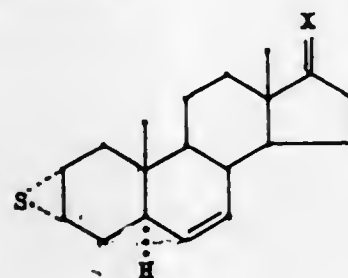
Claims priority, application Japan, Oct. 25, 1967, 42/68,682

Int. Cl. C07c 173/00

U.S. Cl. 260—239.5

20 Claims

2 α ,3 α -epithio-17 - oxygenated - 5 α - androst-6-ene compounds of the formula



wherein X is an oxo group or a



group, in which R is a hydrogen atom or an optionally substituted lower hydrocarbon-carbonyl group or a substituted or unsubstituted cyclo-lower hydrocarbon group or tetrahydropyranyl group or tetrahydrofuranyl group; R' is a hydrogen atom or a lower hydrocarbon group, having strong antiestrogenic activity accompanied with least side effects, pharmaceutical preparations containing one or more of them and process for preparation of these compounds.

3,657,226

DERIVATIVES OF 2H-PYRAN-3(6H)-ONES AND PREPARATION THEREOF

Yvon Lefebvre, Pierrefonds, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 5,883, Jan. 26, 1970, which is a continuation-in-part of application Ser. No. 748,196, July 29, 1968. This application Oct. 5, 1970, Ser. No. 78,196

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 R

25 Claims

There are disclosed herein 24-hydroxy-, 24-acyloxy- and 24 - alkoxy-17 β ,24-epoxy-21-norcholane 3,20-dione and 17 β ,24 - epoxy-19,21-dinorcholane-3,20-dione compounds and their corresponding cholanolic acid γ -lactones with optional double bonds at positions 4,5 and 22,23 as well as their corresponding 11-hydroxy- and 11-keto-derivatives thereof. The compounds have antigonadotrophic activity and methods for their preparation and use are also disclosed.

3,657,227

PROCESS FOR PRODUCING PREGNANES

Richard Wightman Kierstead and Perry Rosen, North Caldwell, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Dec. 11, 1969, Ser. No. 884,324

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55

21 Claims

A process for producing 4,6-dihalo-16-alkylidene pregna-4,6-diene-3,20-diones useful as progestational agents

from a 16 α ,17 α -epoxy-3-alkanoyloxy-16-alkyl-pregn-5-en-20-one, and intermediates thereof.

3,657,228

PROCESS FOR THE MANUFACTURE OF 3 β -HYDROXY-5 β -CARDENOLIDES

Kurt Radschelt, Kelkheim, Taunus, Werner Fritsch, Neuenhain, Taunus, and Werner Haede and Ulrich Stache, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Nov. 12, 1970, Ser. No. 89,098

Claims priority, application Germany, Nov. 14, 1969, P 19 57 264.4

Int. Cl. C07c 173/00

U.S. Cl. 260—239.57

1 Claim

Manufacture of 3 β -hydroxy-5 β -cardenolides of the 14-dehydro or 14 β series by treatment of 3-keto-5 β -cardenolides with iridium(IV)-hydrochloric acid, its salts or iridium(III)-chloride in the presence of trialkyl-phosphite.

3,657,229

1,3-DIAZA-2,3-CYCLOALKENE DERIVATIVES

Denis M. Bailey, Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Filed May 2, 1968, Ser. No. 726,212

Int. Cl. C07d 53/02, 51/28, 49/34

U.S. Cl. 260—239 BC

5 Claims

2 - [(lower-alkoxy) benzyl] - 2 - imidazolines, -1,4,5,6-tetrahydropyrimidines and -4,5,6,7-tetrahydro-1H-1,3-diazepines, having pharmacological properties, e.g., hypoglycemic, diuretic, anti-inflammatory, are prepared by heating a 2-(lower-alkoxy)-2-phenylalkanenitrile with an alkanediamine, wherein 2, 3 or 4 carbon atoms, respectively intervene between the two amino groups, in the presence of a catalytic amount of carbon disulfide or hydrogen sulfide. The intermediate 2-(lower-alkoxy)-2-phenylalkanenitriles are prepared preferably by first reacting a benzaldehyde with a tri-(lower-alkyl) orthoformate to form the aldehyde di-(lower-alkyl) acetal, reacting the latter with an acyl halide to form the corresponding α -halobenzyl lower-alkyl ether and reacting said ether with an alkali cyanide to yield said intermediate nitrile.

3,657,230

 α -(TERT. AMINOPHENYL)-ALIPHATIC ACIDS

Richard William James Carney, New Providence, and George de Stevens, Woodland Park, Summit, N.J., assignors to Ciba Corporation, Summit, N.J.

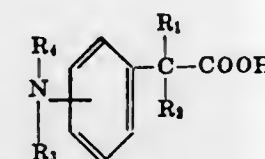
No Drawing. Continuation-in-part of application Ser. No. 716,347, Mar. 27, 1968. This application Sept. 3, 1968, Ser. No. 757,136

Int. Cl. C07d 41/04, 27/02

U.S. Cl. 260—239 BF

10 Claims

New α -(tert. aminophenyl)-aliphatic acids, e.g. those of the formula

R₁=H or alkylR₂=H, alk(en)yl, cycloalk(en)yl or cycloalk(en)yl-alkylR₃=alk(en)yl, hydroxyalkyl or alkoxyalkylR₄=cycloalk(en)yl, cycloalk(en)yl-alkyl or aralkylR₅+R₆=alk(en)ylene, aza-, oxa- or thia-alkylene

and functional derivatives thereof, are anti-inflammatory agents.

3,657,231

OLIGOMERIC OPTICAL BRIGHTENING COMPOUNDS

Gary E. Booth, Oxford, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
No Drawing. Continuation-in-part of application Ser. No. 763,944, Sept. 30, 1968. This application Mar. 24, 1970, Ser. No. 24,468

Int. Cl. C07d 55/20

U.S. Cl. 260—240 B

3 Claims

Oligomeric optical brightening compounds having a molecular weight in the range of 200 to 24,000 and containing from 2-24 fluorescent moieties being separated by inorganic or organic chemical linkages derived from a condensation reaction. The optical brighteners, which are useful in admixture with detergent compositions, are prepared by a reaction between a difunctional fluorescent compound and a difunctional linking compound.

3,657,232

7-[(α -AMINOMETHYLPHENYLTHIO)-ACETAMIDO] CEPHALOSPORANIC ACID

Raymond Urgel Lemieux and Rintje Raap, Edmonton, Alberta, Canada, assignors to R & L Molecular Research Ltd., Edmonton, Alberta, Canada
No Drawing. Filed June 19, 1970, Ser. No. 47,916

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

7 Claims

7-[(α -aminomethylphenylthio)acetamido]cephalosporanic acid and its nontoxic, pharmaceutically acceptable salts are valuable as antibacterial agents, as nutritional supplements in animal feeds and as therapeutic agents in poultry and animals, including man, and are especially useful in the treatment of infectious diseases caused by many Gram-positive and Gram-negative bacteria. 7-[(α -aminomethylphenylthio)acetamido]cephalosporanic acid is prepared, for example, by treatment at 0° C. with trifluoroacetic acid of the corresponding compound in which the free amino group is protected with a tert.-butoxycarbonyl group.

3,657,233

10-MORPHOLINO-1,2,3,4-TETRAHYDROBENZOTRIAZIN-5(1H)-ONE DERIVATIVES

Milton Wolf, West Chester, and James L. Diebold, Haver-town, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Application Sept. 16, 1968, Ser. No. 760,063, now Patent No. 3,580,915, which is a continuation-in-part of applications Ser. No. 533,802 and Ser. No. 533,793, both Mar. 14, 1966, and Ser. No. 581,756, Sept. 22, 1966. Divided and this application Apr. 30, 1970, Ser. No. 33,510

Int. Cl. C07d 87/40

U.S. Cl. 260—247.5

1 Claim

This invention concerns 1,2,3,4-tetrahydro-2-methyl-10-morpholino-8-nitro[1,6] naphthyridine which is pharmacologically active as a central nervous system depressant.

3,657,234

O-(BENZO - 1,2,4 - TRIAZIN - 3-YL)-PHOSPHORIC, PHOSPHONIC, THIONOPHOSPHORIC AND THIONOPHOSPHONIC ACID ESTERS

Karl-Julius Schmidt, Wuppertal-Vohwinkel, and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Oct. 8, 1969, Ser. No. 864,864

Claims priority, application Germany, Oct. 23, 1968, P 18 04 526.6

Int. Cl. C07d 55/10

U.S. Cl. 260—248 AS

10 Claims

O - (benzo-1,2,4-triazin-3-yl) - phosphoric, phosphonic, thionophosphoric and thionophosphonic acid esters, i.e.

(alkyl, phenyl and O-alkyl)-O-alkyl-O-(mono and di chloro, alkyl and/or alkoxy - substituted benzo-1,2,4-triazin-3-yl)-phosphoric, phosphonic, thionophosphoric and thionophosphonic acid esters, which possess arthropodocidal, especially acaricidal and insecticidal, properties, and which may be produced by conventional methods.

3,657,235

HEXAHYDRO-1,3,5-TRISUBSTITUTED-s-TRIAZINES CONTAINING FLUORINE

Bernard M. Lichstein, Elizabeth, and Robert J. Du Bois, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

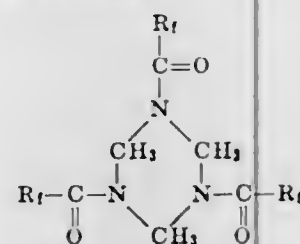
No Drawing. Filed Oct. 17, 1969, Ser. No. 867,370

Int. Cl. C07d 55/14

U.S. Cl. 260—248 NS

10 Claims

Novel compounds useful in imparting oil repellency to fabrics have the formula



wherein R_f is a radical containing at least one fluorine atom and from 1 to 20 carbon atoms, the radical being selected from the group consisting of alkyl, phenyl, alkyl-phenyl, phenylalkyl, and any of these radicals containing an ether linkage. The compounds are prepared by reacting a nitrile of the formula R_fCN with formaldehyde, preferably as trioxane, in the presence of a catalytic amount of a strong acid and preferably also in the presence of a solvent such as carbon tetrachloride.

3,657,236

PRODUCTION OF MELAMINE

Hermann Dieter Fromm, Gruenstadt, Karl Wilhelm Leonhard, Ludwigshafen, Rudolf Mohr, Lampertheim, and Matthias Schwarzmann and Horst Woehle, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,190

Claims priority, application Germany, Dec. 2, 1968, P 18 12 120.5

Int. Cl. C07d 55/28

U.S. Cl. 260—249.7 A

4 Claims

To produce melamine, urea and/or its thermal decomposition products are reacted at 220° to 400° C. in contact with an aluminum oxide having a large surface area in the presence of ammonia. The aluminum oxide used has been obtained by treatment of hydroxides of aluminum (which have not been previously calcined) with urea and/or its thermal decomposition products at temperatures of from 150° to 400° C. The advantages of aluminum oxide activated in this manner over aluminum oxide obtained by calcining aluminum hydroxide consist in increased urea conversion and greater attrition resistance.

3,657,237

PROCESS FOR MAKING 1,2,5-THIADIAZOLES IN THE SINISTER CONFIGURATION

Leonard M. Weinstock, Rocky Hill, Roger J. Tull, Metuchen, and Dennis M. Mulvey, Iselin, N.J., assignors to Charles E. Frost & Co.

No Drawing. Filed Apr. 21, 1969, Ser. No. 818,474

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

4 Claims

Preparation of S-3-X-4-(3-substituted amino-2-hydroxypropoxy)-1,2,5-thiadiazole beta adrenergic blocking agents using as starting material an optically active alkamine in the sinister configuration, or a derivative of

said alkamine, which is reacted with an 3-X-4-chloro (or RO- where R is hydrogen or an alkali metal)-1,2,5-thiadiazole. Novel 3-morpholino-4-chloro (or RO-)-1,2,5-thiadiazoles and novel alkamines and their preparation also are described.

3,657,238

3-MORPHOLINOALKYL-2,1-BENZOISO-THIAZOLINES

Joseph A. Skorcz, Milwaukee, and John T. Suh and Claude I. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 571,967, Aug. 12, 1966, and Ser. No. 682,974, Nov. 14, 1967, now Patent No. 3,528,989. This application Apr. 27, 1970, Ser. No. 32,461

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

2 Claims

The compounds are 2,1-benzisothiazolines substituted in the 3-position which are useful pharmaceutical agents, especially central nervous system stimulants and antihypertensive agents. Compounds disclosed include 1,3-dimethyl-3-(3'-morpholinopropyl) - 2,1 - benzisothiazoline-2,2-dioxide and 1-3-dimethyl-3-(3'-N-methylpiperazino-propyl)-2,1-benzisothiazoline-2,2-dioxide.

3,657,239

OCTAHYDROPYRIDAZINO[1,2-a]PYRIDAZINES

William J. Houlliban, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Original application July 14, 1967, Ser. No. 653,351. Divided and this application Feb. 2, 1970, Ser. No. 7,995

Int. Cl. C07d 51/04

U.S. Cl. 260—250 A

10 Claims

2-substituted aryl - 1,6 - diazabicyclo[4.4.1]undecanes, e.g., 2-phenyl-1,6-diazabicyclo[4.4.1]undecane, are prepared from the N_5 -methyl halide salts of 1-substituted aryl - 1,2,3,4,6,7,8,9 - octahydropyridazino[1,2-a]pyridazines and are useful as central nervous system stimulants.

3,657,240

PROCESS FOR THE PREPARATION OF TETRAHYDROPYRIMIDISOINDOLOLS

Theodore S. Sulkowski, Wayne, Pa., assignor to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of applications Ser. No. 487,587, Sept. 15, 1965, Ser. No. 576,833, Sept. 2, 1966, Ser. No. 622,929, Mar. 14, 1967, Ser. No. 723,587, Apr. 23, 1968, and Ser. No. 757,775, Sept. 5, 1968. This application Oct. 24, 1969, Ser. No. 869,327

Int. Cl. C07d 51/46

U.S. Cl. 260—251 A

13 Claims

This invention is concerned with the process of reacting 2,3,4,6 - tetrahydropyrimido[2,1 - a]isoindol - 6 - one with lithium compounds to prepare tetrahydropyrimidoisoindolols which are pharmacologically active as anti-depressant and diuretic agents.

3,657,241

SUBSTITUTED CINNOLINE COMPOUNDS

Norman H. Kurihara, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich.

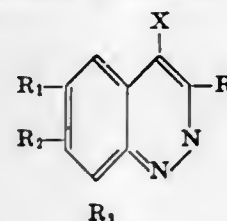
No Drawing. Filed Mar. 12, 1970, Ser. No. 19,127

Int. Cl. C07d 51/08

U.S. Cl. 260—250 A

11 Claims

Substituted cinnolines corresponding to the formula



where R is —CN or —CONH₂, X is —Cl or —Br, R₁ is —H, —Cl, —Br, —F or —C_nH_{2n+1}, n being an integer of from 1 to about 4, and R₂ and R₃ independently are —H or —Cl. The compounds are suitable for use as fungicides, herbicides and insecticides.

3,657,242

2,6-SUBSTITUTED - 4,5 - DIHYDROPYRIDAZIN(2H)-3-ONES AND 1,3-SUBSTITUTED HEXAHYDRO-PYRIDAZINES

William J. Houlliban, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 702,157, Jan. 16, 1968, which is a continuation-in-part of application Ser. No. 680,002, Nov. 2, 1967, which in turn is a continuation-in-part of abandoned application Ser. No. 566,719, July 21, 1966. This application Mar. 17, 1970, Ser. No. 20,434

Int. Cl. C07d 51/04

U.S. Cl. 260—250 A

23 Claims

2-(ω-hydroxyalkyl)-6-aryl or heterocyclic substituted-4,5-dihydropyridazin(2H)-3-ones or 1-(ω-hydroxyalkyl)-3-aryl or heterocyclic substituted-hexahydropyridazines, e.g., 2-(4-hydroxybutyl) - 6 - (2-thienyl)-4,5-dihydropyridazin(2H)-3-one or 1-(4-hydroxybutyl)-3-(2-thenyl)hexahydropyridazine, are prepared by condensing ω-hydrazino-alkanols with aryl or heterocyclic-γ-ketobutyric acids and are useful as anti-inflammatories.

3,657,243

PYRIDAZONE COMPOUNDS AND PROCESS FOR THEIR PRODUCTION

Juan Miquel Quintilla, Calle Viladomat 71, Barcelona, Spain

No Drawing. Filed June 20, 1969, Ser. No. 835,215

Claims priority, application Spain, June 27, 1968, 355,900

Int. Cl. C07d 51/04

U.S. Cl. 260—250 A

11 Claims

Certain 6-substituted α-(3-pyridazon - 2 - yl) aliphatic acids, salts and in particular substituted amides are disclosed, and processes for their manufacture.

The substituted amide compounds include those having valuable anti-inflammatory action in humans and animals, especially when they are optically active. (—)N-methyl - N - (2-phenylisopropyl)2-(6-phenyl-3-pyridazonyl) acetamide is particularly mentioned.

3,657,244

1-(2',3',4'-TRISUBSTITUTED PHENYL)-2-AMINO-ALKANOLS-(1) AND SALTS THEREOF

Anton Mentrup, Kurt Schromm, Karl Zelle, and Otto Thoma, Ingelheim (Rhine), Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany

No Drawing. Filed Oct. 16, 1967, Ser. No. 713,265

Claims priority, application Germany, Oct. 18, 1966, B 89,417; Oct. 20, 1966, B 89,476; Nov. 29, 1966, B 90,062

(Filed under Rule 47(a) and 35 U.S.C. 116)

Int. Cl. C07c 93/14, 93/26

U.S. Cl. 260—256

4 Claims

The compounds are 1-(2',3',4'-trisubstituted-phenyl)-2-amino-alkanols-(1) and acid addition salts thereof, useful as sympathomimetics in warm-blooded animals.

3,657,245

CERTAIN 5H,8H-THIAZOLO[3,2-a]PYRROLO[2,3-d]PYRIMIDIN-5-ONES

Gerhard Bormann, Basel, and Franz Troxler, Bottmingen, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Aug. 20, 1970, Ser. No. 65,726

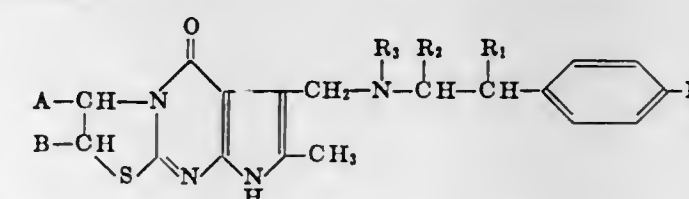
Claims priority, application Switzerland, Aug. 29, 1969, 13,143/69

Int. Cl. C07d 99/06

U.S. Cl. 260—256.5 R

8 Claims

The present invention concerns new compounds of the formula:



wherein A and B together form a single bond, or A is ethoxy or hydroxymethyl and B is hydrogen, R₁ is hydrogen or hydroxy, R₂ is hydrogen or methyl, R₃ is methyl, or R₃ is hydrogen when R₂ is methyl, and R₄ is hydrogen, methoxy or chlorine.

The compounds are useful in the prophylaxis of thrombosis and embolism and for improving microcirculation.

3,657,246

2-AMINO-7-SUBSTITUTED PYRIDO[2,3-d]PYRIMIDINE COMPOUNDS

Robert F. Meyer, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed July 22, 1969, Ser. No. 843,773

Int. Cl. C07d 51/46

U.S. Cl. 260—256.4 F

2 Claims

2-amino-7-substituted-(and optionally 6,7-disubstituted)-pyrido[2,3-d]pyrimidine compounds; and acid-addition salts. Substitution at position 6 includes methyl, methoxy, or phenoxy. Substitution at position 7 includes phenyl, substituted phenyl, thienyl, or pyridyl. 6,7-disubstitution can also include a fused ring. The compounds are pharmacological agents, especially diuretic agents producing increased urinary excretion of water and sodium. They can be produced by reacting 2,4-diamino-5-pyrimidinecarboxaldehyde with a ketone in the presence of a base.

3,657,247

PESTICIDAL HALOGEN-SUBSTITUTED PYRIMIDINYL PHOSPHORUS ESTERS

Peter Frank Hilary Freeman, Earley, Roger Franklin Joseph Markey, Woodley, Frederick Charles Peacock, Ascot, and Stuart Peter Sharpe, Maidenhead, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed July 7, 1969, Ser. No. 839,686

Claims priority, application Great Britain, Aug. 7, 1968, 37,720/68

Int. Cl. C07d 51/36

U.S. Cl. 260—256.5 R

4 Claims

Halogen-substituted pyrimidinyl phosphorus esters which are useful as pesticides.

3,657,248

CONDITIONING PROCESS FOR PRODUCING BETA PHASE QUINACRIDONE

Anthony P. Wagener, Park Forest, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio

No Drawing. Continuation-in-part of application Ser. No. 658,663, Aug. 7, 1967, now Patent No. 3,547,926. This application Aug. 27, 1970, Ser. No. 67,564

Int. Cl. C07d 39/00

U.S. Cl. 260—279 R

10 Claims

This invention comprises a process for "conditioning" quinacridone to produce the beta-phase by milling the

with the N atom R₁ and R₂ are pyrrolidiny, piperidino, morpholino, piperazino, or N-methylpiperazino, their acid addition salts and pharmaceutically acceptable compositions containing said compounds. The compounds are blood pressure depressants and exhibit spasmolytic and anti-inflammatory properties as well as cardiac activity, such as dilation of coronary vessels and hence are useful in the treatment of hypertension, anginal seizures and related ailments.

3,657,259

PROCESS FOR THE PRODUCTION OF PYRIDINE CARBOXYLIC ACIDS

August Stocker, Othmar Marti, Theodul Pfammatter, and Gerhart Schreiner, Visp, Switzerland, assignors to Lonza Ltd., Gampel, Valais, Direction: Basel, Switzerland

No Drawing. Filed Oct. 28, 1969, Ser. No. 871,951
Claims priority, application Switzerland, Nov. 8, 1968, 16,688/68; Feb. 24, 1969, 2,732/69; June 6, 1969, 8,622/69; Aug. 1, 1969, 11,759/69; Sept. 19, 1969, 14,168/69

Int. Cl. C07d 31/36

U.S. Cl. 260—295 R

17 Claims

Nicotinic acid and other carboxylic acids having a pyridine nucleus may be prepared by the oxidation of alkyl pyridine and compounds in the presence of 25–600% excess nitric acid at temperatures of 180–370° C. with pressures of 20–500 atm. The nitric acid concentration of the reaction mixture is adjusted to 10–28% to precipitate as crystalline hydronitrate and separated from the mixture. The pH of an aqueous solution of the pyridine carboxylic acid hydronitrate is adjusted with the basic starting material to the isoelectric point of the specific pyridine carboxylic acid to precipitate the same. The crystalline precipitation is separated and the mother liquors are combined and recycled as the starting material after adjustment of the concentrations therein.

3,657,260

ELECTROPHORESIS APPARATUS

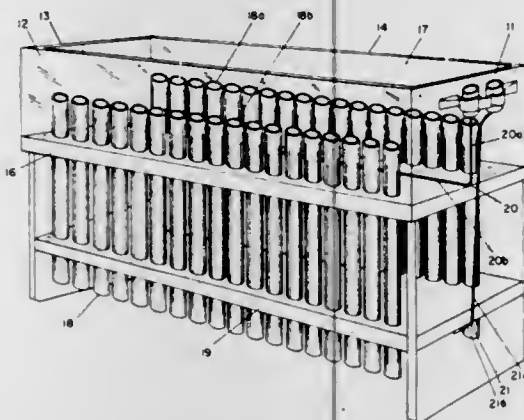
Robert C. McLeester, 1202 Pontiac Trail, Madison, Wis. 53711

Filed Sept. 25, 1970, Ser. No. 75,366

Int. Cl. B01k 5/00

U.S. Cl. 204—299

5 Claims



An acrylic plastic unit having an upper buffer chamber with upright gel tubes permanently fixed in and extending through the bottom thereof and a pair of platinum wire electrodes fixedly secured equidistance between the rows of tubes. One of the electrodes is fixed in the upper chamber above the bottom thereof and the other below the bottom. A rubber covered stopper plate is releasably attached to the unit for simultaneously sealing the lower end of all of the gel tubes.

3,657,261

AZIDOISOTHIAZOLES

Alfred Joos and Walter Wirtz, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany

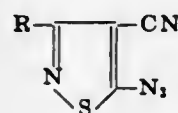
No Drawing. Filed Jan. 27, 1970, Ser. No. 6,317
Claims priority, application Germany, Jan. 29, 1969, P 19 04 241.2

Int. Cl. C07d 91/12

U.S. Cl. 260—302 S

22 Claims

Azidoisothiazoles of the formula



wherein R is halogen or SR₁, SO₂R₁ or SO₂R₁ in which R₁ is alkyl or benzyl or phenethyl unsubstituted or substituted with NO₂ and/or halogen are insect repellents and also have antibacterial and antimycotic activity.

3,657,262

HOMO- AND COPOLYMERS OF 4-VINYL-4-METHYL-AZETIDINONE-2 AND PROCESS FOR THEIR MANUFACTURE

Herbert Bestian, Frankfurt am Main, Eduard Kaiser, Kelkheim, Taunus, and Helmut Korbanka, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Oct. 13, 1969, Ser. No. 865,970
Claims priority, application Germany, Oct. 25, 1968, P 18 05 046.9

Int. Cl. C08f 7/12, 19/00

U.S. Cl. 260—30.3 R

5 Claims

Homo- and copolymers of 4-vinyl-4-methyl-azetidinone are provided for which are polymerized at the vinyl group in the presence of free radical initiators and carry lateral lactam rings.

3,657,263

CERTAIN BENZISOTHIAZOLE-ACETIC ACID DERIVATIVES

Tullo Vitali, Parma, Pietro Scrivani, Milan, Riccardo Ponci, Pavia, Giovanni Pellegrini, Milan, Franco Gialdi, Pavia, and Emilio Arsura, San Donato, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, and Franco Gialdi, Riccardo Ponci, and Tullo Vitali, fractional part interest to each

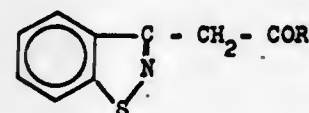
No Drawing. Filed Oct. 6, 1969, Ser. No. 866,089
Claims priority, application Italy, Oct. 7, 1968, 22,169/68

Int. Cl. C07d 91/12

U.S. Cl. 260—304

25 Claims

Benzisothiazol derivatives having the formula:



wherein:

R is either OY wherein Y is hydrogen, a metal, ammonium, or a straight- or branched-chain alkyl; or R is



wherein R₁ is hydrogen, alkyl, cycloalkyl or a nucleus of the phenyl series and R₂ is hydrogen, alkyl, cycloalkyl, amino or a nucleus of the phenyl series,

are useful as herbicides.

The foregoing compound may be prepared by reacting 3-chloro-4,5 benzisothiazol dissolved in an anhydrous

organic solvent (e.g., anhydrous ethanol) with a carbanion generating substance (e.g., diethylmalonate in presence of sodium ethoxide) while maintaining this mixture at its boiling point for several hours, thus obtaining the corresponding esters (e.g., 4,5-benzisothiazol-3-ethylacetate). From the esters, other compounds within the foregoing general formula may be prepared by conventional prior art methods.

3,657,264

HETEROCYCLICALLY SUBSTITUTED THIADIAZOLES

Dietrich Rucker and Carl Metzger, Wuppertal-Elberfeld, and Ludwig Eue, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,836
Claims priority, application Germany, Mar. 4, 1969, P 19 10 895.3

Int. Cl. C07d 91/62, 99/10

U.S. Cl. 260—306.8 D

6 Claims

Heterocyclically substituted thiadiazoles, which possess herbicidal properties, and which may be produced by conventional methods.

3,657,265

PROCESS FOR PREPARING BENZOXAZOLONES FROM AROMATIC NITRO COMPOUNDS

Ehrenfried H. Kober, Hamden, and Philip D. Hammond, North Haven, Conn., assignors to Olin Corporation

No Drawing. Filed June 21, 1968, Ser. No. 738,791
Int. Cl. C07d 85/48

U.S. Cl. 260—307 C

14 Claims

The process for preparing benzoxazolones by reacting an aromatic nitro compound, in which at least one of the two ortho positions is unsubstituted, with carbon monoxide and carbon dioxide in the presence of a catalyst and recovering the benzoxazolones produced thereby.

The catalyst may be a mixture of a halide or an oxide of palladium or rhodium with an oxide of an element selected from the group consisting of vanadium, molybdenum, tungsten, niobium, chromium and tantalum.

3,657,266

v-TRIAZOLYLCOUMARINS

Rudolf Kirchmayr, Binningen, Basel-Land, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Sept. 2, 1970, Ser. No. 69,148
Int. Cl. C07d 99/04, 99/06; C09k 1/02

U.S. Cl. 260—308 A

8 Claims

New 3-phenyl-7-v-triazolylcoumarins are used as optical brighteners of organic materials. The new coumarins are prepared by condensing the oxime hydrazones obtained by reacting thionaphthenequinone-2-oximes or 2-isonitrosocoumaranones-3 or thionaphthenequinone-1,1-dioxide-2-oximes with 3-phenyl-7-hydrazinocoumarins.

3,657,267

BENZIMIDAZOLE CARBAMATES

Josephus Ludovicus Hubertus Van Gelder, Beerse, Leopold Frans Corneel Roevens, Rijkvorsel, and Alfons Herman Margaretha Raeymaekers, Beerse, Belgium, assignors to Janssen Pharmaceutica, N.V.

No Drawing. Filed June 20, 1969, Ser. No. 835,246
Int. Cl. C07d 49/38

U.S. Cl. 260—309.2

16 Claims

Compounds of the class of alkyl esters of N-[5(6)-acyl-2-benzimidazolyl]carbamic acid having anthelmintic utility.

3,657,268

PROCESSES FOR IMIDAZO[2,1-a]ISOINDOLES

George A. Cooke, Denville, Harry A. Dugger, Morris-town, and William J. Houlihan, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed Jan. 29, 1970, Ser. No. 6,958
Int. Cl. C07d 49/34

U.S. Cl. 260—309.6

7 Claims

5-substituted - 5 - hydroxy-2,3-dihydro-5H-imidazo[2,1-a]isoindoles, e.g., 5-(4-chlorophenyl)-2,3-dihydro-5-hydroxy-5H-imidazo[2,1-a]isoindole, are prepared by oxidizing corresponding imidazo[2,1-a]isoindoles. These compounds are useful as appetite depressants and psychic energizers.

3,657,269

IMIDAZO[2,1-a]ISOINDOLES

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 825,954, May 19, 1969. This application Oct. 9, 1969, Ser. No. 865,179

Int. Cl. C07d 49/36

U.S. Cl. 260—309.6

6 Claims

Imidazo[2,1-a]isoindoles useful as anorexics and psychic-energizers are prepared from the N,o-dilithium derivative of 2-phenylimidazoline by various routes.

3,657,270

1-PHENYL-1H-INDAZOLE-4-ACETIC ACIDS

Franklin W. Short, Saline, and Milton L. Hoeffle, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich.

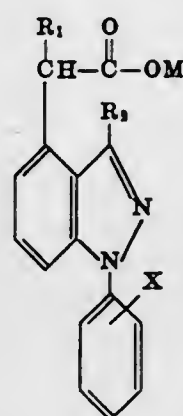
No Drawing. Continuation-in-part of application Ser. No. 717,448, Mar. 29, 1968. This application Jan. 16, 1970, Ser. No. 3,505

Int. Cl. C07d 49/18

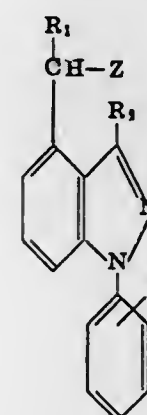
U.S. Cl. 260—310 C

10 Claims

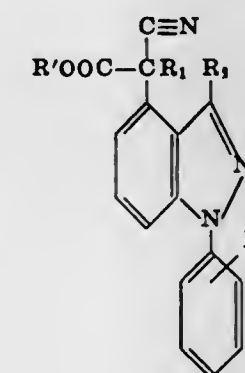
Novel indazole acetic acids (I)



having pharmacological activity and being particularly useful as anti-inflammatory agents for the prevention and treatment of inflammation, are provided by hydrolyzing indazoleacetic acid compounds (II) or by hydrolyzing and decarboxylating α-cyanoesters (III)



II



III

where R₁ and R₂ individually represent hydrogen or methyl, R' is lower alkyl, M is hydrogen or a cation, X is hydrogen, methyl, fluoro or chloro, and Z is a carbon-linked group hydrolyzable to a carboxyl group.

3,657,271

1,3-DIMETHYL-5-METHYLAMINO-8-PHENYL-PYRAZOLO[4,3-c][1,4]DIAZEPINE

Leo Ralph Swett, Waukegan, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed June 22, 1970, Ser. No. 48,480
Int. Cl. C07d 57/02

U.S. Cl. 260—310 R

3 Claims

1,3-dimethyl-5-methylamino-8-phenylpyrazolo[4,3-c][1,4]diazepine and its method of preparation. The compound exhibits anti-inflammatory activity.

3,657,272

PROCESS FOR PREPARING X-FORM METAL-FREE PHTHALOCYANINE

Paul J. Brach, Rochester, and Hugh A. Six, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 755,441, Aug. 6, 1968. This application Dec. 21, 1970, Ser. No. 100,552

Int. Cl. C09b 47/04

U.S. Cl. 260—314.5

12 Claims

A process of preparing X-form metal-free phthalocyanine comprising the steps of mixing phthalonitrile in an ammonia-saturated alkylalkanolamine solvent, seeding the mixture with a catalytic amount of X-form phthalocyanine, heating said mixture to reflux temperature and maintaining said mixture for about 20 to about 70 minutes, and filtering the hot reaction product formed thereby is disclosed.

3,657,273

ADAMANTANE-1,3-DICARBOXAMIDES

Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Continuation-in-part of application Ser. No. 631,121, Apr. 17, 1967. This application May 1, 1970, Ser. No. 33,956

Int. Cl. C07c 103/00; C07d 27/04

U.S. Cl. 260—326.3

5 Claims

N,N'-dialkylaminoalkyl adamantane-1,3-dicarboxamides and adamantane-1,3-diacetamides and also the corresponding cyclic amino compounds are described herein. They are anti-bacterial, anti-fungal, anti-algal, anti-protozoal, and anti-inflammatory agents. They also show activity as analgesics and anti-hypertensives. The compounds are prepared by the reaction of adamantane-1,3-dicarbonyl chloride or adamantane-1,3-diacetyl chloride with aminoalkylamines.

3,657,274

PROCESS FOR PRODUCING N-ACYL 3,4-EPOXY-PYRROLIDINE DERIVATIVES

Eiji Ohki and Sadao Oida, Tokyo, Japan, assignors to Sankyo Company Limited, Chuo-ku, Tokyo, Japan

No Drawing. Filed June 11, 1969, Ser. No. 832,470
Claims priority, application Japan, June 12, 1968, 43/40,378

Int. Cl. C07d 27/04

U.S. Cl. 260—326.3

2 Claims

N-acyl-3,4-epoxy pyrrolidine compounds are prepared by oxidation of N-acyl-3-pyrroline compounds with pertrifluoroacetic acid.

3,657,275 DIBENZOXAZEPINES AND DIBENZOTHIAPAZEPINES

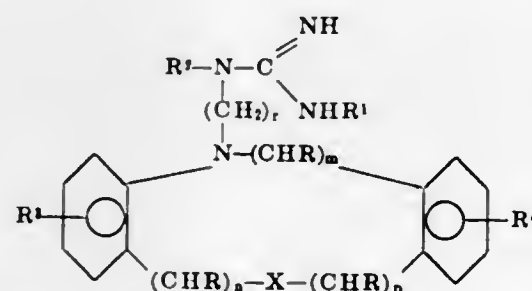
Harry L. Yale and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.
No Drawing. Continuation-in-part of application Ser. No. 551,560, May 20, 1966. This application Mar. 9, 1970, Ser. No. 17,972

Int. Cl. A61k 27/00; C07d 87/54, 89/20

U.S. Cl. 260—327 B

1 Claim

Therapeutically active compounds utilizable as ataractic agents and as sedatives and hypotensive agents having the formula



wherein R, R¹ and R² are hydrogen, lower alkyl, phenyl or phenyl-lower alkyl; R³ and R⁴ are hydrogen, halogen, lower alkyl, trifluoromethyl, or lower alkoxy; X is oxygen or sulfur, r is 2 to 5; m is 0 or 1; n and p are each 0, 1 or 2; provided that the sum of m+n+p being from 1 to 3, and that when m equals 1 and n and p are each 0, X is sulfur.

3,657,276

DIBENZO (c,f) THIAZEPINE (1,2) COMPOUNDS
Charles Malen, Fresnes, and Michel Laubie, Vaucresson, France, assignors to Science Union et Cie Societe Francaise de Recherche Medicale, Suresnes, France
No Drawing. Filed Dec. 13, 1967, Ser. No. 690,091
Claims priority, application Great Britain, Dec. 19, 1966, 56,720/66

Int. Cl. C07d 93/42

U.S. Cl. 260—327 B

3 Claims

Dibenzo (c,f) thiazepines (1,2) wherein the two benzene nuclei may be substituted by halogen or lower-alkyl or lower-alkoxy having up to 5 carbon atoms inclusive, the nitrogen atom is substituted by lower-alkyl having up to 5 carbon atoms inclusive, and the thiazepine bears in position 5 an optionally substituted piperazine radical or an oxy- or thio-alkylamino radical, and acid addition salts thereof, having hypotensive, bronchodilator and diuretic activity.

3,657,277

SUBSTITUTED 1,3-DIOXOLANES

Lars-Olof Ryrfors, Perstorp, Sweden, assignor to Perstorp AB, Perstorp, Sweden

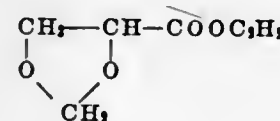
No Drawing. Filed Sept. 16, 1970, Ser. No. 72,808
Claims priority, application Sweden, Oct. 2, 1969, 13,610/69

Int. Cl. C07d 13/04

U.S. Cl. 260—340.9

1 Claim

A new compound is disclosed which is 4-ethoxycarbon-yl-1,3-dioxolane having the following formula:



It is useful in making polymers.

3,657,278 PROCESS FOR THE PREPARATION OF ROSE OXIDE

Dieter Böse and Karlheinz Pfoertner, Basel, Switzerland, assignors to Givaudan Corporation, Clifton, N.J.
No Drawing. Original application Aug. 8, 1968, Ser. No. 751,070. Divided and this application June 29, 1970, Ser. No. 60,177

Int. Cl. C07d 7/14

U.S. Cl. 260—345.1

4 Claims

An improved process for preparing the known, olfactorily-desirable Rose Oxide by pyrolyzing the novel 3-chloro-2,6-dimethyl-1-octen-8-ol, is disclosed, as well as a method for preparing the novel starting material.

3,657,279

PROCESS OF MONOESTERIFICATION OF DICARBOXYLIC ACIDS

Hideo Higashi, 15-4, 3-chome Takaban, and Kotaro Morinaga, 11-7, 1-chome Gakuenmachi Kurume-cho, both of Tokyo, Japan

No Drawing. Filed May 14, 1970, Ser. No. 37,327
Claims priority, application Japan, May 21, 1969, 44/39,427

Int. Cl. C07d 7/22; C07c 69/40, 69/60

U.S. Cl. 260—345.5

1 Claim

A process for producing monoesters of dicarboxylic acids or the metal salt additives thereof characterized by reacting higher alcohols, cyclic alcohols or substances that contain the mentioned compounds with dicarboxylic acid anhydrides in the presence of a metal trihalide in the amount that is required for the esterification reaction.

3,657,280

PROCESS FOR PRODUCING A KETO POLY-CARBOXYLIC ANHYDRIDE AND RECOVERY THEREOF BY PLURAL STAGE DISTILLATION

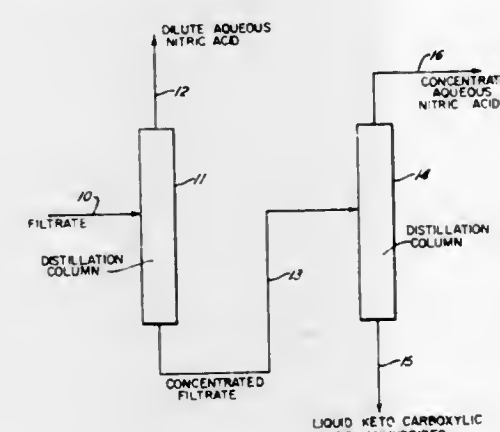
Henri K. Lese, Monroeville, and Rex W. Smyth, Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 8, 1970, Ser. No. 35,680

Int. Cl. B01d 3/14; C07c 61/36

U.S. Cl. 260—346.4

2 Claims



A filtrate obtained from the nitric acid oxidation of 1,1-bis(3,4-dialkylphenyl)alkanes and containing nitric acid, water and keto polycarboxylic acids is separated into at least three fractions, the first consisting essentially of an aqueous solution containing up to about 10 percent by weight of nitric acid, the second consisting essentially of an aqueous solution containing from about 20 to about 65 percent by weight of nitric acid, and the third containing liquid keto polycarboxylic acids in dehydrated form.

3,657,281

4-ARYL-1-DIBENZOFURAN-ALKANOIC ACIDS AND SALTS THEREOF

Franklin W. Short, Saline, Mich., assignor to Parke, Davis & Company, Detroit, Mich.

No Drawing. Filed Dec. 31, 1969, Ser. No. 889,744
Int. Cl. C07d 5/44

U.S. Cl. 260—346.2

3 Claims

4-phenyl-1-dibenzofuranacetic acid, 4-(o-fluorophenyl)-1-dibenzofuranacetic acid, 4-(o-chlorophenyl)-1-dibenzofuranacetic acid, α-methyl derivatives, and carboxylate salts. The compounds are anti-inflammatory agents useful in relieving or preventing inflammation. They can be produced from the corresponding α-cyano lower alkyl esters by hydrolysis and accompanying decarboxylation of one of the two resulting carboxyl or carboxylate groups.

3,657,282

CARBOXYEPOXYETHYL-1-PHOSPHONIC ACID DERIVATIVES

Burton G. Christensen, Scotch Plains, Thomas R. Beattie, North Plainfield, and Donald W. Graham, Menlo Park, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed Jan. 23, 1969, Ser. No. 793,590

Int. Cl. C07f 9/38

U.S. Cl. 260—348 A

4 Claims

Novel substituted epoxyethylphosphonic acids and derivatives thereof are prepared by oxidation of the corresponding vinyl compounds or by treating a 1,2-disubstituted ethylphosphonic acid compound with a reagent capable of effecting epoxide ring closure. The new substituted epoxyethylphosphonic acid compounds and derivatives such as their salts are antibacterials which inhibit the growth of gram-positive and gram-negative bacteria.

3,657,283

MANUFACTURE OF BZ-1-BZ-1'-DIBENZ-ANTHRONYL SULFIDES

Helmut Schmidt and Alfred Schuhmacher, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 2, 1970, Ser. No. 15,882
Claims priority, application Germany, Mar. 5, 1969, P 19 11 086.2

Int. Cl. C09b 3/12

U.S. Cl. 260—363

3 Claims

Production of Bz-1-Bz-1'-dibenzanthronyl sulfides from halogen-substituted Bz-1-benzanthrones characterized by the use of an ether alcohol as solvent and of an alkali metal sulfide.

3,657,284

DYESTUFFS

Gerald Booth and Trevor James Smith, Manchester, and Cyril Eric Vellins, Gatley, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Continuation-in-part of application Ser. No. 663,547, Aug. 28, 1967. This application Nov. 24, 1970, Ser. No. 92,528

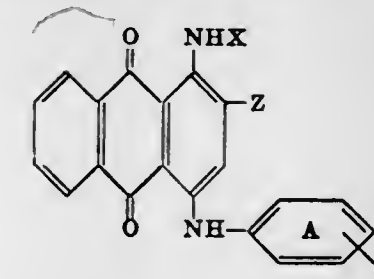
Claims priority, application Great Britain, Sept. 2, 1966, 39,319/66

Int. Cl. C09b 1/32, 1/56

U.S. Cl. 260—378

1 Claim

Anthraquinone dyestuffs which are half sulphuric esters of compounds of the formula:



wherein the aromatic nucleus A may be substituted by halogen, lower alkyl or lower alkoxy in addition to the substituent Y;

X represents hydrogen, lower alkyl, cyclohexyl or benzyl;
Y represents hydroxy lower alkyl, hydroxy lower alkoxy lower alkyl or hydroxy lower alkylthio; and
Z represents hydrogen, halogen or lower alkyl.

The dyestuffs give fast blue shades on nylon.

3,657,285

WATER INSOLUBLE BLUE ANTHRAQUINONE DYES FOR CELLULOSIC AND SYNTHETIC FIBERS

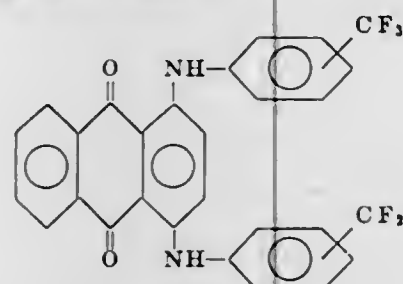
John Blackwell, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Continuation-in-part of application Ser. No. 879,900, Nov. 25, 1969. This application Dec. 22, 1970, Ser. No. 100,798

Int. Cl. C09b 1/32

U.S. Cl. 260—381

2 Claims

Water insoluble blue anthraquinone dyes, useful for dyeing cellulosic or synthetic fibers or blends or mixtures thereof, having the formula



3,657,286

PREPARATION OF A WATER SOLUBLE BISULFITE DERIVATIVE OF MENADIONE

William Richard Micheli, Gurnee, Ill., assignor to Abbott Laboratories, Chicago, Ill.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,300

Int. Cl. C07c 49/66

U.S. Cl. 260—396 K

4 Claims

It has been found that by using the proper reaction medium the bisulfite addition product of menadione can be obtained in greater purity, quantitative yield and by a simpler recovery step. The medium used consists of a combination of water and carbon tetrachloride.

3,657,287

METHOD FOR PRODUCING ISOPRENOID QUINONES

Yutaka Kawamatsu and Hirosada Sugihara, Osaka, and Hiroshi Morimoto, Nishinomiya, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Oct. 15, 1969, Ser. No. 866,735

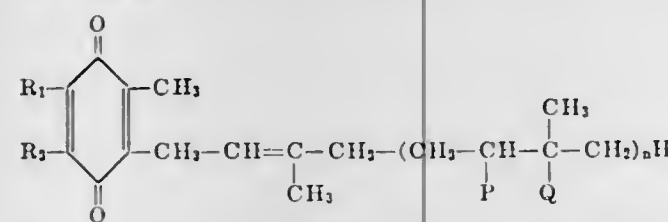
Claims priority, application Japan, Oct. 16, 1968, 43/75,365

Int. Cl. C07c 49/64, 49/66

U.S. Cl. 260—396 K

10 Claims

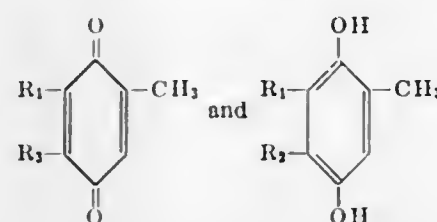
Method of producing isoprenoid quinone compounds of the formula



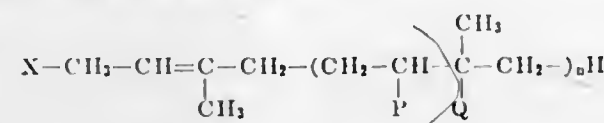
useful as vitamins or coenzymes, where R₁ and R₂ are methoxy or methyl or taken together represent



P and Q are hydrogen atoms or taken together a double bond and n is an integer of from 0 to 9, by subjecting one of the compounds of the formulae



where R₁ and R₂ are as above-defined, to condensation with a compound of the formula



where P, Q and n are as above-defined and X is halogen, in the presence of zinc amalgam or palladium and subjecting the condensation product to oxidation.

3,657,288

CYCLOBUTANONES AND PROCESS FOR THE PREPARATION THEREOF

Rudolf Wiechert, Berlin, Germany, assignor to Schering Aktiengesellschaft, Berlin, Germany

No Drawing. Filed Mar. 2, 1970, Ser. No. 15,884

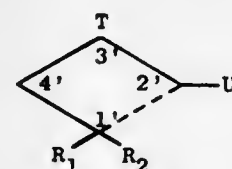
Claims priority, application Germany, Mar. 6, 1969, P 19 12 236.2; July 18, 1969, P 19 37 613.7

Int. Cl. C07c 169/22

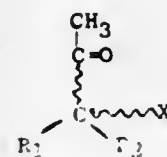
U.S. Cl. 260—397.3

22 Claims

Cyclobutanones of the formula



wherein R₁ and R₂ each are alkyl or cycloalkyl groups or, collectively with the 1'-carbon atom of the cyclobutanone ring, a monocyclic or polycyclic cycloalkyl group, e.g., a spirosteroidal group attached by its 17-position carbon atom, and one of T and U is an oxygen atom and the other are two hydrogen atoms, are produced by reacting an α-chloro- or α-bromo-ketone of the formula



wherein R₁ and R₂ have the values given above and X is Cl or Br, with dimethylmethyle sulfonium oxide.

3,657,289

1α-METHYL-2-FORMYL-5α-ANDROST-2-EN-17-ONE AND DERIVATIVES

Paul D. Klimstra, Northbrook, Ill., assignor to

G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Mar. 29, 1971, Ser. No. 129,115

Int. Cl. C07c 169/20

U.S. Cl. 260—397.3

7 Claims

1α-methyl-2-formyl-5α-androst-2-en-17-one and its derivatives are produced from the appropriate 1α-methyl-17β-hydroxy-17α-(optionally alkylated)-5α-androstan-3-ones and are valuable pharmacological agents as is

evidenced by their anti-estrogenic, androgenic and anabolic activities.

3,657,290

SULFATED 11β-METHYL ESTROGENS

Ivar Laos, Skokie, and John S. Baran, Morton Grove, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Apr. 8, 1971, Ser. No. 132,557

Int. Cl. C07c 169/08

U.S. Cl. 260—397.45

5 Claims

The above-captioned compounds are produced from 3-hydroxy-11β-methylestra-1,3,5(10)-trien-17-one by successive reactions with sulfamic acid in pyridine and an alkali metal hydroxide and are useful pharmacological agents, e.g. estrogens.

3,657,291

3,11-DIHALO-2,3,7,11-TETRA-ALKYL-4,6-DIENOIC ACID ESTERS

Václav Jarolím, Karel Hejno, Karel Sláma, and František Sorm, Prague, Czechoslovakia, assignors to Československá Akademie Věd, Prague, Czechoslovakia

No Drawing. Filed Sept. 25, 1969, Ser. No. 861,139

Claims priority, application Czechoslovakia, Sept. 30, 1968, 6,793/68

Int. Cl. A01n 9/24; C07c 69/62

U.S. Cl. 260—408

11 Claims

Methods employing and compositions comprising novel 3,11-dihalides of esters of 2,7,11-trialkyl-3-alkylene-4,6,10-trienoic acids useful for the control of insects.

3,657,292

PROCESS FOR THE PREPARATION OF 2-ACYLOXYCYCLODODECANONES

George William Parshall, Wilmington, Del., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.

No Drawing. Filed May 15, 1970, Ser. No. 37,929

Int. Cl. C07c 67/04, 69/14, 55/04

U.S. Cl. 260—410

5 Claims

A 2-acyloxycyclododecanone is prepared by the oxidation of cyclododecene with rhenium heptoxide in the presence of a carboxylic acid anhydride. A 2-acyloxycyclododecanone can be further oxidized with hydrogen peroxide to 1,12-dodecanedioic acid, which is useful as a starting material for the preparation of fiber-forming polycarbonamides.

3,657,293

PRODUCTION OF ALKANOIC ACIDS

Robert J. Fanning, Baton Rouge, La., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 638,613, May 15, 1967. This application May 7, 1970, Ser. No. 35,583

Int. Cl. C08h 17/36

U.S. Cl. 260—413

10 Claims

Carboxylic acid of high purity and high stability is prepared by hydrogenative purification of a starting alkanol feed having from about 4 to about 30 carbon atoms per molecule by caustic fusing the alkanol to produce salts or soaps of the corresponding acids having from about 4 to about 30 carbon atoms per molecule, by stripping the salts to remove unsaponifiable materials, by converting the stripped salts to carboxylic acid by treatment with mineral acid solutions, and purifying the acid by a two-stage treatment of topping and flashing to remove light and heavy components present. Where the starting alkanol is a wide range mixture as regards molecular weight, the product acid is preferably distilled into narrow cuts and even individual molecular weight acids.

3,657,294

PROCESS FOR PREPARING ORGANOTIN MERCAPTIDES

Carl Robert Gloskey, Stirling, N.J., assignor to M & T Chemicals Inc., New York, N.Y.

No Drawing. Original application Jan. 2, 1967, Ser. No. 694,829. Divided and this application Mar. 16, 1970, Ser. No. 20,061

Int. Cl. C07d 7/22

U.S. Cl. 260—429.7

2 Claims

The present invention provides a novel non-toxic organotin stabilizer composition containing about 95 percent of di(n-octyl)Sn S,S'-bis(isooctylmercaptoacetate). The stabilizer composition also contains specified amounts of other organic tin compounds. The invention also provides non-toxic polyvinyl chloride containing resins suitable for food packaging use.

3,657,295

PREPARATION OF TRI-n-BUTYL VANADATE

David R. McCoy, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,213

Int. Cl. C07f 9/00

U.S. Cl. 260—429 R

7 Claims

Tri-n-butyl vanadate is produced in significantly high yields when vanadium pentoxide (V₂O₅) is reacted with n-butanol in the presence of toluene. A stoichiometric excess of n-butanol further enhances the improved yields. Yields are further improved in a preferred embodiment when condensed vapors of butanol and toluene pass through a quantity of vanadium pentoxide and are returned to a refluxing quantity of butanol and toluene.

3,657,296

ORGANOGOLD COMPOUNDS

Lawrence G. Vaughan, Wilmington, Del., assignor to E. I. duPont de Nemours and Company, Wilmington, Del.

No Drawing. Filed July 30, 1970, Ser. No. 59,713

Int. Cl. C07f 1/12

U.S. Cl. 260—430

11 Claims

There is provided novel organogold compounds having the formula RNCAuR₁ where R is an alkyl group containing up to 12 carbon atoms or an aryl group containing up to 12 carbon atoms in the ring system where R₁ is an alkyl group containing up to 12 carbon atoms, an aryl group containing up to 12 carbon atoms in the ring system or a heterocyclic 5- or 6-membered ring containing O, S or N in the ring, and Au is gold in the +1 oxidation state. These compounds are useful in the production of gold films.

3,657,297

PREPARATION OF DICYCLOPENTADIENYL-COBALT

Courtland K. Spicer and John M. Birmingham, Boulder, Colo., assignors to Syntex Corporation, Apartado, Panama, Republic of Panama

No Drawing. Filed Nov. 6, 1970, Ser. No. 87,579

Int. Cl. C07f 15/06

U.S. Cl. 260—439 CY

11 Claims

A new process for the preparation of dicyclopentadienylcobalt, a commercially useful compound, involves reacting metallic cobalt and hydrogen chloride to prepare an anhydrous alcoholic mixture of cobaltous chloride, contacting said mixture with an alkali metal lower alkylate to prepare an anhydrous alcoholic mixture of cobaltous lower alkylate, contacting said mixture with cyclopentadiene. The product dicyclopentadienylcobalt is optionally recovered from the reaction mixture.

3,657,298

ARSENIC AND PHOSPHORUS CONTAINING
POLYDENTATES

Robert Bruce King, Athens, Ga., and Pramesh N. Kapoor, Pittsburgh, Pa., assignors of fractional part interest to Pressure Chemical Co., Pittsburgh, Pa.
No Drawing. Filed Jan. 6, 1970, Ser. No. 1,058
Int. Cl. C07f 9/50, 9/74

U.S. Cl. 260—440 16 Claims

Polydentate compounds including (1) polytertiary phosphines, (2) polytertiary arsines, and (3) polytertiary arsino-phosphines, containing four or more trivalent phosphorus atoms, four or more trivalent arsenic atoms, and a combination of four or more trivalent phosphorus atoms and trivalent arsenic atoms, respectively, with a bridge of two carbon atoms, for example, $-\text{CH}=\text{CH}-$ or $-\text{CH}_2-\text{CH}_2-$, between at least two of the phosphorus atoms, two of the arsenic atoms, and the phosphorus and arsenic atom, respectively, and (4) polytertiary arsino-phosphines containing at least one trivalent phosphorus atom and at least one trivalent arsenic atom with a bridge of two carbon atoms, for example, $-\text{CH}=\text{CH}-$ or $-\text{CH}_2-\text{CH}_2-$, between the phosphorus and arsenic atoms, said compounds being useful as additives in gasolines and for forming complexes with metal carbonyls and metal halides for use as catalysts in the polymerization or oligomerization of olefins and acetylenes and in hydrogenation processes; and the base-catalyzed addition process of synthesizing the foregoing compounds wherein the addition of compounds with phosphorus-hydrogen bonds or arsenic-hydrogen bonds to vinyl or ethynyl phosphorus or arsenic derivatives is brought about, each of the phosphorus and arsenic being in its trivalent state.

3,657,299

PROCESS FOR PRODUCING TRIETHYL-
ALUMINUM

Eiichi Ichiki, Yasuhiko Inoue, Yoshihiro Kondo, and Tadaaki Yako, Niihama, Japan, assignors to Sumitomo Chemical Co., Ltd.
No Drawing. Filed May 4, 1970, Ser. No. 34,588
Claims priority, application Japan, May 6, 1969, 44/34,954

Int. Cl. C07f 5/06

U.S. Cl. 260—448 A 15 Claims

The present invention provides an improved process for producing high purity triethylaluminum, which comprises reacting ethylene with an alkylaluminum compound in the presence of a catalyst system comprising (1) a nickel compound and (2) at least one organic compound selected from the group consisting of conjugated diolefins and their oligomers, diallyl ethers and their derivatives, styrene and its derivatives, acrylic acid esters and their derivatives and nitrile compounds.

3,657,300

PREPARATION OF DIHYDROCARBYL ALUMINUM
HALIDES AND DIHYDROCARBYL ALUMINUM
ALKOXIDES

Phillip R. Beaver and James C. Geddes, Jr., Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Feb. 2, 1970, Ser. No. 8,024
Int. Cl. C07f 5/06

U.S. Cl. 260—448 A 11 Claims

It is disclosed that high purity dihydrocarbyl aluminum halides and dihydrocarbyl aluminum alkoxides are produced by a plural step process which involves a reaction to produce a hydrocarbyl aluminum dihalide or hydrocarbyl aluminum dialkoxide which is purified by distillation and then reacted with trihydrocarbyl aluminum in about stoichiometric proportions to produce the desired product without requiring further purification.

3,657,301

INHIBITION OF POLYMER AND OLEFIN FORMATION
DURING ALUMINUM TRIALKYL GROWTH
REACTION

Kaye L. Motz and Allan J. Lundeen, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
No Drawing. Continuation-in-part of application Ser. No. 862,075, Sept. 29, 1969. This application Nov. 26, 1969, Ser. No. 880,427

Int. Cl. C07f 5/06

U.S. Cl. 260—448 A 10 Claims

Carbon monoxide or other ligand for transition metals inhibits the formation of polymer and catalytic displacement when aluminum trialkyl such as aluminum triethyl is reacted with additional ethylene to form higher molecular weight aluminum trialkyls. It is also disclosed that carbon monoxide inhibits the hydrogenation reaction and therefore should be avoided in the reaction zone wherein aluminum triethyl, aluminum and hydrogen are reacted.

3,657,302

PROCESS FOR THE PREPARATION OF ORGANO-
SILICON COMPOUNDS HAVING HYDROGEN
DIRECTLY BONDED TO SILICON

Norbert Duffaut, Barsac, Jacques Dunogues, Talence, Raymond Calas, Le Bouscat, and Gilbert Marin, Sainte-Foy-les-Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed June 12, 1970, Ser. No. 45,934
Claims priority, application France, June 16, 1969, 6919961; July 17, 1969, 6924384

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 E 10 Claims

Organosilicon compounds containing silicon bonded to hydrogen are made by reacting organosilicon compounds containing silicon bonded to chlorine with hydrogen chloride, free or combined, and magnesium or aluminium, in the presence of a hexaalkylphosphotriamide.

3,657,303

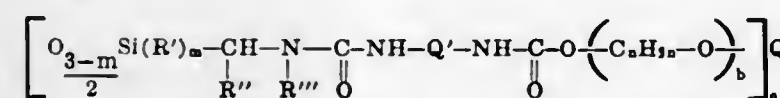
SILOXANE-MODIFIED UREA DERIVATIVES

Hans Dietrich Gollitz, Cologne-Stammheim, Eberhart Degener, Leverkusen, and Gunter Oertel, Cologne-Flittard, Germany, Hans-Georg Schmelzer, New Martinsville, W. Va., and Walter Simmler, Odenthal-Schlinghofen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Jan. 28, 1970, Ser. No. 6,576
Claims priority, application Germany, Feb. 1, 1969, P 19 05 100.4

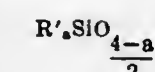
Int. Cl. C07f 7/10, 7/18

U.S. Cl. 260—448.2 N 6 Claims

New organosiloxane- and carbamate-modified urea derivatives comprise at least one structural unit of the formula



and optionally further structural units of the formula

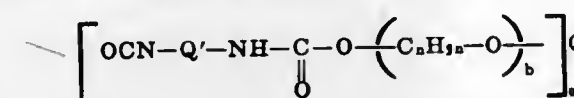


wherein however at least one of a thousand structural units corresponds to the first of the above formulae.

In these formulae R' is a monovalent hydrocarbon radical, R'' and R''' are hydrogen atoms or monovalent hydrocarbon radicals, Q' is a bivalent hydrocarbon radical, Q is a monovalent to hexavalent hydrocarbon radical, m is 0, 1 or 2, n is 2, 3 or 4, a is 0, 1, 2 or 3, b is zero or an integer from 1 to 200, and c is the valency number of Q.

These urea derivatives are prepared either by hydrolyzing a corresponding alkoxyalkyl-substituted carbamate-

modified urea derivative, optionally in admixture with hydrocarbon-substituted alkoxyalkanes, or by reacting a corresponding aminoalkyl-substituted polysiloxane with an isocyanate-modified carbamic acid ester of the formula



The products are to be used as priming agents imparting adhesion to synthetic resins on siliceous surfaces, as surfactants and as intermediates for organo-polysiloxane resins.

3,657,304

BIS(CYANOORGANOSILYL)HYDROCARBONS, BIS
(AMINOORGANOSILYL)HYDROCARBONS AND
METHODS FOR MAKING THEM

Fred F. Holub, Abe Berger, and Terry G. Selin, Schenectady, N.Y., assignors to General Electric Company
No Drawing. Filed Nov. 28, 1969, Ser. No. 880,922

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 N 8 Claims

Bis(aminooorganosilyl)hydrocarbons, such as 1,4-bis(aminobutylidimethylsilyl)benzene are made by hydrogenating the corresponding bis(cyanoorganosilyl)hydrocarbons. The bis(cyanoorganosilyl)hydrocarbons can be made by the platinum catalyzed addition of an aliphatically unsaturated nitrile such as allyl cyanide to a bis(organosilyl)hydrocarbon such as bis(dimethylsilyl)benzene. The bis(aminooorganosilyl)hydrocarbons are useful as silanol curing agents, and as intermediates for making polyimides; the bis(cyanoorganosilyl)hydrocarbons can be employed as antistats for synthetic fibers, additives for channel sealant greases to impart improved solvent characteristics thereto, etc.

3,657,305

SILOXANE-POLYOXYALKYLENE BLOCK COPOLY-
MERS CONTAINING ARALKYL GROUPS

Edward L. Morehouse, 7 Wren Lane,
New City, N.Y. 10956

No Drawing. Filed Dec. 24, 1969, Ser. No. 888,033

Int. Cl. C07f 7/02

U.S. Cl. 260—448.2 B 6 Claims

This invention relates to novel siloxane-polyoxyalkylene block copolymers containing silicon-bonded aralkyl groups. The novel block copolymers are useful as foam stabilizers in the production of polyurethane foams, especially in the production of open-cell flexible polyether polyurethane foams having reduced flammability.

3,657,306

POLYFLUOROISALKOXYALKYL ISOCYANATES

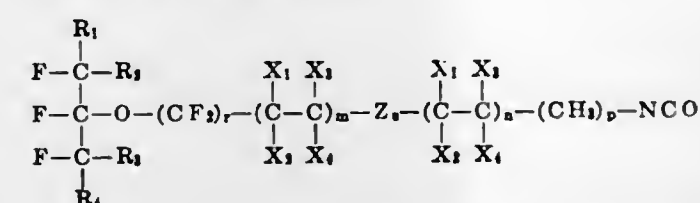
John J. Murray, Millington, N.J., assignor to Allied
Chemical Corporation, New York, N.Y.

No Drawing. Filed Oct. 21, 1969, Ser. No. 868,216

Int. Cl. C07c 119/04

U.S. Cl. 260—453 AL 25 Claims

Compounds of the formula



wherein R₁-R₄ can be fluorine, chlorine or perhaloalkyl, the halo portions being fluorine or chlorine; X₁-X₄ can be hydrogen, fluorine, chlorine or bromine; Z is



or $-\text{CH}=\text{CH}-$; r is an integer from 1 to 2, m and n are integers from 0 to 20 and s and p are integers from 0 to 1.

3,657,307

DIALKYL AND DIALKENYL N,N'-BIS(SUB-
STITUTED CARBAMOYLOXY) DITHIOLOX-
ALIMIDATES

John C. Summers, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Aug. 18, 1967, Ser. No. 661,510, now Patent No. 3,514,516, dated May 26, 1970. Divided and this application Oct. 8, 1969, Ser. No. 871,225

Int. Cl. C07c 119/00

U.S. Cl. 260—453 R 4 Claims

Chemical compounds of the class dialkyl and dialkenyl N,N'-bis(substituted carbamoyloxy)dithioloxalimides, such as dimethyl N,N'-bis(methylcarbamoyloxy)-dithioloxalimide, useful in preventing the destructive effects of nematodes.

3,657,308

CATALYTIC CARBONYLATION OF AROMATIC
NITRO COMPOUNDS IN THE PRESENCE OF
ORGANIC CARBONATES

Ehrenfried H. Kober, Hamden, and Wilhelm J. Schnabel, Branford, Conn., assignors to Olin Mathieson Chemical Corporation

No Drawing. Filed Apr. 16, 1969, Ser. No. 816,836

Int. Cl. C07c 119/04

U.S. Cl. 260—453 PC 15 Claims

In the process for preparing an organic isocyanate by reacting an organic nitro compound with carbon monoxide in the presence of a catalyst, improved yields of the organic isocyanate are obtained and contamination of the isocyanate by products derived from ortho-dinitro compounds is suppressed when the reaction is carried out in the presence of an organic carbonate. In addition, when the catalyst is a noble metal halide complex of Lewis base such as pyridine or isoquinoline, decomposition of the catalyst complex is diminished.

3,657,309

ALKYLHYDROXYPHENYLTHIOLALKANOATES

Martin Dexter, Briarcliff Manor, David H. Steinberg, Bronx, and George E. Ham, Briarcliff Manor, N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed May 13, 1968, Ser. No. 728,761

Int. Cl. C07c 153/07

U.S. Cl. 260—455 C 9 Claims

Alkylhydroxyphenylalkanoic acid thiol esters of mono- and polymercaptoalkanes prepared by known thiol esterification procedures, are stabilizers of organic material subject to oxidative deterioration.

3,657,310

PROCESS FOR MAKING ALIPHATIC
CARBONATE ESTERS

Ludo K. Frevel, Midland, Mich., assignor to The Dow
Chemical Company, Midland, Mich.

No Drawing. Filed Aug. 14, 1969, Ser. No. 850,215

Int. Cl. C07c 67/00, 67/02, 69/00

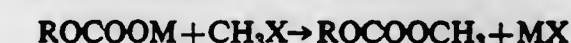
U.S. Cl. 260—463 5 Claims

Esters of the formula

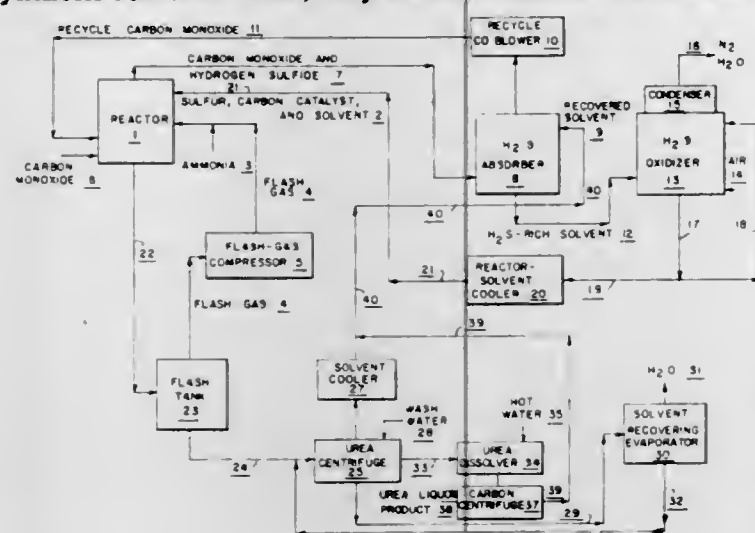


wherein R and R' are monovalent aliphatic radicals, A is an alkylene radical of 2-4 carbon atoms and n is an integer at least 1, are made by

(1) Reacting an alkali metal bicarbonate ester with methyl chloride, bromide or iodide:



sulfur-containing solvent mixture is recycled to the urea synthesis reaction. Thus, only carbon monoxide, ammonia



and oxygen (air) are consumed in the overall process for production of urea.

3,657,340 PROCESS FOR PREPARING SUBSTITUTED β-HALOACRYLAMIDES

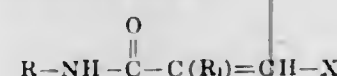
Francis Johnson, Newton, Mass., and Alin H. Gulbenk, Walnut Creek, Calif., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 31, 1969, Ser. No. 795,677

Int. Cl. C07c 103/58

U.S. Cl. 260—557 R

Compounds of the formula



wherein X is chloro, bromo or iodo, R is alkyl, aryl, alkaryl, aralkyl, alkenyl, alicyclic or cycloalkenyl, and R₁ is hydrogen, R, carboxyl, acetamido, or a fluoro, chloro, bromo or hydroxy-substituted R group, are prepared in the novel reaction comprising reacting by contacting an isocyanide of the formula R—NC with a haloacetylene of the formula XC≡C—R₁, wherein R and R₁ have the aforesaid meanings, in the presence of water. The compounds have biological utility as herbicides and insecticides.

3,657,341 ACETYL GLYCINE AMIDES

David E. Thorne, Crowthorne, England, assignor to Beecham Group Limited, Brentford, England
No Drawing. Filed May 21, 1969, Ser. No. 826,652
Claims priority, application Great Britain, June 4, 1968, 26,602/68, 26,612/68

Int. Cl. C07c 103/22

U.S. Cl. 260—558 A

4 Claims

Substituted acetyl glycine amides, their preparation and formulation for use as anesthetics and anticonvulsants with tranquilizing, sedative and hypnotic properties of low toxicity at high dosages are described. Representative compounds are phenyl acetyl glycine dimethylamide, the halophenyl and phenoxy analogs and other lower alkyl or cyclic amides.

3,657,342 PREPARATION OF YNAMINES AND PHENYLACETAMIDES

Laurence I. Peterson, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Aug. 24, 1967, Ser. No. 662,865, now Patent No. 3,499,928. Divided and this application Aug. 27, 1969, Ser. No. 870,963

Int. Cl. C07c 103/34

U.S. Cl. 260—558 R

4 Claims

A method for preparing ynamines and phenylaceta-

mides comprises contacting phenylacetylenes with primary or secondary amines in the presence of copper and molecular oxygen to produce the ynamine, and then treating the crude mixture with aqueous acid to produce phenylacetamide. When secondary amines are used in the preceding reaction, the ynamines can be isolated and recovered.

3,657,343 PREPARATION OF YNAMINES AND PHENYLACETAMIDES

Laurence I. Peterson, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Original application Aug. 24, 1969, Ser. No. 662,865. Divided and this application Aug. 27, 1969, Ser. No. 870,964

Int. Cl. C07c 103/30

U.S. Cl. 260—558 R

2 Claims

A method for preparing ynamines and phenylacetamides comprises contacting phenylacetylenes with primary or secondary amines in the presence of copper and molecular oxygen to produce the ynamine, and then treating the crude mixture with aqueous acid to produce phenylacetamide. When secondary amines are used in the preceding reaction, the ynamines can be isolated and recovered.

3,657,344
2-AMINOXY-2'-ACYL-ACETANILIDE
Arthur Stempel, Teaneck, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
No Drawing. Application Dec. 6, 1966, Ser. No. 600,347, now Patent No. 3,420,817, dated Jan. 7, 1969, which is a continuation-in-part of application Ser. No. 522,397, Jan. 24, 1966. Divided and this application Oct. 17, 1968, Ser. No. 768,514

Int. Cl. C07c 103/42

U.S. Cl. 260—562 N

11 Claims

2-Aminoxy-2'-acyl-acetanilides and N-(2-amino-X-phenylmethylene)aminoxyacetic acid lower alkyl esters (X=phenyl, alkyl and cycloalkyl) and substituted derivatives thereof. These compounds are intermediates in the preparation of 4,1,5-benzoxadiazocines (A) and known 1,4-benzodiazepines (B). A and B are useful as sedatives, muscle relaxants and anticonvulsant agents. A is also useful as intermediates in the preparation of B.

3,657,345 ISOMER ENRICHMENT OF 1,4-CYCLOHEXANE- DIAMINE

Loren D. Brake, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 27, 1969, Ser. No. 869,501

Int. Cl. C07c 85/16

U.S. Cl. 260—563 R

18 Claims

A mixture of the stereoisomers of 1,4-cyclohexanediamine not at equilibrium is converted to a mixture of stereoisomers approaching the equilibrium ratio by heating the mixture of stereoisomers to a temperature of from 150° to 300° C. in the presence of hydrogen at a pressure of from 50 to 5,500 pounds per square inch and a total pressure of from 500 to 15,000 pounds per square inch, in the presence of from 0% to 200% by weight, based on the weight of diamine, of added ammonia, and in the presence of from 0.001% to 10% by weight, based on the weight of diamine and calculated as metallic ruthenium, of a ruthenium catalyst supported on an inert carrier, said catalyst being alkali moderated with from 0.05% to 15% of a basic alkali metal compound calculated as the alkali metal. Either essentially pure trans-1,4-cyclohexanediamine or enriched cis-1,4-cyclohexanediamine can be recovered.

3,657,346 N,N-DIMETHYL-N'-(2,5-DIMETHYLBENZYL) FORMAMIDINE

Dieter Duerr, Bottmingen, and Heinz Siegle, Binningen, Switzerland, assignors to Ciba Limited, Basel, Switzerland

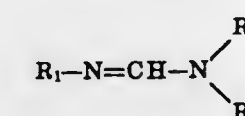
No Drawing. Filed Jan. 17, 1968, Ser. No. 698,445
Claims priority, application Switzerland, Jan. 26, 1967, 1,187/67

Int. Cl. C07c 23/00

U.S. Cl. 260—564 R

1 Claim

The present invention relates to a new amidine of the formula



or an acid addition salt thereof, wherein R₁ represents an aliphatic, cycloaliphatic, cycloaliphatic-aliphatic or araliphatic radical, R₂ represents a hydrogen atom or a lower aliphatic radical and R₃ represents a lower aliphatic radical, or wherein R₂ and R₃ together with the nitrogen atom to which they are bonded represent a 5-membered to 7-membered heterocyclic structure optionally containing further hetero-atoms as well as to pesticidal preparations, which contain, as active ingredient, an amidine as defined above.

3,657,347 PRODUCTION OF LONG CHAIN AMINES BY REACTING MONOETHANOLAMINE, MONO- ISOPROPANOLAMINE AND/OR ETHYLENEDI- AMINE WITH LONG CHAIN STRAIGHT CHAIN SECONDARY CHLORIDES

Thomas C. Muller, East Orange, Lawrence B. Nelson, Franklin Lakes, and Bernard R. Bluestein, Glen Rock, N.J., assignors to Witco Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 673,917, Oct. 9, 1967. This application June 17, 1970, Ser. No. 47,139

Int. Cl. C07c 85/04

U.S. Cl. 260—583 P

4 Claims

Production of long chain amines, in a form substantially free from olefins, by reacting (a) monoethanolamine, N-methylethanolamine, monoisopropanolamine, and/or ethylenediamine with (b) secondary monochlorinated straight chain paraffin hydrocarbons containing from 6 to 26 carbon atoms, particularly those prepared by partially chlorinating a petroleum derived hydrocarbon fraction consisting essentially of C₈ to C₁₈ straight chain paraffins to the extent whereby from about 10 to about 25 mol percent of the paraffins are monochlorinated, said fraction being largely free from branched chain hydrocarbons and from chlorinated branched chain hydrocarbons.

3,657,348 DISUBSTITUTED CYCLOPROPENONES AND METHOD OF PRODUCTION

Stephen W. Tobey, Sudbury, Mass., assignor to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed May 3, 1968, Ser. No. 726,549

Int. Cl. C07c 49/44

U.S. Cl. 260—586 R

5 Claims

New disubstituted cyclopropenones and a new method of preparing said cyclopropenones comprising reacting a halocyclopropenium Lewis acid salt with a substituted olefin containing a carbon to carbon double bond wherein one terminal carbon atom of the double bond is sterically accessible to attack by the cyclopropenium ion, and the other terminal carbon atom of the double bond bears substituents contributing to the formation of a stable carbonium ion.

3,657,349 METHOD OF PREPARING NITROCYCLO- ALKANONE

Donald R. Lachowicz, Todd S. Simmons, and Kenneth L. Kreuz, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.

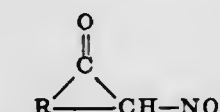
No Drawing. Application Mar. 10, 1966, Ser. No. 541,431, now Patent No. 3,466,326, which is a continuation-in-part of application Ser. No. 466,816, June 24, 1965, now Patent No. 3,415,856. Divided and this application Feb. 19, 1969, Ser. No. 831,794

Int. Cl. C07c 45/00

U.S. Cl. 260—586 R

3 Claims

Method of preparing a nitrocycloalkanone of the formula:



where R is polymethylene or substituted polymethylene comprising contacting a cycloalkene with dinitrogen tetroxide and oxygen to form a peroxy nitrate compound subsequently contacting said peroxy nitrate compound with a denitrating agent.

3,657,350
PROCESS AND COMPOSITIONS
Aram Mooradian, Schodack, and Paul E. Dupont, Colonie, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

No Drawing. Original application May 9, 1967, Ser. No. 637,093, now Patent No. 3,547,997, dated Dec. 15, 1970. Divided and this application Mar. 2, 1970, Ser. No. 15,869

Int. Cl. C07c 49/28

U.S. Cl. 260—590

1 Claim

2-(2-iminoalkyl)-phenols are prepared by a novel rearrangement process of reacting in the approximate range of 20 to 40° C. an O-phenyl ketoxime with a strong acid in a non-aqueous medium. The novel 2-(2-imino-alkyl)-phenols have antibacterial properties and are readily hydrolyzed to the corresponding 2-(2-keto-alkyl)-phenols which are useful as intermediates for the preparation of benzofuran derivatives.

3,657,351 PROCESS FOR THE PREPARATION OF 2,6,8-TRIMETHYL-4-NONANONE

Michio Araki, Tokyo, Hiroshi Uchida, Ichinomiya-shi, and Yoshihide Kotera, Kawasaki-shi, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,347
Claims priority, application Japan, Sept. 30, 1967, 42/62,694

Int. Cl. C07c 45/16

U.S. Cl. 260—593 R

2 Claims

A process of preparing 2,6,8-trimethyl-4-nonanone which comprises passing a secondary alcohol or a mixture thereof with the corresponding ketone through a binary catalyst prepared from chromium oxide and copper oxide or a ternary catalyst prepared from chromium oxide, copper oxide and zinc oxide at from about 200° C. to about 350° C.

3,657,352 PROCESS FOR THE PREPARATION OF TERTIARY PHOSPHINE OXIDES

Hans-Jerg Kleiner, Bad Soden, Taunus, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Mar. 4, 1970, Ser. No. 16,612

Int. Cl. C07f 9/50

U.S. Cl. 260—606.5 P

7 Claims

Improved process for the preparation of tertiary phosphine oxides by reacting dialkyl phosphine oxides with

α -olefins wherein the reaction is carried out under an atmosphere of an inert gas with exposure to ultraviolet light, in the presence of catalytical amounts of free radical-forming agents or in the absence of these catalytical measures at a temperature between 130° and 200° C.

In comparison to known processes the tertiary phosphine oxides are obtained within a shorter reaction time, with higher purity and in higher yields. The reaction products can be used as intermediates, surfactants, detergents and cleaning agents, especially in cosmetic products.

3,657,353

PROCESS FOR PRODUCING IODOMETHYL SULFONES

Aldo Joseph Crovetti, Lake Forest, and Richard Paul Germann and Artur Blank, Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.
No Drawing. Filed July 25, 1969, Ser. No. 845,097
Int. Cl. C07c 147/06

U.S. Cl. 260—607 A 8 Claims
Iodination with iodine and chlorine in a reaction mixture buffered to a weakly acidic pH produces a superior conversion based on both the iodine and the iodinated compound. Preparation of iodomethylsulfones from substituted sulfonyl acetic acids is illustrated.

3,657,354

PROCESS FOR PREPARING ALCOHOLS AND ALDEHYDES FROM OLEFINS

Friedrich Asinger, Aachen, Germany, assignor to Ethyl Corporation, New York, N.Y.
No Drawing. Filed Apr. 15, 1968, Ser. No. 721,201
Int. Cl. C07c 45/02

U.S. Cl. 260—604 R 26 Claims
A process is described for preparing alcohols and aldehydes, by reacting olefins, carbon monoxide and water using a rhodium or iridium oxide or sulfide as the catalyst in the presence of an alcohol or tertiary amine solvent. The reaction is carried out at elevated temperatures (to about 300° C.) and under pressures above atmospheric (to 500 atmospheres).

The alcohols and aldehydes produced contain one carbon atom more than the starting olefin; they are especially useful as solvents and intermediates for the preparation of carboxylic acids, for example.

3,657,355

PRODUCTION OF 2-NITROCHLOROBENZENES

Kurt H. G. Pilgram, Modesto, Calif., assignor to Shell Oil Company, New York, N.Y.
No Drawing. Filed Oct. 9, 1970, Ser. No. 79,620
Int. Cl. C07c 149/34, 79/12

U.S. Cl. 260—609 E 11 Claims
2-nitrochlorobenzenes are prepared by reacting certain 4-substituted 2-nitrophenols with phosgene in an inert solvent in the presence of a catalytic amount of a dialkylformamide, thus replacing the hydroxy group with chlorine.

3,657,356

STABILIZED ETHER COMPOSITIONS

Patricia Lucille Hudgins, South Charleston, W. Va., George Raymond Stringer, Somerville, N.J., and William Herald Swango, St. Albans, W. Va., assignors to Union Carbide Corporation, New York, N.Y.
No Drawing. Filed Jan. 21, 1969, Ser. No. 792,850
Int. Cl. C07c 41/04

U.S. Cl. 260—611.5 8 Claims
Organic mono and poly ethers are inhibited against peroxide formation by the addition thereto of trace amounts of a tetraalkyl thiuram disulfide. Illustrative

ethers are diethyl ether, the monoethyl ethers of ethylene glycol or triethylene glycol, methoxyethyl acetate, dioxane, 1,3-dioxolane, di(butoxyethyl) phthalate, useful inhibitors are tetramethyl thiuram disulfide, tetradecyl thiuram disulfide, dimethyl dibutyl thiuram disulfide. The ethers are known compounds having established uses.

3,657,357

INSECTICIDAL COMPOUNDS AND METHODS FOR THEIR PREPARATION

George Holan, Brighton, Victoria, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, East Melbourne, Victoria, Australia
No Drawing. Filed July 17, 1969, Ser. No. 842,735
Claims priority, application Australia, July 17, 1969, 40,745
Int. Cl. C07c 43/20

U.S. Cl. 260—613 R 5 Claims
New insecticides comprising 1,1-bis (p-ethoxyphenyl)-2-nitropropane; 1,1-bis (p-ethoxyphenyl)-2-nitro-n-butane and 1,1-bis (p-ethoxyphenyl)-2-methyl-2-nitropropane. These compounds are prepared by condensing p-ethoxybenzaldehyde with a compound having the formula



wherein one of the groups R^1 and R^2 is methyl and the other is hydrogen or methyl, and reacting the carbinol product with phenetole.

3,657,358

COMPOUNDS 2,4-DICHLORO-3-METHOXY-6-NITROPHENOL, 2,6-DICHLORO-3-METHOXY-4-NITROPHENOL AND THEIR ALKALI METAL SALTS

Earl G. Alley and Richard Garth Pews, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed Aug. 14, 1969, Ser. No. 850,214
Int. Cl. C07c 43/28

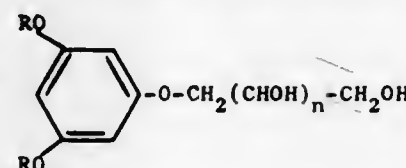
U.S. Cl. 260—613 D 4 Claims
The new compounds 2,4-dichloro-3-methoxy-6-nitrophenol, 2,6-dichloro-3-methoxy-4-nitrophenol and their alkali metal salts are prepared by alkali hydrolysis in aqueous methanol of 2,3,4,5-tetrachloronitrobenzene. These compounds have been discovered to be active herbicides, fungicides and insecticides.

3,657,359

DERIVATIVES OF PHLOROGLUCINOL

Madeleine Vaille, born Penciolelli, Brunoy, France, assignor to Societe Anonyme dite: Orsymonde, Paris, France
No Drawing. Filed Aug. 29, 1969, Ser. No. 854,264
Claims priority, application Great Britain, Sept. 4, 1968, 42,137/68
Int. Cl. C07c 43/22

U.S. Cl. 260—613 D 2 Claims
This invention is concerned with phloroglucinol derivatives which are represented by the formula:



wherein R is a lower alkyl group and n is 0 or 1. These compounds having interesting pharmacological properties are obtained by reacting 3,5-dialkoxy-phenol with either glycol chlorhydrin or glycerol chlorhydrin.

3,657,360

RECOVERY OF HYDROXYALKYL VINYL ETHERS

Frank Carluccio, Easton, Pa., and Max Eugene Chiddix, League City, Tex., assignors to GAF Corporation, New York, N.Y.
No Drawing. Filed June 12, 1970, Ser. No. 45,919
Int. Cl. C07c 41/12

U.S. Cl. 260—615 R 7 Claims
Hydroxyalkyl vinyl ethers are recovered in good yield and high purity from crude mixtures thereof which contain an alkali metal hydroxide, such as the reaction product produced by the partial vinylation of an alkylene glycol with acetylene in the presence of an alkali metal hydroxide, by converting the alkali metal or alkaline earth metal carbonate, as by the addition to the crude material of an alkali metal acid carbonate or carbon dioxide, and distilling the crude material containing an alkali metal carbonate but essentially free of alkali metal hydroxide.

3,657,361

PREPARATION OF MAGNESIUM ALCOHOLATES

Arnold Lenz, Stammheim, Otto Bleh, Bergheim, and Erich Termin, Niederkassel, Germany, assignors to Dynamit Nobel Aktiengesellschaft
No Drawing. Filed Oct. 30, 1969, Ser. No. 872,751
Claims priority, application Germany, Nov. 2, 1968, P 18 06 549.1
Int. Cl. C07c 31/30, 43/04

U.S. Cl. 260—615 R 5 Claims
Compounds of the formula $Mg(OR)_2 \cdot (ROH)_n$ are prepared by first pretreating the alcohol, ROH, with the orthoformic acid ester of that alcohol, and then reacting metallic magnesium with the pretreated alcohol. p-Toluenesulfonic acid may additionally be used to pretreat the alcohol.

3,657,362

PROCESS FOR PREPARING α,ω -BIS (FLUOROPERHALOISOPROPOXY) PERFLUOROALKANES

John P. Sibilla, Livingston, and Cyril Woolf and John Frank, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y.
Filed Dec. 17, 1969, Ser. No. 885,776
Int. Cl. C07c 41/00

U.S. Cl. 260—615 R 7 Claims
 α,ω -Bis(fluoroperhaloisopropoxy) perfluoroalkanes useful as dielectric coolants are prepared by the pyrolytic dimerization of α -(fluoroperhaloisopropoxy)- ω -iodoperfluoroalkanes.

3,657,363

PROCESS FOR THE DEUTERATION OF THE HYDROXYL POSITION OF ORGANIC ALCOHOLS

Ernest A. Dorko, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Sept. 15, 1967, Ser. No. 668,245
Int. Cl. C07c 31/12, 13/04

U.S. Cl. 260—642 1 Claim
A novel process for the preparation of organic alcohols in which the hydroxyl position contains a deuterium atom. The process involves adding a quantity of the alkali metal salt of an organic alcohol (i.e., t-butyl alcohol) in small portions to a three-fold molar amount of deuterium oxide. The reaction mixture is stirred vigorously during the addition. The resulting mixture of deuterated alcohol, potassium deuteride and deuterium oxide (heavy water) is distilled. The appropriate alcohol fraction is separated in the distillation process and final traces of heavy water and water from the atmosphere are removed by passage of the fraction through barium oxide. The process represents a great simplification of the previous process.

3,657,364

PROCESS FOR SEPARATING NITROPARAFFINS

Wheeler C. Crawford and John A. Patterson, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Jan. 30, 1970, Ser. No. 7,269
Int. Cl. C07c 79/14

U.S. Cl. 260—644 12 Claims
This invention relates to a process for selectively separating nitroparaffins from paraffins and from other contaminants of a nitration reaction mixture using a solvent system comprising aprotic solvents and water.

3,657,365

PROCESS FOR THE MANUFACTURE OF METHYL OR ETHYL CHLORIDE FROM METHYL OR ETHYL ACETATE

Hans Fernholz, Fischbach, Taunus, and Heinz Wendt, Sulzbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Apr. 13, 1970, Ser. No. 28,151
Claims priority, application Germany, Apr. 18, 1969, P 19 19 725.2
Int. Cl. C07c 19/02

U.S. Cl. 260—652 R 4 Claims
The subject of the invention is a process for the manufacture of methyl or ethyl chloride from methyl or ethyl acetate by a reaction with hydrogen chloride in the vapor phase at temperatures within the range of from 120° to 360° C. and under pressures of from 0 to 20 atmospheres gauge, using as catalyst technically pure silicic acid which was impregnated with from 5 to 15% by weight of zinc chloride. The silicic acid should have a specific surface of from 20 to 800 m² per gram and an average pore diameter of from 5 to 2,000 Å.

3,657,366

AGENT FOR PREVENTING ISOMERIZATION OF DICHLOROBUTENE

Ryuichi Kobayashi, Takao Iwasaki, Junji Hirano, and Hideki Matsumura, Ohmi-machi, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
No Drawing. Continuation-in-part of application Ser. No. 752,473, Aug. 14, 1968. This application Aug. 24, 1970, Ser. No. 66,612
Int. Cl. C07c 17/42

U.S. Cl. 260—652.5 R 1 Claim
3,4-dichlorobutene-1 and 1,4-dichlorobutene-2 are useful intermediates in chemical industry. However, 3,4-dichlorobutene-1 and 1,4-dichlorobutene-2 are isomerized into one another during the storage or in such a step as distillation and an undesirable isomer is increased. Such an undesirable isomerization is prevented by adding an ammonium salt of a carboxylic acid as a stabilizer.

3,657,367

OXYCHLORINATION OF SATURATED AND UNSATURATED HYDROCARBONS IN THE PRESENCE OF A FLUIDIZED CATALYST CONTAINING LANTHANUM AND DIDYMIUM

Robert J. Blake, Oakland, and Guy W. Roy, Richmond, Calif., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Oct. 31, 1968, Ser. No. 772,395
Int. Cl. C07c 17/00, 17/02

U.S. Cl. 260—659 A 4 Claims
Catalyst compositions comprising mixtures of salts of copper, potassium, didymium, lanthanum and magnesium are useful in the fluidized bed oxychlorination of aliphatic hydrocarbons. The catalyst composition loading is disposed on a suitable support media, preferably an alumina and does not cake or cause defluidization of the bed under start-up, operating, or shut-down conditions.

3,657,368

CATALYSIS BY DISPERSIONS OF METAL HALIDES IN MOLTEN TRIHALOSTANNATE(II) AND TRIHALOGERMANATE(II) SALTS

George W. Parshall, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Division and a continuation-in-part of application Ser. No. 727,710, May 8, 1968. Divided and this application Nov. 24, 1970, Ser. No. 92,541

Int. Cl. C07c 5/14, 5/16

U.S. Cl. 260—666 A

10 Claims

Dispersions of transition and other metal halides in molten tetrahydrocarbylammonium or phosphonium trihalostannate(II) and trihalogermanate(II) salts are useful as catalysts for the hydrogenation, isomerization or carbonylation of olefins and the hydrogenation of nitriles.

3,657,369

OLIGIMERIZATION OF ISOBUTENE AND α -METHYLSTYRENE

Gary L. Driscoll, Boothwyn, Pa., and David L. Kerr, Wilmington, Del., assignors to Sun Oil Company, Philadelphia, Pa.

No Drawing. Filed July 6, 1970, Ser. No. 52,773

Int. Cl. C07c 15/10

U.S. Cl. 260—669 P

6 Claims

Simultaneously or successively polymerizing of isobutene to form a polyisobutene having a viscosity index of from 95–130, and α -methylstyrene, using stannic chloride as the catalyst and nitromethane as the solvent at from -30 to 200°C . and preferably from 0°C . to 50°C . The stannic chloride is present in from 0.5 to 40 and preferably 1 to 20 volume percent as based on the nitromethane present.

3,657,370

PROCESS FOR THE PREPARATION OF DI-TERTIARY-AROMATIC HYDROCARBONS

William C. Hammann, Creve Coeur, and Charles F. Hobbs, Des Peres, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Jan. 2, 1970, Ser. No. 433

Int. Cl. C07c 3/56

U.S. Cl. 260—671 R

10 Claims

Di-t-alkyl aromatics are obtained in good yield and in preference to secondary isomers by alkylating benzene or naphthalene with an olefin or a t-alkyl halide using FeBr_3 as a catalyst. Compounds having t-alkyl groups of 8 to 28 carbon atoms which are useful as oxidatively stable functional fluids are prepared by this process.

3,657,371

PROCESS FOR PREPARING ALKYL BENZENES

Benedetto Calcagno, Milan, Marcello Ghirga, Bresso, and Natale Ferlazzo, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed July 8, 1969, Ser. No. 840,020

Claims priority, application Italy, July 15, 1968, 18,978/68, Patent 839,022

Int. Cl. C07c 3/56

U.S. Cl. 260—671 B

7 Claims

A conventional process for preparing alkylbenzenes is carried out, wherein linear C_9 – C_{15} paraffins are chlorinated and catalytically alkylated with excess benzene, fractionated, and unreacted paraffins and benzene are recycled. According to the invention, by-products, especially chlorinated products, are removed from the unreacted paraffins by contacting the paraffins, prior to recycle, with concentrated sulphuric acid, oleum or sulphuric anhydride.

3,657,372

NAPHTHALENE CRYSTAL GROWTH IN A GEL

John C. Murphy, Ellicott City, and Henry A. Kues, Jr., Carney, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 10, 1969, Ser. No. 805,893

Int. Cl. B01d 9/02; C07c 15/24

U.S. Cl. 260—674 A

1 Claim

A method for crystal growth in a diffusion medium is disclosed which utilizes a "co-solute effect" to produce single crystals of a material of interest. Generally, a co-solute is a material soluble in the chosen solvent medium and which increases the solubility in said solvent medium of some material of interest. To practice the invention as taught herein, a co-solute is used which increases the solubility of the material of interest with concentration of the co-solute.

3,657,373

PROCESS FOR THE PREPARATION OF OLEFINS USING CARBONYL COMPOUNDS AND SILYL-SUBSTITUTED ORGANOMETALLIC COMPOUNDS

Donald J. Peterson, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Original application Dec. 26, 1967, Ser. No. 693,084, now Patent No. 3,517,042, dated June 23, 1970. Divided and this application Apr. 2, 1970, Ser. No. 25,269

Int. Cl. C07c 11/02

U.S. Cl. 260—677

2 Claims

A process for the conversion of carbonyl compounds to the corresponding olefins using trialkylsilyl-organometallic compounds.

3,657,374

RECOVERY OF ISOBUTYLENE FROM MIXTURES CONTAINING THE SAME AND BUTADIENE

Karl Schloemer, Ludwigshafen, Otto Nagel, Hambach, Rolf Platz, Mannheim, and Hans Martin Weitz, Frankenthal, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Feb. 26, 1970, Ser. No. 14,528

Claims priority, application Germany, Mar. 1, 1969, P 19 10 473.5

Int. Cl. C07c 11/24

U.S. Cl. 260—677 A

6 Claims

Recovery of isobutylene from mixtures of C_4 -hydrocarbons by absorption in a mixture of tert-butanol, sulfuric acid and water, recovery of tert-butanol by heating the aqueous solution of tert-butanol in sulfuric acid as an azeotrope with 12% water, fractionation of the said azeotrope and decomposition of the tert-butanol by passing it over alumina at about 300°C .

3,657,375

PRODUCTION OF ACETYLENE

Erwin Brunner, Ludwigshafen, Rolf Platz, Mannheim, and Kurt Taglieber and Kurt Weinfurter, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Feb. 16, 1970, Ser. No. 11,390

Claims priority, application Germany, Feb. 21, 1969, P 19 08 619.2

Int. Cl. C07c 11/24

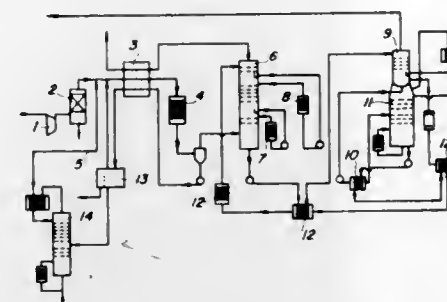
U.S. Cl. 260—679 A

2 Claims

Production of pure acetylene from cracked gas, obtained by cracking liquid hydrocarbons by, in particular, the sub-

merged-flame process, by combining a number of process stages, in which the C_3 to C_5 hydrocarbons contained in

an alkali metal hydroxide. The upper limit on the amount of hydroxide that can be employed will range downwardly from about 15 weight percent of the polymerization system to less than 1 percent for monomer concentrations



the crude acetylene are washed out with an organic solvent such as toluene.

3,657,376

PRODUCTION OF ISOPRENE

Adolf Stuebinger and Herbert Mueller, Frankenthal, and Hermann Overwien, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed June 3, 1970, Ser. No. 43,244

Claims priority, application Germany, June 6, 1969, P 19 28 632.9

Int. Cl. C07c 1/00, 1/24

U.S. Cl. 260—681

3 Claims

Process for the manufacture of isoprene by catalytic dehydration of 3-methyl-3-buten-1-ol in the presence of calcium phosphate as catalyst at elevated temperatures, wherein dehydration is carried out, preferably in the presence of steam, at temperatures between 200° and 300°C . using a 3-methyl-3-buten-1-ol having a purity of at least 85% by weight based on the total weight of oxygen-containing organic compounds present in the starting material. Isoprene is an important monomer, for example in the production of synthetic rubber.

3,657,377

JET FUEL PRODUCTION

Jacob D. Kemp, El Cerrito, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Jan. 19, 1970, Ser. No. 4,054

Int. Cl. C07c 3/56

U.S. Cl. 260—683.48

1 Claim

An alkylation process for producing jet fuel from hydrocarbons which comprises (a) contacting an isoparaffin feedstock with an olefin feedstock in the presence of hydrofluoric acid at a temperature between about 30° and 100°F . in a reaction zone, (b) maintaining the ratio of isoparaffin to olefin below 2.0 in said reaction zone, and (c) withdrawing from said reaction zone an effluent containing at least 10 weight percent hydrocarbon boiling between about 300° and 550°F ., exclusive of any acid oil produced in said reaction zone.

3,657,378

PREPARING POLYACRYLATES

Henry Volk, Bay City, and Percy Jay Hamlin, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

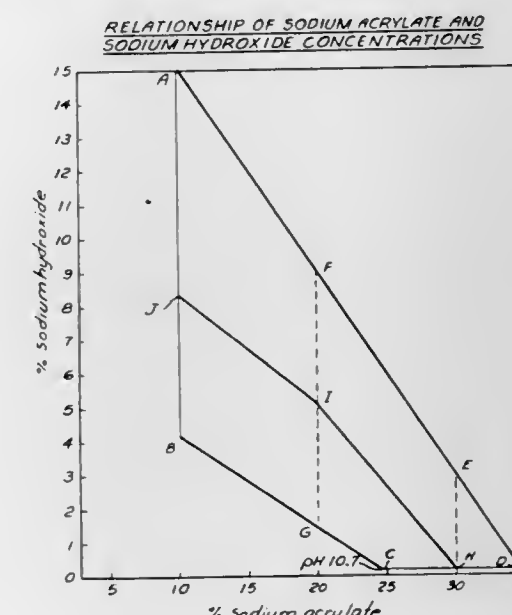
Filed Jan. 14, 1969, Ser. No. 790,988

Int. Cl. C08f 3/44, 15/00, 15/36

U.S. Cl. 260—80 L

12 Claims

Polyacrylates are prepared in aqueous solution under specially controlled reaction conditions to produce efficient flocculants. Alkali metal acrylate is polymerized at a monomer concentration within the range from about 10 weight percent of the polymerization system up to the monomer saturation level. The monomer solution is adjusted to a pH of at least about 10.7 by the addition of



from 10 weight percent up to the monomer saturation level. Further improvement in polymer properties is achieved by the incorporation of at least about 1 weight percent, based on the weight of polymerization system, of an alkali metal salt.

3,657,379

INTERCROSSING RESIN/CURING AGENT ADHESIVE SYSTEMS

Ronald D. Hilbelink, Dayton, and Gavin H. Peters, Lebanon, Ohio, assignors to The National Cash Register Company, Dayton, Ohio

No Drawing. Original application July 8, 1969, Ser. No. 840,060. Divided and this application July 2, 1970, Ser. No. 60,962

Int. Cl. C08g 39/10, 45/06, 47/10

U.S. Cl. 260—824 R

2 Claims

Novel adhesive systems are disclosed which pertain to combinations of more than one curable resin and the curing agents corresponding thereto. The disclosed adhesive systems comprise separated reactive components wherein: (a) a first reactive polymeric material is combined with a curing agent for a second reactive polymeric material to yield one component and; (b) the second reactive polymeric material is combined with a curing agent for the first reactive polymeric material to form another component. Several embodiments relating to intercrossing combinations of the two components are disclosed. In all of the embodiments, when the reactive materials from two components are combined, the curing agents react with their respective, intercrossed, reactive polymeric material to yield strong adhesive bonds. Of particular interest in this invention are embodiments of the adhesive systems which pertain to a rapidly curing adhesive and especially to such an adhesive for use underwater.

3,657,380

HIGH TEMPERATURE RESISTANT COATING COMPOSITION OF AN AROMATIC POLYAMIDE AND AN EPOXY RESIN

James C. Fang, Media, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Dec. 9, 1969, Ser. No. 883,646

Int. Cl. C08g 45/08, 45/10, 45/12

U.S. Cl. 260—831

3 Claims

A coating composition that is resistant to high temperatures and is particularly useful as a temperature

and a Mooney viscosity ML_{1+4} (100° C.) of 30 to 130, with a cross-linking agent which crosslinks the epichlorohydrin polymer but not the diene-acrylonitrile copolymer.

3,657,394

BLENDS OF POLYVINYL CHLORIDE RESINS AND ETHYLENE-SO₂ TERPOLYMERS AND FILMS FORMED THEREFROM

Clarence Frederick Hammer and James Joseph Hickman, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 28, 1970, Ser. No. 32,728

Int. Cl. C08f 29/24

U.S. Cl. 260—897 C

10 Claims

Highly compatible, clear blends of PVC resins with ethylene-SO₂ terpolymers can be formed containing 5 to 40 percent of the latter. High modulus films can be extruded therefrom at a reasonable rate.

3,657,395

PROCESS FOR THE PRODUCTION OF HIGH IMPACT STRENGTH EPDM GRAFT COPOLYMERS

Curtis L. Meredith and George A. von Bodungen, Baton Rouge, La., assignors to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.

No Drawing. Filed Jan. 14, 1970, Ser. No. 2,967

Int. Cl. C08f 25/00

U.S. Cl. 260—878 R

16 Claims

A new and improved EPDM rubber-modified plastic composition and method for its preparation wherein an alkenyl aromatic monomer, an acrylic monomer and an EPDM terpolymer are reacted in an organic solvent in the presence of a free radical catalyst, and wherein up to 40% by weight of the total amount of one of the monomers is withheld from the reaction mixture and is added in at least one increment to form a final reaction mixture when the monomer not withheld is at least 10% converted.

3,657,396

POLYVINYL METHYL ETHER ACRYLIC POLYMER CONTAINING PRESSURE-SENSITIVE ADHESIVE COMPOSITIONS

Kaoru Kuramoto and Nobuo Maejima, Tokyo, Kiichiro Miyakubo, Kawagoe-shi, and Isao Uzuki, Sayama-shi, Japan, assignors to Kuramoto Sangyo Co., Tokyo, Japan

No Drawing. Filed Aug. 28, 1968, Ser. No. 755,827

Claims priority, application Japan, Feb. 7, 1968, 43/7,197

Int. Cl. C09j 3/14

U.S. Cl. 260—901

3 Claims

An adhesive composition containing a polyvinyl methyl ether as the principal component and also containing an additive consisting of a water-soluble polymer having compatibility relative to said first mentioned polymer. The composition is not inferior in adhesion, cohesion and tackiness to the conventional pressure-sensitive adhesive composites, and it has the excellent feature that it can be obtained as a transparent, water-soluble product.

3,657,397

TRIALKYL PHOSPHITE-LONG CHAIN ALKENYL HYDROCARBON-SUBSTITUTED SUCCINIC ANHYDRIDE REACTION PRODUCTS

William T. Brannen, West Lake, Ohio, assignor to Standard Oil Company, Chicago, Ill.

No Drawing. Filed May 8, 1969, Ser. No. 823,176

Int. Cl. C07f 9/02; C10I 1/26; C10m 1/46

U.S. Cl. 260—921

7 Claims

Trialkyl phosphites, e.g. tributyl phosphite, are reacted with alkenyl hydrocarbon-substituted succinic anhydrides, in which the alkenyl hydrocarbon contains at least 30 carbon atoms, to obtain reaction products which are useful as additives in hydrocarbon fuels and in lubricating oils.

PROCESS FOR THE PRODUCTION OF HALOGENATED ESTERS OF THE PHOSPHORIC ACID

Roshdy Ismail, Spich, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

No Drawing. Filed Mar. 13, 1969, Ser. No. 811,277

Claims priority, application Germany, Mar. 16, 1968, P 16 68 889.4

Int. Cl. C07f 9/12, 9/14

U.S. Cl. 260—973

14 Claims

Improvements in the reaction of halogenated phenols with phosphorus acid chlorides using as the catalyst compounds of elements of Group V-A of the Periodic System, preferably compounds of nitrogen, phosphorus, arsenic or antimony.

3,657,399

METHOD OF CONSTRUCTING A COMPOSITE REFRACTORY HEARTH IN A FLOAT GLASS FURNACE

Edgard Brichard, Jumet, Belgium, assignor to Glaverbel, Watermael-Boitsfort, Belgium

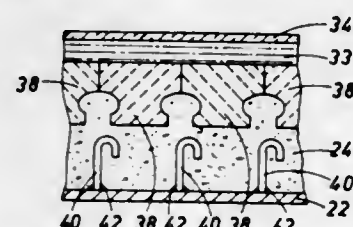
Filed Oct. 29, 1969, Ser. No. 873,141

Claims priority, application Luxembourg, Oct. 30, 1968, 57,193

Int. Cl. F27d 1/04, 1/10

U.S. Cl. 264—30

3 Claims



A composite hearth is constructed by casting a first layer of refractory concrete next to the shell and while the castable is still in a plastic condition carbon bricks or blocks having grooves or undercut cavities on one face are pushed into the castable to cause the castable to enter the cavities and upon setting lock the bricks to the castable layer. Carbon powder with or without a binder can be placed in the joints between the carbon blocks. Metal anchors can also be used to hold the castable layer tightly against the shell.

3,657,400

PELLETIZER PROCESS WITH CONTROL SYSTEM

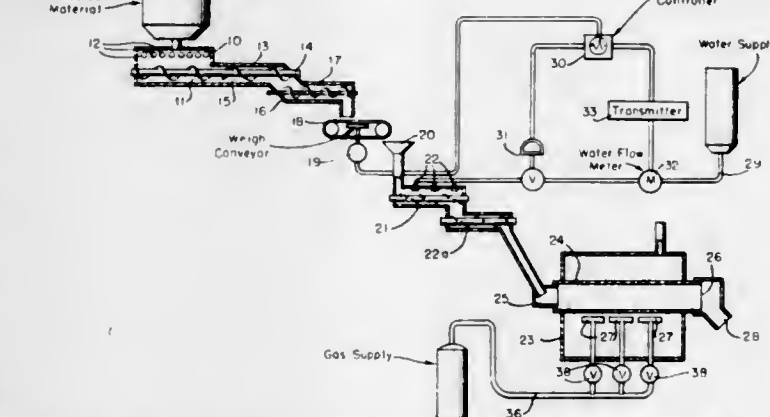
David C. Williams, Houston, Tex., assignor to Ashland Oil, Inc., Houston, Tex.

Original application Apr. 8, 1961, Ser. No. 103,925, now Patent No. 3,337,907, dated Aug. 29, 1967. Divided and this application July 24, 1967, Ser. No. 655,528

Int. Cl. B01j 2/10

U.S. Cl. 264—40

4 Claims



The application discloses an automatic system for the control of pelletizing apparatus in which continuous weighing means (e.g. a weigh belt) are used to generate a signal representative of the weight of a flow of a "loose" powdery solid from a feeder (e.g. feed screw)

to a pelletizer in which the solid is mixed with a pelletizing fluid, and the flow of pelletizing fluid into the pelletizer is controlled in accordance with the signal by flow regulating means interconnected with the weighing means.

3,657,401

REVERSE OSMOSIS MEMBRANES

Victor James Shayler, Woodstock, and Gordon Arthur Leslie Wells, Witney, England, assignors to Pressed Steel Fisher Limited, Cowley, Oxford, England

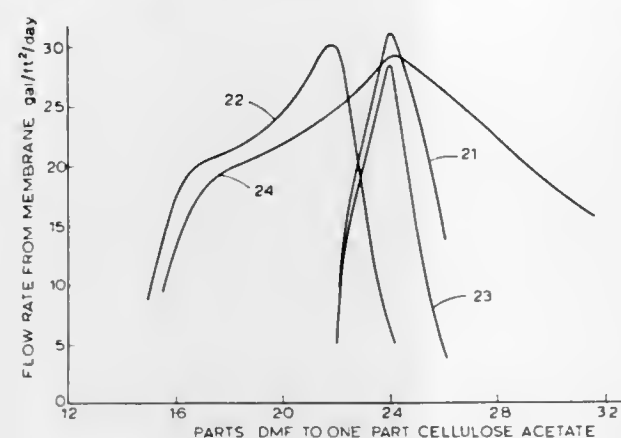
Filed June 15, 1970, Ser. No. 46,206

Claims priority, application Great Britain, June 16, 1969, 30,344/69

Int. Cl. B29d 27/00; B29k 7/20

U.S. Cl. 264—41

3 Claims



A reverse osmosis membrane is prepared by casting a solution of cellulose acetate, dimethylformamide and acetone wherein the dimethylformamide is present in the proportion of from 50-70 parts by weight to 25 parts by weight of cellulose acetate, and the cast membrane is then washed in cold water and annealed in hot water as in known methods. The use of dimethylformamide in the above proportions allows membranes to be prepared which give improved flux rates as compared with membranes cast from known ternary casting solutions that comprise cellulose acetate, acetone and known swelling or flux inducing additives.

3,657,402

CASTING TUBULAR REVERSE OSMOSIS MEMBRANES IN PLACE

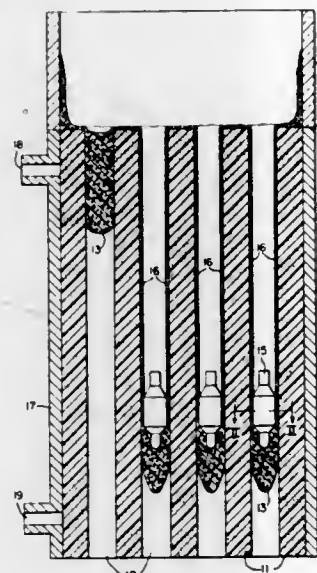
Regis R. Stana, Murrysville, and Andrew S. Calderwood, Monroeville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 15, 1970, Ser. No. 28,603

Int. Cl. B29d 23/08, 27/04; C08b 29/10

U.S. Cl. 264—45

14 Claims



An open pore module, of bonded resin coated filler particles, having a plurality of spaced bores therethrough

containing reverse osmosis membranes, is made by (1) placing the module in a stationary vertical position, (2) placing a viscous casting solution containing polymeric film forming material, a solvent and a leachable swelling agent into each of the bores, (3) gravity dropping a casting bob, having a circular cross-section at its widest point with an outside diameter between 0.02 and 0.12 inch less than the inside diameter of the module bores, at a speed less than 1 inch/sec. down through each bore to form a continuous film of casting solution on the inside of each bore, (4) exposing the film to air and then (5) contacting the film with a leaching liquid to form a reverse osmosis membrane on the inside of each module bore.

3,657,403

METHOD OF MAKING PRESSURIZABLE ELASTOMERIC STRUCTURES

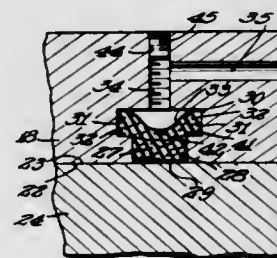
Richard L. Olson, Hickory Hills, Ill., assignor to Dike-O-Seal, Incorporated, Chicago, Ill.

Original application Jan. 18, 1965, Ser. No. 426,308, now Patent No. 3,331,610, dated July 18, 1967. Divided and this application May 3, 1967, Ser. No. 635,911

Int. Cl. B29d 27/00

U.S. Cl. 264—51

4 Claims



An elastomeric body is molded and cured in situ to substantially fill a recess, bonded to side walls defining a recess and maintained in freely separable engagement with a root surface in the recess, so that a pressurizing fluid can be introduced between the body and the root surface.

3,657,404

METHOD AND APPARATUS FOR CLEAVING ANISOTROPIC PYROLYTICALLY DEPOSITED MATERIALS ON CURVED SURFACES

Bruce L. Ettinger, Detroit, Mich., assignor to General Electric Company

Continuation of application Ser. No. 583,814, Oct. 3, 1966. This application May 28, 1969, Ser. No. 833,846

Int. Cl. C04b 35/52, 35/54, 35/58

U.S. Cl. 264—81

13 Claims



A method of separation of articles deposited by gas pyrolysis from termination portions formed during manufacture. The separation of the center portion of the deposited article from the termination portions normally formed during the deposition procedure is facilitated by

forming a radially inwardly extending rounded annular shoulder adjacent to and on the termination side of an annular flange used to create a fault in the deposited article. The combination of the rounded shoulder and the flange produces a fault in the pyrolytically deposited material and stresses on either side of the fault that are opposite in direction which results in a clean separation of the termination portion from the center portion of the deposited pyrolytic article.

3,657,405

PROCESS FOR THE APPLICATION OF A LABEL ON A HOLLOW BODY MADE OF THERMOPLASTIC MATERIAL

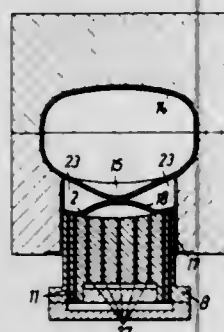
Erhard Langecker, Hobbuschener Weg. 5, Meinerzhagen, Westphalia, Germany

Continuation-in-part of application Ser. No. 767,719, Oct. 15, 1968. This application May 28, 1970, Ser. No. 41,194

Claims priority, application Germany, Aug. 22, 1968, P 17 86 133.5; June 5, 1969, P 19 28 596.2

Int. Cl. B29c 17/07; B29d 23/03; B32b 31/12

U.S. Cl. 264—89 4 Claims



Process for the application of a label on a hollow body of thermoplastic material wherein the label is placed on a movable curved-end member of a blow-mold device while said member is maintained in a retracted position with respect to the cavity of the blow-mold device. A blow blank is inserted into the blow-mold cavity, after which the central portion of the label is caused to be moved out in the direction of the blow blank so that after the blow blank is blown up, said member with the label is moved inwardly against the inflated blow blank and the air between the blank and the label is passed to the exterior of the mold.

In a blow-moulding process, a label is applied to the blow-moulded article while it is still in the mould by placing the label on the front end of a plunger which is initially retracted in a recess in the mould wall. When the article has been blown up, the plunger is advanced to apply the label to the article. Initial contact between the label and the article is over a small area which progressively increases as air is excluded from between the article and the label.

3,657,406

METHOD AND APPARATUS FOR REMOVING BURRS FORMED ON THE NECK OF HOLLOW BODIES

Bernard Delebarre, Dijon, France, assignor to Solvay & Cie, Brussels, Belgium

Filed Oct. 17, 1969, Ser. No. 867,256

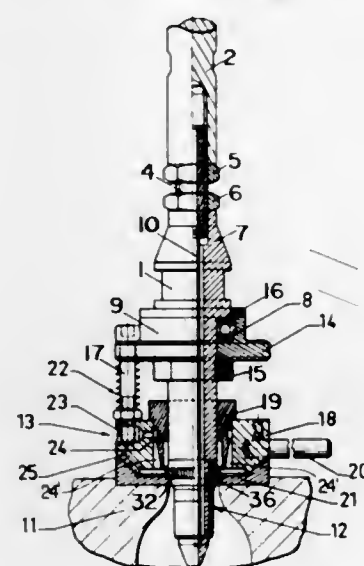
Claims priority, application Belgium, Oct. 18, 1968, 64,885

Int. Cl. B29c 17/07, 17/12

U.S. Cl. 264—98 9 Claims

The burr formed on the neck of a hollow body made of plastic material in a blow mold having an opening for the insertion of a plastic parison is automatically removed. A blow nozzle having a hollow cutting mandrel at the blowing tip thereof is inserted into the plastic parison. The burr is sheared from the hollow body by bringing the hollow cutting mandrel and the mold opening against one

another with an axial displacement of the nozzle in two successive steps, with the parison open and lying between the mandrel and the mold opening. Thereafter, the blow nozzle is rotated about its longitudinal axis to completely sever the burr from the hollow body. A jack having a stationary heel controls the alternating displacement of the blow nozzle, with the nozzle body extending through the jack. A first spiral clutch jaw is mounted on the sta-



tionary heel for rotation only. The teeth of this jaw have the shape of a right angle trapezium with a flat crest. A second spiral clutch jaw, identical to the first jaw, is fixedly mounted at the end of the nozzle body for alternately meshing and releasing with respect to the first jaw as the nozzle body is reciprocated by the control jack. A guide cooperating with the second jaw forces the latter in crest abutment with the first jaw during the first step.

3,657,407

METHOD AND APPARATUS FOR MAKING VALVE UNITS

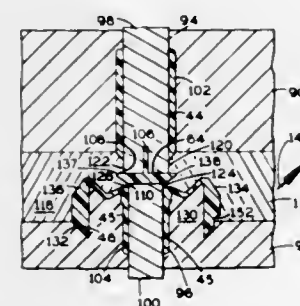
Erich W. Gronemeyer, 2100 S. Ocean Lane 33316, and Louis F. Kutik, 8720 SW. 23rd Place 33305, both of Fort Lauderdale, Fla.

Filed Feb. 10, 1970, Ser. No. 10,224

Int. Cl. B29c 17/12

U.S. Cl. 264—156

6 Claims



Method of and apparatus for making valve units, particularly for aerosol valves, wherein a valve unit is molded from plastic with a hollow stem, a radial flange or diaphragm projecting from the stem, and openings or recesses for openings in the stem at one side of the flange. The method preferably includes a step of piercing the stem at the openings or recesses for inspection and to penetrate any plastic flash or film which may cover or partially cover the openings. The apparatus includes mold parts particularly adapted to mold the stem, flange and openings on a reliable, high yield basis.

3,657,408

PROCESS FOR SHAPING ACRYLONITRILE POLYMERS

Suresh N. Chinal, Greenwich, Conn., and Edmund Briggmanis, Pensacola, Fla., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Apr. 24, 1970, Ser. No. 31,753

Int. Cl. D01f 7/00

U.S. Cl. 264—182

8 Claims

Shaped substantially non-porous polymers containing at least about 70 percent by weight acrylonitrile and having a novel crenulated surface having improved resistance to soiling are provided. Such products are prepared by dissolving the polymer in aqueous sodium thiocyanate, extruding or otherwise shaping the solution and thereafter coagulating the shaped product with an aqueous solution containing aluminum chloride, magnesium chloride or calcium chloride or by dissolving the polymer in an organic solvent therefor, shaping and thereafter coagulating the shaped product in an aqueous solution containing aluminum chloride or magnesium chloride.

3,657,409

PROCESS FOR THE PRODUCTION OF ACRYLIC FILAMENTS

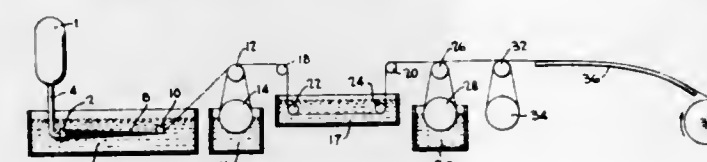
Michael J. Ram, West Orange, and John P. Riggs, Berkeley Heights, N.J., assignors to Celanese Corporation, New York, N.Y.

Filed Apr. 14, 1970, Ser. No. 28,545

Int. Cl. D01f 7/00

U.S. Cl. 264—182

11 Claims



A process is provided for the production of substantially round acrylic filaments which are particularly suited as precursors for the formation of carbon filaments. A fiber-forming acrylic polymer, such as an acrylonitrile homopolymer, while dissolved in a dimethylacetamide containing lithium chloride solvent is extruded into an essentially non-aqueous coagulation bath consisting essentially of ethylene glycol and dimethylacetamide present in concentrations found capable of producing essentially round homogeneous (i.e. substantially free of voids and inclusions) filaments. The resulting as-spun filaments are initially washed in relatively cool water, and are drawn to increase their orientation.

3,657,410

PROCESS FOR PRODUCING A HIGH WET MODULUS VISCOSE RAYON

Tadao Sasakura and Mikiharu Yajima, Fukushima, Japan, assignors to Nitto Boseki Co., Ltd., Fukushima-shi, Fukushima, Japan

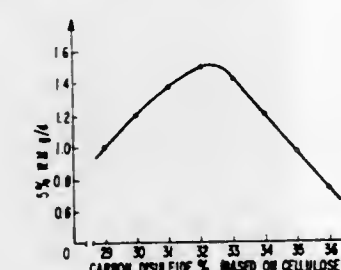
Filed May 23, 1969, Ser. No. 827,281

Claims priority, application Japan, May 23, 1968, 43/34,344

Int. Cl. D01f 3/12

U.S. Cl. 264—194

13 Claims



Producing high wet modulus viscose rayon by spinning a viscose which is xanthated by 29–35% by weight (cellu-

lose basis) of carbon disulfide. The spinning solution contains one or more fatty or cyclic monoamines having 1–6 carbon atoms, or alkylene oxide derivatives of such amines, in combination with one or more zinc compounds which are soluble in sodium hydroxide or water in an amount greater than 0.05% by weight. Each of the above groups of materials must be added in an amount greater than 0.1% by weight (cellulose basis). Spinning occurs into a sulfuric acid-sulfate type spinning solution containing more than 1% by weight zinc sulfate.

In a preferred embodiment, polyethylene glycol is also added.

3,657,411

TWO-STAGE DRAWING PROCESS FOR POLY-BENZIMIDAZOLE FIBER

Thomas C. Bohrer, Charlotte, N.C., and David H. T. Chen, Wilmington, Del., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 770,083, Oct. 23, 1968. This application Sept. 15, 1970, Ser. No. 72,535

Int. Cl. D02j 1/22

U.S. Cl. 264—290 R

11 Claims

Polybenzimidazole fiber is drawn in two-stages wherein the second draw is at a lower temperature than the first. After double drawing the tenacity and initial modulus of the fiber are higher than after the first stage draw. The first stage draw may be effected at a temperature in the range 300–650° C. with a ratio of 1.5–3.5× while the second stage draw may be conducted at a lower temperature in the range 200–500° C. with a ratio of 1.05–1.5×. Various means of heating are disclosed, including radiation and contact with hot metal surfaces. Exposure time is disclosed to be a function of the mode of heating and the temperature used.

3,657,412

WOOD IMPREGATION COMPOSITIONS WITH PHOSPHORIC ACID ESTER SOLVENT

Wolfgang Reuther, Heidelberg, Harro Petersen, Frankenthal, Paul Raff, Ludwigshafen, and Ernst-Heinrich Pommer, Limburgerhof, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Jan. 26, 1970, Ser. No. 5,946

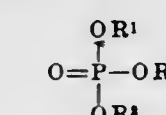
Claims priority, application Germany, Jan. 28, 1969, P 19 04 072.3

Int. Cl. B27k 3/38

U.S. Cl. 424—15.7

8 Claims

An impregnant for wood comprising a salt of N-nitrosocyclohexylhydroxylamine dissolved in a solvent of a phosphoric acid ester of the formula:



wherein the radicals R¹, R² and R³ which may be identical or different, are alkyl, cycloalkyl, alkoxyalkyl or aryl radicals, or R¹ and R² together denote an alkylene radical.

3,657,413

ANTISEPTIC COMPOSITION CONTAINING PEROXIDE, GLYCEROL, AND CARBOXYPOLYMETHYLENE POLYMER

Murray W. Rosenthal, East Brunswick, N.J., assignor to Block Drug Company, Inc., Jersey City, N.J.

No Drawing. Filed Aug. 28, 1969, Ser. No. 853,953

Int. Cl. A61k 27/00

U.S. Cl. 424—81

5 Claims

An antiseptic composition containing a peroxide, glycerol, and a carboxypolyethylene polymer. The carboxy-

polymethylene polymer thickens and imparts sustained release properties to the composition, which is useful for antiseptic treatment of oral soft tissues, wounds, and the like.

3,657,414

FORMULATION OF A BOLL WEEVIL FEEDING STIMULANT MIXTURE

Paul A. Hedlin and Lavenia R. Miles, Starkville, James P. Minyard, State College, and Alonzo C. Thompson, Starkville, Miss., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Feb. 10, 1969, Ser. No. 798,107

Int. Cl. A01n 17/14

U.S. Cl. 424—84

11 Claims

Several formulations have been prepared from a group of 52 organic chemical stimulants of certain insects. The formulations can include select biological agents, such as insecticides, in unique formulations which serve as "poison bait" to insects such as the boll weevil. These can generally be dispensed by ordinary means, such as sprays or pellets, which would kill the offending insect without damaging the plants thus treated. A ratio of inactive vessel to active ingredient of 200 to 1, respectively, has been found suitable for most applications.

3,657,415

CANINE HOOKWORM VACCINES

Francis W. Jennings, William Mulligan, George M. Urquart, William I. Mackay McIntyre, and William F. H. Jarrett, Glasgow, Scotland, assignors to The University Court of the University of Glasgow, Gilmorehill, Glasgow, Scotland

No Drawing. Continuation-in-part of application Ser. No. 675,252, Oct. 13, 1967, which is a continuation of application Ser. No. 402,925, Oct. 9, 1964. This application Aug. 1, 1969, Ser. No. 846,976

Claims priority, application Great Britain, Oct. 10, 1963, 40,085/63

Int. Cl. C12k 5/00, 9/00

U.S. Cl. 424—88

11 Claims

The invention relates to a veterinary vaccine for parenteral administration to animals of the family Canidae. The vaccine comprises a physiologically acceptable aqueous vehicle containing attenuated premigratory live hookworm larvae.

3,657,416

THROMBIN-LIKE DEFIBRINATING ENZYME FROM THE VENOM ANCISTRODON RHODOSTOMA

Hugh Alistair Reid, Liverpool, and Michael Peter Esmouf, Oxford, England, and Kok Ewe Chan, Kuala Lumpur, Malaya, assignors to National Research Development Corporation, London, England

No Drawing. Continuation-in-part of applications Ser. No. 350,644, Mar. 10, 1964, and Ser. No. 433,215, Feb. 16, 1965. This application July 25, 1967, Ser. No. 655,781

Claims priority, application Great Britain, Feb. 21, 1964, 7,264/64

Int. Cl. A61k 17/08, 19/00; C07g 7/026

U.S. Cl. 424—94

5 Claims

Ancistrodon rhodostoma venom may be purified by removal of proteolytic enzymes which cause tissue and vascular necrosis to produce a purified fraction having thrombin-like defibrinating activity associated with an enzyme which may be isolated in highly pure form. The preparation of pharmaceutically acceptable venom fractions by chromatography on weakly basic anion exchange materials and their use in the treatment of mammalian blood is described. The purified enzyme is characterized by physical, chemical, and biological properties.

THYMUS EXTRACT HAVING A THERAPEUTIC ACTION

Brunetto Brunetti and Emilio Pini, Milan, Italy, assignors to Laboratori farmaco-biologici ELLEM S.p.A., Milan, Italy

No Drawing. Filed May 26, 1969, Ser. No. 827,928

Int. Cl. A61k 17/00

U.S. Cl. 424—95

1 Claim

Calf thymus extract having an anti-leukopenic action obtained by partially lysing and deproteinizing fragments of the thymus of a recently slaughtered calf, filtered and diluted in a physiological salt solution.

3,657,418

ANTIBIOTIC HISTIDOMYCIN

Thomas C. Demny, Roselle Park, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation of application Ser. No. 589,258, Oct. 25, 1966. This application Aug. 27, 1968, Ser. No. 767,021

Int. Cl. A61k 21/00

U.S. Cl. 424—118

3 Claims

Histidomycin, an antibiotic containing two active components, histidomycin A and histidomycin B, is produced by growing *Nocardia histidans*. The new antibiotics are antimicrobial agents active against gram-positive and gram-negative bacteria.

3,657,419

ANTIAMOEBIN, AN ANTHELMINTIC AND ANTI-PROTOZOAL ANTIBIOTIC, AND A METHOD FOR PRODUCING THE SAME

Mandayam Jeersannidhi Thirumalachar, Hindustan Antibiotics Ltd., Pimpri, Poona 18, India

Continuation-in-part of application Ser. No. 573,705, Aug. 19, 1966, which is a continuation-in-part of application Ser. No. 491,159, Sept. 29, 1965. This application Mar. 5, 1968, Ser. No. 710,637

Int. Cl. A61k 21/00

U.S. Cl. 424—119

8 Claims

An anthelmintic and antiprotozoal antibiotic designated "Antiamoebin" is disclosed which is produced by cultivating at least one micro-organism taken from the group consisting of *Emericellopsis synnemeticola* (ATCC 16540), *E. poonensis* (ATCC 16411), and *Cephalosporium pimprina* (ATCC 16541) in a broth culture medium containing carbohydrates, nitrogen and inorganic salts.

3,657,420

ANTIBIOTIC PREPARED BY CULTIVATION OF STREPTOMYCES ROSEOPULLATUS AND DESIGNATED 17967 RP

Denise Mancy, Charenton, Val-de-Marne, and Leon Ninet and Jean Preud'homme, Paris, France, assignors to Rhone-Poulenc S.A., Paris, France

Filed May 12, 1969, Ser. No. 823,557

Claims priority, application France, May 13, 1968, 151,589

Int. Cl. A61k 21/00

U.S. Cl. 424—121

10 Claims

The antibiotic designated 17,967 R.P. is prepared by aerobically cultivating *Streptomyces roseopullatus* DS 20,073 (NRRL 3430), which is a new species of *Streptomyces*, using an aqueous nutrient medium containing assimilable sources of carbon, nitrogen and inorganic substances. The antibiotic has an antimitotic activity in addition to antibacterial properties.

3,657,421

ANTIBIOTIC X-5108 FOR STIMULATING GROWTH

Julius Berger, Passaic, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Aug. 28, 1970, Ser. No. 67,724

Int. Cl. A61k 21/00

U.S. Cl. 424—122

5 Claims

A new antibiotic, designated as antibiotic X-5108, is produced by a new species of *Streptomyces*. The new

antibiotic is active against gram-positive and gram-negative bacteria and produces growth stimulation and increased feed efficiency in poultry.

3,657,422

ANTIBIOTIC AABOMYCIN-A AND PROCESS FOR PREPARING THE SAME

Tomomasa Misato, Tokyo, Keng Tang Huang, Saitama-ken, Shiroh Shirato, Tokyo, Akio Seino, Kanagawa-ken, Yuko Nakamura, Tokyo, and Shojiro Aizawa and Ryusuke Taguchi, Saitama-ken, Japan, assignors to Kaken Kagaku Kabushiki Kaisha, Tokyo, and Rikagaku Kenkyusho, Kitaadachi-gun, Saitama-ken, Japan

Filed Dec. 5, 1969, Ser. No. 882,504

Claims priority, application Japan, Dec. 9, 1968,

43/89,533

Int. Cl. A61k 21/00

U.S. Cl. 424—122

3 Claims

A new antibiotic Aabomycin-A having a strong antifungal and antiviral potency is recovered from a culture of Aabomycin-A producing microorganism designated *Streptomyces* sp. 325-17 (ATCC 21449) as a pure crystal.

3,657,423

CHICKEN FEED COMPOSITION CONTAINING FLY ASH FOR WEIGHT GAIN

Harold Yacowitz, Piscataway, N.J., assignor to The Amburgo Company, Incorporated, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 706,686, Feb. 19, 1968. This application Nov. 18, 1970, Ser. No. 90,779

Int. Cl. A61k 27/00

U.S. Cl. 424—127

5 Claims

An improved chicken feed composition may be made by substituting 1/2 to 5 weight percent of fly ash for an equal weight of corn meal in a conventional corn meal type feed. The improved feed may be relatively easily pelleted and requires a lower ratio of pounds of feed to achieve a given degree of animal weight gain. The feed may also contain a small amount of binder for the fly ash to reduce dust.

3,657,424

FULL-FLAVORED CITRUS JUICE ENERGY SUPPLEMENT

Cedric Donald Aktins and John Allen Attaway, Winter Haven, Fla., assignors to State of Florida, Department of Citrus

No Drawing. Continuation-in-part of application Ser. No. 815,506, Apr. 11, 1969. This application Apr. 1, 1970, Ser. No. 24,820

Int. Cl. A61k 27/00

U.S. Cl. 424—153

10 Claims

A fortified citrus juice or other acid fruit juice is provided having increased amounts of sodium, calcium and chloride ions, beyond what is naturally present in the juice, in order to supplement the requirements of individuals having diminished amounts of these substance present in their body fluids.

3,657,425

BEEF INSULIN PREPARATIONS

George Alexander Stewart, London, England, assignor to Burroughs Wellcome Co.

Continuation-in-part of applications Ser. No. 458,769, May 25, 1965, and Ser. No. 668,415, Sept. 18, 1967. This application Mar. 12, 1969, Ser. No. 806,681

Int. Cl. A61k 17/02

U.S. Cl. 424—178

3 Claims

A stable and pharmaceutically acceptable solution of insulin, comprising beef insulin which has a molecular weight of 5734, substantially the following elementary analysis: carbon 53.21%, hydrogen 6.63%, nitrogen

15.88%, sulphur 3.36%, and oxygen 20.92% (by difference), and characteristically alanine, serine, and valine in the 8th, 9th and 10th position of the A chain and alanine in the 30th position of the B chain, and has

- (1) a protaminase content causing less than about 15% w./w. loss at 37° C. in 30 days when the insulin is converted into a protamine-containing isophane insulin suspension,
- (2) an optical density (absorbance), corrected to a manifold diluted sample, of less than about 0.5 as a 1% acid solution in a 4 cm. cell at a wavelength of 396 mμ,
- (3) an optical density (absorbance) of less than about 0.03 at a wavelength of 400 mμ when measured as a 40 international units/ml. solution in a 1 cm. cell at a pH of 7.4, after standing at 5° C. for eight days, with an instrument adapted to exclude scattered light, and,
- (4) an infra-red spectrum such as shown in the drawing; as an aqueous solution, adjusted to a pH between pH 7 and 8.

3,657,426

NOVEL METHOD OF CONTROLLING NEMATODES

Paul Herman Schroeder, Medina, N.Y., assignor to FMC Corporation, New York, N.Y.

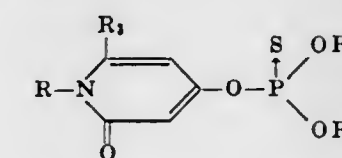
No Drawing. Continuation-in-part of application Ser. No. 605,993, Dec. 30, 1966. This application Nov. 26, 1969, Ser. No. 880,381

Int. Cl. A01n 9/22

U.S. Cl. 424—200

12 Claims

Nematodes and other parasitic worm life in the soil are controlled by application of pyridonyl phosphorothionates of the general formula



wherein R and R₃ are low molecular weight hydrocarbon radicals, and R₁ and R₂ are low molecular weight alkyl radicals. The preparation and physical properties of representative compounds of this class, and their application for the control of nematodes, are illustrated.

3,657,427

NEMATOCIDAL USAGE OF O-ETHYL S-(2-CHLOROALLYLTHIOMETHYL) METHYLPHOSPHONODITHIOATE

John P. Chupp, Kirkwood, and Robert J. Balske, Creve Coeur, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,085

Int. Cl. A01n 9/36

U.S. Cl. 424—216

3 Claims

The life cycle of nematode parasites is terminated by applying a nematocidally effective amount of O-ethyl S-(2-chloroallylthiomethyl)methylphosphonodithioate to nematode infested soil.

3,657,428

SULFAGUANIDINE USED AGAINST MAREK'S DISEASE

Tsung-Ying Shen, Westfield, and Theodore A. Maag, New Shrewsbury, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 30, 1970, Ser. No. 51,340
Claims priority, application Great Britain, July 17, 1969, 36,089/69

Int. Cl. A61k 27/00

U.S. Cl. 424—228

6 Claims

The use of sulfaguanidine and soluble salts thereof in reducing mortality and decreasing lesion incidence of

poultry exposed to Marek's disease and to compositions comprising the sulfaguanidine as the active ingredient are provided.

Also encompassed is the treatment of inflammation with said derivatives.

3,657,429

N-SUBSTITUTED N-ARYLSULFONYL UREA FOR PRODUCING A HYPOGLYCAEMIC EFFECT
Henri Dietrich, Ariesheim, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y.
No Drawing. Original application July 6, 1967, Ser. No. 651,363, now Patent No. 3,535,313, dated Oct. 20, 1970. Divided and this application Feb. 2, 1970, Ser. No. 12,498

Claims priority, application Switzerland, July 12, 1966, 10,126/66
Int. Cl. A61k 27/00

U.S. Cl. 424-229 2 Claims
N-(p-aminophenylsulfonyl)-2-aza-bicyclo[2,2,2]octane-2-carboxamide which has a useful hypoglycaemic action and an intermediate for its production; therapeutical compositions containing this amide and processes of producing a hypoglycaemic effect in a mammal.

3,657,430

COMPOSITION AND METHODS FOR TREATING INFLAMMATION

Tsung-Ying Shen, Gordon L. Walford, and Bruce E. Witzel, Westfield, and Robert L. Bugianesi, Colonia, N.J., assignors to Merck & Co., Inc., Rahway, N.J.
No Drawing. Filed June 25, 1969, Ser. No. 836,604

Int. Cl. A61k 27/00

U.S. Cl. 424-230 8 Claims
New substituted salicylic acids and nontoxic pharmaceutically acceptable salts, esters, and amides derived therefrom. The substituted salicylic acids described herein are useful as anti-inflammatory compounds. Also included herein are methods of preparing said salicylic acid compounds, pharmaceutical compositions having said salicylic acid compounds as an active ingredient and methods of treating inflammation by administering these particular compositions to patients.

3,657,431

TREATING OF INFLAMMATION WITH SUBSTITUTED PHENYLTHIOSALICYLIC ACIDS

Tsung-Ying Shen, Gordon L. Walford, and Bruce E. Witzel, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 25, 1969, Ser. No. 836,611
Int. Cl. A61k 27/00

U.S. Cl. 424-230 5 Claims
New substituted phenylthiosalicylic acids and nontoxic pharmaceutically acceptable salts, esters, anhydrides, and amides derived therefrom. The substituted phenylthiosalicylic acids described herein have anti-inflammatory, anti-pyretic, and analgesic activity. Also included are methods for preparing said phenylthiosalicylic acid compounds.

3,657,432

ANTI-INFLAMMATORY SALICYLIC ACID DERIVATIVES

Tsung-Ying Shen, Gordon L. Walford, and Bruce E. Witzel, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 836,622, June 25, 1969. This application Apr. 20, 1970, Ser. No. 30,323

Int. Cl. A61k 27/00
U.S. Cl. 424-232 4 Claims
Salicylic acid derivatives and their non-toxic pharmaceutically acceptable salts, esters and amides are claimed.

3,657,433

GASTROPODICAL COMPOSITIONS

Walter A. Darlington, Brentwood, and George F. Ludvik, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo.

No Drawing. Filed Sept. 18, 1969, Ser. No. 859,179
Int. Cl. A01n 9/20, 9/30

U.S. Cl. 424-235 3 Claims
Mixtures of sodium pentachlorophenate and a 3-substituted-2',5-dichloro-4'-nitrosalicylanilide for the destruction of adult gastropods and their eggs.

3,657,434

21-(TETRAHALOCYCLOBUTYL CARBOXYLIC ACID) STEROID ESTERS

Kurt Radschelt, Kelkheim, Taunus, Werner Fritsch, Neuenhain, Taunus, and Werner Haede, Ulrich Stache, and Hans-Georg Schröder, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Sept. 17, 1969, Ser. No. 858,888
Claims priority, application Germany, Sept. 20, 1968, P 17 93 461.1

Int. Cl. C07c 169/36, 175/00

U.S. Cl. 424-241 7 Claims
21 - (cyclobutyl - carboxylic acid) - esters of 3 - oxo- Δ^4 - steroids useful as anti-inflammatory agents, and their manufacture by reaction of cyclobutane carboxylic acid chloride with corresponding 21-hydroxy-steroids.

3,657,435

17 β -HYDROXY - 17 - ETHYNYL-4-ANDROSTENO-[3,2-c] - 2'-(p-FLUOROPHENYL)PYRAZOLE AND COMPOSITIONS CONTAINING SAME

Frederik W. Stonner, Chatham, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 659,292, Aug. 9, 1967. This application Dec. 4, 1969, Ser. No. 882,307

Int. Cl. C07c 173/00

U.S. Cl. 424-241 3 Claims
17 β -hydroxy - 17 - ethynyl-4-androsteno[3,2-c]-2'-(p-fluorophenyl)pyrazole, prepared from 2-hydroxymethylene-17 β -hydroxy - 17 - ethynyl - 4 - androsten-3-one and p-fluorophenylhydrazine, is a useful anti-inflammatory agent, especially for topical application in an ointment or cream base.

3,657,436

METHOD OF TREATING COL-SK VIRUS INFECTIONS

Leo Berger, Montclair, Emanuel Grunberg, North Caldwell, Arthur Stempel, Teaneck, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 755,771, Aug. 28, 1968, which is a continuation-in-part of application Ser. No. 559,771, June 21, 1966. This application Feb. 9, 1970, Ser. No. 10,037

Int. Cl. A61k 27/00

U.S. Cl. 424-244 8 Claims
Anthranilic acid derivatives which are useful in combating viral infections caused by Col-SK and compositions containing these derivatives.

3,657,437

AGENTS INHIBITING FUNGUS GROWTH AND METHOD OF CONTROLLING FUNGI THEREWITH

Jorg Bader, Ariesheim, and Karl Gatzl, Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Division of application Ser. No. 706,614, Feb. 19, 1968, now Patent No. 3,527,867, which is a continuation-in-part of application Ser. No. 621,800, Mar. 9, 1967, which in turn is a continuation-in-part of application Ser. No. 555,994, June 8, 1966. This application Apr. 13, 1970, Ser. No. 34,919

Claims priority, application Switzerland, June 11, 1965, 8,200/65; Feb. 23, 1967, 2,700/67
Int. Cl. A01n 9/12, 9/22; C07d 71/00

U.S. Cl. 424-248 4 Claims

Agents for inhibiting the growth of fungi, which contain as active component 5-amino-1,2-dithiol-3-ones substituted at the amino group and also in 4-position, and method of controlling phytopathogenic and other noxious fungi with such agents, which are of surprisingly low phytotoxicity.

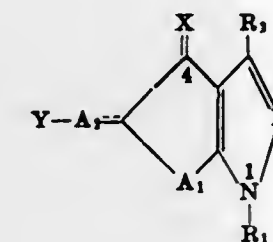
3,657,438

COMPOSITIONS AND METHODS FOR TREATING INFLAMMATION

Herbert Morton Blatter, Springfield, and Robert Armistead Lucas, Mendham, N.J., assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed Sept. 27, 1968, Ser. No. 763,410
Int. Cl. A61k 27/00

U.S. Cl. 424-248 5 Claims
5-aminoaliphatic - cycloalkano[c]pyrazoles, e.g. those of the formula



R_{1,2}=H, alkyl, aralkyl or aryl

A₁=alkylene

A₂=alkylidene or alkylidyne

X=H₂HOH or O

Y=an amino group

2-R₁-isomers, acyl derivatives, quaternaries and salts thereof exhibit antiinflammatory and antiarrhythmic effects.

3,657,439

5 - ARYLOXYATRICYCLO[3.2.2.0^{2,4}]NONANE - 1-AMINES IN ANTIDEPRESSANT COMPOSITIONS AND METHODS

Paul E. Aldrich, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Original application Aug. 19, 1968, Ser. No. 753,727, now Patent No. 3,428,643. Divided and this application Aug. 19, 1970, Ser. No. 65,290

Int. Cl. A61k 27/00

U.S. Cl. 424-263 8 Claims
5-phenyl, 5-substituted phenyl, 5-pyridyl, and 5-substituted pyridyl oxatricyclo[3.2.2.0^{2,4}]nonan-1-amines, and N-carboalkoxy-5-phenyl, 5-substituted phenyl, 5-pyridyl, and 5-substituted pyridyl oxatricyclo[3.2.2.0^{2,4}]nonan-1-amines as antidepressants.

3,657,440

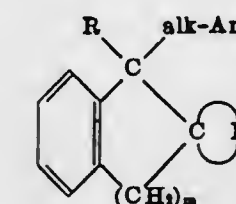
AMINOALKYL-SPIROCYCLOALKANES AS ANALGETIC AGENTS

Lincoln Harvey Werner, Summit, N.J., assignor to Ciba-Geigy Corporation, Summit, N.J.

No Drawing. Filed Apr. 23, 1968, Ser. No. 723,585
Int. Cl. A61k 27/00

U.S. Cl. 424-267 2 Claims

1-aminoalkyl-benzocycloalkane - 2 - spirocycloaliphatic compounds, e.g. those of the formula



alk=lower alkylene

Am=an amino group

R=H or OH

B=lower alkylene or alkylene

m=1-3

acyl and 1-dehydro derivatives, salts and quaternaries thereof exhibit analgetic effects.

3,657,441

METHOD OF INHIBITING THE FORMATION OF PHENYLETHANOLAMINE N-METHYL TRANSFERASE WITH IMIDAZOLES

Norman P. Jensen, Watchung, and Tsung-Ying Shen and Thomas B. Windholz, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Continuation-in-part of application Ser. No. 8,011, Feb. 2, 1970. This application July 30, 1970, Ser. No. 59,763

Int. Cl. A61k 27/00

U.S. Cl. 424-273 1 Claim
New 4-phenylimidazoles and 2,4-bis-phenylimidazoles useful in the inhibition of phenylethanolamine-N-methyl transferase.

3,657,442

N-TRITYL-IMIDAZOLES FOR TREATING FUNGAL INFECTIONS

Karl H. Buchel, Leverkusen, and Erik Regel and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

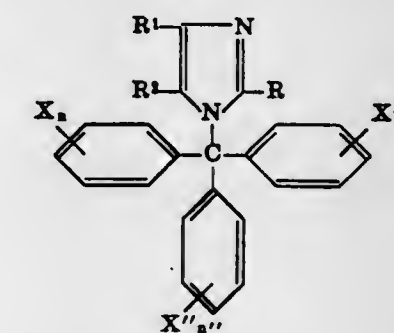
No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application May 11, 1970, Ser. No. 36,394

Claims priority, application Germany, Sept. 15, 1967, F 53,504

Int. Cl. A61k 27/00

U.S. Cl. 424-273 4 Claims

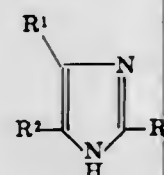
N-trityl-imidazoles and salts thereof of the formula:



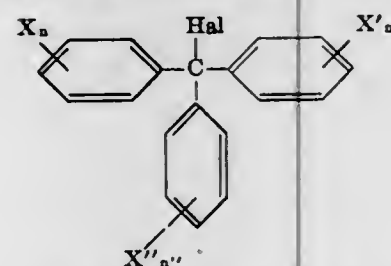
wherein

R, R¹ and R² are hydrogen, lower alkyl or phenyl, or R¹ and R² together form an annulated benzene ring, X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and n, n' and n'' are an integer from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,657,443

2-BENZIMIDAZOLECARBAMIC ACID, ALKYL ESTERS AS FOLIAR FUNGICIDES

Hein Louis Kloppe, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

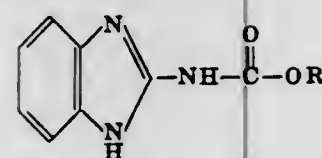
No Drawing. Continuation-in-part of application Ser. No. 727,036, May 6, 1968, which is a continuation-in-part of abandoned application Ser. No. 629,914, Apr. 11, 1967. This application Sept. 29, 1969, Ser. No. 862,081

Int. Cl. A01n 9/22

U.S. Cl. 424-273

3 Claims

Compounds of the formula:



where R is methyl or ethyl, particularly when in the form of particles below 5 microns in diameter, are useful as fungicides to control fungus diseases of living plants. When these compounds are formulated or mixed with suitable adjuvants, such as nonphytotoxic spray oils or humectants, improved fungicidal activity is obtained with continuing safety to the treated plants.

3,657,444

METHODS OF COMBATING NEMATODES IN THE SOIL

Martin Jacob Handele, Johannes Kuipers, and Kobus Wellinga, Weesp, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed Feb. 14, 1966, Ser. No. 527,096

Claims priority, application Netherlands, Feb. 18, 1965, 6502006

Int. Cl. A01n 9/22

U.S. Cl. 424-274

9 Claims

Compounds of the 4-halo-pyridine or the 4-halo-pyridine-N-oxide class and salts thereof as nematocides.

3,657,445

N-TRITYL-IMIDAZOLES FOR TREATING FUNGAL INFECTIONS

Karl H. Buchel, Leverkusen, Erik Regel, Wuppertal-Cronenberg, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application May 11, 1970, Ser. No. 36,395

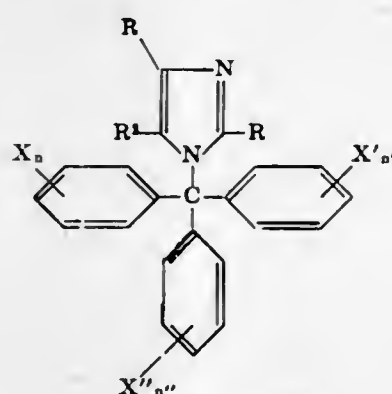
Claims priority, application Germany, May 15, 1967, F 53,504

Int. Cl. A61k 27/00

U.S. Cl. 424-273

4 Claims

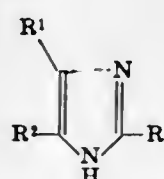
N-trityl-imidazoles and salts thereof of the formula:



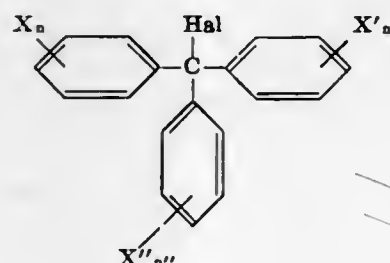
wherein

R, R¹ and R² are hydrogen, lower alkyl or phenyl, or R¹ and R² together form an annulated benzene ring, X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and n, n' and n'' are an integer from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,657,446

PROCESS FOR PREPARATION OF A PESTICIDE IN DRY FORM

Kenneth A. E. Blackmore, Bellingham, Wash., assignor to Georgia-Pacific Corporation, Portland, Oreg.

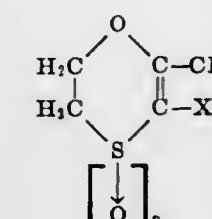
No Drawing. Filed Sept. 15, 1966, Ser. No. 579,487

Int. Cl. A01n 9/12, 9/20

U.S. Cl. 424-274

10 Claims

Preparation of a high-density, readily miscible dry pesticide by spray drying an emulsion obtained by intermixing a lignosulfonate aqueous solution with a solution of the pesticide in a water-immiscible solvent. The spray-dried product is ground and granulated by moistening the ground product with a lignosulfonate solvent in which the pesticide is insoluble and mixing the moistened product to agglomerate the product to form granules.



(also called 2,3-dihydro-5-carboxamido-6-methyl-1,4-oxathiins) of the formula

wherein X is a carboxamide (usually N-substituted) group and n is zero, 1 or 2. Examples of the chemicals are 5,6-dihydro - 2 - methyl-N-(2-biphenyl)-1,4-oxathiin-3-carboxamide, 5,6 - dihydro - 2 - methyl-N-(m-tolyl)-1,4-oxathiin-3-carboxamide-4,4-dioxide, and 5,6-dihydro-2-methyl-N-(2,6-dimethylphenyl)-1,4-oxathiin-3-carboxamide.

3,657,447

METHOD OF CONTROLLING BACTERIA AND FUNGI

Edward D. Well, Yonkers, Keith J. Smith, Lockport, and Emil J. Geering, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

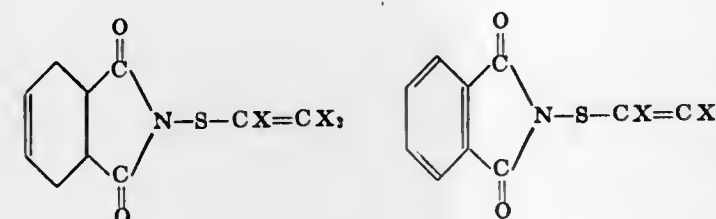
No Drawing. Application Jan. 29, 1968, Ser. No. 701,049, now Patent No. 3,489,766, dated Jan. 13, 1970, which is a continuation-in-part of application Ser. No. 605,535, Dec. 29, 1966, which in turn is a continuation-in-part of application Ser. No. 852,931, Nov. 16, 1957. Divided and this application Oct. 20, 1969, Ser. No. 871,236

Int. Cl. A01n 9/22

U.S. Cl. 424-274

6 Claims

The method of controlling microbes, comprising applying an effective amount of a compound selected from the group consisting of



wherein X is a halogen, to the locus to be treated.

3,657,448

METHOD OF CONTROLLING UNDESIRABLE FISH

Philip H. Derse, 3547 Topping Road, Madison, Wis. 53705

No Drawing. Filed Sept. 22, 1969, Ser. No. 860,021

Int. Cl. A01n 23/00

U.S. Cl. 424-277

5 Claims

A method for selectively controlling certain undesired fish species which comprises causing said undesired fish species to be contacted with a small but toxic amount of the compound 2,3-dicyano-1,4-dithia-anthraquinone or suitable salts thereof.

3,657,449

CONTROL OF VIRUS DISEASES OF PLANTS WITH CARBOXAMIDO OXATHIINS

Robert A. Davis, Cheshire, and Robert E. Grahame, Waterbury, Conn., and Marshall Kulka, Guelph, Wellington, Canada, assignors to Uniroyal, Inc., New York, N.Y., and Uniroyal Ltd., Montreal, Quebec, Canada

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,945

Int. Cl. A01n 9/12

U.S. Cl. 424-276

7 Claims

Plant diseases caused by virus, such as tobacco ringspot and southern bean mosaic, are controlled by application of 5,6 - dihydro - 2 - methyl-1,4-oxathiin-3-carboxamides

3,657,452

3,4 - DICARBETHOXY-β-PHENETHYLCARBAMIC ACID, ETHYL ESTER IN TREATING PARKINSONISM

Irwin L. Klundt, Brookfield, and Robert Lenga and Edward J. Warawa, Milwaukee, Wis., assignors to Aldrich Chemical Company, Milwaukee County, Wis.

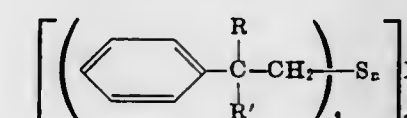
No Drawing. Filed Dec. 9, 1970, Ser. No. 96,617

Int. Cl. A61k 27/00

U.S. Cl. 424-300

2 Claims

Methods of treating the symptoms of Parkinsonism comprising administering a therapeutically effective



wherein R is a hydrocarbon group, R' is H or R, X is an electro-negative group and n is 1 or 2.

amount of 3,4-dicarbethoxy- β -phenethylcarbamic acid, ethyl ester to patients in need of such treatment.

3,657,453 INTRAVENOUSLY INJECTABLE HEMOSTATIC COMPOSITIONS OF WATER SOLUBLE SALTS OF ELLAGIC ACID

Francis A. Hochstein, New London, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Original application Jan. 16, 1967, Ser. No. 609,346, now Patent No. 3,576,007. Divided and this application June 1, 1970, Ser. No. 54,054

Int. Cl. A01n 9/28; A61k 27/00; C07d 7/24
U.S. Cl. 424—279 5 Claims

The soluble dicholine and bis-triethylamine salts of ellagic acid are prepared, aqueous solutions of which are useful as intravenously injectable hemostatic agents.

3,657,454 METHODS OF CONTROLLING SHORT-TAILED MICE

Christa Fest, Wuppertal-Elberfeld, and Gunther Hermann, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Oct. 29, 1969, Ser. No. 872,345
Claims priority, application Germany, Nov. 16, 1968, P 18 09 383.9
Int. Cl. A01n 9/12

U.S. Cl. 424—301 1 Claim
Methods of selectively combating and controlling short-tailed mice using certain (1-fluoroacetyl-amino-2,2,2-trichloro-eth-1-yl)-(alkoxythiocarbonyl, benzoyl and alkyl-phenyl)-thioethers, i.e. 1 - (alkoxythiocarbonylmercapto, benzoylmercapto and alkylphenylmercapto) - 1 - fluoroacetyl-amino - 2,2,2 - trichloro-ethanes, which are known, which possess selective rodenticidal properties, and which may be produced by conventional methods.

ELECTRICAL

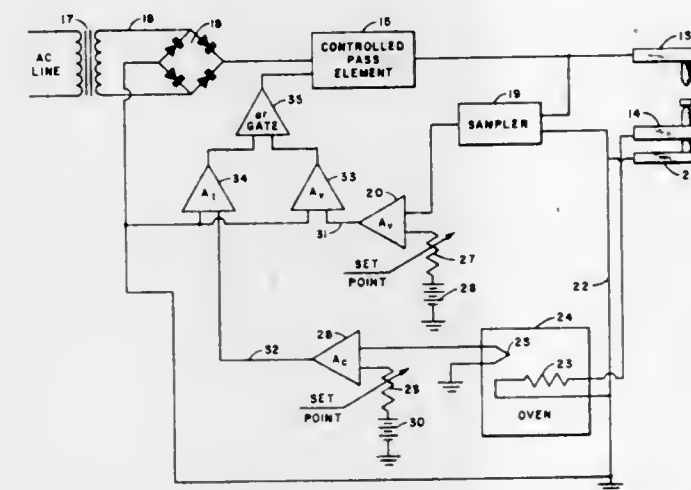
3,657,455 TEMPERATURE REGULATOR

Blount C. Trice, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

Filed Apr. 30, 1970, Ser. No. 33,464
Int. Cl. H05b 7/18

U.S. Cl. 13—12

1 Claim



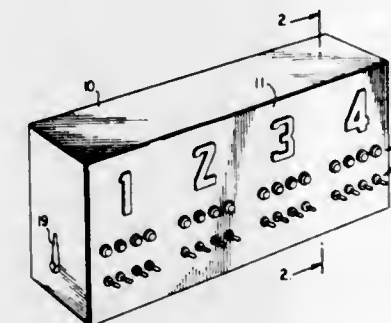
The temperature within an analytical electrode gap is controlled by regulating the gap power supply in response to measurement of changes in the voltage across the gap and changes in the resistivity of the electrode material.

3,657,456 COORDINATOR DEVICE RHYTHM

Edward J. Kozak, 109 East Kings Highway, Shreveport, La.
Filed Aug. 26, 1970, Ser. No. 40,631
Int. Cl. G09b 7/00

U.S. Cl. 35—8 R

5 Claims



A device for teaching coordination or rhythm which includes a plurality of figures which may be illuminated in varying cycles of equally spaced intervals, a plurality of illuminatable lamps associated with each of said figures, an equal number for each of said figures, and a multiplicity of switches for said lamps so that any or all of said lamps associated with said figures may be illuminated simultaneously or in a chosen pattern for a cycle of numbers.

3,657,457 APPARATUS FOR TESTING DRIVING SKILL

Donald B. Poynter, 7 Arcadia Place, Cincinnati, Ohio
Filed July 22, 1970, Ser. No. 57,122

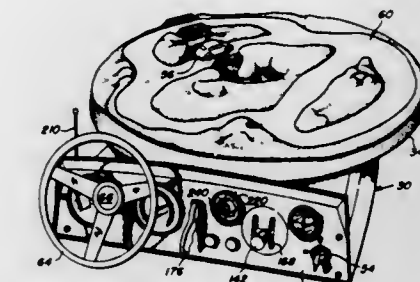
Claims priority, application Japan, Sept. 22, 1969, 44/75776
Int. Cl. G09b 9/04; A63h 33/26

U.S. Cl. 35—11

26 Claims

For testing driving skill, a console having the appearance of an automobile hood, includes steering apparatus whereby

a miniature vehicle may be guided along a surface of a rotary turntable, using magnetic force in guiding the vehicle.



Turntable speed and direction are controllable by instrument panel elements energized by dry cells within the console.

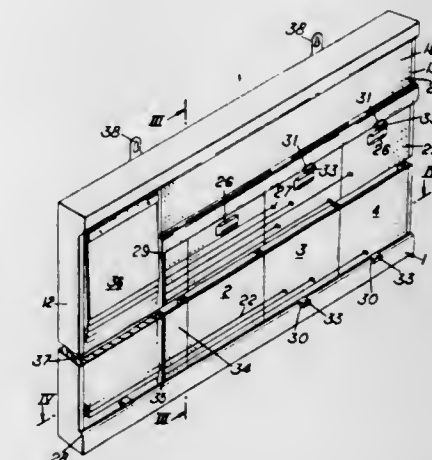
3,657,458 CHARTING EQUIPMENT

Joseph Kuna, Brighton, England, assignor to Movitex (Signs) Limited, Wembley, England
Filed Jan. 8, 1970, Ser. No. 1,428

Claims priority, application Great Britain, Dec. 18, 1969, 61,641/69
Int. Cl. G09b 19/18

U.S. Cl. 35—24 B

5 Claims



Charting equipment formed from a plurality of slidable panels vertically carried in a frame. Front and rear channels are provided on upper and lower rails in the frame, and the panels normally are positioned in side-by-side relation in the front channels. To move a panel horizontally it is lifted and pivoted from the front channel to be positioned in the back channel and slid behind an adjacent panel.

3,657,459 MUSICAL INSTRUMENT WITH VARIABLE AMPLITUDE

Robert L. Peterson, Woodland Hills, and Paul R. Wieman, Hawthorne, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

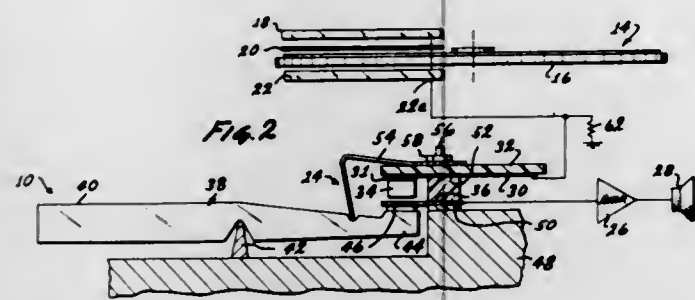
Filed Nov. 2, 1970, Ser. No. 86,143
Int. Cl. G10h 1/00

U.S. Cl. 84—1.01

1 Claim

An electronic organ with tone generators that are coupled to a loudspeaker by depressing key-operated switches, wherein each switch provides a resistance dependent upon the pressure applied to the key so that the musician can control the loudness, attack and decay of a musical note. Each switch includes a highly compressible resistance member whose resistance changes greatly with degree of compression,

a first conductor which supports an upper end of the resistance member, and a resilient second conductor normally spaced below the resistance member. Manual depression of a key deflects the lower switch conductor up against the re-



sistance member and compresses it in an amount dependent upon the pressure applied to the key. The fact that the resistance member initially has an extremely high resistance when the first contact touches it, prevents the production of a "popping" sound as the key is depressed.

3,657,460

ORGAN KEYBOARD SWITCHING SYSTEM

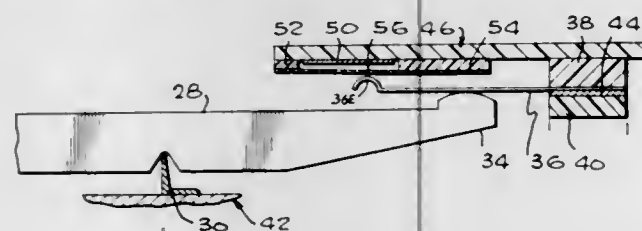
Stanley Cutler, Van Nuys, Calif., assignor to Mattel, Inc., Hawthorne, Calif.

Filed Jan. 22, 1971, Ser. No. 108,841

Int. Cl. G10h 1/00

U.S. Cl. 84-1.01

8 Claims



A switch assembly operated by the keys of an electronic organ to connect different tone generators to the loudspeaker, which is simple and which minimizes mechanical and electrical noises during closing of the switches. The assembly includes a row of resilient switch members connected to the loudspeaker and positioned to be individually deflected up against a contact assembly. The contact assembly includes a circuit board with numerous conductive pads arranged in a row above the row of switch members, a pair of insulating spacer strips extending along either side of the row of pads, and an intermediate strip of conductive plastic fastened to the spacer strips. When a key is depressed, a corresponding switch member is deflected upwardly to press a region of the plastic strip against a conductive pad.

3,657,461

SINGLE PICKUP FREQUENCY CONTROL FOR STRINGED INSTRUMENT

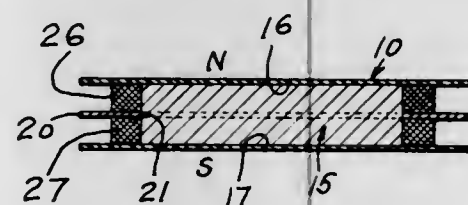
Quilla H. Freeman, 1050 Gardner Street, Hollywood, Calif.

Filed Dec. 21, 1970, Ser. No. 100,137

Int. Cl. G10h 3/00

U.S. Cl. 84-1.15

3 Claims



A single pickup frequency control is placed transversely below the strings of an instrument such as a banjo, guitar, mandolin or other vibrating metal instrument. The pickup

comprises a bar magnet, the poles of which are situated at the top and the bottom faces thereof. A divider surrounds the magnet transversely of and parallel with the two polar faces of the magnet. Wire coils surround the magnet on each side of the divider plate and the coils are so connected that the electrical path of one coil is clockwise while the electrical path of the other coil is counterclockwise. One end of the top and of the bottom coils leads to an amplifier connected to a loud speaker.

3,657,462

STRINGED MUSICAL INSTRUMENT ADAPTED FOR INTERCHANGEABLE BODIES

Greg D. Robinson, 3406 Darlene Circle, Huntsville, Ala.

Filed Nov. 9, 1970, Ser. No. 88,057

Int. Cl. G10d 1/00; G10h 3/00

U.S. Cl. 84-1.16

3 Claims



A stringed musical instrument such as a guitar wherein the neck assembly is extended to include the bridge and tailpiece, and the body of the instrument and neck assembly are detachable. The end region of the neck assembly supporting tailpiece is made in the form of a U and a cutout region at the rear of the body is adapted to receive the cutout region to form a tongue and groove structural joint between the neck assembly and body of the instrument.

3,657,463

KEYER CONTROL CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENTS

Ryu Hiyama, Hamamatsu, Japan, assignor to Nippon Gakki Sudo Kabushiki Kaisha, Hamamatsu-shi, Japan

Filed Nov. 17, 1970, Ser. No. 90,294

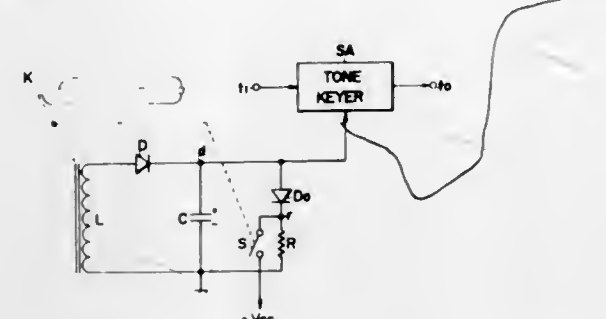
Claims priority, application Japan, Nov. 18, 1969, 44/92253;

44/92254; 44/109351

Int. Cl. G01h 1/02

U.S. Cl. 84-1.26

7 Claims



In an electronic musical instrument including playing keys and respectively associated tone keyers, each tone keyer is keyed by a control signal producing circuitry. The control signal producing circuitry comprises a coil inducing an electromotive force responsive to the depressing speed of the associated key having a magnet, a capacitor charged with the induced electromotive force through a first diode, a discharging circuit consisting of a second diode and a resistor, the second diode being connected in the forward direction for a discharging current of the capacitor, and a normally open switch associated with the key and connected between the juncture of the second diode and the resistor and a voltage source for reversely biasing the second diode, wherein the control signal for the tone keyer is derived from the capacitor. This construction prevents the instrument from producing cipher which would otherwise occur due to the failure of closure of the switch which is associated with the key.

3,657,464

MUSICAL WIND INSTRUMENT

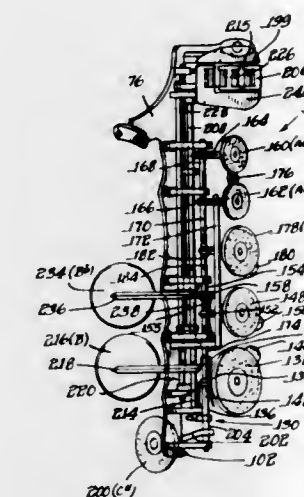
Vito Pascucci, Kenosha, Wis., assignor to G. Leblanc Corporation, Kenosha, Wis.

Filed Aug. 21, 1970, Ser. No. 65,920

Int. Cl. G10d 7/00, 7/08

U.S. Cl. 84-380

5 Claims



A musical wind instrument of the open tube type such as a saxophone is disclosed herein and includes a hollow body portion having an upstream upper part and a downstream relatively lower part, each part being provided with a plurality of upper and lower tone holes respectively. An upper tone changing sub-assembly, disengageably mounted to the upper part of said body portion includes a plurality of keys and key-cups which are conventionally operated by the fingers of the left hand for opening and closing individual ones or various combinations of the upper tone holes to vary thereby the tonal qualities of the instrument. In like manner, a lower tone changing sub-assembly is disengageably mounted to the lower part of said body portion and includes similar components which are conventionally operated by the fingers of the right hand for opening and closing the lower tone holes.

3,657,465

TAMBOURINE

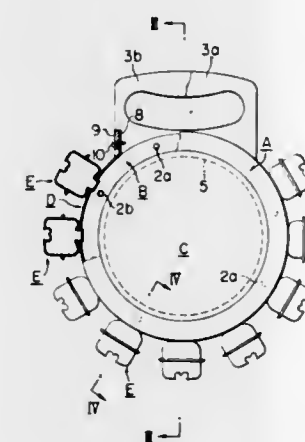
Yoshiyuki Koishikawa, 2365 Kowarado-cho, Yokkaichi, Japan

Filed Jan. 25, 1971, Ser. No. 109,503

Int. Cl. G10d 13/02

U.S. Cl. 84-418

3 Claims



A tambourine comprising a pair of front and back frames made of a synthetic resin and adapted to be mated with each other in interlocking relation, said front and back frames consisting of annular pieces provided with interlocking projections and recesses on the mating surfaces and with annular grooved steps on the outer peripheral surfaces thereof and having halves of a handle integrally formed at portions of the

outer peripheral edges thereof, a sheet adapted to be clamped between said annular pieces at its peripheral edge portion and having through-holes perforated therein for engagement with the projections on one of said annular pieces, a strip or ribbon adapted to be fitted on said annular grooved steps formed on the outer peripheral surfaces of the annular pieces of said pair of frames with the opposite ends thereof secured to said handle and a plurality of bells or other sound-generating elements secured to said strip or ribbon at a predetermined interval.

3,657,466

SUPERCONDUCTORS

Alan Woolcock, and Anthony Clifford Barber, both of Lichfield, England, assignors to Imperial Metal Industries Kynock Limited, Witten, Birmingham, England

Filed June 11, 1970, Ser. No. 45,501

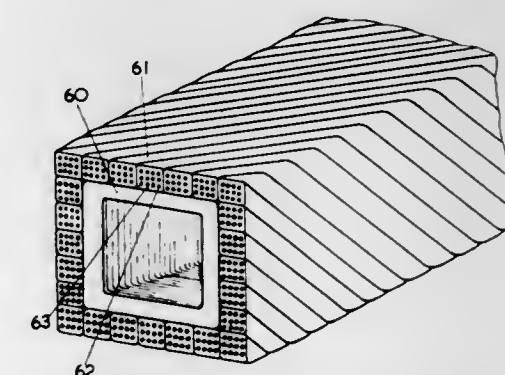
Claims priority, application Great Britain, June 19, 1969,

31,083/69

Int. Cl. H01b 7/34

U.S. Cl. 174-15 C

10 Claims



A superconductor assembly comprising at least one superconductor composite of at least one element of a superconductor material which is superconductive below a critical temperature embedded in a matrix of at least one material which is not superconductive at said critical temperature, assembled to at least one component consisting of one or more materials which are not superconductive at said critical temperature to provide a tubular assembly having at least one passage for fluid coolant.

3,657,467

COOLABLE ELECTRIC CABLE

Gunther Matthaus, and Fritz Schmidt, both of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed July 8, 1970, Ser. No. 53,229

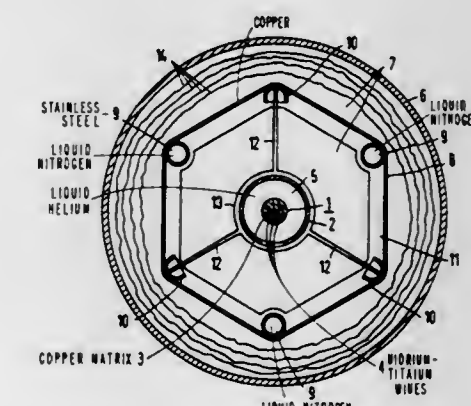
Claims priority, application Germany, July 25, 1969, P 19 37

796.9

Int. Cl. H01b 7/34

U.S. Cl. 174-15 C

10 Claims



A coolable cable such as a cooled superconductive cable or the like has one or more electric conductors and includes

a conduit concentric therewith for directing a coolant therealong. A plurality of tubes are provided in parallel spaced relation to the electric conductor and a metal band is wound around the tubes and forms a radiation shield. Supporting members are disposed intermediate the conductor and the tubes at respective positions along the longitudinal cable axis for supporting the tubes and the metal band.

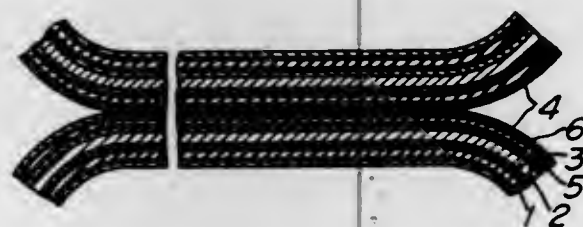
3,657,468

ELECTRICAL APPARATUS CONTAINING A GRAFT POLYETHYLENE TEREPHTHALATE-POLYSTYRENE INSULATING FILM TO BE USED TOGETHER WITH AN INSULATING OIL

Hideo Tsukioka, and Nobuhiko Shito, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of application Ser. No. 639,882, May 19, 1967, now abandoned. This application Aug. 20, 1970, Ser. No. 65,362

Claims priority, application Japan, June 8, 1964, 41/36506
Int. Cl. C08g 39/10; H01b 3/42, 7/00, 17/34
U.S. Cl. 174—25 3 Claims



An electrical apparatus comprising a conductor, an insulating layer covering said conductor which consists of an insulating film, and an insulating oil impregnated in said layer, characterized in that said insulating film consists of polyethylene terephthalate and styrene polymer grafted to said polyethylene terephthalate, an amount of styrene polymer being 10 to 200 percent by weight of said polyethylene terephthalate.

3,657,469

ELECTRIC CABLE TERMINATION MODULES HAVING PEROXIDE-CURED ELASTOMERIC INSULATING BODIES AND A LOW-ELECTRICAL-RESISTANCE CONDUCTIVE COATING ON THE EXTERIOR THEREOF

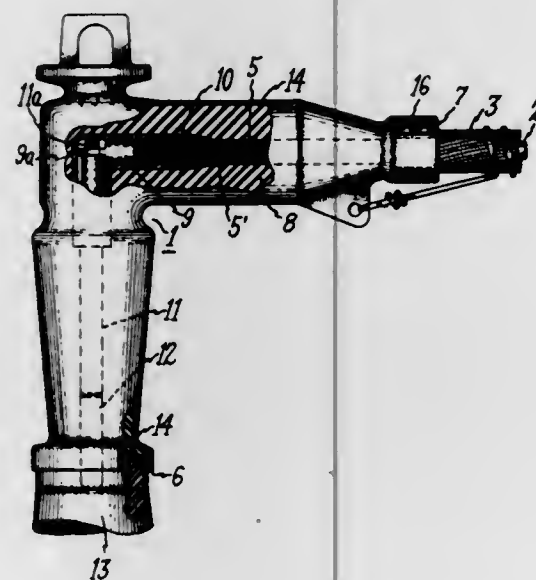
Raymond B. Ryder, Rochester, N.H., assignor to General Electric Company

Filed May 11, 1970, Ser. No. 36,051

Int. Cl. H02g 15/02

U.S. Cl. 174—73 SC

14 Claims



An electric cable termination module is formed of a peroxide-cured ethylene propylene terpolymer that is treated to

form carbon-to-carbon cross linked bonds throughout the molecular structure of the elastomer. The peroxide-cured insulating module is characterized by being highly resistant to heat aging so that it retains the resilience necessary to form a water-tight seal with a cooperating cable. Also, this unique insulating material possesses excellent mechanical creep resistance properties that prevent the module from being distorted by mechanical loading over an extended period of time. The termination module is further characterized by the incorporation of an extraordinarily low-resistance, sulfur-cured elastomeric coating on predetermined portions of its interior and exterior surfaces to afford improved electrical shielding characteristics in combination with the desirable properties of the insulating material just identified. The electrical resistance of this coating remains stable when subjected to temperature variations of large magnitude.

3,657,470

CONTROL SYSTEM FOR LINE CONCENTRATOR OF COMMUNICATION NETWORK

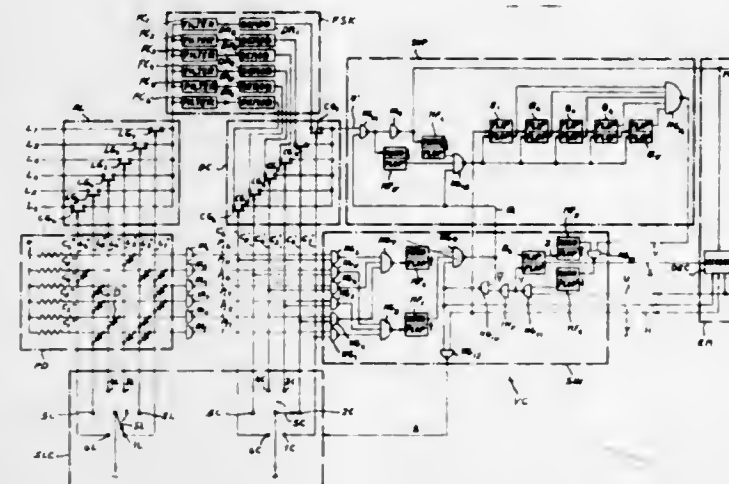
Luigi Sarati, and Gianfranco Battiston, both of Milan, Italy, assignors to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

Filed Oct. 7, 1970, Ser. No. 78,693

Claims priority, application Italy, Oct. 9, 1969, 23122 A/69
Int. Cl. H04I 15/24

U.S. Cl. 178—3

12 Claims



A line concentrator with m incoming telegraph lines, each adapted to carry messages on any of n different frequency channels, includes a selector which cyclically scans all the $m \cdot n$ available signal paths by successively exploring all the channels of the first line, all the channels of the second line and so on, the switchover from one path to the next proceeding in response to stepping pulses from a timing stage under the control of an associated monitoring stage. With some of the signal paths programmed for the reception of messages thereover whereas others are maintained idle, the timing stage transmits to the monitoring stage an enabling signal whenever the selector advances onto a programmed path whereby a message arriving over such path is directed to a multiplex receiver which detects a start and stop code to send a termination signal to the timing stage which thereupon steps the selector. A train of clock pulses, supplied to the timing stage, causes the immediate emission of a stepping pulse to advance the selector if the path is not programmed, and also generates such a stepping pulse in response to a malfunction or nonutilization signal from the monitoring unit produced upon prolonged persistence of the same voltage level on a programmed path.

3,657,471

MULTIPLE OPTICAL SYSTEM FOR COLOR FACSIMILE SYSTEM

Kaoru Sasabe, Ikeda-shi, and Yoshihiro Okino, Kyoto, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

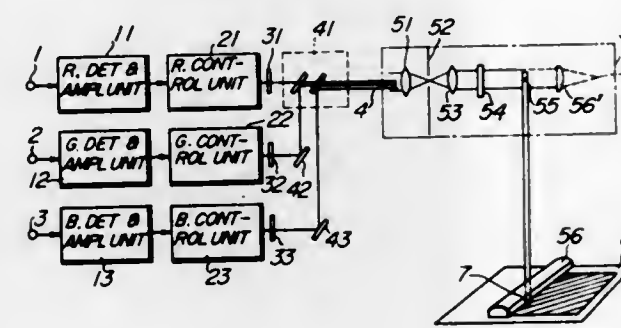
Filed Sept. 30, 1968, Ser. No. 763,516

Claims priority, application Japan, Oct. 4, 1967, 42/63973

Int. Cl. H04n 5/86, 9/14; G11b 7/00

U.S. Cl. 178—5.4 CD

7 Claims



A color facsimile system wherein light beams from three xenon discharge lamps whose intensity of light is modulated by an electric signal corresponding to each component color information transmitted from the sending end are synthesized through respective color filters and said synthesized light beam is focused on a flat photo-sensitive film, the focused bright spot being moved in scanning by means of a vibrating mirror which is electronically driven, thus reproducing the original picture on said flat film.

3,657,472

METHOD AND APPARATUS FOR THE DOT-BY-DOT AND LINE-BY-LINE RASTERED RECORDING OF PICTURE SIGNALS OBTAINED BY SCANNING PICTURE ORIGINALS WITH A RASTER ROTATED WITH RESPECT TO THE RECORDING DIRECTION

Heinz Taudt, Kiel, and Hans Keller, Kiel-Wik, both of Germany, assignors to Dr.-Ing. Rudolf Hell

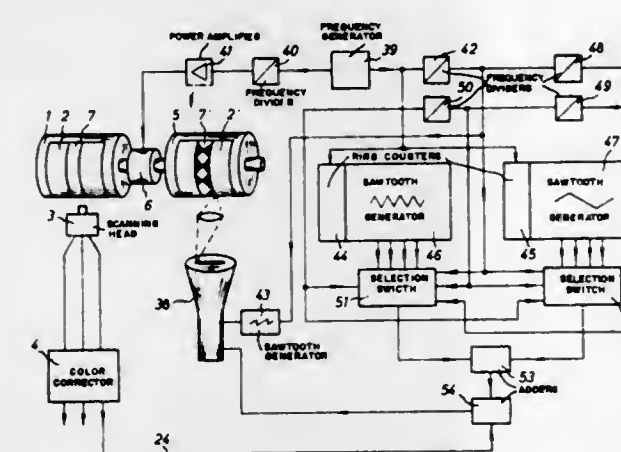
Filed Jan. 9, 1970, Ser. No. 1,614

Claims priority, application Germany, Jan. 10, 1969, P 19 01 101.9

Int. Cl. H04n 1/06, 1/46, 5/84

U.S. Cl. 178—6.7 R

21 Claims



A method of recording dot-by-dot and line-by-line in a predetermined raster structure, picture signals obtained by scanning picture originals, with a raster rotated with respect to the recording direction, the picture signals and the raster signals being superimposed, and repetition, raster being recorded in a finer resolution than the picture content, in which a raster angle of rotation having a rational tangent is employed, produce raster signals which correspond to the

structural content of an area, taken from the selected rotated raster, the boundary lines of which lie in the recording and the feed directions respectively, and which contain the fundamental period of the rotated raster structure in each of such directions, i.e., that part of the raster structure extending in the direction involved lying between two raster repetitions, but which does not in itself contain a predetition, with such raster signals being periodically repeated at a frequency adequate for the picture formation. Two forms of apparatus are disclosed for practicing the method, one of which utilizes a simultaneous recording of a plurality of partial lines extending in the recording direction and forming one picture line, and the other of which utilizes a successive recording of partial lines extending transversely to the recording direction and forming one picture line.

3,657,473

HOLOGRAPHIC IMAGE RECORDING AND REPRODUCING SYSTEM

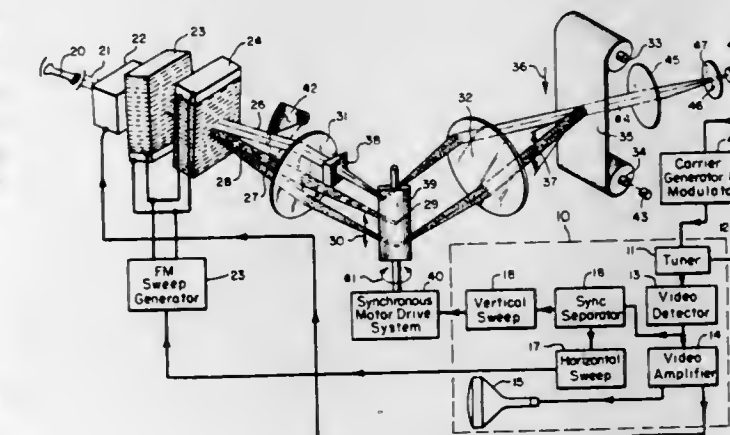
John W. Corcoran, Los Altos, Calif., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed May 15, 1970, Ser. No. 37,555

Int. Cl. G02b 21/18, 27/10; H04n 5/84

U.S. Cl. 178—6.7 A

10 Claims



A holographic image recording and reproducing system for use with a conventional television receiver. A laser beam which is intensity modulated in accordance with video information is projected through a Bragg cell deflection system to provide a scanning image beam. The undiffracted output beam from the Bragg diffraction scanning system is employed as the reference beam. The reference beam and the scanning signal beam are converged by an optical lens system at a Fourier transform plane where a light responsive film is transported. Image data from an entire horizontal scanning line of the TV image is overlapped to provide a single holographic image, and a separate deflection mirror or other deflecting system is provided to sweep the scanning signal beam and the reference beam, still converged, slowly across the width of the even more slowly moving film. For playback, the reference beam component is removed, the film is swept by an unmodulated scanning signal beam following the same scanning pattern as the original recording signal beam, and a photodetector is positioned on a projection of the path of the original reference beam to reconstruct the television signal for playback through the TV receiver.

3,657,474

PSYCHEDELIC DEVICE ATTACHABLE TO FRONT OF TELEVISION TUBE

Paul H. Turnrose, 84 Overlook Avenue, Forestville, Conn.

Filed Apr. 13, 1970, Ser. No. 27,614

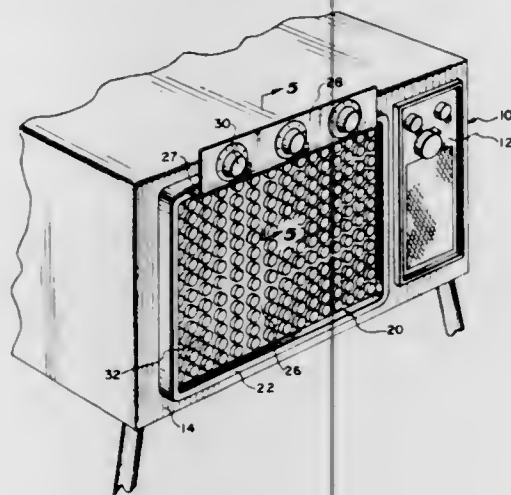
Int. Cl. H04n 5/72; H01J 61/40

U.S. Cl. 178—7.86

7 Claims

The disclosure describes a psychesthetic device for attachment to a television screen or tube face for the produc-

tion of moving variously colored light patterns for direct or indirect visual observation. The device includes, in one embodiment, a panel of essentially opaque material having a plurality of spaced projections with thin-walled bottoms on the outside with or without a layer of irregular shaped multi-colored translucent panels on the inside of the panel. In one embodiment the panel is pigmented plastic so as to transmit only high levels of light intensity except at the ocular end of the projection where it is thinned in the molding process so as to relatively translucent or transparent to low levels of



light intensity. Colored light from the television tube, is transmitted through the projections and the color pattern of the transmitted light is modified and transformed by the projections into an ever-changing light pattern with the ocular end of each projection acting as a picture element or point of light diffusion in the pattern. With the room lights and the television sound turned off, the psychesthetic light pattern is produced. The layer of multi-colored translucent panels or colored oculars are used in the combination with either colored or black and white television sets to produce similar effects.

3,657,475

POSITION-INDICATING SYSTEM

Georges Peronneau, La Celle Saint Cloud, and Henr Poizat, Courbevoie, both of France, assignors to Thomson-CSF Visualisation et Traitement des Informations T-VT, Paris, France

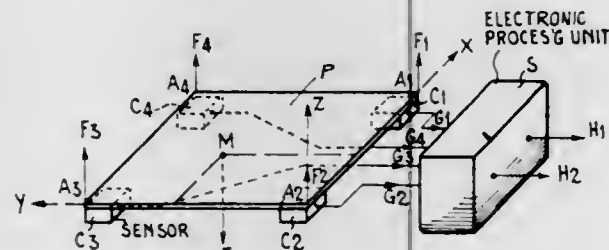
Filed Mar. 17, 1970, Ser. No. 20,369

Claims priority, application France, Mar. 19, 1969, 697845

Int. Cl. H04n 1/00

U.S. Cl. 178-18

8 Claims



A position-indicating system, determining the coordinates of a point of a surface to which static force is applied, comprises a rigid plate which is fixed to the surface by means of at least three spaced-apart sensors. These sensors delivering each an output signal which is proportional to its distance from the point of application of the force. These signals are then processed in an electronic unit generating two voltages which represent the coordinates of the point of application of the force to the surface, as measured with reference to two axes determined by the three sensors.

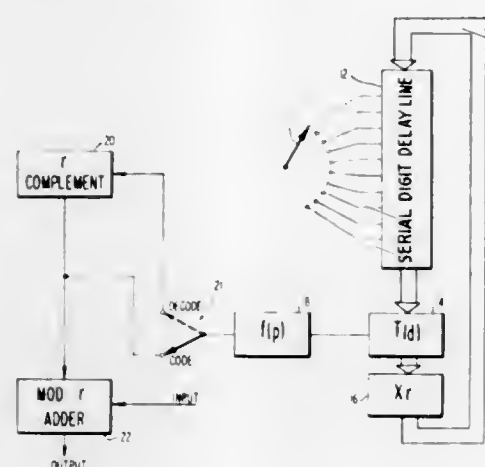
3,657,476
CRYPTOGRAPHY
Howard H. Alken, 1511 South Ocean Drive, Fort Lauderdale, Fla.

Filed Jan. 23, 1970, Ser. No. 5,307

Int. Cl. H04l 9/04

U.S. Cl. 178-22

21 Claims



The cryptographic system to be described is based on a unique number theoretical approach to the generation of pseudo-random digits derived from the

$$N = (m - 1)m^{n-1}$$

distinct powers of r modulo M where

$$M = m^n$$

m is a prime, and r is a properly chosen primitive root of m . The digits of the powers of r are transformed into Boolean vectors, and these in turn are used as arguments of a Boolean function employed to generate pseudo-random digits. Subsequently, the pseudo-random digits are combined with digits representing the data to be encoded in a manner facilitating the decoding. Security is provided by the very great periodicity that the invention provides. Known electrical components are arranged in a manner to provide solid state circuitry for the implementation of the cryptographic method.

3,657,477

ARRANGEMENT FOR ENCODING INTELLIGENCE

Kurt Ehrat, Zurich, Switzerland, assignor to Gertag Aktiengesellschaft, Regensdorf am Zurich, Switzerland

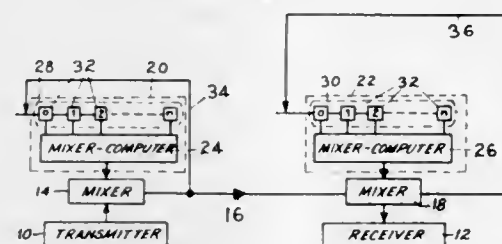
Filed Oct. 1, 1962, Ser. No. 227,344

Claims priority, application Switzerland, Oct. 2, 1961, 11409/61

Int. Cl. H04l 9/00

U.S. Cl. 178-22

6 Claims



1. For use in an arrangement for encoding intelligence, a code pulse generator comprising a counting pulse supply, a plurality of binary elements constituting at least one counting chain, an output to each of said binary elements, at least one mixing circuit arrangement, an output to the mixing circuit arrangement, and a plurality of inputs to said mixing circuit arrangement, the number of said inputs being substantially

equal to the number of elements in the counting chain and each such input being controllable by a respective output of said binary elements, the mixing circuit including means for converting the state of all its inputs into a predetermined code program appearing at its output, the input of the individual consecutive elements of the counting chain being connected with said counting pulse supply so as to alter its state from counting pulse to counting pulse, and the input of the individual consecutive elements of the counting chain being connected further with the output of every previous element by logic gates which serve to interrupt the changing of the state of any particular stage only when by arriving of a counting pulse the state of all previous elements is "1", and the mode of action of the counting chain being such as to alter from counting step to counting step more than the half of all the elements of the counting chain and to pass the counting chain through all the possible position combinations before returning to its initial position.

3,657,478

INTERCONNECTION BUS SYSTEM

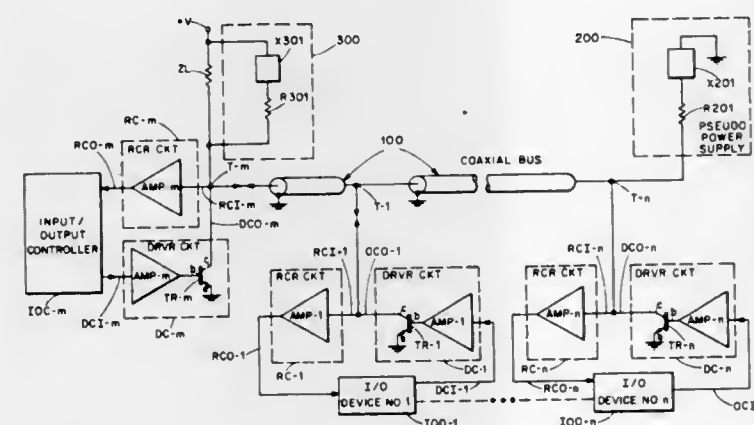
John R. Andrews, Jr., Framingham, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 30, 1969, Ser. No. 889,048

Int. Cl. H04l 25/02; H02j 1/10; H03h 7/38

U.S. Cl. 178-63

15 Claims



In an interconnection bus system, a first impedance network connects at one end of the bus in parallel with a termination provided by a master unit. The termination includes a load impedance for terminating the bus in its characteristic impedance in series with a voltage source for supplying power to the control circuits of a series of devices tapped at different points along the length of the bus. The last device in the series connects to the other end of the bus and includes a second impedance network, complementary to the first, which terminates the bus to ground.

3,657,479

ACOUSTIC COUPLER AND PREAMPLIFIER FOR FACSIMILE MACHINES

Richard E. Sweeney, Champagn, and James M. Griffith, Urbana, both of Ill., assignors to The Magnavox Company, Fort Wayne, Ind.

Continuation of application Ser. No. 774,832, Nov. 26, 1968, now abandoned. This application Nov. 13, 1970, Ser. No. 89,443

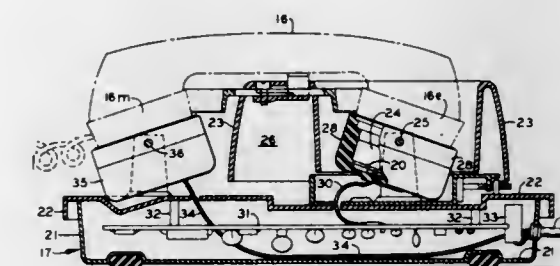
Int. Cl. H04m 1/00

U.S. Cl. 179-1 C

5 Claims

In a facsimile system, an acoustic coupler is used to connect a facsimile machine through a telephone handset to a telephone line and a remote machine. When a machine is receiving, audible signals at the earpiece of the telephone handset are directed toward a microphone which is wired to the machine. The signal-to-noise ratio of received signals is improved by a preamplifier placed in the coupler as close as

possible to the microphone. The preamplifier amplifies the microphone signals before they are subjected to noise or



other interference in the wires leading to the receiving machine.

3,657,480

MULTI CHANNEL AUDIO SYSTEM WITH CROSSOVER NETWORK FEEDING SEPARATE AMPLIFIERS FOR EACH CHANNEL WITH DIRECT COUPLING TO LOW FREQUENCY LOUDSPEAKER

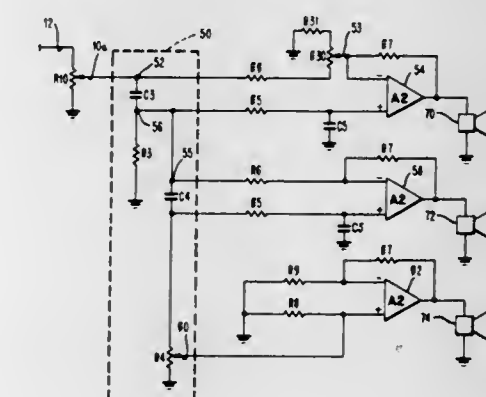
Theodore Cheng, 1209 W. Wynnewood Road, Wynnewood, Pa., and James J. Hitt, 73 New Street, Willow Grove, Pa.

Filed Aug. 22, 1969, Ser. No. 852,221

Int. Cl. H03g 5/00; H03h 7/06

U.S. Cl. 179-1 D

9 Claims



An audio system in which the audio signal is divided into two or three adjacent frequency ranges by a frequency dividing network having complementary frequency characteristics in the overlapping frequency region and the relative gain of the channels is adjusted for tone control purposes. Each frequency range is amplified by a separate amplifier channel. The output of each amplifier is directly connected to a separate loudspeaker. The low frequency amplifier is a direct coupled amplifier having no reactive elements in its signal path and its output is directly coupled to its associated loudspeaker so that no reactive elements are interposed between the amplifier output and the loudspeaker voice coil.

3,657,481

PAY TELEPHONE STATION WITH AUTOMATIC DIALING APPARATUS

Donald V. Di Massimo, Edison Township, Middlesex County, N.J., assignor to G-V CONTROLS Inc., Livingston Township, N.J.

Filed Mar. 17, 1970, Ser. No. 20,188

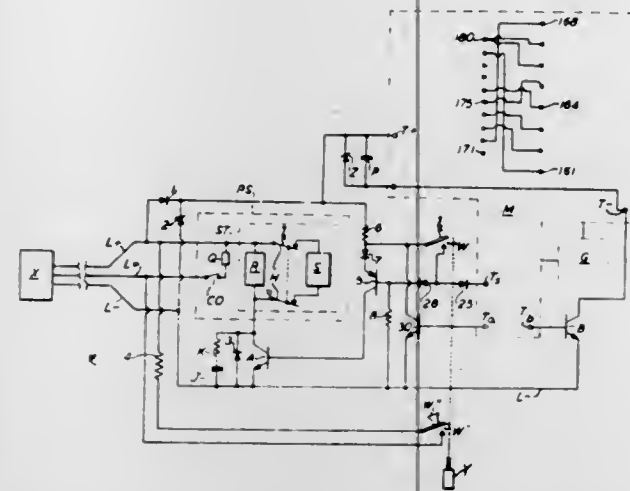
Int. Cl. H04m 17/02

U.S. Cl. 179-6.3 R

5 Claims

At a telephone pay station there is provided automatic dialing apparatus which renders that station usable without the

deposit of a coin therein but only subject to telephone-ad-



dress limitations imposed by preprogramming of that apparatus.

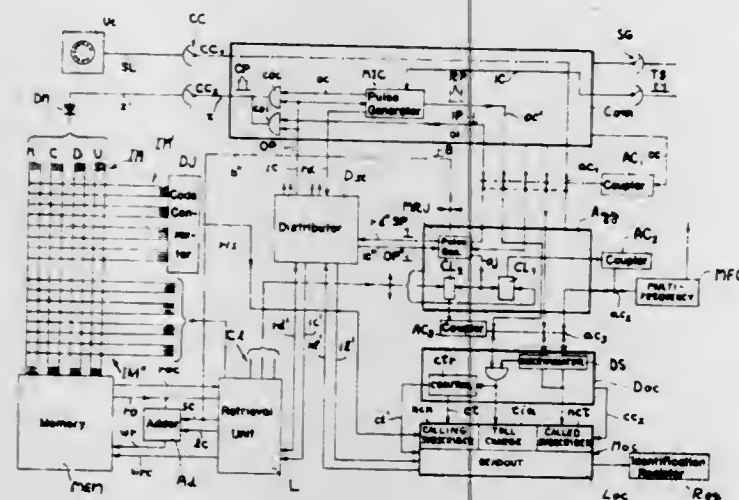
3,657,482

CENTRALIZED IDENTIFICATION AND DEBITING SYSTEM FOR TELEPHONE SUBSCRIBERS

Giorgio Dal monte, Milan, Italy, assignor to Societa Italiana Telecomunicazione Siemens SpA, Milan, Italy
Continuation-in-part of application Ser. No. 728,200, May 10, 1968, now Patent No. 3,591,723. This application Apr. 14, 1971, Ser. No. 133,816
Int. Cl. H04m 15/18

U.S. Cl. 179-7 MM

10 Claims



A central memory in a telephone exchange contains, in storage sections assigned to individual subscribers, binary words representing the current balances of their respective accounts together with possible classification information. An input multiple, whose leads are selectively energizable by a line finder in the presence of an incoming call, address the storage section assigned to the calling subscriber and, in the case of the subscribers within a predetermined class, concurrently transmits an identification of this subscriber to a code register via a buffer register under the control of a classification unit. The input multiple also receives, in the case of a toll call, counting pulses from a called subscriber to indicate the amount of the toll to be debited to the calling subscriber, each containing pulse causing the contents of the addressed storage section to be read out and promptly reinscribed after augmentation by one unit; read-out or augmentation is inhibited whenever the energization of the input multiple is due to an interrogation pulse occurring upon seizure of the register. A retrieval unit associated with the memory controls the classification unit and can also be operated, with inhibition of augmentation, for auditing and reclassification purposes.

3,657,483 INTERFACE CIRCUITS FOR A PCM TIME MULTIPLEX SWITCHING CENTER

Marc Edgar Marie Bossonnet, Paris, and Michel Andre Robert Henrion, Boulogne-Billancourt, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

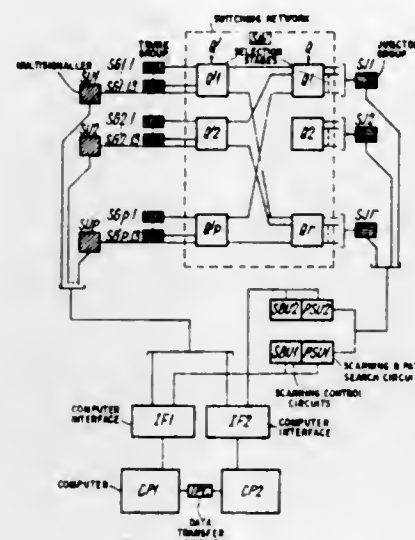
Filed Apr. 22, 1970, Ser. No. 30,913

Claims priority, application France, Apr. 22, 1969, 2540

Int. Cl. H04j 3/00

U.S. Cl. 179-15 AT

5 Claims



In a switching center controlled by two computers operating, for example, in the load-sharing mode, each of said computers has an access to each peripheral unit through an interface circuit. This interface has two functions:

Retiming between the computer clock and the PCM clock,

Preselection of the address concerned, in a peripheral unit, by an instruction sent by the computer and transmission of the data contained in said instruction.

3,657,484

DIALING SYSTEMS

Michel Arnoux, Verrieres-Le-Buisson, France, assignor to C.I.T.-Compagnie Industrielle des Telecommunications, Paris, France

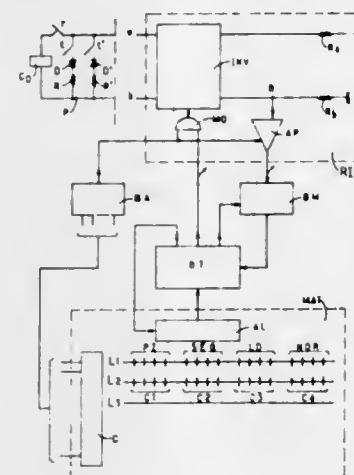
Filed Mar. 6, 1970, Ser. No. 17,208

Claims priority, application France, Mar. 6, 1969, 6906319

Int. Cl. H04m 3/00

U.S. Cl. 179-16 AA

10 Claims



The object of the invention is a device for composing a number by means of a keyboard, by impedance variation.

The lines are classified according to at least three categories of impedance, the system comprising means determining

first the category of line measured or the zone and carrying out this measurement of the line impedance as soon as the device comprising measuring apparatus corresponding to the impedance zones and working in parallel, each measuring apparatus comprising comparators adapted respectively to the various categories of lines.

3,657,485

PABX REGISTER FOR ACQUIRING HUNDREDS INFORMATION FROM A TWO DIGIT IN-DIAL

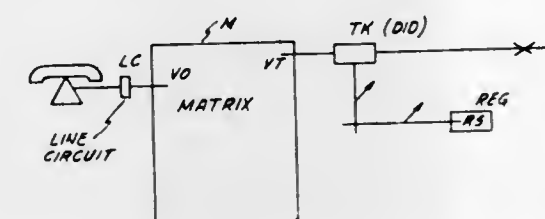
Jose Reines, Glen Ellyn, Ill., and Walter L. Olson, Dunedin, Fla., assignors to International Standard Electric Corporation, New York, N.Y.

Filed Apr. 27, 1970, Ser. No. 32,116

Int. Cl. H04q 3/62

U.S. Cl. 179-18 EB

8 Claims



A register circuit in a PABX capable of accepting direct inward dialing is modified to generate hundreds digits when specific trunks are energized. The appearance of a signal over a selected one of the trunks will cause the register, in each instance, to produce a first digit in a hundreds counter. In this way, hundreds digits are supplied to the PABX without requiring an expenditure for a large number of additional selectors in the central office operating into the PABX. After the hundreds have been established, the tens and units digits are routed to appropriate tens and units counters.

3,657,486

TIME DIVISION MULTIPLEX PAX OF THE FOUR WIRE TYPE

George Gara, Wembley Park, and Roy Charles Thorncroft, London, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

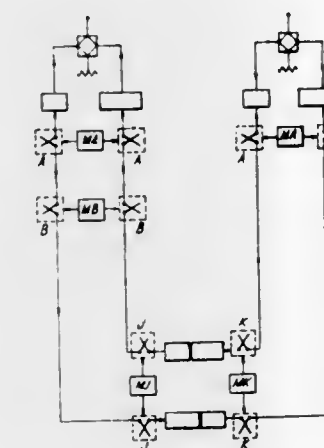
Filed July 9, 1970, Ser. No. 53,573

Claims priority, application Great Britain, July 11, 1969, 35,065/69

Int. Cl. H04j 3/00

U.S. Cl. 179-18 J

2 Claims



This is a TDM-PAX of the four-wire type, in which the switches for the two directions of speech sample transmissions are physically separate from each other. This separation facilitates arranging the switches so that the proper matching of inter-switch cabling is facilitated. Separate time positions are used within a slot for signalling and speech. Information

other than speech is transmitted by varying the width of the crosspoint control pulses.

3,657,487

TELEPHONE SUBSET USING MODULAR CONSTRUCTION

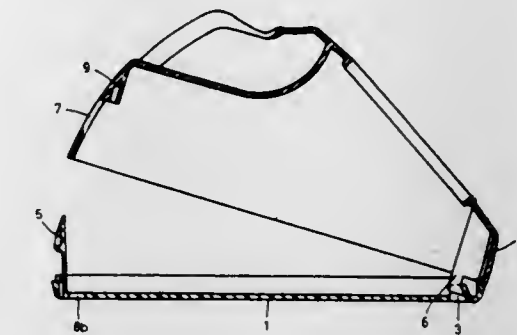
Gunter Schwanck; Heinz Ruster, both of Berlin; Wolfgang Gruger, Stuttgart-Zuffernhausen, and Ernst Manteuffel, Berlin, all of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Sept. 12, 1969, Ser. No. 9,460

Int. Cl. H04m 1/02

U.S. Cl. 179-100 R

8 Claims



In a table-type telephone subset all of the substantial individual parts such as the base plate, the housing, the cradle-switch, the number-switch, the electric bell or ringer and the bell domes, as well as the base plate of the number switch and the terminal box are provided with hooks shaped thereto, and with corresponding cutouts or indentations, and are assembled in accordance with the known "snap-in" technique.

3,657,488

RECORDING AND REPRODUCING SYSTEM FOR WORK TIME STUDY

Laurence Howard Pountney, 410 Kedleston Road, Derby; Clifford Roy Amsbury, Swarfdale, Trent Lane, King's Newton, both of England, and Stanley John Antliff, deceased, 20 Cole Lane, late of Ockbrook, England (by Freda Antliff, administratrix)

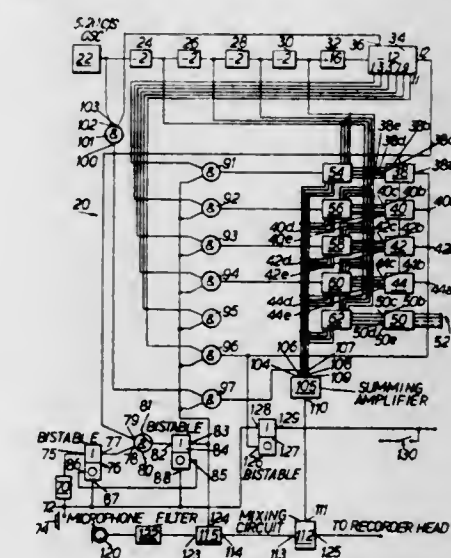
Filed Mar. 28, 1969, Ser. No. 811,681

Claims priority, application Great Britain, Mar. 28, 1968, 14,941/68

Int. Cl. G11b 23/18, 23/30, 27/20

U.S. Cl. 179-100.1 R

26 Claims



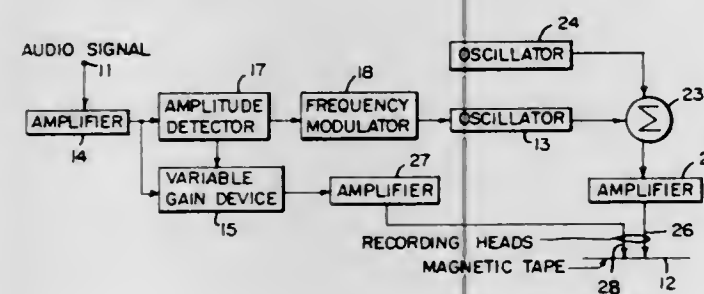
The invention relates to a work study recording system by which a work study engineer can analyze an operator's performance of a job consisting of a number of operations. The

system has facilities for recording timing signals at the start and finish of each operation; measuring the intervals between successive timing signals and automatically recording the results in coded form; recording additional auxiliary coded information; recording spoken information; and playing back the recorded information.

3,657,489

RECORDING INFORMATION AT REDUCED AMPLITUDE AND A SIGNAL INDICATIVE OF THE AMPLITUDE REDUCTION

Melville Clark, Jr., 8 Richard Road, Cochituate, Mass.
Continuation of application Ser. No. 362,014, Apr. 23, 1964.
This application Jan. 23, 1970, Ser. No. 5,360
Int. Cl. G11b 5/02, 5/44
U.S. Cl. 179-100.2 S 16 Claims

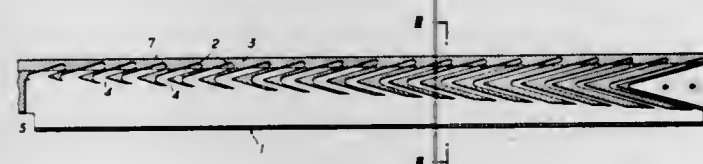


A suitably modulated, but always high level monitor signal is derived from and transmitted with an information signal to control the quantized gains of a transmitter and a receiver in reciprocal fashion to enhance the apparent signal-to-noise ratio of the communication system. The monitor signal controls the quantized gain at the receiver, is of considerably narrower bandwidth than the bandwidth of the information signal, and does not itself introduce noise at the receiver because the monitor signal merely selects which of several gains of the receiver are to be used, in correspondence to the signal-controlled gains of the transmitter which are quantized reciprocally. The system is particularly applicable to tape recordings.

3,657,490

TUBULAR DIRECTIONAL MICROPHONE

Robert Scheiber, Vienna, Austria, assignor to Karl Vockenhuber and Raimund Hauser, Vienna, Austria
Filed Feb. 27, 1970, Ser. No. 15,082
Claims priority, application Austria, Mar. 4, 1969, 2115/69
Int. Cl. H04r 1/34
U.S. Cl. 179-121 D 15 Claims



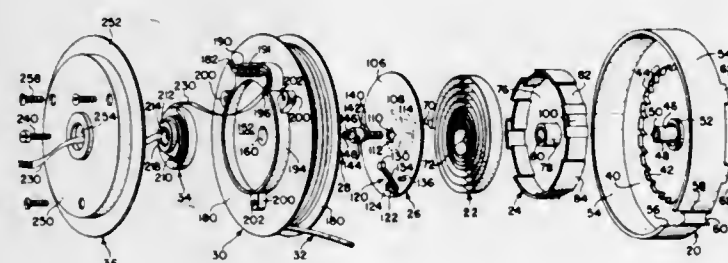
At least one directional tube communicates with a sound transmitter capsule and is provided with acoustic impedance elements spaced along said tube and having predetermined cut-off frequencies, which increase in one direction along said tube, and predetermined natural frequencies, which decrease as the distance of the impedance elements of the capsule increases, whereby the effective length of said tube decreases as the frequency of sound is increased. The spacing and natural frequencies of said impedance elements are selected so that the effective length of said tube is divided into two outer sections and an intermediate section. Said two outer sections have a relatively low sensitivity and are arranged to subject sound received from said impedance ele-

ments in said outer sections to mutually opposite phase displacements amounting to approximately $\pi/2$. Said intermediate section has a relatively high sensitivity and is arranged to subject sound received from said impedance elements in said intermediate section to zero phase displacement.

3,657,491

CORD REEL

Francis Eugene Ryder, and Ronald Orville Gordon, both of Chicago, Ill., assignors to Illinois Tools Works Inc., Chicago, Ill.
Filed May 28, 1970, Ser. No. 41,236
Int. Cl. H02g 11/02, 11/06
U.S. Cl. 191-12.2 12 Claims

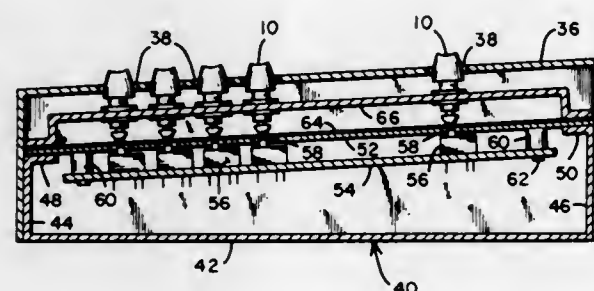


An automatically retractable cord reel having continuous solid conductors from the free end of the extensible cord through a fixed flat conductor attached to the power source. The fixed conductor is a flat conductor helically disposed and axially restrained within a secondary cavity in the reel with the radially outer end of the flat conductor connected to the cord and the inner end of the flat conductor fixedly connected to the source. Means are also provided to position the reel in predetermined angular relationships to the assembly mounting so that the cord is maintained in an extended condition without tension.

3,657,492

KEYBOARD APPARATUS WITH MOISTURE PROOF MEMBRANE

Allen L. Arndt, Burnsville, and Albert Z. Kaszynski, St. Paul, both of Minn., assignors to Sperry Rand Corporation, New York, N.Y.
Filed Sept. 25, 1970, Ser. No. 75,463
Int. Cl. H01h 3/12
U.S. Cl. 200-5 R 8 Claims

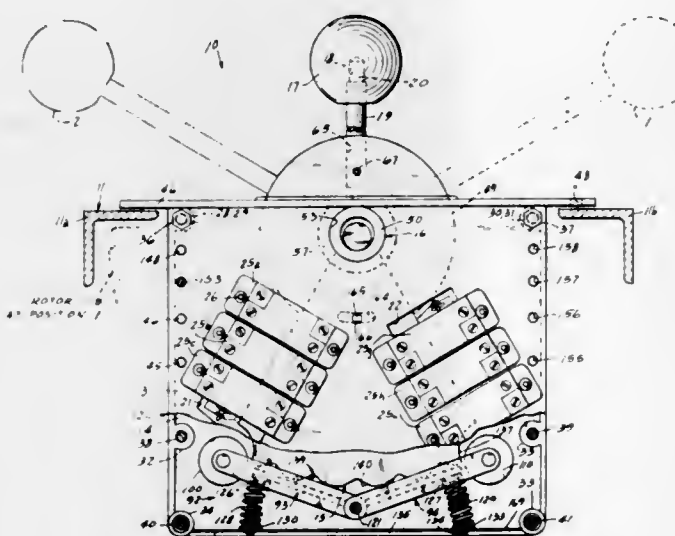


An electromechanical keyboard for use with a typewriter or other computer type data entry device designed to meet stringent environmental specifications. The electrical switches employed on the keyboard are totally enclosed in a metal compartment and are actuated through a deformable membrane such that moisture and dust cannot deleteriously affect the switches. Because the switches are contained within a metal compartment, a high degree of RFI shielding is afforded so that radiated emanations are low.

3,657,493

MOLDED NYLON MASTER SWITCH WITH IMPROVED PIVOTED CAM OPERATOR

Edward A. Horsley, Niagara Falls, Ontario, Canada, assignor to Dominion Bridge Company Limited
Filed Jan. 19, 1971, Ser. No. 107,654
Int. Cl. H01h 3/42
U.S. Cl. 200-6 B 30 Claims

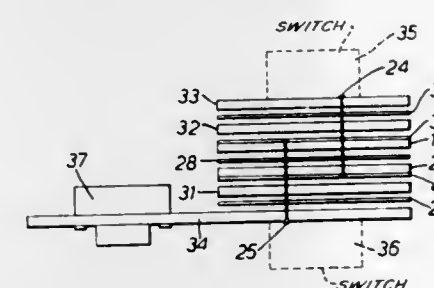


A molded nylon master switch includes a housing of mating, molded housing sections. A plurality of switches are mounted in arcuate patterns on the side walls of the housing sections and operated by a plurality of cams carried on a rotor which is disposed between and journaled to the housing side walls. The rotor is initially manufactured in blank form having a plurality of arcuate ridges on each side which are transformed into cams in accordance with a desired switch operating sequence through the utilization of simple steps of machine forming the individual cams.

3,657,494

PRINTED CIRCUIT SWITCH ASSEMBLY WITH CONDUCTORS OF EQUAL LENGTH

Eric J. Gargini, West Drayton, England, assignor to Communications Patents Limited, London, England
Filed June 2, 1970, Ser. No. 42,674
Claims priority, application Great Britain, June 6, 1969, 28,871/69
Int. Cl. H01h 19/58; H05k 1/04
U.S. Cl. 200-11 DA 2 Claims

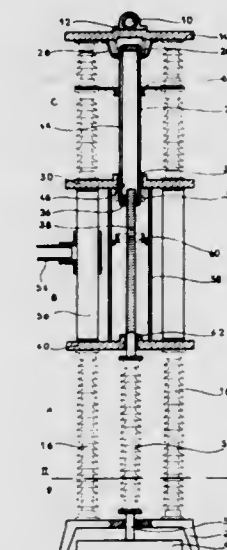


There is disclosed an electrical switch comprising a printed circuit board assembly with replaceable printed boards having conductive screens between a plurality of boards stacked in a support member. Interconnections between boards are made at the edge of the boards.

3,657,495

HIGH-VOLTAGE DISCONNECTING SWITCH WITH SLIDING CONTACT

Pierre Charamel, Les Cotes De Sassenage; Jean Jaillet, St. Egreve; Yves Pelenc, La Tronche, and Maurice Voulat, Grenoble, all of France, assignors to Merlin Gerin, Societe Anonyme, Grenoble, France
Filed Apr. 30, 1970, Ser. No. 33,312
Claims priority, application France, May 9, 1969, 12926; Oct. 6, 1969, 34090; Dec. 15, 1969, 43425
Int. Cl. H01h 15/02
U.S. Cl. 200-16 B 17 Claims

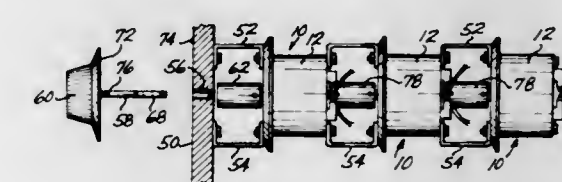


A high-voltage disconnecting switch for establishing an electrical connection between two vertically spaced contacts by means of a movable contact capable of being moved in a vertical translation by a drive mechanism which comprises a threaded drive rod cooperating with an internally threaded element wherein the fixed moving contacts as well as the drive rod are axially arranged in a supporting structure comprising a plurality of superimposed sections defined by transverse plates, the plates of the upper section supporting the fixed contacts and providing guide means for the moving contact.

3,657,496

PERMUTATION SWITCHES

William J. Davidson, Scio, Oreg., assignor to Electronic Controls Corporation, Scio, Oreg.
Filed Oct. 9, 1970, Ser. No. 79,428
Int. Cl. H01h 27/06, 27/10
U.S. Cl. 200-43 13 Claims



A plurality of tumblers located behind a wall are rotated by selective movements of a combination dial to place conductive or dielectric peripheral portions of the tumblers in circuit making or breaking contact with spring contact fingers. The combination dial includes a shaft which is insertable through an opening in the wall into a socket formed in a member forming part of means for rotating the tumblers.

A plurality of such permutation switches are disclosed coupled together in axial alignment so that a single dial operates the tumblers of all switches. The spring contact fingers are mounted on semi-cylindrical carriers which plug into each switch from the rear of the switch. Each switch unit may in-

clude two separate sets of spring contact fingers. All switches of a plural switch circuit are disclosed wired in parallel, with each switch performing the same control function and each also operating its own recorder device, so that a record is made with respect to which combination is used as any given period of time.

3,657,497

OPERATING HANDLE FOR USE WITH ENCLOSED SWITCHING APPARATUS

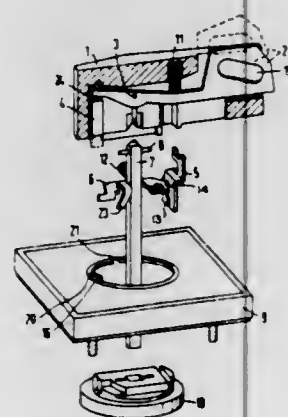
Heinz Homberg, and Georg Weidner, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Nov. 5, 1970, Ser. No. 87,270

Int. Cl. H01h 9/20

U.S. Cl. 200—50 A

7 Claims



An operating handle is provided for use with a switch apparatus enclosed in an enclosure with a door having an aperture. The handle is securable to the door and the switch apparatus has a control shaft extending through the aperture and revolvable to set the switch apparatus between on and off positions. The shaft has a transverse pin at its end portion extending through the aperture. The handle has a housing and a locking lever movably mounted in the housing between locking and non-locking positions for blocking a swiveling of the operating handle. The handle also has a latching plate movable in the housing and having an opening penetrable by the end portion of the shaft when the switch apparatus is in the off position. A control member is connected between the lever and the plate for displacing the plate in response to a movement of the lever to the locking position, the plate being displaced transverse of the end portion of the shaft to prevent the latter from being withdrawable through the opening. There is also a spring connected between the housing and the plate for likewise displacing the plate transverse of the end portion to prevent the latter from being withdrawable through the opening when the switch is in the on position. In addition, a stop securable to the door is provided for holding the plate when the switch apparatus is in the off position, the plate being held by the stop so that the opening is in alignment with the end portion of the shaft.

3,657,498

RAIN-RESPONSIVE WATER SPRINKLING SYSTEM ELECTRIC CONTROL

Carl Heindorff, 4839 Sheridan Road, Racine, Wis.

Filed Dec. 28, 1970, Ser. No. 101,517

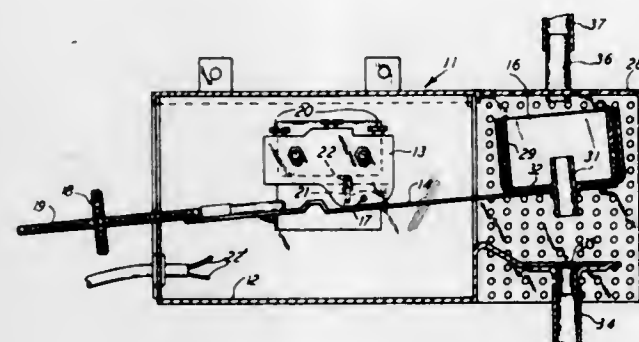
Int. Cl. H01h 3/02

U.S. Cl. 200—61.04

6 Claims

An electric switch electrically connected to a timer which controls a lawn and gardening watering system. A balance beam operates the switch and has an adjustable weight on one end and a rain receiving cup on the other end such that when a certain supply of rain water is in the cup, the beam is overbalanced to a point where the switch is open and thus the system will not operate to sprinkle water. The cup has an over-flow means in the nature of a stand pipe therein to limit

the amount of water and thus limit the time during which the switch can remain open, and the cup also has an evaporating member for assisting in the evaporation of the water collected in the cup. An accumulator cup is disposed remotely of the switch and balance beam cup, and this accumulator cup collects the rain water and directs it to the balance beam cup. The two cups are of the same size so the depth of rain



water in the balance beam cup can be known and determined in accordance with the amount of rainfall, and the overflow pipe is adjustable to also determine the operation of the switch in accordance with the amount of rainfall. A guard is disposed over the balance beam cup section of the device so that the water can evaporate from the cup but bugs, debris, and the like cannot enter the cup to affect the point of balance.

3,657,499

VIBRATION-SENSITIVE ELECTRIC SWITCH

Heinz Gawlick, Furth; Hellmut Bendler, Erlangen-Spandorf, and Gunter Hubsch, Kalchreuth, all of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany

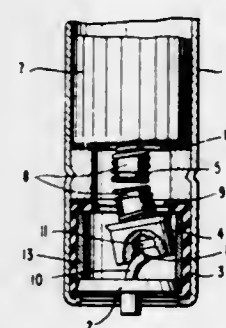
Continuation-in-part of application Ser. No. 6,219, Jan. 27, 1970. This application July 31, 1970, Ser. No. 60,049

Claims priority, application Germany, Aug. 1, 1969, P 19 39 247.3

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

25 Claims



A vibration-sensitive electric switch comprising a housing and two contacts disposed therein, one of the contacts being a vibrating contact and coming into contact by vibrational movement with the other contact which is fixedly arranged in said housing, at least one of the contacts being deformable in the area of contact with the other contact, wherein the fixedly disposed contact and the vibrating contact overlap without contact at at least two points along their axial extension when the switch is in the armed position and wherein the fixedly disposed contact is continuously bent laterally by the vibrating contact when a predetermined accelerative force has been exceeded, whereby the vibrating contact in the deflected condition is in constant contact with the fixedly disposed contact.

3,657,500

VIBRATION-SENSITIVE ELECTRIC SWITCH

Heinz Gawlick, Furth, Bay; Hellmut Bendler, Nurnberg, and Gunter Hubsch, Kalchreuth, all of Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

Filed Jan. 27, 1970, Ser. No. 6,219

Claims priority, application Germany, Feb. 4, 1969, P 19 05 295.0

Int. Cl. H01h 35/14

U.S. Cl. 200—61.45 R

14 Claims



A vibration-sensitive electric switch, for use in percussion or vibration fuses, particularly for hand and rifle grenades, as well as mines, having a pair of contacts, one of which is supported for movement into contact with the other contact in response to application of forces thereto and at least one of said contacts being deformable at least in the area of contact with said other contact so as to increase the contact time therebetween.

3,657,501

PRESSURE ACTUATED DEVICE WITH CONCENTRIC PISTON STEM ACTUATORS

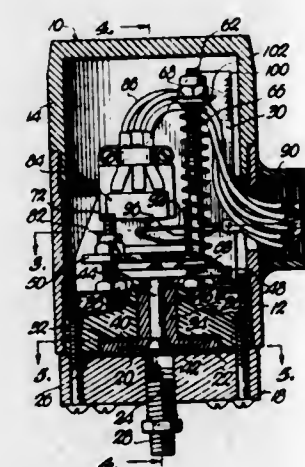
Harold R. Hoyt, Shawnee Mission, Kans., assignor to W. E. Anderson, Inc.

Filed Nov. 23, 1970, Ser. No. 91,979

Int. Cl. H01h 35/34, 35/24

U.S. Cl. 200—81.4

5 Claims



A high proof pressure device for either opening or closing a number of electrical circuits in response to a wide range of changing fluid pressures is provided with a switch for each circuit controlled by a flexible sensor common to concentric, switch actuating piston stems, all contained within a single envelope which is not only tamper proof and explosion proof but capable of protecting its components from adverse weather conditions.

3,657,502

DEFLECTING END-PLATE CONSTRUCTION FOR VACUUM-TYPE CIRCUIT INTERRUPTERS

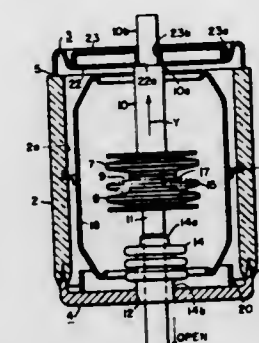
Sidney J. Cherry, Elmira; Paul O. Wayland, Montour Falls, and Albert Bereza, Elmira, all of N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 27, 1969, Ser. No. 811,006

Int. Cl. H01h 33/66

U.S. Cl. 200—144 B

6 Claims



A vacuum-type circuit interrupter has a generally hollow deflecting end-plate construction involving in one embodiment a pair of spaced metallic diaphragms, so as to be axially resilient during the closing operation of the circuit interrupter, and thereby to absorb the impact stresses during such a closing operation. In one construction, a resilient diaphragm has its peripheral edge sealed to the end wall of the insulating casing, and said diaphragm is reinforced by an annular ring-shaped cup member secured to the first-mentioned diaphragm, and also to the stationary stem portion of the stationary contact or electrode of the vacuum-type circuit interrupter.

A second construction involves the use of a pair of spaced ring-shaped, or annular diaphragm members, which are secured, as by a brazing operation, to the stationary stem portion of the electrode constituting the stationary contact. A pair of inner concentric spacing sleeves may be employed, and an outer sleeve-like member may be secured, as by brazing, to the assembly of the two annular members and also to their outer spacing sleeve. This outer sleeve-like member may also be secured, in sealing engagement, with one end of the insulating casing for the vacuum-type circuit interrupter.

Another embodiment may include a reinforcing diaphragm merely in abutment with the stationary stem. An elastomeric material, such as rubber, may fill the hollow space of the end plate to serve as a damping function.

3,657,503

TERMINAL ENCLOSURE

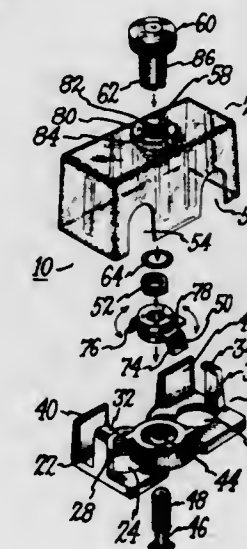
John A. Smith, Rochester, N.H., assignor to General Electric Company

Filed Aug. 27, 1970, Ser. No. 67,335

Int. Cl. H01h 19/04

U.S. Cl. 200—155 R

4 Claims



A terminal enclosure for the secondary terminals of an instrument transformer. The enclosure comprises a terminal

block or securing member mounting on the secondary terminals. The securing or block member is provided with port barriers to bar access to the secondary terminals. A clear plastic box cover is provided made of electrically insulating material which fits over the terminal block member. A thumb nut is held captive in the cover and engages a stud on the securing member to secure the cover to such securing member for enclosing the terminals. A pair of ports are formed in the cover to provide access to the secondary terminals in one position of the cover. A short circuit device is mounted on the stud and interlocks with the cover such that the ports in the cover are barred when the shorting device is in its closed position.

3,657,504

HIGH TENSION METAL CLAD SWITCHES INCLUDING PLUG AND SOCKET CONTACTS FOR ELIMINATING STRONG ELECTRICAL FIELD CONCENTRATIONS
Rintje Boersma, Harmelen, and Gijbert Waldemar Irik, Bilthoven, both of Netherlands, assignors to N.V. COQ, Utrecht, Netherlands

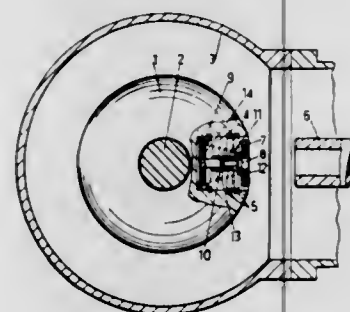
Filed Aug. 28, 1970, Ser. No. 67,921

Claims priority, application Netherlands, Nov. 5, 1969, 6916683

Int. Cl. H01h 31/32, 33/24, 1/38

U.S. Cl. 200-163

7 Claims



In a metal clad switch for high voltage comprising cooperating contacts to close and to open the circuit, of which one of said contacts is a bushing contact, the provision of a movable metal disc in the cavity of said bushing contact, said disc being forced by a spring in a position, in which it lies flush with the edge of said cavity, when the switch is in its open condition in order to eliminate the unfavourable influence of the edge of said cavity on the electric field set up in the switch when the latter is alive.

3,657,505

ELECTRICAL CONTACTING ARRANGEMENT
Josef Mosele, Obere Brucke, Othmarsingen, Switzerland

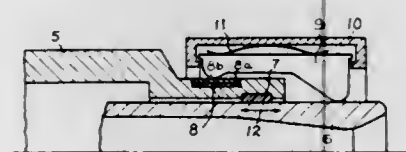
Filed Mar. 10, 1970, Ser. No. 18,085

Claims priority, application Switzerland, Apr. 1, 1969, 4943/69

Int. Cl. H01h 1/02

U.S. Cl. 200-166 C

2 Claims



A composite electrical contact structure which includes a laminate of an aluminum layer bonded to a layer of high-grade contact material such as copper or silver onto the aluminum layer of which is then cast a base body of aluminum or aluminum alloy. During casting of the base body, the sur-

face of the aluminum layer is fused by and becomes united with the molten aluminum upon solidification of the latter.

3,657,506

VACUUM COATING SYSTEM WITH INDUCTION HEATED VAPORIZING CRUCIBLES

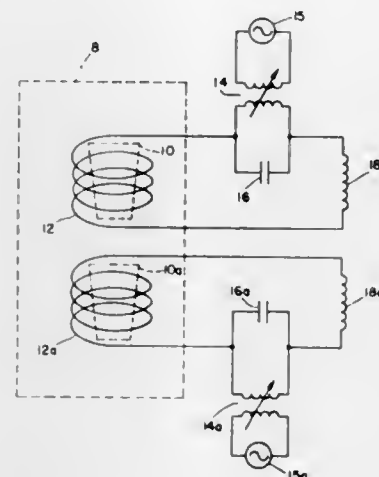
Arnold J. Aronson, Newton, Mass., assignor to Norton Company, Worcester, Mass.

Filed Feb. 10, 1971, Ser. No. 114,159

Int. Cl. H05b 5/16

U.S. Cl. 219-10.75

3 Claims



A vacuum coating system having at least two separate induction heated crucibles, the crucibles being sufficiently closely spaced so that there is appreciable coupling between the two separate induction coils surrounding the crucibles. Means are provided for inducing in the tank circuit feeding each induction coil a voltage equal to and opposite to that induced in the coil by the adjacent induction coil.

3,657,507

A VARIABLE SPEED CONTROL APPARATUS FOR USE WITH ELECTRICAL-DISCHARGE-MACHINING, THE CONTROL APPARATUS HAVING AN AUTOMATIC DISABLING FUNCTION

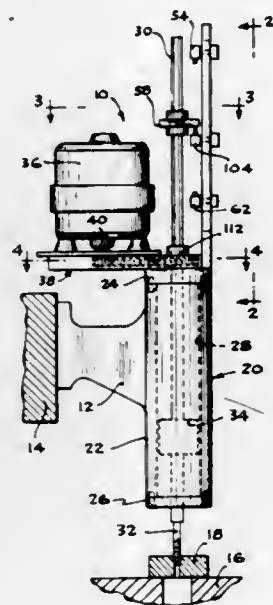
Leonard D. McNeece, Maywood, Ill.

Filed Aug. 18, 1969, Ser. No. 850,775

Int. Cl. B23p 1/14

U.S. Cl. 219-69 G

1 Claim



An apparatus for use with an electric-discharge-machine for forming threads in an object wherein a thread tapping device is rotated with respect to the object while the material

of the object is removed by electrical energy to define a mirror image of the contour of the tapping device, the apparatus being provided with automatic speed varying controls and reversing means to back the device out of the tapped opening when a short-circuit or near-short-circuit obstruction is encountered and to move it back into the opening when the obstruction is removed.

3,657,508

METHOD OF AND RADIANT ENERGY TRANSMISSIVE MEMBER FOR REFLOW SOLDERING

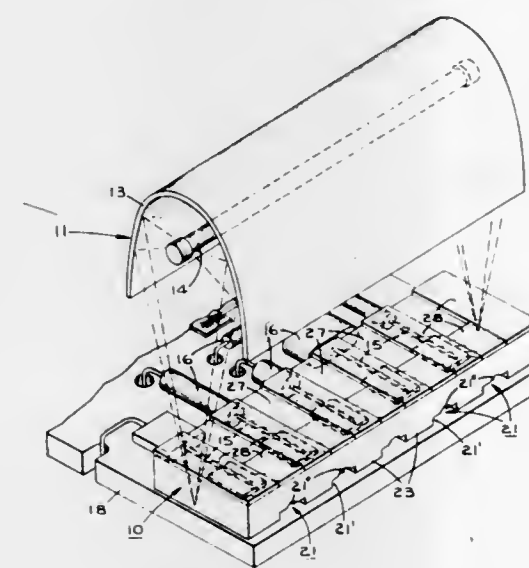
William R. Studnick, Cicero, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y.

Filed Nov. 18, 1970, Ser. No. 90,709

Int. Cl. B23k 1/04

U.S. Cl. 219-85

18 Claims



A radiant energy transmissive member, such as of quartz, is formed with a plurality of peculiarly contoured grooves therein to accommodate, align and facilitate the simultaneous reflow soldering of a plurality of wires or leads to aligned and preferably solder-coated elements, such as circuit path extremities on a printed circuit board. Each groove is contoured such that the solder confined therein, when heated to a molten state, will be drawn at least in part by capillary attraction over the top of the associated wire or lead, with the solder merging on either side with the adjacent element so as to form a reliable fillet-shaped reflow solder connection. Also, by masking one surface of the quartz member so as to be selectively opaque, the radiant energy can be directed more precisely in accordance with a resultant transparent pattern only specific areas to be heated.

3,657,509

NUT WELDING ELECTRODE

Donald Joseph Beneteau, R.R. 2, Amherstburg, Ontario, Canada

Filed Feb. 16, 1971, Ser. No. 115,217

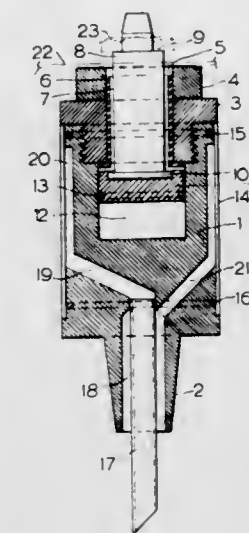
Int. Cl. B23k 1/130

U.S. Cl. 219-120

1 Claim

A resistance welding electrode for welding nuts or other items which have apertures to parts provided with corresponding apertures, consisting of a main water-cooled body upon which is located an adaptable welding face and containing a sliding pilot pin which passes through and extend beyond the welding face. The nut or the like to be welded is palaced upon the pilot pin, and the part to which it is to be welded is located on the welding face. To weld, the pilot pin is depressed so that the nut is pressed against the part to which it is to be welded. The base of the pilot pin is equipped

with a piston which slides within a compression chamber within the main body, so that when the weld is completed



and the pressure on the pilot pin is released, the compressed air in the said chamber returns the pin to its normal position.

3,657,510

Q-SWITCHED LASER DEVICE FOR ALTERING SURFACES

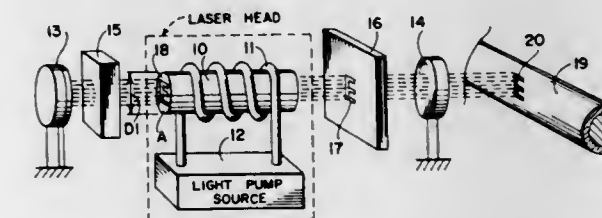
Larry R. Rothrock, Poway, Calif., assignor to Union Carbide Corporation, New York, N.Y.

Filed Nov. 19, 1970, Ser. No. 91,024

Int. Cl. B23k 27/00

U.S. Cl. 219-121 LA

11 Claims



A high gain optically pumped Q-switched laser device includes a mask having cutout portions defining a given pattern disposed in the resonant optical cavity defined between end mirrors at opposite ends of the laser material. Each of the end mirrors is equivalent to an optically flat reflecting surface such that only cross-sectional portions in the laser material similar to the pattern are stimulated when the Q of the cavity is restored to emit narrow pulses of output laser radiation. These pulses have high power densities and may be directly radiated to a target surface to alter the surface in a manner corresponding to the given pattern. The alteration may take the form of actual vaporization, heating, chemical reaction, or oxidation of portions of the surface. Thus, carefully controlled engraving type processes or other processes involving a physical alteration of a surface such as the drilling of square or unusually shaped holes are determined by the pattern can be carried out.

3,657,511

AUTOMATIC WELDING SYSTEM

Robert Friedman, Reseda; Howard D. Leshner, Canoga Park, and Richard K. Burley, Reseda, all of Calif., assignors to North American Aviation, Inc.

Filed Apr. 5, 1967, Ser. No. 628,743

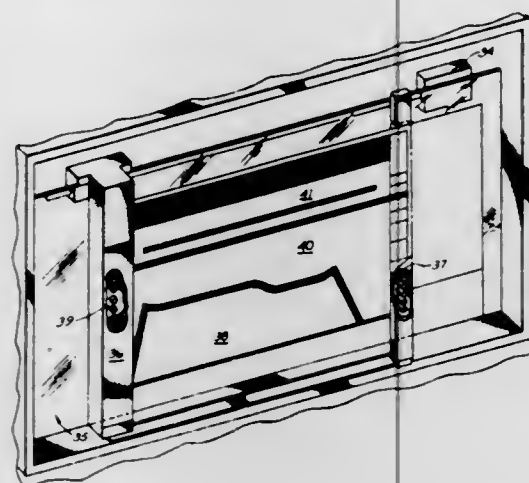
Int. Cl. B23k 9/12

U.S. Cl. 219-125

22 Claims

An automatic weld programming system is described which is particularly suited for arc welding and in which a

plurality of photocells is moved across a program sheet positioned on a console screen. The sheet contains coded indicia which cause signals to be generated to automatically control various welding parameters and synchronize various welding



operations to insure that the physical welding manipulations occur in a preselected order and at a programmed rate. In addition, auxiliary system controls are also programmed so that weld environment is precisely controlled before, during and after the welding operation.

3,657,512

TIP WELDING MEANS

Edward J. Bondarenko, East Brighton, Australia, assignor to Commonwealth of Australia, Melbourne, Australia

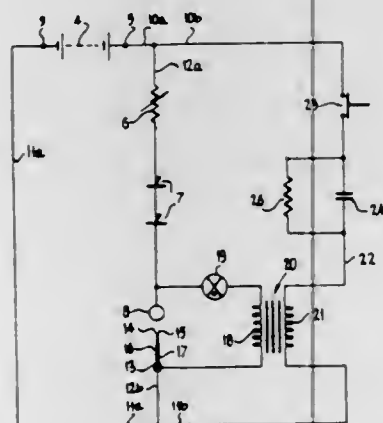
Filed Jan. 21, 1970, Ser. No. 4,714

Claims priority, application Australia, Jan. 22, 1969, 49395/69

Int. Cl. B23k 9/10

U.S. Cl. 219—131 R

13 Claims



An arc welding apparatus including a first source of electric current able to maintain the arc but unable by itself to initiate the arc, and a separate source of electric current able to apply sufficient voltage to initiate the arc, the first source being connected in parallel with the second source and the arc.

3,657,513

ELECTRICAL HEATING CABLES

Lawrence Howard, Wauconda, Ill., assignor to Jack Hille; Avrum N. Andalman, trustee; Arnold L. Cohen and Avrum N. Andalman, Chicago, Ill., part interest to each

Filed July 22, 1970, Ser. No. 57,230

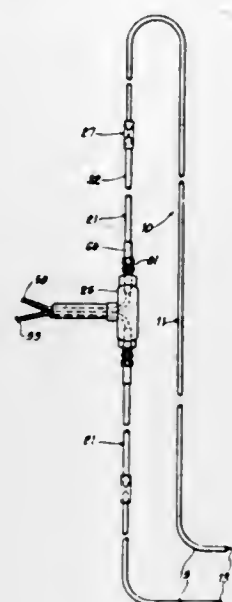
Int. Cl. B601 1/02

U.S. Cl. 219—200

4 Claims

An improved junction between the cold section of an electrical heating cable and the input leads, the cold or non-heat-

ing section being disposed between the hot section and the input leads. The disclosure relates to a mechanically reliable,



electrically-safe splice utilizing a stranded conductor for the input lead.

3,657,514

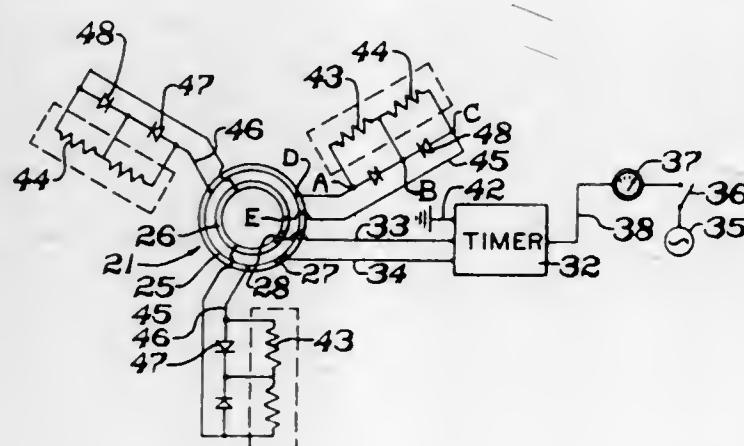
ELECTRICAL DEICER FOR AIRCRAFT PROPELLER
Lowell J. Adams, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed June 3, 1970, Ser. No. 42,945

Int. Cl. H05b 1/00

U.S. Cl. 219—201

7 Claims



Multiple heater deicer boots for propeller blades having a power source on the aircraft and an electrical connection through brushes and slip rings. Rectifiers are incorporated in the heater circuits and switches are provided for changing the polarity of voltage applied to the two wires connected to the heater circuits so that two brushes and two slip rings provide the electrical connection between the aircraft and rotating propeller for cycling power separately to each heater in the deicer boots.

3,657,515

DIVING SUIT

Norman E. Smith, Annapolis, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 21, 1970, Ser. No. 65,987

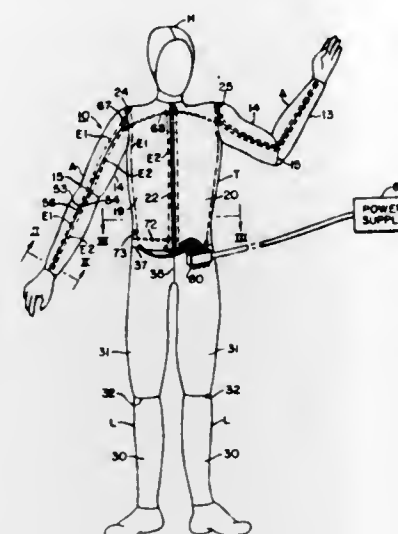
Int. Cl. H05b 3/00

U.S. Cl. 219—211

8 Claims

Sections of electrically conducting rubber material are joined together to conform generally to a diver's body. Each section includes an edge portion and a flexible electrode near

the edge portion with the electrode and conducting rubber responsive control switch; the above elements and parts being coated with a waterproof electrically insulating material.



To provide a desired unequal heat distribution, one embodiment includes a tapering arm (or leg) portion wherein the electrically conducting rubber progressively decreases in thickness.

3,657,516

FLEXIBLE PANEL-TYPE HEATING UNIT

Katsuji Fujihara, Osaka, Japan, assignor to Kansai Hoon Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Oct. 30, 1970, Ser. No. 86,151

Claims priority, application Japan, Nov. 10, 1969, 44/106283; Sept. 24, 1970, 45/94016

Int. Cl. F24h 9/02

U.S. Cl. 219—345

8 Claims



A flexible panel-type heating unit in the form of a sealed integral assembly comprising an electrically resistive paper or felt-like porous board having at least one pair of electrodes contacting at its opposite ends. The resistive board and electrodes are sandwiched and sealed by layers of paper or cloth sheets impregnated with a synthetic resin. This new panel-type flexible heating unit has a stable electrical resistance, generates heat uniformly at the entire portions at a desired temperature, automatically maintains the given temperature, allows heating of not only planar but also curved surfaces, and eliminates the provision of temperature-controlling means such as thermostat.

3,657,517

RELEASABLE CLAMP-ON HEATER BAND

Edwin D. Hoyt, Helmet, Calif., assignor to Rama Industrial Heater Co., San Jacinto, Calif.

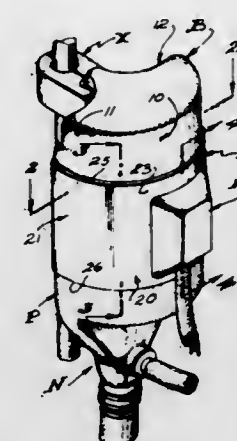
Filed Apr. 26, 1971, Ser. No. 137,408

Int. Cl. H05b 3/58

U.S. Cl. 219—535

9 Claims

A elongate, flexible, resilient, split-sleeve resistance heater of predetermined cross-section yieldingly, releasably engageable about an elongate part of similar cross-section. Said heater including an inner flexible sheet-like resistance heater element an outer, flexible, sheet-like ground, heat sink and armor screen, longitudinally spaced split band-like forming and gripping springs, flexibly connecting means between the element, screen and a power supply cord and a thermo-



together sheets and masses of dielectric, heat resistant silicon rubber compound to be hermetically sealed therein and electrically insulated thereby.

3,657,518

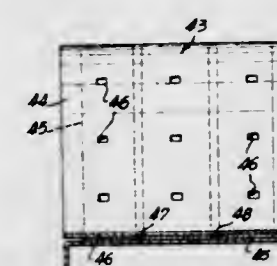
HEATING DEVICE FOR ELECTRICAL ACTUATION
James W. Welsh, Summit, N.J., and Fred Adler, Westbury, N.Y., assignors to Standard Motor Products, Inc., Long Island City, N.Y.

Filed Apr. 14, 1970, Ser. No. 28,326

Int. Cl. H05b 3/06

U.S. Cl. 219—536

3 Claims



A heating device for electrical actuation is shown which includes an elongated convoluted support and an insulated electrical resistance wire disposed upon the support. A base member optionally underlies the support and is secured thereto. The support may be formed alternatively of a pair of superimposed members, a lateral intumed portion, or a pair of spaced lateral intumed portions or folded portions. Flange portions may also be optionally provided upon the base member for stiffening purposes.

3,657,519

ELECTRICAL HEATING ELEMENT AND FITTING ASSEMBLY

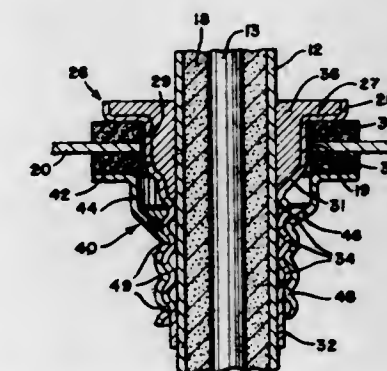
James F. Pease, 1001 View Point Drive, Dayton, Ohio

Filed May 25, 1970, Ser. No. 40,258

Int. Cl. H05b 3/06

U.S. Cl. 219—536

7 Claims



An electrical heating element has an end portion secured to a tubular fitting which extends through an opening within

a wall of a liquid heating vessel. The fitting is produced by drawing and deforming a sheet metal disk to form a flange portion and a tubular portion having a corrugated wall configuration defining external threads. The fitting is sealed to the wall by a resilient gasket and is secured by a nut member which is also produced by drawing and deforming a sheet metal disk to form a flange portion and a tubular portion having a corresponding corrugated wall configuration defining complementary threads. A fitting and nut member may be used for attaching each end of a sheath-type heating element to a wall and may also be constructed for mounting a cartridge-type heating unit on the wall. The fitting may be secured to the heating element by magnetically deforming the fitting.

3,657,520

HEATING CABLE WITH COLD OUTLETS

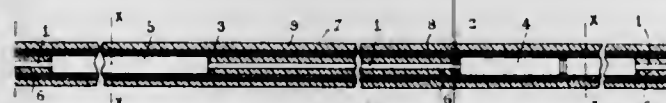
Michel A. Ragault, Bois-Jerome, par 27, Vernon (Eure), France

Filed Aug. 20, 1970, Ser. No. 65,398

Int. Cl. H05b 3/10

U.S. Cl. 219-553

7 Claims



A heating cable with cold outlets, intended mainly for use as immersion heaters and like heating elements, having heating resistance wire of relatively great length having its end brazed to non-heating conductors of greater diameter, the heating wire being covered with a glass fiber braid having a thickness such that the element has a constant cross-sectional dimension, this element being subsequently slipped into a sheath of plastic insulating material, and that said elements are assembled end to end in order to produce a cable of indefinite length subsequently covered with a metal braid and eventually, by extrusion, with a sheath of insulating plastic material.

3,657,521

ACCESS-CONTROL EQUIPMENT AND ITEM DISPENSING SYSTEMS INCLUDING SUCH EQUIPMENT

Geoffrey Ernest Patrick Constable, Cheltenham, England, assignor to Smiths Industries Limited, London, England

Filed Aug. 24, 1970, Ser. No. 66,182

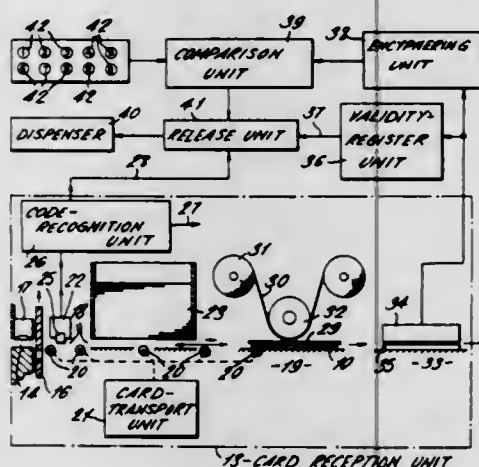
Claims priority, application Great Britain, Aug. 25, 1969,

42,263/69

Int. Cl. G06k 7/01

U.S. Cl. 235-61.7 B

15 Claims



A money-dispensing system is operative to dispense money in response to a bank customer's embossed credit card and

keyed-entry of his personal-identification number, only if this number accords with the customer's account number read from an accounting record impressed from the card. The account number is translated by an enciphering unit into a significantly different number in which each digit is dependent upon the value of more than one of the account-number digits, before the comparison with the keyed-in number. The translation involves filling a shift register with binary-encodings dependent on the account-number digits and the results of repeated execution of an operation in which there is programmed assembly and additive combination of pairs of numbers from different stages of the shift register and feed back into the register of a number dependent on the result of the additive combination. The process of assembly and additive combination of numbers from different stages of the shift register, together with feedback to produce derived-number shifting of the register, is continued after the register has been filled with the account-number derived data, so as to generate the digits of the translated number successively and supply these for comparison in turn with the corresponding digits of the keyed-in number.

3,657,522

RECORD FOR MACHINE SCANNING

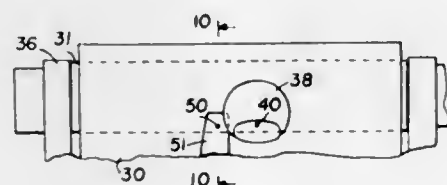
Ernest Wildhaber, 124 Summit Drive, Brighton, N.Y.

Filed May 12, 1970, Ser. No. 36,610

Int. Cl. G06k 19/00

U.S. Cl. 235-61.12 N

5 Claims



This record for machine scanning contains characters arranged in lines on both sides thereof, front and rear. On one side are conventional characters readily legible with human eyes from left to right. On the opposite side the characters are symbols legible by machine with a minimum of circuitry. The lines of symbols are arranged from right to left, starting at the right, so as to permit simultaneous application of the characters on both sides of the record.

3,657,523

CONTROLLING AND RECORDING APPARATUS FOR A LIQUID DISPENSER

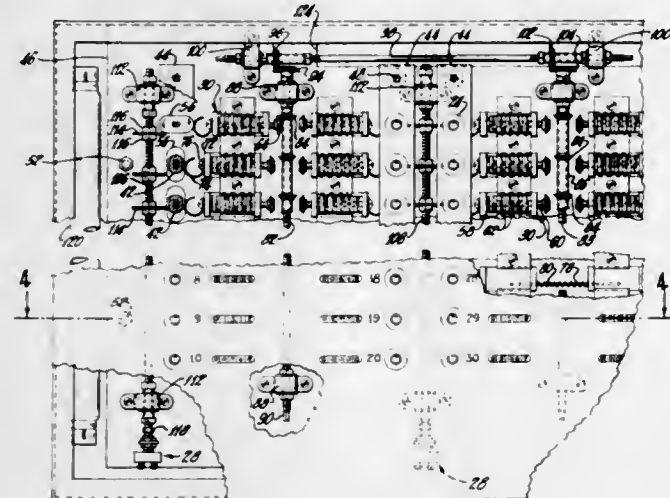
Alonzo R. Clark, 100 Maple Street, and Robert W. Bloom, 108 E. Lynn Street, both of Stryker, Ohio

Filed Feb. 11, 1971, Ser. No. 114,486

Int. Cl. B67d 5/22

U.S. Cl. 235-94 R

10 Claims



Apparatus used with a gasoline pump controls operation of the pump and records the amount of gasoline dispensed

thereby to each of a number of customers or users. Each of the customers has his own key for a specific lock of the apparatus. When the key is turned, a recording device indicates the amount of gasoline dispensed and a switch is closed to ready the gasoline pump for operation when the gasoline nozzle valve is operated by the user. The quantity of gasoline consumed by each customer is periodically noted and the customers are billed accordingly. The apparatus is less expensive to manufacture and, at the same time, is more reliable than devices heretofore proposed for the same general purpose.

3,657,524

DUAL MODE PROCESS CONTROL WITH CONTINUOUS FEEDBACK DURING COARSE MODE

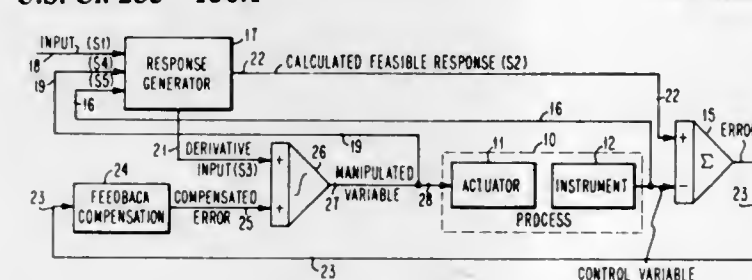
Roger M. Bakke, Los Gatos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 15, 1970, Ser. No. 46,349

Int. Cl. G05b 17/02

U.S. Cl. 235-150.1

10 Claims



Dual mode process control having a coarse mode employing feedforward to change the process at a time-optimal rate to a new condition, and having a fine mode employing feedback for maintaining the process in the set condition. In coarse mode, a continuous prediction of the response of the controlled variable is made and is compared to the continuous feedback also used in fine mode. Any difference therebetween comprises an error and is employed to alter the coarse mode control of the manipulated variable. Thus, if an inaccuracy exists in the feedforward model of the process or if some outside change should occur to the process while in coarse mode, it is compensated for by adjustment to the coarse mode control of the manipulated variable.

3,657,525

DIRECT FEED RATE CONTROL CIRCUIT

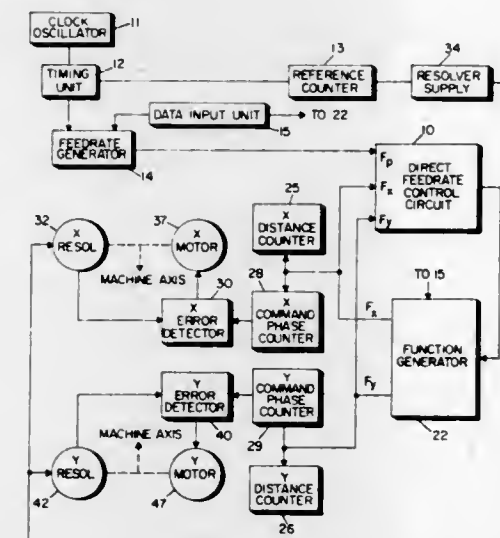
John T. Evans, Waynesboro, Va., assignor to General Electric Company

Filed Mar. 17, 1970, Ser. No. 20,339

Int. Cl. G05b 19/14; H02p 7/42

U.S. Cl. 235-151.11

9 Claims



Control of the rate of motion is provided for a numerical control system utilizing a direct feed rate form of pro-

gramming. Command pulse trains produced for each axis of motion and a velocity command pulse train representing the programmed velocity of the resultant path of motion are applied to a circuit which indicates a difference resulting from subtracting the sum of the squares of the number of pulses in the individual axis command pulse trains from the sum of the square of the number of pulses in the velocity pulse train over a period of time. The difference is used to control the rate of generation of the axis pulse trains so as to approach zero difference.

3,657,526

CALCULATING SYSTEM FOR AN AUTOMATIC WEIGHING SCALE

Kenzi Konisi, Osaka; Katsumi Iwatani, and Yukio Kakizono, both of Kyoto, all of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed May 11, 1970, Ser. No. 36,041

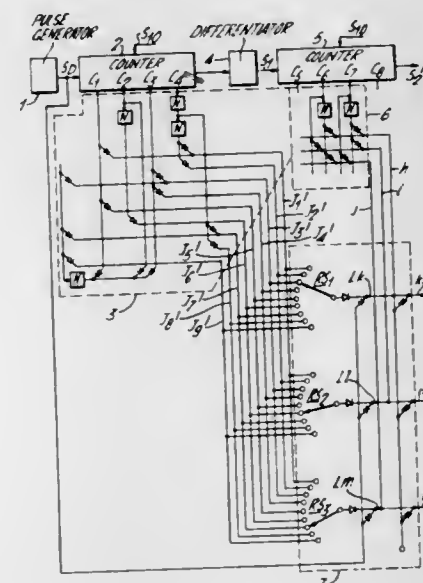
Claims priority, application Japan, May 15, 1969, 44/37557;

44/37558

Int. Cl. G01g 19/413; G06f 7/39

U.S. Cl. 235-151.33

5 Claims



A calculating system for an automatic weighing scale wherein a rough estimate of the value of a load being weighed can be made before the scale has come to complete balance. The rough estimate of the value of the load being weighed is renewed as the scale achieves a higher and higher degree of balance.

3,657,527

SYSTEM FOR AUTOMATICALLY CHECKING BOARDS BEARING INTEGRATED CIRCUITS

Georges Kassabgi, and Mario Vinsani, both of Milan, Italy, assignors to Honeywell Information Systems Italia S.p.A.

Filed Oct. 16, 1969, Ser. No. 866,804

Claims priority, application Italy, Oct. 17, 1968, 22592 A/68

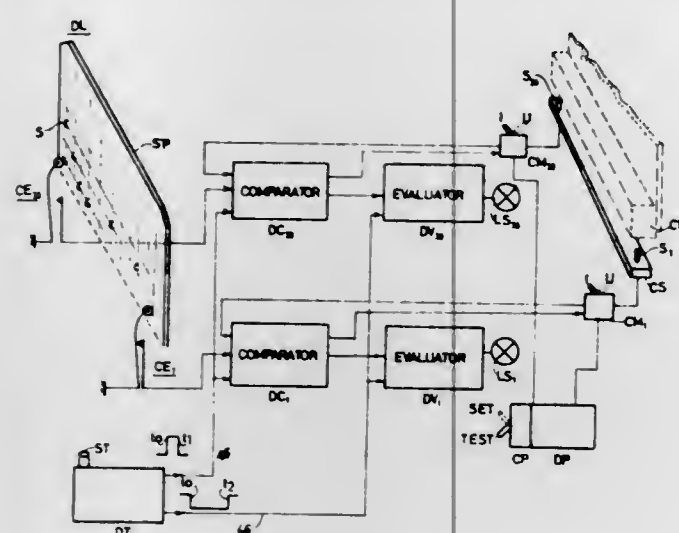
Int. Cl. G06f 11/00; G01r 15/12

U.S. Cl. 235-153

4 Claims

A system for checking boards bearing integrated circuits, wherein a program card is read automatically to provide both test input signals to the board and simulation output signals representative of the correct output signals which should be delivered by the board in response to the test input signals,

and wherein the actual output signals delivered by the board are compared with the simulation output signals for generat-



ing indicia representing any defects which may exist in the board.

3,657,528

RMS VOLTMETER AND LOG CONVERTER

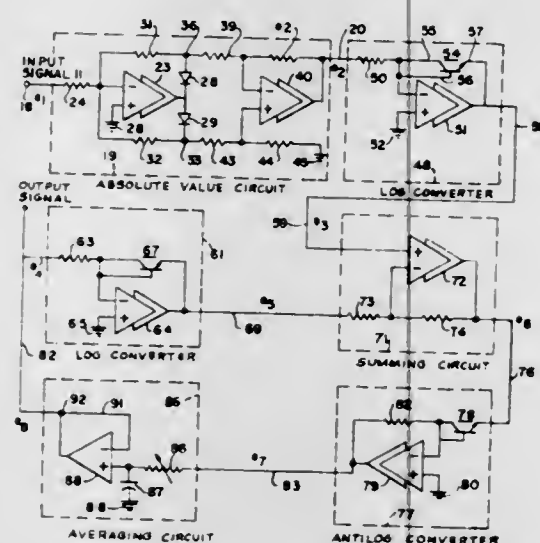
Lawrence M. Plante, 6092 Cilmere Drive, Brookpark, Ohio

Filed July 10, 1970, Ser. No. 53,789

Int. Cl. G06g 7/20, 7/24

U.S. Cl. 235—193

24 Claims



An RMS voltmeter and logarithmic converter using electronic mathematical operators for determining the RMS value and its logarithm of an input signal. A source of electrical signals to be measured is connected to the input of an absolute-value circuit. The output from the absolute-value circuit provides the input to a log converter circuit having an output which provides one of the inputs to a summing circuit. The output from the summing network provides the input to an antilog converter circuit. The output from the antilog converter circuit provides the input to an averaging circuit having its output connected to the input of a second log converter circuit. The output from the second log converter circuit is in circuit with the second input to the summing circuit. One of the two inputs to the summing circuit is scaled by a factor of two to achieve the squaring function required by the converter. In an alternative embodiment, means are disclosed for causing the instrument to operate in either the averaging or in the RMS mode to provide either a linear or logarithmic output. In addition, means are disclosed for selecting the time constant of the averaging circuit to accommodate a wide frequency range for the input signals.

3,657,529
ENTRY MARK SYSTEM FOR ENTRY AND DISPLAY OF NUMBERS

Goro Hamano, Osaka-fu, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed Jan. 26, 1970, Ser. No. 5,494

Claims priority, application Japan, Jan. 31, 1969, 44/7927;

44/7928; Mar. 3, 1969, 44/16052

Int. Cl. G06f 7/38, 3/00

U.S. Cl. 235—159

7 Claims



A calculator having an input register for receiving an input number, an auxiliary register and a decimal point position memory for storing numerical data and showing the number of digits below the decimal point position. Entry mark setting means are provided to set all 1's signals into the "one's" digit position of the auxiliary register corresponding to the contents of the decimal point position memory. Additional means are provided to set code bits specified by a keyboard into the same digit position of the input register as that of the entry mark consisting of all 1's signals in the auxiliary register by using the entry mark as a time slot signal for number entry.

3,657,530

REFLECTOR FOR ELECTRIC LAMPS

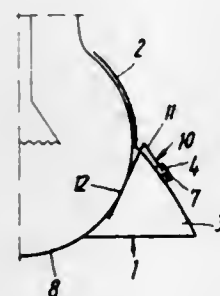
Eero Halonen, Ulvilantie 10 A 14, Helsinki 35, Finland

Filed June 26, 1970, Ser. No. 50,020

Int. Cl. F21v 7/00

U.S. Cl. 240—104

3 Claims



Reflector for electric lamps. The reflector comprises a part of aluminum plate of the shape of a truncate ball segment, and in connection with it a part of the shape of a paraboloid, and which is provided with one or several elastic fixing means for fixing the reflector detachably to the lamp-globe. One or several nail-like projections are pressed into the reflector, through which one end of a spring serving as fixing means is brought, while the other end protrudes from the inside surface of the reflector, so as to press against the lamp-globe.

3,657,531

BEAM CORRECTING DEVICE FOR MASS SPECTROMETERS AND METHOD OF OPERATION
Sydney Evans, Sale, and Reginald Graham, Willslow, both of England, assignors to Associated Electrical Industries Limited, London, England

Filed May 15, 1970, Ser. No. 39,240

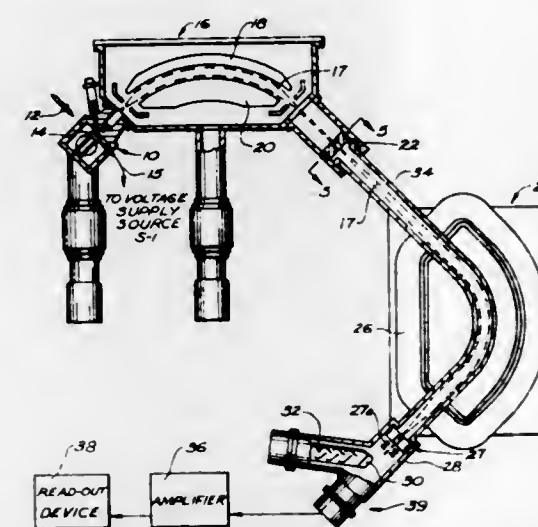
Claims priority, application Great Britain, May 16, 1969,

25,109/69

Int. Cl. H01j 39/34

U.S. Cl. 250—41.9 ME

10 Claims



A beam correcting device which may be utilized with mass spectrometers for altering the configuration of the beam of ions passing through the mass spectrometer. The beam altering device may include at least four electrodes disposed at substantially equal positions around the beam of ions and positioned at substantially a point along the beam at which the beam is of a minimum thickness. An electrical control circuit is coupled to the electrodes for applying at least four electrical signals, each of a predetermined value, to the electrodes to establish an electrostatic field about the beam of ions. By varying the potentials applied to the various electrodes, a beam having an arcuate cross-sectional configuration may be altered to produce a beam having a generally rectangular cross-sectional configuration thereby compensating for the effect on the beam caused by undesirable fringing fields.

3,657,532

COMPENSATED NUCLEAR DENSOMETER AND METHOD

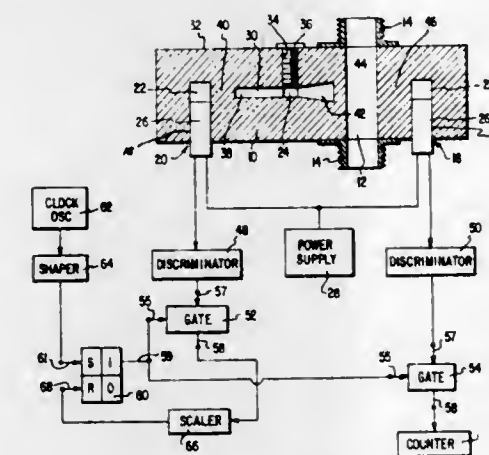
Carl W. Zimmerman, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Apr. 11, 1969, Ser. No. 815,333

Int. Cl. G01n 23/12

U.S. Cl. 250—43.5 D

12 Claims



Method and apparatus for compensating a digital nuclear densometer for decay in the intensity of the radiation source,

drift and instability of the detectors, temperature and other factors. A common source of radiation is used to irradiate separate detectors through substances of known and unknown density and a ratio between the number of pulses in the output signals of the detectors taken to compensate for conditions common to both detectors. The detectors are energized by a common source to minimize drift and instability and a circuit is provided for digitally linearizing the relationship between the number of pulses in the output signal and the density of the substance under investigation.

3,657,533

PLASTIC TUBING ELECTRON IRRADIATION APPARATUS WITH ROLLER MEANS TO FLATTEN THE TUBING DURING IRRADIATION

Frank W. Spillers, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Original application Apr. 18, 1967, Ser. No. 631,793, now

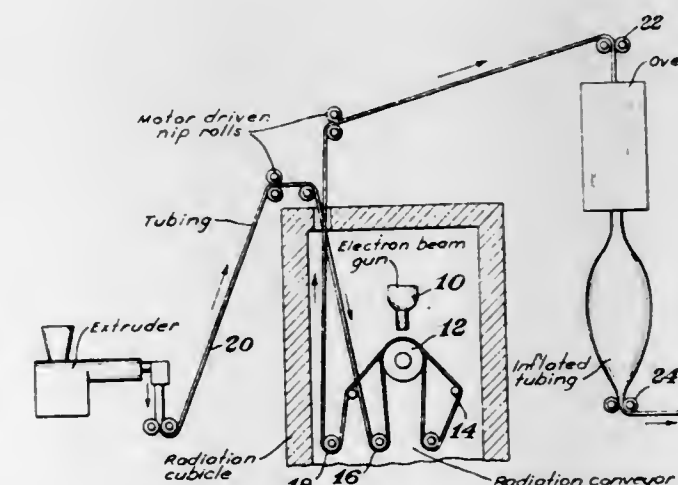
abandoned. Divided and this application July 14, 1969, Ser.

No. 859,604

Int. Cl. H01j 37/00

U.S. Cl. 250—49.5 TE

4 Claims



A process and apparatus for irradiating plastic tubing such that the dosage imparted to the tubing is uniform as to depth and area. The tubing is passed to a flattening zone, then to an irradiation zone, then reversed, inverted, and the sequence is repeated a plurality of times. The flattening zone comprises a flat roller or equivalent means. The irradiation zone comprises an electron beam gun or an equivalent irradiation source. The reversing and inverting is accomplished by a series of wheels and guide rollers arranged adjacent to the flat rollers.

3,657,534

DIGITAL SCALE FOR TOMOGRAPHY AND METHOD OF USING SAME

Joseph L. De Clerk, Red Bank, and Martin Weinstock, Long Branch, both of N.J., assignors to The United States of America as represented by the Secretary of the Army

Filed Mar. 12, 1970, Ser. No. 18,981

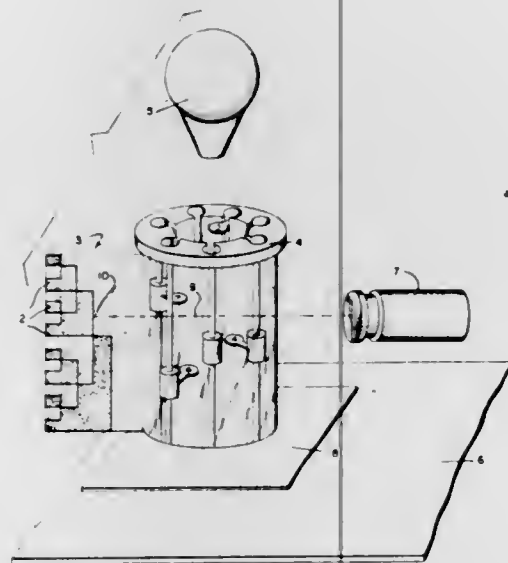
Int. Cl. G03b 41/16

U.S. Cl. 250—59

6 Claims

A test object for measuring the depth of focus of an X-ray exposure. The test object is comprised of a planar surface of X-ray transparent material on which are positioned a coded array of X-ray opaque elements. In use, the test object is an-

gularly inclined to the X-ray field so that the number of coded elements in focus in the resulting X-ray exposure pro-



vides a measurement of the depth of focus of the X-ray device.

3,657,535

THERMOLUMINESCENT DOSIMETRY READOUT APPARATUS

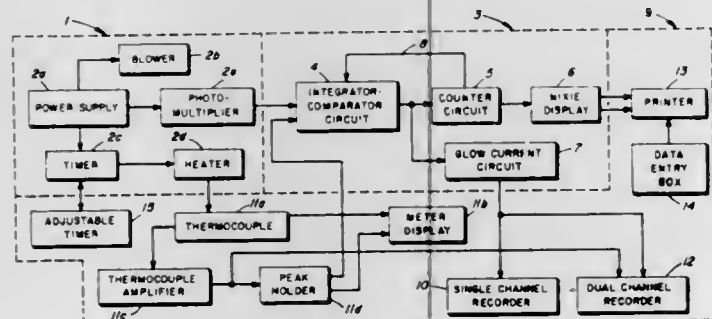
Bengt Bjarngard, Winchester, Mass., and Geoffrey A. M. Webb, Emerson, N.J., assignors to Isotopes, Inc., Westwood, N.J.

Filed June 5, 1969, Ser. No. 830,726

Int. Cl. G01t 1/11

U.S. Cl. 250-71.5

14 Claims



A thermoluminescence dosimetry readout system adaptable to different applications and comprising a basic thermoluminescent dosimetry readout apparatus in which a dosimeter is heated by a strong alternating current to emit thermoluminescent light. The light flux is converted to an electric current which is converted to a pulse train. The pulse train is counted by a four decade counter and the result, which is proportional to the integrated signal, is displayed on Nixie tubes. Numerous accessories form part of the system and comprise a thermocouple to contact the heating element during heating for indicating its temperature; recorders to record the light flux and temperature patterns; a printer to print identifications, Nixie displays and peak temperatures; and means for entering the identifications. The accessories may be used in numerous combinations to provide systems for various applications.

3,657,536 HIGH VOLTAGE CONNECTOR FOR A NEUTRON GENERATOR COMPRISING A PLASTIC INSULATOR

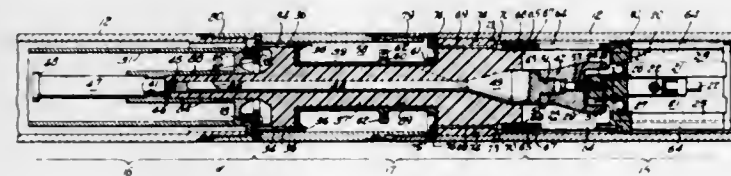
Obie M. Langford, Houston, Tex., assignor to Texaco Inc., New York, N.Y.

Filed Jan. 29, 1970, Ser. No. 6,866

Int. Cl. G21g 3/00

U.S. Cl. 250-84.5

8 Claims



High voltage connector apparatus for a radioactivity well logging tool. It has a solid conductor axially located within a moulded Teflon insulator. The insulator has a smooth transverse face acting as an end wall for a high pressure gas-containing section of the tool.

3,657,537 COMPUTERIZED SLIT-SCAN CYTO-FLUOROMETER FOR AUTOMATED CELL RECOGNITION

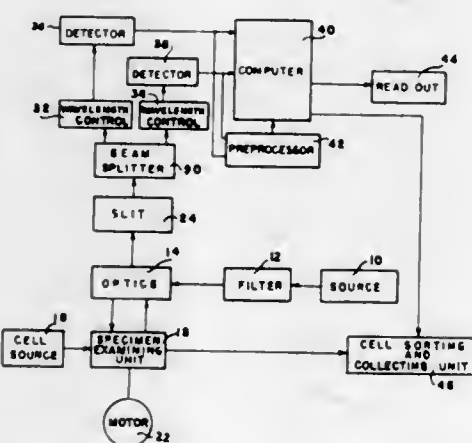
Leon L. Wheelless, Jr., Webster, and Stanley F. Patten, Jr., Penfield, both of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,336

Int. Cl. G01t 1/16

U.S. Cl. 250-71 R

12 Claims



A cyto-fluorometer incorporating an on-line computer provides, through the use of a slit-scan technique, averaged graphic fluorescence contours of a fluorochromed cell. Cells stained with fluorochrome acridine orange are passed under a slit, and secondary fluorescence is recorded at two separate wavelengths. From the graphic contours, cellular parameters are available including nuclear fluorescence at one wavelength which is related to cellular deoxyribonucleic acid (DNA) content, cytoplasmic fluorescence at another wavelength which is related to cellular ribonucleic acid (RNA) content, and the cell nucleus to cytoplasm size ratio (N/C ratio). This technique allows nuclear fluorescence to be distinguished from the non-specific cytoplasmic fluorescence often observed in squamous cells, and lends itself to high speed flow-through analysis for the pre-screening of cellular samples for abnormal cells.

3,657,538 METHOD AND APPARATUS FOR DETECTING X-RAY RADIATION USING A CHOLESTERIC DETECTOR

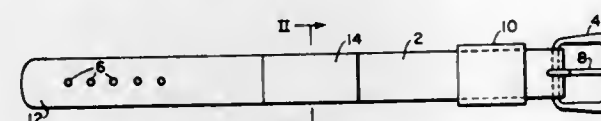
James L. Ferguson, Kent, Ohio, and Newton N. Goldberg, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 22, 1968, Ser. No. 754,582

Int. Cl. G01f 1/08

U.S. Cl. 250-83

23 Claims



Increasing dosages of X-ray radiation progressively lower the color-play range of cholesteric-phase liquid-crystal materials. The effect is enhanced when an effective amount of an iodine-containing compound is used in the liquid-crystal material. Novel iodine-containing compounds are described, and articles are disclosed that give direct-reading indication of the dosages of X-ray radiation that they have received, without need for a separate development operation.

3,657,539 METHOD AND DEVICE FOR MODULATING OR STABILIZING A NEUTRON FLUX OBTAINED FROM AN ION ACCELERATOR

Alexandre Pierson, Biviers, France, assignor to Commissariat A L'Energie Atomique, Paris, France

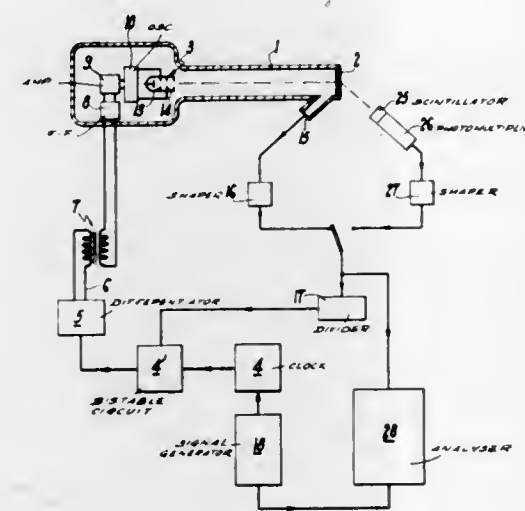
Filed June 16, 1969, Ser. No. 833,346

Claims priority, application France, June 28, 1969, 157055

Int. Cl. G01t 3/00

U.S. Cl. 250-83.1

9 Claims



A method and device for modulating or stabilizing a neutron flux obtained by bombarding a suitably charged target with nuclear particles which are produced in a pulsed form. The pulsation frequency of the particle source is modulated or stabilized and the duration of the pulsations of said source is controlled in dependence on the measurement of the neutron production rate of the target.

3,657,540 NUCLEAR RADIATION MONITORING DEVICE WHEREIN A DETECTOR, A REMOTE SOURCE AND A MEASURING DEVICE ARE CONNECTED BY A SINGLE CABLE

Jean-Paul Maillot, Meudon, France, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 3, 1969, Ser. No. 863,475

Claims priority, application France, Oct. 24, 1968, 171196

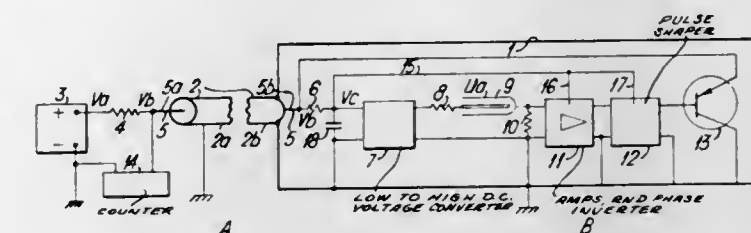
Int. Cl. H01j 39/10

U.S. Cl. 250-83.3 R

4 Claims

A nuclear radiation monitoring device wherein a detector and a remote source and measuring device are coupled by a

single coaxial cable via a resistor. The detector includes a Geiger-Muller counter tube, a low-to-high D.C. voltage converter, a pulse shaper and a monostable pulse repeater. The remote source supplies a low D.C. voltage which is converted



to a high D.C. voltage for use by the detector. Signal pulses from the detector reach the remote measuring device substantially without alteration due to the aforementioned resistor which is chosen to have an impedance equal to the characteristic impedance of the coaxial cable.

3,657,541 METHOD FOR ASSAYING RADIOACTIVITY OF A RADIONUCLIDE

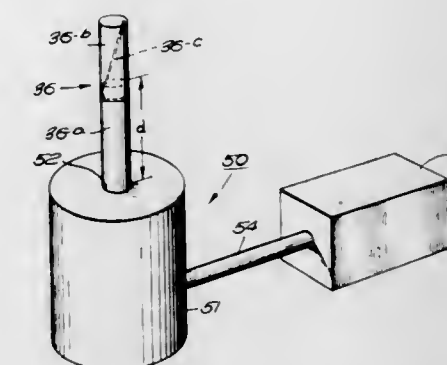
Marshall E. Deutsch, Sudbury; Louis W. Mead, Lexington, and Zoltan Nagy, Quincy, all of Mass., assignors to New England Nuclear Corporation

Original application Nov. 16, 1966, Ser. No. 594,713. Divided and this application Aug. 4, 1969, Ser. No. 870,764

Int. Cl. G01t 1/20

U.S. Cl. 250-83.3 R

2 Claims



This invention relates to the generation and testing of radionuclides, and more particularly, to the generation and testing of radionuclides for use in nuclear medicine.

3,657,542 PRODUCTION OF BEAMS OF EXCITED ENERGETIC NEUTRAL PARTICLES

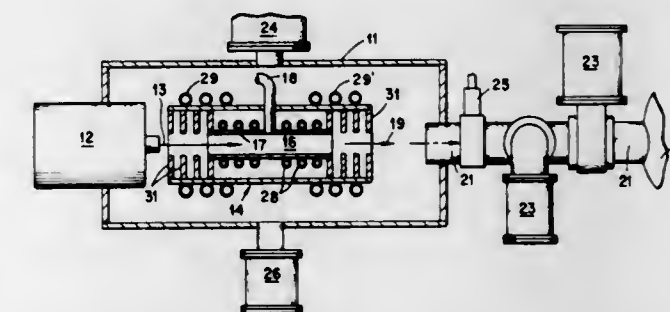
Archer H. Futch, Jr., Livermore, Calif., and Robert H. McFarland, Rolla, Mo., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed May 4, 1970, Ser. No. 34,282

Int. Cl. H01j 37/00

U.S. Cl. 250-84

4 Claims



Excited energetic neutral particle beams are produced, in accordance with one method, by directing a low energy ion

beam through a gaseous medium under thick target conditions. In accordance with a second method, the low energy ions, i.e., below 10 KeV, are directed through a first selected gaseous medium at which resonance or near resonance charge exchange neutralization occurs and the neutral particles are then passed through a second gaseous medium in which the particles are excited to high n -quantum levels. In either case the excited state neutral particle can then be more easily ionized by the Lorentz force when they are introduced into a magnetic containment field to form a plasma therein. The second gaseous medium generally comprises a different gas than the first and is especially selected to produce the maximum portion of excited states.

3,657,543

OPTICAL COMMUNICATIONS SYSTEM WITH IMPROVED BIAS CONTROL FOR PHOTSENSITIVE INPUT DEVICE

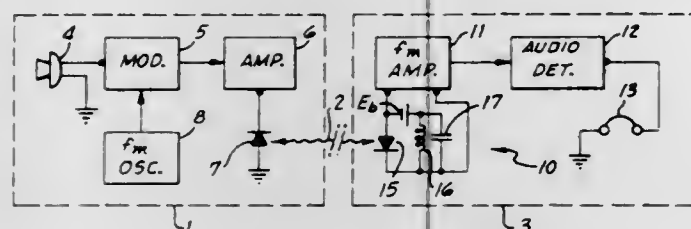
Edward A. Rose, Cupertino, Calif., assignor to Optronix, Inc., Santa Clara, Calif.

Filed July 24, 1968, Ser. No. 747,383

Int. Cl. H04b 9/00

U.S. Cl. 250-199

8 Claims



An optical communications system in which a subcarrier is impressed on an optical beam with a modulation representative of a signal to be communicated. This beam is intercepted by a semiconductor device having a photo-sensitive junction which generates an electrical signal representative of the modulated subcarrier and applies this signal to a demodulator for detecting the transmitted signal. A tuned circuit resonant at the subcarrier frequency is interposed between the semiconductor device and the detector and serves as a rejection filter for frequencies which deviate from the subcarrier frequency by more than the bandwidth of the transmitted signal. A back bias is applied to the photo-sensitive junction of the semiconductor device through a low resistance path of the tuned circuit so that the back bias does not vary substantially with variations in the intensity of optical radiation intercepted by the semiconductor device.

3,657,544

SCRAMBLED-PHASE LIGHT SIGNALLING DEVICE

Karl O. R. Scholdstrom, Lidingo, Sweden, assignor to AGA Aktiebolag, Lidingo, Sweden

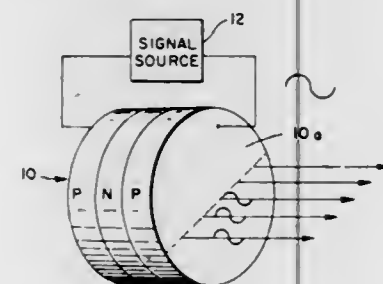
Filed Nov. 12, 1969, Ser. No. 875,633

Claims priority, application Sweden, Nov. 15, 1968, 15499/68

Int. Cl. H04b 9/00

U.S. Cl. 250-199

6 Claims



A corrective device is provided for modulated light transmitters or receivers having light-emitting or light-responsive

surfaces for which the modulation phase varies over the surface. The device eliminates any systematic error which may occur where only a portion of the surface is active by providing random reorientation of the transmitted or received light beam, the device taking the form of a multi-path translator wherein light conductors connect points on the input surface of the translator to randomly distributed points on the output surface.

3,657,545

METHOD AND APPARATUS FOR REPRODUCING A PATTERN FROM ONE PLANAR ELEMENT UPON ANOTHER PLANAR ELEMENT

Douglas Favel Horne, Beaconsfield, England, assignor to The Rank Organization Limited, London, England

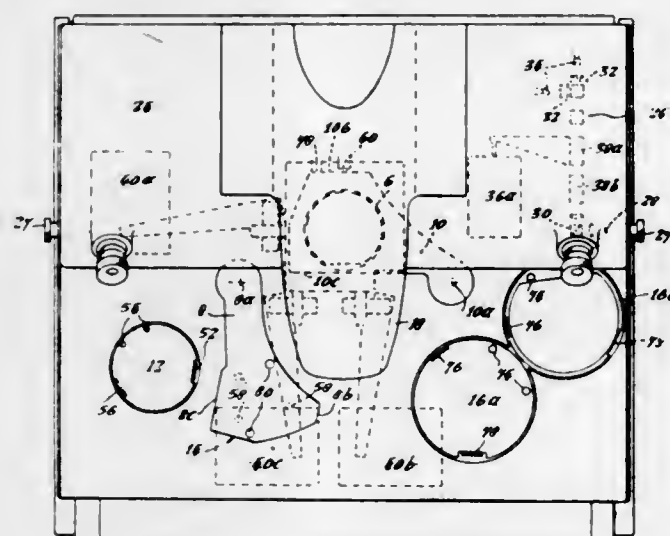
Filed Oct. 24, 1968, Ser. No. 770,250

Claims priority, application Great Britain, Oct. 27, 1967, 49,009/67; Apr. 19, 1968, 18,746/68

Int. Cl. G01j 1/20

U.S. Cl. 250-201

16 Claims



The specification relates to a method and means for the reproduction by a photo-printing process of a pattern from a master or mask plate onto a planar workpiece, the arrangement being intended particularly for use with the high accuracy requirements for building up of successive layers of a microcircuit, both in terms of location of the pattern and in the standard of reproduction of elements of the pattern. In the described form of the invention, the reproduction is performed while maintaining a spacing between the mask plate and the workpiece and a collimated beam of light is used to expose the workpiece to the mask plate pattern. Photo-electric microscope means provide a suitably precise form of automatic location to ensure that successive layers of the microcircuit can be applied in register with each other and approximate location means are combined with a transfer mechanism for loading the mounting devices. The mounting devices are capable of relative adjustment for alignment of the fiducial marks on the elements, for varying the spacing of the elements and for correcting non-parallelity between the adjacent faces of the elements.

3,657,546

LINE FOLLOWER EQUIPPED WITH MASK TO MAKE EDGE OF SILHOUETTE APPEAR AS A LINE

John R. Bradley, Chesham, England, assignor to The British Oxygen Company Limited, London, England

Filed Jan. 27, 1970, Ser. No. 6,236

Claims priority, application England, Feb. 3, 1969, 5,689/69

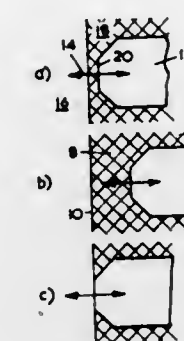
Int. Cl. G06k 1/10; H01j 3/14

U.S. Cl. 250-202

9 Claims

A photoelectric line follower is enabled to follow silhouette patterns by positioning a mask partially in the sight

area of the follower. The mask blanks out a portion of the sil-



houette, leaving only an unobscured, linear portion to function as a 'virtual' line in guiding the follower.

3,657,547

MONOPULSE GAIN BALANCED AMPLIFICATION SYSTEM USING PILOT CARRIER TECHNIQUES

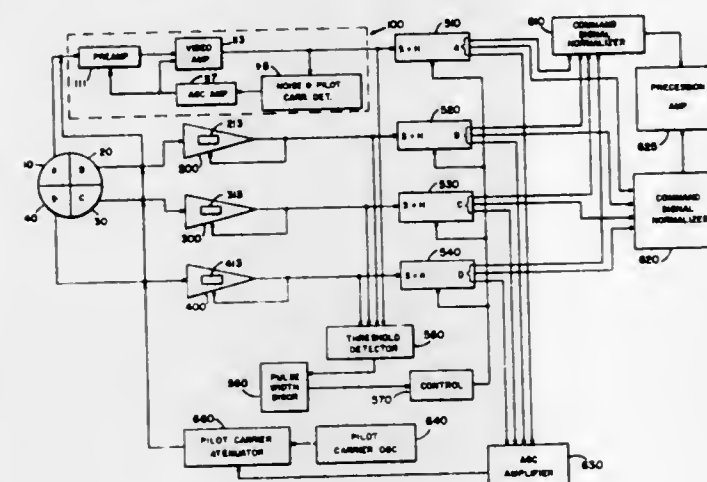
Gerald R. Mansfield, Raleigh, N.C., assignor to The United States of America as represented by the Secretary of the Army

Filed Jan. 20, 1971, Ser. No. 107,964

Int. Cl. G01j 1/20

U.S. Cl. 250-203 R

10 Claims



A monopulse type receiver utilizing pilot carrier techniques for providing precise angular error information. Four detector cells are arranged in a quadrant configuration for detecting pulses of laser energy, with the output from each cell being delivered to a respective video channel. Each video channel comprises amplification circuitry including an inner loop automatic gain control (AGC) which operates both on noise and the pilot carrier signal to ensure uniformity of response for each video channel. The video channel outputs are fed into respective sample and hold circuits which provide voltage amplitude outputs both to an outer AGC loop and to a pair of command signal normalizer circuits. The outer AGC loop raises or lowers the gain of each of the video channels as required by controlling the amount of pilot carrier signals interjected into the front of the system. The outputs of the normalizer circuits represent ratios of the energy difference in the four channels divided by the sum of the energies of the channels to provide the desired angular information to a gyro head or the like. Pulse presence determination circuits are also provided in order to reject pulses wider than would be expected.

3,657,548

TRACKING SYSTEM

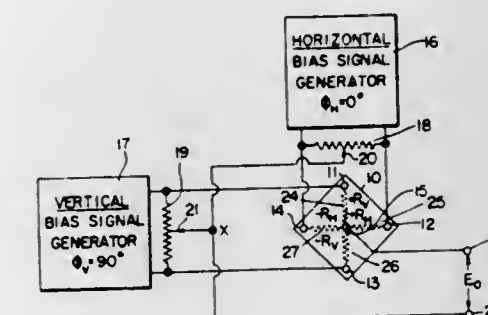
William J. Parkin, Natick, Mass., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed Jan. 23, 1963, Ser. No. 253,504

Int. Cl. G01s 3/78

U.S. Cl. 250-203 R

13 Claims



Biasing means are coupled to a radiation responsive, variable impedance detector element to provide a swept sensing apparatus for producing an indication of the presence and location of a remote source of radiation or target without mechanically moving parts.

3,657,549

TWO-COLOR HORIZON SENSOR

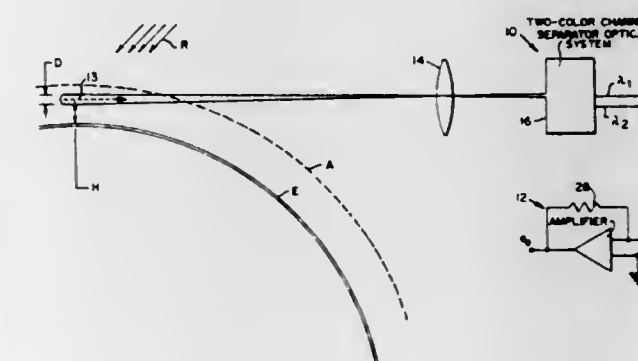
George M. Low, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of; Harold H. Seward, 16 Frost Street; Mark Gorstein, 60 Spy Pond Lane, and Ian G. McWilliams, 19 Eastern Avenue, all of Arlington, Mass.

Filed May 21, 1970, Ser. No. 39,344

Int. Cl. H01j 39/12

U.S. Cl. 250-209

25 Claims



A radiant energy sensor which may be employed to detect discrete radiant energy wavelength bands from a selected portion of a radiating body such as the horizon. As radiant energy from various portions of the body is detected, the energy is analyzed according to its color characteristics by means of a double monochromator. A combination lens-prism system is used to refract the radiant energy according to its wavelength. Photo detectors in the double monochromator respond to two selected wavelength bands of the radiant energy and are connected to a difference amplifier to determine the null output of the two detectors. The null condition is adjusted to correspond with the discrete wavelength bands to be sensed.

3,657,550

APPARATUS FOR MEASURING THE SPATIAL RESPONSE OF OPTICAL SYSTEMS

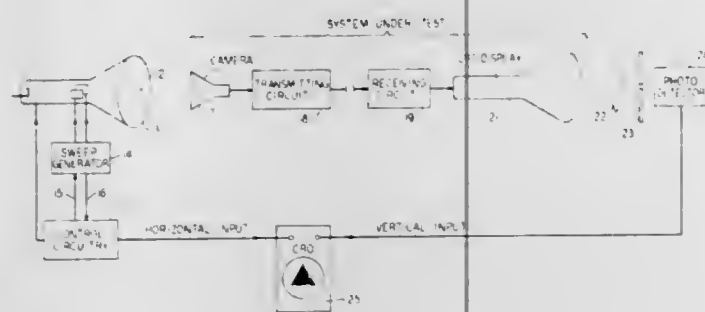
Earl Franklin Brown, Piscataway, and William Kaminski, Hunterdon, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, Berkeley Heights, N.J.

Filed Apr. 7, 1970, Ser. No. 26,292

Int. Cl. G01r 31/22

U.S. Cl. 250-217 CR

20 Claims



To measure the spatial response characteristics of optical systems, control circuitry is provided to electrically generate a predetermined one-dimensional spatial waveform (e.g., sinusoidal) on the display screen of a cathode ray tube. The optical system to be tested (e.g., a television system) is placed between the spatial waveform display and a suitable detector which comprises a mask having a narrow slit followed by a photomultiplier. The output of the latter is then displayed on an oscilloscope, or measured in some other known fashion. A linear light modulation is achieved for the spatial waveform display by gating a linearly scanned electron beam with constant amplitude, constant duration, variable duty cycle pulses. Appropriate waveforms can be selected to evaluate the spatial frequency response, transient response, linearity, or steady state response of the optical system under test.

3,657,551

SYSTEM FOR SENSING AND INDICATING THE SET INCLINATION OF AN OBJECT

Birger Valdemar Lingert, and Axel Sture Lindblom, both of Eskilstuna, Sweden, assignors to AB Bolinder-Munktel, Eskilstuna, Sweden

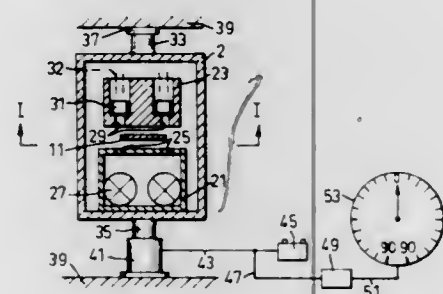
Filed June 19, 1970, Ser. No. 47,792

Claims priority, application Sweden, June 23, 1969, 8868/69

Int. Cl. G01d 5/34

U.S. Cl. 250-231 R

10 Claims



A system for sensing and indicating the angle at which a vehicle-carried implement is inclined to a horizontal line, including a transmitter mounted on the implement and having a pendulum swingable in a housing, said housing being pivotable by remote control with respect to said implement. The transmitter further has light radiating and light sensing means variably screened by a shield on said pendulum to produce a signal depending on the inclination from the vertical of the pendulum housing, and thus characterizing deviation or correspondence between the actual implement

inclination and the desired implement inclination, which is adjustable by pivoting the pendulum housing.

3,657,552

METHOD FOR EMPLOYMENT OF FAST TURBINE VALVING

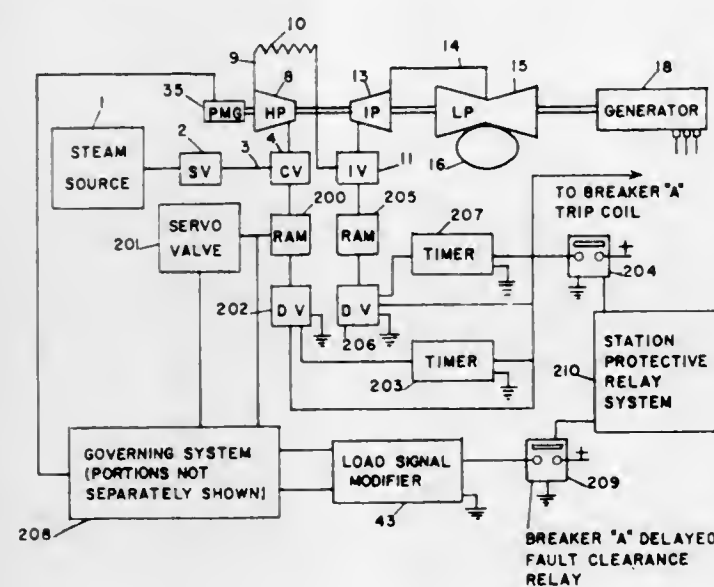
Robert H. Park, Main Street, Brewster, Mass.

Filed June 1, 1970, Ser. No. 42,281

Int. Cl. F01k 13/02

U.S. Cl. 290-40 B

2 Claims



In a process of fast steam turbine valving employed as a way to avoid loss of synchronism within a power system in the event of a transmission line fault, automatic modification of post fault sustained turbine driving power is programmed in response to operation of generating station protective relay means employed to initiate opening of transmission voltage level back-up circuit breakers, when the opening of such breakers would cause the opening of two transmission lines.

3,657,553

REMOTE DOOR UNLATCHING APPARATUS

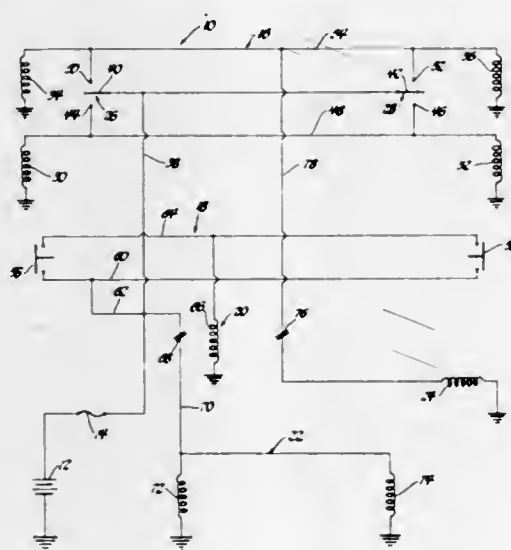
Richard P. Ballou, Howell, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1970, Ser. No. 93,519

Int. Cl. H02g 3/00

U.S. Cl. 307-10

5 Claims



Apparatus for unlatching the passenger door of a vehicle from the driver's side of the vehicle by placing a door lock

3,657,556

LIQUID LEVEL SWITCH

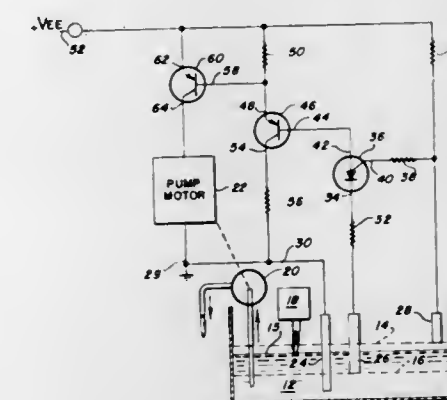
Merrill J. Foster, Fox River Grove, Ill., assignor to Marine Industries, Incorporated

Filed Aug. 3, 1970, Ser. No. 60,539

Int. Cl. H01h 45/00

U.S. Cl. 307-118

7 Claims



A liquid level switch for maintaining the liquid level in a container between upper and lower limits. A first electrode extends into the container to the upper limit and a second electrode extends into the container to the lower limit. A single active circuit element coupled to the electrodes continually monitors the liquid level and controls a pump to maintain that level between the upper and lower limits. The electrodes are mounted within a cup-shaped housing having an open bottom for receiving the liquid upon bottom first insertion of the cup whereby an air pocket trapped within the cup prevents the liquid from rising into the upper portion of the cup to eliminate false indications caused by the liquid clinging between the electrodes.

3,657,557

SYNCHRONOUS BINARY COUNTER

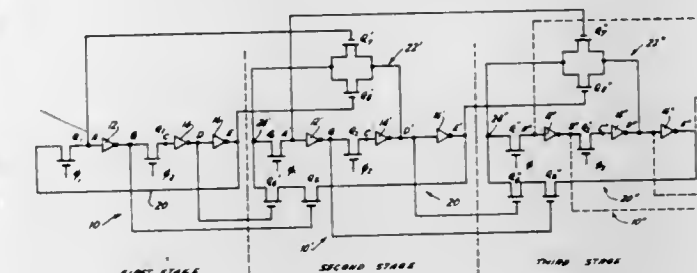
Kent F. Smith, and Frank M. Wanlass, both of Salt Lake City, Utah, assignors to General Instrument Corporation, Newark, N.Y.

Filed Oct. 19, 1970, Ser. No. 81,902

Int. Cl. H03k 23/22

U.S. Cl. 307-225

21 Claims



A multistage synchronous binary counter has an improved high speed carry means which is responsive only to the previous stage. Each stage comprises three inverters connected in series, the first and second inverters being isolated periodically by a clocked switching device. Two feedback paths in each stage comprising two switching devices each are adapted to feed back the signals at the outputs of the second and third inverters respectively to the input node, the control terminals of said switching devices being connected to selected nodes in the preceding stage. Another clocked switching device is interposed in both feedback paths whereby each count takes place over a period defined by first and second nonoverlapping clock signals applied to the first and second clocked switching devices, respectively.

3,657,554

SUPER-RADIANT SHORT PULSE LASER

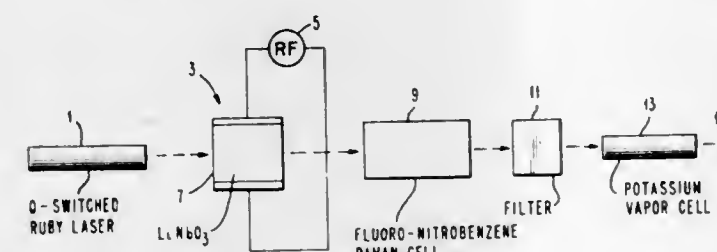
Oscar J. Lumpkin, New York, and Norman S. Shiren, Mount Kisco, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1969, Ser. No. 837,599

Int. Cl. H03f 7/00

U.S. Cl. 307-88.3

6 Claims



Short intense lasing pulses of resonant radiation, of the order of 10^{-13} sec., are produced by employing adiabatic rapid passage of an optical transition of an optically resonant medium, such as K-vapor. The adiabatic rapid passage is achieved in the K-vapor by frequency modulating each pulse of a ruby laser giant pulse source. The modulated pulses are then passed through a fluoro-nitrobenzene Raman cell to provide an output pulse which has the required power and whose instantaneous carrier frequency sweeps through a resonance having a pair of levels connected by electric dipole transitions in the K-vapor system.

3,657,555

VARIABLE PASSIVE VOLTAGE TRANSIENT GENERATOR

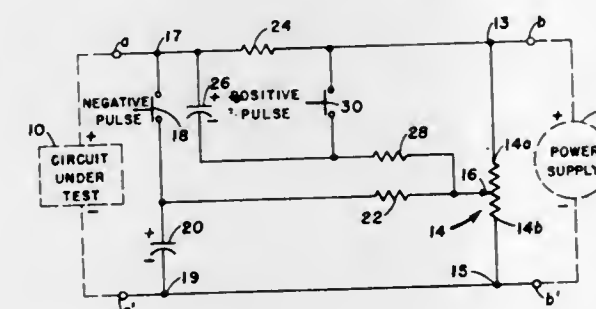
Eric J. Hoffman, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Mar. 27, 1970, Ser. No. 23,161

Int. Cl. H03k 3/53, 3/00

U.S. Cl. 307-108

8 Claims



A passive generator that provides for the precise and repeatable generation of voltage transients. A portion of the supply voltage, as determined by a potentiometer, is applied to a first and second capacitor-resistor network. By closing associated first and second switches, the generation of either positive or negative voltage transients, having a variable amplitude and a definite time constant is accomplished.

3,657,558

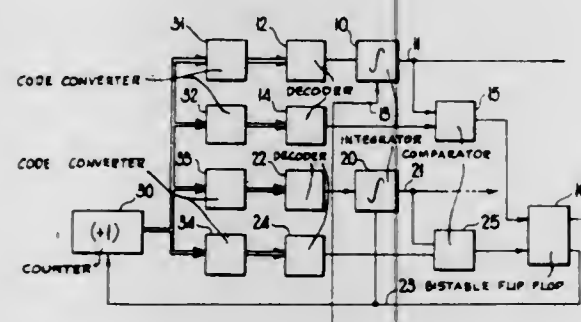
MULTIPLE RAMP WAVEFORM GENERATOR
 Brian Anthony Patrickson, Maidstone, England, assignor to Elliott Brothers (London) Limited, London, England
 Filed Oct. 28, 1970, Ser. No. 86,927

Claims priority, application Great Britain, Oct. 28, 1969, 52,745/69

Int. Cl. H03k 4/08

U.S. Cl. 307-228

5 Claims



The invention is a circuit for generating a pair of interleaved repeating sequences of several ramp signals of differing slopes and lengths. An integrator 10 is energized by a signal on line 13, and produces an output ramp whose slope is controlled by the signal on line 12. The ramp output is compared with the signal from decoder 14 by comparator 15, and on equality flip-flop 16 changes state. This de-energizes integrator 10 and energizes integrator 20, which operates in a similar way to produce a ramp for the other sequence. Integrators 10 and 20 thus produce ramps alternately, as flip-flop 16 changes between its two states. Each time flip-flop 16 changes into one state, it steps on a cyclic counter 30 which feeds its new count to pre-wired decoders 31 to 34 which determine the parameters (slope and height) of the next two ramps, one from each of the two integrators.

3,657,559

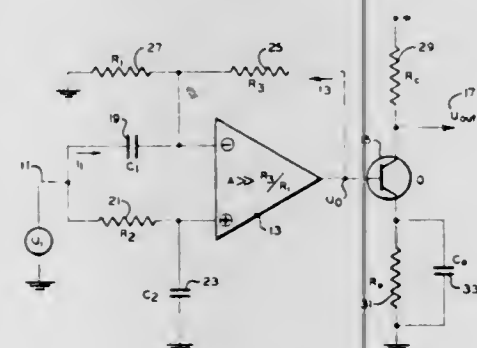
FREQUENCY DEPENDENT ZERO PHASE SHIFT
 Nikola Vidovic, Auburn, Calif., assignor to The Singer Company, New York, N.Y.

Filed Apr. 27, 1971, Ser. No. 137,752

Int. Cl. G06g 7/12

U.S. Cl. 307-230

6 Claims



An amplifier providing a frequency dependent gain with no phase shift which is particularly useful in television aperture correction is shown. Generally a frequency dependent input to and feed back around an operational amplifier provide the frequency dependent gain and a transistor circuit with an RC circuit having the same time constant as the feed back circuit, in its emitter path assures zero phase shift.

3,657,560

FREQUENCY-VARIABLE INSULATED GATE FIELD EFFECT RESISTOR

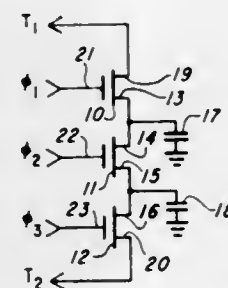
Robert J. Proebsting, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 18, 1970, Ser. No. 20,677

Int. Cl. H03k 5/20

U.S. Cl. 307-233

5 Claims



A frequency-variable resistor is comprised of a plurality of source-to-drain series connected, insulated gate field effect transistors. The source-to-drain interconnections are effectively coupled to ground through capacitors and the source contact of the first transistor and drain contact of the last transistor in the series provide the terminals of the resistor. Each of the gate contacts of the plurality of transistors is connected to a signal source of the same frequency, but of a different phase. The resistance of the field effect resistor is then linearly, inversely proportional to the frequency of the signal over a wide range, and extremely high resistances are achieved.

3,657,561

PASSIVE FREQUENCY DETECTION CHANNEL FOR A DATA RETRIEVAL SYSTEM

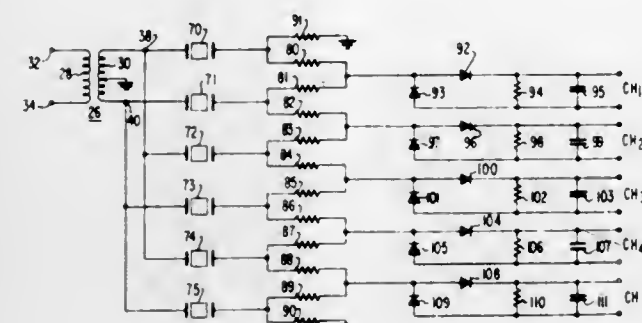
Henry G. Riekers, Glen Burnie, and Bradley P. Closs, Severna Park, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 21, 1970, Ser. No. 39,278

Int. Cl. H03h 7/02

U.S. Cl. 307-233

12 Claims



A passive frequency detection channel utilizing shared crystal resonators respectively coupled to opposite ends of a center tapped secondary transformer winding. The crystal resonators are coupled to a passive current summing network and envelope detector and post detection integrator by means of a shared resistor isolation network. Current summing is provided by the resistor isolation network while the envelope detector is comprised of one of a pair of Schottky barrier diodes commonly referred to as hot carrier diodes coupled between the isolation network and a post detection integrator comprising a parallel R-C circuit. Additionally the R-C circuit in combination with both diodes provides a low AC impedance to ground for the crystal resonators and isolation network which is essential for proper operation of the apparatus.

3,657,562

ELECTRONIC SWITCHING ARRANGEMENT
 Ezio Cottatellucci, Milan, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.P.A., Milan, Italy

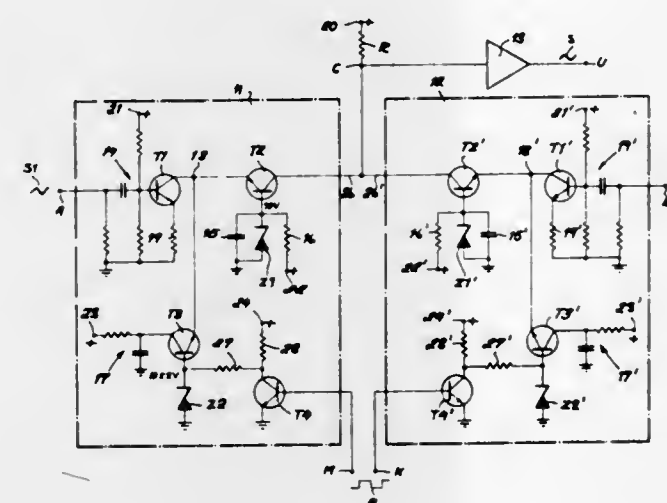
Filed June 25, 1970, Ser. No. 49,731

Claims priority, application Italy, June 26, 1969, 18711 A/69

Int. Cl. H03k 17/56

U.S. Cl. 307-243

12 Claims



Two or more identical coupling networks, connected between respective signal sources and a common output circuit, are rendered alternately conductive by a control pulse (P) changing the relative magnitude of two biasing voltages applied to the bases of a pair of switching transistors (T2, T3) within each network. The two switching transistors, of like conductivity type (NPN), have their emitters tied to the collector of an input transistor (T1) whose emitter is grounded and whose base receives the message signal to be transmitted; the collectors of the two switching transistors are connected to potential (+) through an output transistor (R) and a dummy load (17), respectively.

3,657,563

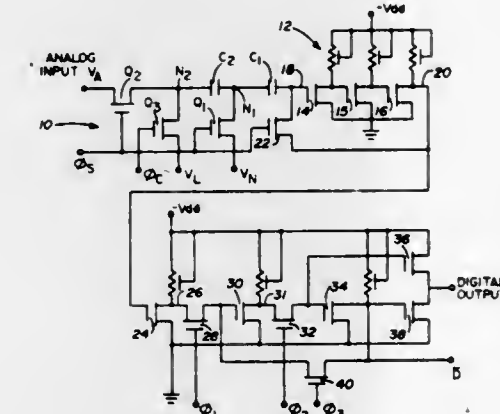
AC COUPLED COMPARATOR AND A/D CONVERTER
 Billy C. Davis, Round Rock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 30, 1969, Ser. No. 889,144

Int. Cl. H03k 13/10

U.S. Cl. 307-251

5 Claims



An analog-to-digital converter is disclosed which utilizes an AC coupled all MOS FET comparator, a resistor ladder for producing a reference voltage, and an all MOS FET control circuit and thus has a very low power consumption.

3,657,564

CIRCUIT PROVIDING FAST PULSE RISE AND FALL TIMES

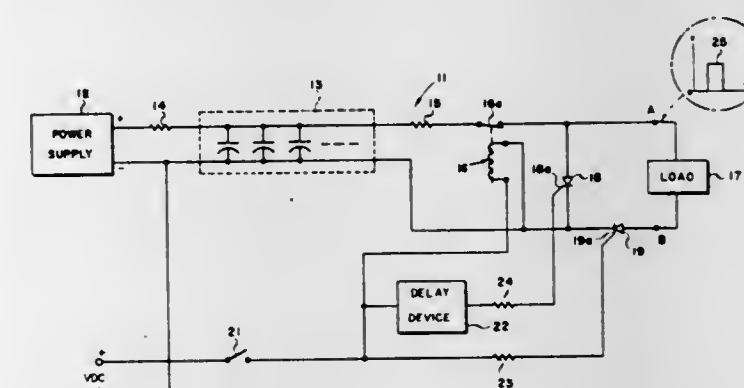
David L. Hollis, Raleigh, N.C., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Continuation-in-part of application Ser. No. 636,099, May 4, 1967, now abandoned. This application Apr. 24, 1970, Ser. No. 31,768

Int. Cl. H03k 17/72

U.S. Cl. 307-252 K

6 Claims



A pulse circuit for generating a pulse of square waveform at substantial current levels utilizing a power source to charge a capacitor bank which is discharged through a load and a first silicon controlled rectifier in series with the load upon the gating on of the first silicon controlled rectifier. A second silicon controlled rectifier is connected to shunt both the load and first silicon controlled rectifier after the correct pulse width is obtained and after being gated on by a delay device whose time characteristics correspond to the desired pulse width.

3,657,565

CONTROL CIRCUIT FOR POWER CONTROL BY MEANS OF A THYRISTOR

Johannes Leyten, Woudenberg, and Nicolaas Mur, Amersfoort, both of Netherlands, assignors to Electrofact N.V., Amersfoort, Netherlands

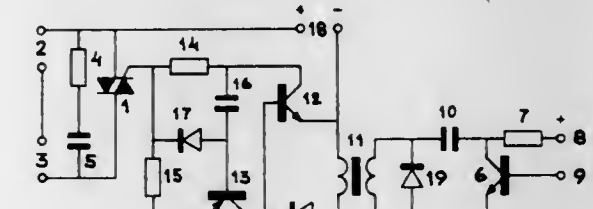
Filed Aug. 25, 1970, Ser. No. 66,669

Claims priority, application Netherlands, Aug. 27, 1969, 6913129

Int. Cl. H03k 17/00

U.S. Cl. 307-252 B

3 Claims



The invention concerns the use of a thyristor in a control circuit for electric power control. The thyristor is so connected and controlled that the number of complete half cycles during which the thyristor is conductive and non-conductive is varied, the thyristor being rendered conductive by a control pulse at its gate electrode immediately before or at the start of the half cycles during which the thyristor is to be conductive.

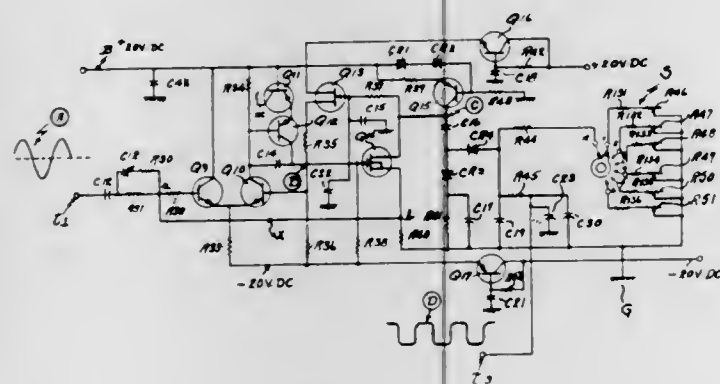
3,657,566

**ALTERNATING CURRENT TO DIRECT CURRENT
SIGNAL CONVERTER**

Frederick Rodney Holt, Manhattan, N.Y., assignor to The
Hickok Electrical Instrument Company, Cleveland, Ohio
Filed May 13, 1970, Ser. No. 36,892
Int. Cl. H03k 5/00

U.S. Cl. 307-260

4 Claims



A converter for converting an alternating current signal to a corresponding direct current signal and which has a differential input stage connected to the input of class A amplifier. The amplifier has a shorting circuit connected between its input and a converter circuit therein which converts a voltage signal swing at the amplifier output into a current signal swing and which provides a "zero summing point" or circuit whereby the direct current output signal may be referenced directly to the converter ground, and also wherein the said output is directly related to the input signal current.

3,657,567

SIGNAL GATING CIRCUIT

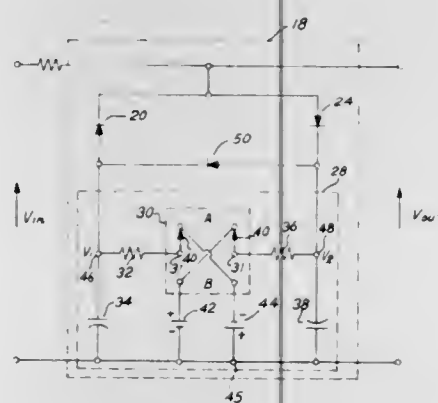
Richard Brander, Cicero, Ill., assignor to Beltone Electronics Corp.

Filed June 10, 1970, Ser. No. 44,948

Int. Cl. H03k 17/00

U.S. Cl. 307-259

13 Claims



A network for gating a signal to be transmitted across a pair of terminals is connected in parallel across the terminals. The network includes a pair of diodes connected in parallel and oppositely poled which may be biased into conduction when attenuation is desired and into nonconduction when no attenuation is desired. A feedback amplifier is employed to hold the bias voltage for one of the diodes equal and opposite to the bias voltage for the other diode. A resistor-capacitor network allows the bias voltage on the diodes to be varied gradually between the off and on conditions of the gating circuit.

3,657,568

**PULSE SHAPING CIRCUIT USING COMPLEMENTARY
MOS DEVICES**

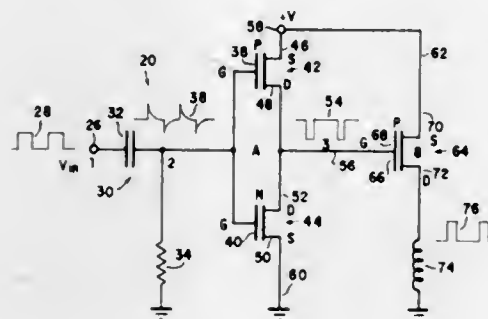
Bruno Dargent, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Filed Jan. 5, 1970, Ser. No. 568

Int. Cl. H03k 5/00

U.S. Cl. 307-268

5 Claims



Disclosed is a pulse shaping circuit particularly constructed for use in driving the transducer coil of an electric wrist-watch. The circuit comprises complementary P and N channel MOS transistors having their common gates connected in common to an MOS transistor switch for switching power through the load coil.

3,657,569

**TURN ON TURN OFF FEEDBACK DRIVE SWITCHING
CIRCUIT**

Thomas A. Froeschle, Framingham, Mass., assignor to The Bose Corporation, Natick, Mass.

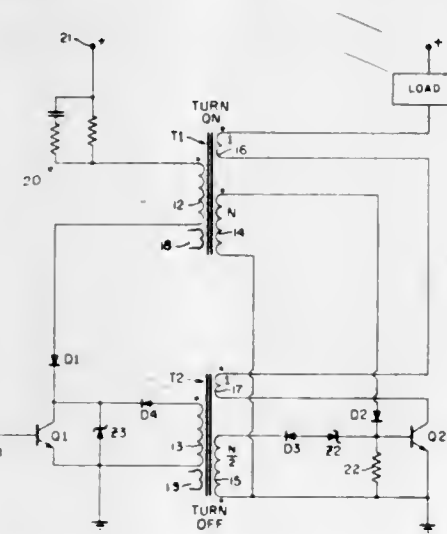
Continuation-in-part of Ser. No. 869,520, Oct. 27, 1969

Filed Feb. 19, 1970, Ser. No. 12,747

Int. Cl. H03k 3/30

U.S. Cl. 307-275

15 Claims



A power transistor turns on and off in response to a switching signal applied to the base of a low level input transistor. Each of turn on and turn off transformers includes a primary winding having a relatively large number of turns, a main secondary winding having a number of turns N and N/2, respectively, and a feedback secondary winding having a number of turns such that the ratio of turns on main to feedback secondary windings is N and N/2, respectively.

3,657,570

RATIOLESS FLIP-FLOP

Robert E. Brink, Deer Park, Tex., assignor to Shell Oil Company, New York, N.Y.

Filed May 18, 1970, Ser. No. 38,303

Int. Cl. H03k 3/26

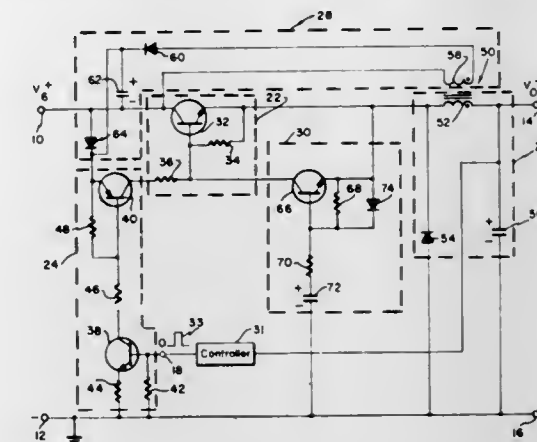
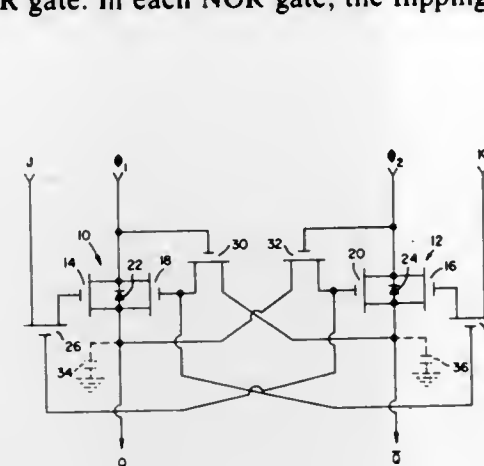
U.S. Cl. 307-279

9 Claims

A ratioless J-K mode IGFET flip-flop circuit is produced by providing a pair of NOR gates each having one input con-

nected to a source of flipping signals and the other input cross-coupled through a clocked gate to the output of the other NOR gate. In each NOR gate, the flipping signal input

transistor in response to a triggering pulse. The base drive apparatus has a feed back transistor bias circuit which includes



a starting gate that allows the converter to operate during the first several cycles until bias by the bias circuit is provided.

3,657,573

**UNIPOLAR DEVICE WITH MULTIPLE CHANNEL
REGIONS OF DIFFERENT CROSS SECTION**

Hans-Jurgen Maute, Heilbronn-Böckingen, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Danube, Germany

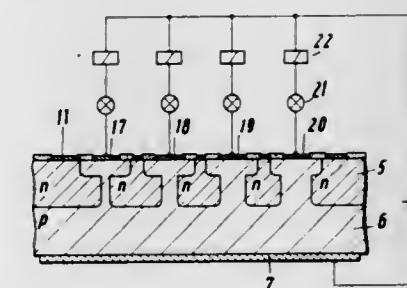
Filed Aug. 28, 1969, Ser. No. 853,765

Claims priority, application Germany, Sept. 2, 1968, P 17 64 911.5

Int. Cl. H01L 19/00

U.S. Cl. 307-304

4 Claims



The invention relates to a unipolar device comprising a semi conductor body having a region of, for example, P or P+ type conductivity which is traversed by channel-like regions of N-type conductivity having different cross sections. A control voltage applied across the PN-junctions thus formed so as to stress the junctions in the reverse direction will cause pinching off of the channel-like regions in the sequence of their increasing cross sections as the control voltage rises. The invention also includes circuitry by means of which this pinching off can be used to provide indications of the value of the control voltage where the channel-like regions each have a separate electrode. This circuitry includes branch circuits, each comprising an indicating element, which may be incandescent lamps and/or relay windings for the control of for the circuits, and a channel like region, connected in parallel across a voltage source.

3,657,572

**POWER CONVERTER WITH SELF-SYNCHRONIZATION
AND BIAS**

Sidney E. Millman, Van Nuys, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Nov. 20, 1970, Ser. No. 91,335

Int. Cl. H03k 1/14

U.S. Cl. 307-297

12 Claims

A power converter having a self-synchronized commutator that causes the power pass transistor in the converter to very rapidly assume its completely turned off state when converter power output is no longer desired. Also provided is apparatus for the converter which supplies base drive to the power pass

3,657,574

**TRANSISTOR CIRCUIT OPERATED IN SECOND
BREAKDOWN MODE DRIVING A CAPACITIVE
IMPEDANCE**

Alton O. Christensen, Houston, and Robert E. Brink, Friendswood, both of Tex., assignors to Shell Oil Company, New York, N.Y.

Filed Feb. 3, 1970, Ser. No. 8,207

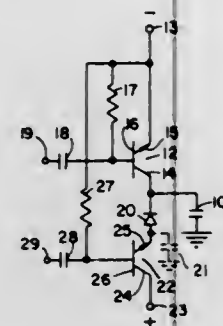
Int. Cl. H03k 17/60

U.S. Cl. 307-302

12 Claims

A method of and means for driving a capacitive impedance is disclosed in which a transistor is connected between a

source of electrical energy and the capacitive impedance and biased to be triggered into conduction in its second break-



down mode. Methods of and means for limiting the energy passing through such transistor to a level below that required for destruction thereof are described.

3,657,575

THRESHOLD VOLTAGE COMPENSATING CIRCUITS FOR FETS

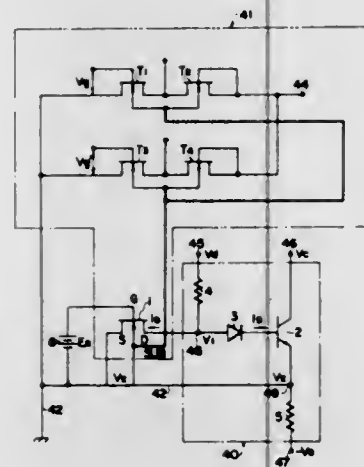
Kenji Taniguchi, Kodaira; Ichiro Imazumi, and Atsuo Hotta, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 15, 1971, Ser. No. 124,183

Claims priority, application Japan, Mar. 13, 1970, 45/20882 Int. Cl. H03k 17/60

U.S. Cl. 307—304

7 Claims



A field effect semiconductor device including a plurality of field effect semiconductor elements formed on a common substrate and a compensating circuit for controlling the threshold voltage of said transistors by comparing the threshold voltage of one transistor to a reference voltage and generating a backward bias control voltage across a PN-junction of the one transistor between the source thereof, which is connected to the source of at least one of the other transistors, and the common substrate.

3,657,576

CONTACTLESS SWITCH USING MAGNETIC DIODES

Paul Sieber, Heilbronn-Bockingen, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Aug. 25, 1970, Ser. No. 66,781

Claims priority, application Germany, Sept. 3, 1969, P 19 44 690.3

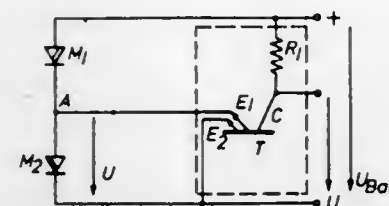
Int. Cl. H03k 17/00

U.S. Cl. 307—309

8 Claims

A contactless switch comprises a controllable active switching element connected through a threshold responsive

circuit element to a voltage divide including two series con-



nected magnetic field diodes which, on variation of a magnetic field vary the voltage division of the voltage divide.

3,657,577

SYNCHRONIZING SIGNAL SEPARATING CIRCUIT

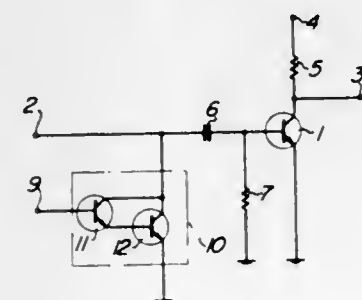
Shuzo Wakai, Kyoto, and Mitsuo Nabae, Takatsuki, both of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Apr. 23, 1971, Ser. No. 136,788

Int. Cl. H03k 3/26

U.S. Cl. 307—315

2 Claims



A synchronizing signal separating circuit provided with a noise gating circuit, the gating period of which is sufficiently long compared with the pulse width of the input signal to the input terminal and which reliably suppresses noise. The noise gating circuit does not use any capacitor but consists of a Darlington circuit, which is very convenient for manufacturing the synchronizing signal separating circuit as an integrated semiconductor circuit.

3,657,578

PIEZOELECTRIC TRANSDUCER ELEMENTS

Keiji Inoue, Yokohama, Japan, assignor to Denki Onkyo Company, Limited, Tokyo, Japan

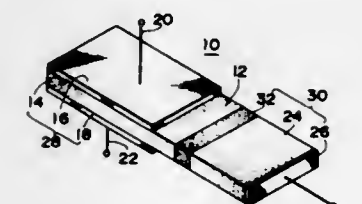
Filed Sept. 17, 1970, Ser. No. 73,132

Claims priority, application Japan, Sept. 24, 1969, 44/90962; 44/90963; 44/90964

Int. Cl. H01v 7/00

U.S. Cl. 310—8

5 Claims



In a piezoelectric transducer element comprising an elongated ceramic plate of a piezoelectric material, a pair of driving electrodes applied on the opposite surfaces of one end of the plate and an output electrode applied to the end surface of the opposite end, an insulator member in the form of a thin coating or flange is applied to surround the plate at a point near the driving electrodes or the output electrode preferably at a node of the mechanical vibration of the element.

3,657,579 POWER SUPPLY CIRCUIT EMPLOYING PIEZOELECTRIC VOLTAGE TRANSFORMING DEVICE

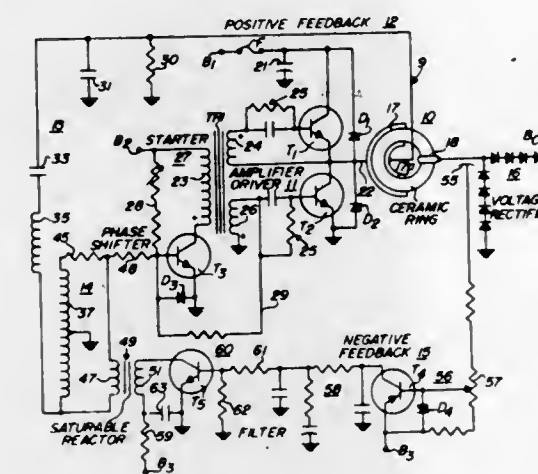
Don A. Kramer, Rolling Meadows, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Apr. 16, 1971, Ser. No. 134,600

Int. Cl. H01v 7/00

U.S. Cl. 310—8.1

12 Claims



A power supply circuit having a piezoelectric voltage transforming device resonant in a preselected one of a plurality of mechanical vibrational modes for transforming low primary alternating voltages to high secondary alternating voltages whereby the preselected mode is an optimum resonant mode having a range of operating frequencies over which the device resonates with changes in input impedance for the device. The primary alternating voltage is returned at a first operating frequency through a positive feedback circuit loop and an amplifier driver circuit to lock in the particular operating frequency of the device. The positive feedback loop has frequency selective means therein for determining the selection of the optimum resonant mode. Operating frequency can be altered through phase control of the primary feedback voltage within the positive loop, which change of operating frequency alters input impedance and hence the level of voltage transformation through the piezoelectric device.

3,657,580

MAGNETICALLY SHIELDED ELECTRICAL MACHINE WITH SUPER-CONDUCTING FILLED WINDINGS

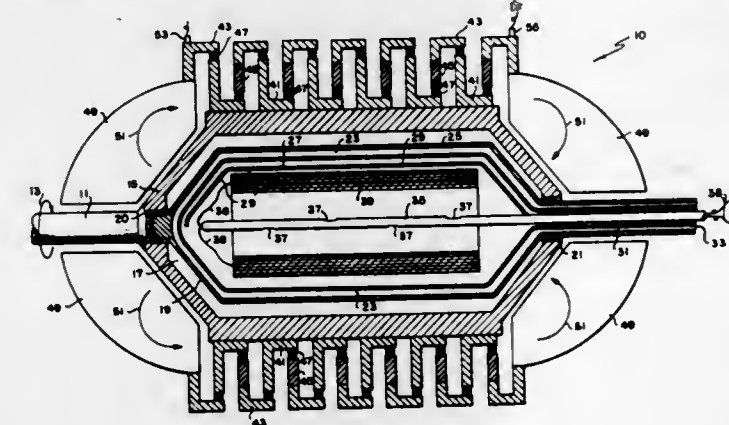
Timothy J. Doyle, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed Jan. 18, 1971, Ser. No. 107,211

Int. Cl. H02k 9/197

U.S. Cl. 310—52

7 Claims



A superconducting coil is mounted within the rotor of a homopolar machine. The section of the rotor surrounding the

superconducting coil is enlarged to accommodate the coil and a dewar type container. Magnetic flux from the solenoid extends beyond the exterior of the rotor and links series connected discs rotating in the solenoid DC axial field.

3,657,581

POWER TRANSDUCERS

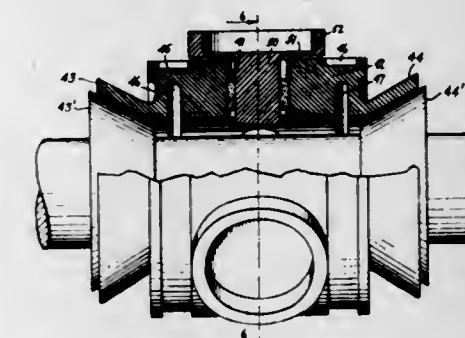
Leo Hoogenboom, Ballston Lake, N.Y., assignor to Mechanical Technology Incorporated, Latham, N.Y.

Filed Apr. 9, 1970, Ser. No. 26,950

Int. Cl. H02k 7/00

U.S. Cl. 310—8.2

12 Claims



A transducer arrangement is provided which achieves hard and uniform coupling between the transducer element and the transducer body member by mounting the transducer element in shrink-fit relationship with the body member. Conveniently, to assure uniform pressure on the transducer element, the element is shrink-fitted into an opening provided in the body member.

3,657,582

ROTOR ANNULUS FOR ELECTRIC GENERATOR

Russell E. Phelon, Beverly Hills, Rio Piedras, P.R.

Original application May 13, 1969, Ser. No. 824,138, now

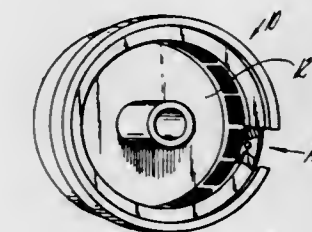
Patent No. 3,538,394. Divided and this application Oct. 29,

1970, Ser. No. 85,082

Int. Cl. H02k 21/12

U.S. Cl. 310—156

2 Claims



A rotor annulus for an electric generator comprising an annular ring of magnetic members including permanent magnets and pole pieces arranged in respective end-to-end and circumaxial alternate series. A circular spring band surrounds the ring of members in pressing engagement with at least some of the members to hold all of the elements of the annulus in substantially fixed relationship with each other.

3,657,583

MINIATURE SYNCHRONOUS MOTORS

Naokichi Tamaru, and Shunsaku Nakauchi, both of Tokyo, Japan, assignors to Tohoku Oki Electric Company, Fukushima, Japan

Filed Nov. 12, 1970, Ser. No. 88,892

Claims priority, application Japan, Mar. 18, 1970, 45/22465

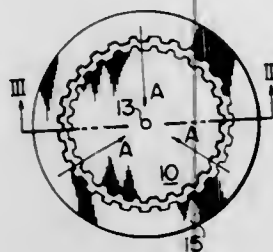
Int. Cl. H02k 21/00

U.S. Cl. 310—162

5 Claims

A miniature synchronous motor having a pot shaped core of high permeability magnetic material and having a central

leg and an annular periphery, an energizing coil wound upon the central leg, a circular disc rotor rotatably journaled on



the central leg, and an annular stator disposed on the annular periphery to closely surround the rotor.

3,657,584

CONTACT DEVICE

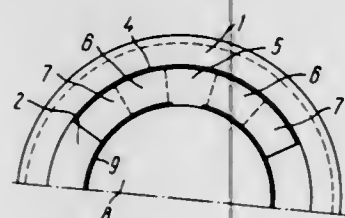
Gurgen Petrosovich Vartanian, Budapeshtskaya ulitsa, 15, korpus 2, kv. 29; Garri Mikhailovich Khutoretsky, Al-taiskaya ulitsa, 20, kv. 5, and Lidia Semenovna Likhota, Pulkovskaya ulitsa, 19, kv. 102, all of Leningrad, U.S.S.R.

Filed July 27, 1970, Ser. No. 58,614

Int. Cl. H02k 32/08

U.S. Cl. 310-232

1 Claim



A contact device for an electric machine wherein electric current flows through a distributing ring having secured thereto a current conducting bar and a slip ring, there being interposed intermediate of said distributing ring and said slip ring an electrically conductive gasket extending symmetrically in opposite directions from both sides of said current conducting bar. The electric conductivity of said gasket increasing in opposite directions from the central line of said current conducting bar, the circumferential extent of said gasket being less than half the circumference of the adjacent side of said distributing ring.

3,657,585

THIN-WINDOW RECORDING TUBE

Hiroshi Miyama, and Kaoru Tomii, both of Osaka, Japan, assignors to Matsushita Electric Industrial Company, Limited, Osaka, Japan

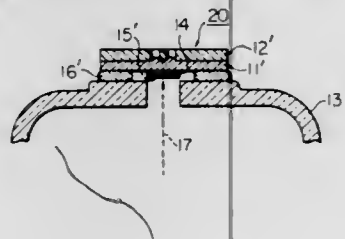
Filed Nov. 18, 1970, Ser. No. 90,734

Claims priority, application Japan, Nov. 19, 1969, 44/110428; Nov. 25, 1969, 44/94803

Int. Cl. H01j 29/18, 29/28, 33/00

U.S. Cl. 313-92 R

2 Claims



A faceplate of a thin-window recording tube comprising a metal backing electrically isolated from the outside of an evacuated envelope of the recording tube. An embodiment of the faceplate has a metallic support the side surfaces of which are covered with an insulating adhesive. Another em-

bodiment has a metallic support the elongated target of which has formed therein a plurality of circular apertures.

3,657,586

CATHODE RAY TUBE FACEPLATE FORMED OF GRADED INDEX LAMINATED PLATES

Kazuo Matsushita, Nishinomiyashi; Ken Koizumi, Itami-shi; Hidetoshi Togo, Itami-shi, and Hajime Kimura, Itami-shi, all of Japan, assignors to Nippon Selfoc Kabushiki Kaisha, Tokyo-to, Japan

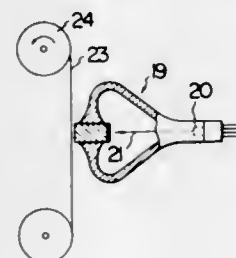
Filed Aug. 19, 1969, Ser. No. 851,398

Claims priority, application Japan, Aug. 21, 1968, 43/60096

Int. Cl. H01j 29/18; G02b 5/14

U.S. Cl. 313-92 LF

2 Claims



A transparent body of plate form is caused to have refractive index distribution conforming approximately to the equation $n_r = n_0 (1 - ar^2)$, where n_0 is the refractive index in a central plane of the body parallel to its flat surfaces, n_r is the refractive index at a distance r from the central plane, and a is a constant, whereby light or light pattern constituting an image introduced into the body through an edge surface is conducted through the body to the opposite edge surface from which the light or image is directed out.

3,657,587

ALPHA-NUMERIC INDICATOR

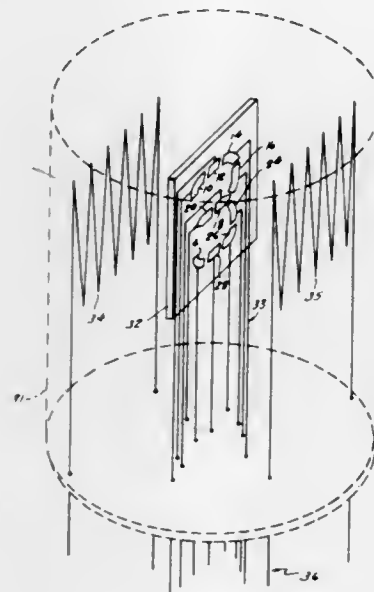
Thomas D. Kegelman, Ridgefield, Conn., assignor to Computer-Optics, Inc., Newtown, Conn.

Filed Nov. 3, 1969, Ser. No. 873,377

Int. Cl. H01j 17/48

U.S. Cl. 313-109.5

5 Claims



An alpha-numeric indicator including a plurality of phosphor coated anode elements on opposite sides of a transparent substrate, the characters being formed utilizing anode elements from one or both sides of the substrate. Electrons for exciting the phosphors are provided by a thin wire filament structure located on both sides of the substrate.

3,657,588

ENVELOPE STRUCTURE FOR HIGH INTENSITY THREE ELECTRODE ARC LAMPS INCORPORATING HEAT SHIELDING MEANS

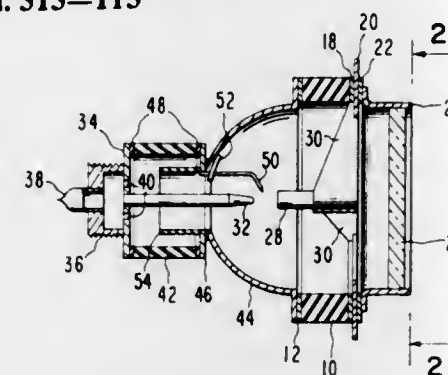
Russell C. McRae, Cupertino, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Jan. 19, 1970, Ser. No. 3,655

Int. Cl. H01j 61/30, 61/36

U.S. Cl. 313-113

4 Claims



The lamp envelope is formed of a metallic reflector having at each of its ends a cylindrical ceramic insulator and, closing the open ends of the ceramic insulators, metallic cathode and anode support assemblies, the anode support assembly including an optical window sealed across an aperture. Cathode and anode electrodes extend into the envelope from the cathode and anode support assemblies concentrically with the reflector to form an arc gap at the focal point of the reflector. A third electrode connected to the reflector extends into the region of the arc gap for starting purposes. A cylindrical metallic heat shield extends from the cathode end of the reflector into the cylindrical ceramic insulator at that end in order to shield the joint between the cylindrical insulator and the reflector from thermal radiation and convection from the adjacent arc gap.

3,657,589

MERCURY GENERATION

Paolo Della Porta, and Mauro Rebaudo, both of Milan, Italy, assignors to S.A.E.S. Getters S.p.A., Milan, Italy

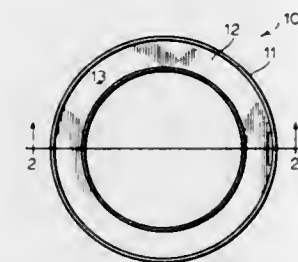
Filed Oct. 7, 1970, Ser. No. 78,839

Claims priority, application Italy, Oct. 20, 1969, 23582-A/69

Int. Cl. H01j 7/18

U.S. Cl. 313-178

8 Claims



Mercury releasing getter devices employing intermetallic compounds of mercury with zirconium and/or titanium such as Zr_3Hg and Ti_3Hg .

3,657,590

HIGH INTENSITY FAR U.V. RADIATION SOURCE

Peter D. Johnson, Schenectady, N.Y., assignor to General Electric Company

Filed June 26, 1970, Ser. No. 50,105

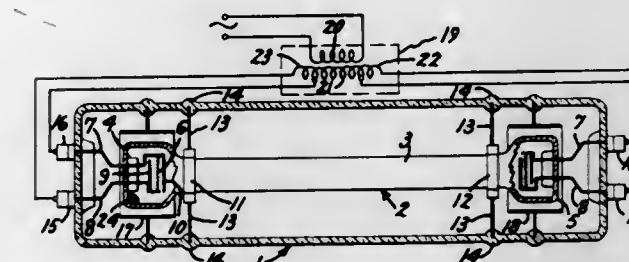
Int. Cl. H01j 17/20

U.S. Cl. 313-223

10 Claims

A far U.V. emitting vapor electric discharge lamp which emits selectively in the wavelength band of approximately 2,000 to 2,300 A.U. utilizes a light emitting media of a

vaporizable ionizable metal such as cadmium or zinc at very low pressure. High current density in excess of 1 ampere per square centimeter is used to excite metal to high intensity emission in an ambient of a noble gas at low pressure. In accord with a preferred embodiment, cadmium or zinc vapors



are excited in the presence of xenon gas. The xenon has metastable states which enter into the metal vapor excitation mechanism, resulting in increased intensity of emission at the wavelengths characteristic of the metal species under these conditions of current density and pressure.

3,657,591

HIGH INTENSITY FAR U.V. RADIATION SOURCE

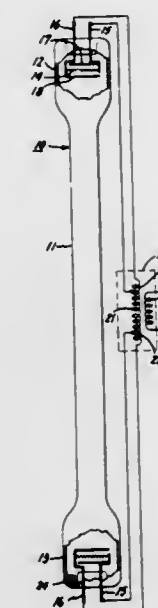
Peter D. Johnson, Schenectady, N.Y., assignor to General Electric Company

Filed June 26, 1970, Ser. No. 50,203

Int. Cl. H01j 17/20

U.S. Cl. 313-223

9 Claims



A far U.V. radiation source emitting high intensity of U.V. at wavelengths principally shorter than 2,000 A.U. includes an electric discharge in a low pressure of mercury vapor at a pressure 2×10^{-3} to 0.1 torr and krypton gas at a pressure of approximately 0.5-10 torr. During operation, lamp current is very high, in range of 0.5 to 40 ampere/cm², emitting principally at a wavelength of 1,942 A.U.

3,657,592

ELECTRODE JOINT CEMENT

Arnold Arbuthnot Kellar, Columbia Station, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Apr. 22, 1970, Ser. No. 30,769

Int. Cl. C09j 5/00

U.S. Cl. 313-357

7 Claims

A high temperature cement, comprising elemental powders of boron and a transition metal and a carbonizable binder, is provided for joining sections of a carbonaceous electric-furnace electrode column. The cement is initially heated to between about 90° C. and 130° C. to thermoset the car-

bonizable binder and then the temperature is elevated to above 1,000° C. to react the transition metal with the boron



to form a strong cemented bond having excellent thermal and electrical properties.

3,657,593

ELECTRON MICROSCOPY

John Robert Garrood, Emmanuel College, and William Charles Nixon, 2 Causewayside, few Causeway, both of Cambridge, England

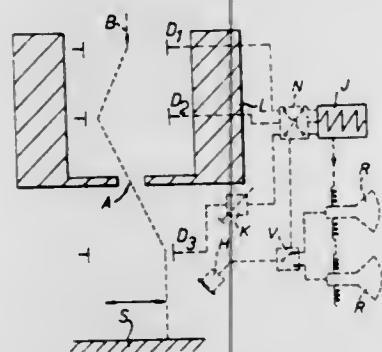
Filed Apr. 3, 1969, Ser. No. 813,241

Claims priority, application Great Britain, Apr. 3, 1968, 15,933/68

Int. Cl. H01j 29/80

U.S. Cl. 315-18

5 Claims



In scanning electron beam apparatus such as a scanning electron microscope or micro-analyser the scanning is done in at least three successive stages so that the angle of incidence of the beam on the specimen surface is constant during the scanning cycle. It can be varied at will and by rapid switching between two alternative angles and corresponding switching of the image-forming means, stereoscopic effects are obtainable.

3,657,594

LIGHTNING ARRESTER

Werner Latal, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Aug. 8, 1969, Ser. No. 848,428

Claims priority, application Switzerland, Aug. 28, 1968, 12898/68

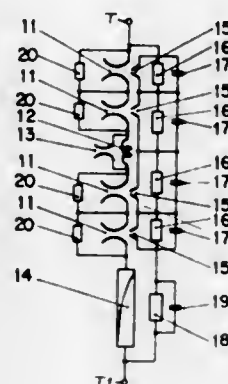
Int. Cl. H02h 9/06

U.S. Cl. 315-36

4 Claims

An overvoltage arrester for use on AC or DC voltages comprises a voltage dependent leakage component connected in series with a quenching arc path constituted by a series arrangement of main spark gaps and a magnetic blowing coil for extending the arcs drawn across the main spark gaps. An auxiliary spark gap is structurally associated with and serves when struck to ignite each main spark gap and

these ignition are connected in series with a first auxiliary impedance which may be an ohmic resistance to establish an auxiliary series circuit that is connected in parallel with the series circuit formed by the leakage resistance component and the main spark gaps. A second auxiliary impedance component which also may be an ohmic resistance is provided for and connected in parallel with each of the ignition spark gaps. Each of the main spark gaps may be paralleled by an auxiliary impedance component, and each of the auxiliary impedance components may be paralleled by a capacitor.



The auxiliary impedance components may be lumped or they may be sub-divided and the partial impedances distributed between and in series with the main and ignition spark gaps, respectively. The string of ignition spark gaps when struck serve to ignite the string of quenching spark gaps whereupon the ignition gaps are then extinguished; the arcs struck at the quenching gaps then expand and cool and are extinguished, and the ignition gaps are then restripped to initiate a new quenching cycle. This cycle is then repeated until the discharge is finally terminated.

3,657,595

SOLID STATE CATHODE RAY TUBE ERASE CIRCUIT

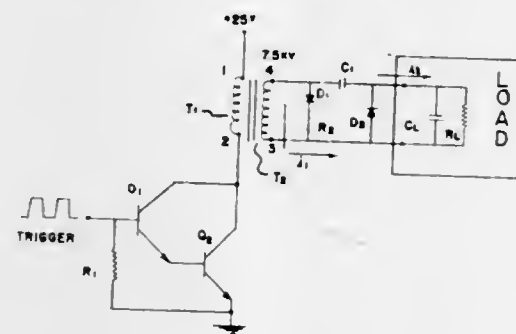
Robert Lee Bressler; Iwan Rangelov Alexiev, both of Harrisburg; Frank Vollmer Troxell, and George Gilman Richards, both of Middletown, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Sept. 20, 1968, Ser. No. 761,183

Int. Cl. H01j 29/52

U.S. Cl. 315-30

8 Claims



A cathode ray tube high voltage supply erase circuit is disclosed which features a transistor switch triggered to conduct periodically to draw current through the primary of the transformer developing a series of capacitor charging pulses through the transformer secondary. The capacitor charged by the transformer secondary is connected in circuit to provide a high voltage supply permitting an image to be written during discharge of the capacitor with the tube anode being drawn to near zero potential as the transistor switch is triggered to conduct to permit erasure of a previously written image on such tube automatically and repetitively without tube damage.

3,657,596

ELECTRON IMAGE DEVICE HAVING TARGET COMPRISING POROUS REGION ADJACENT CONDUCTIVE LAYER AND OUTER, DENSER REGION

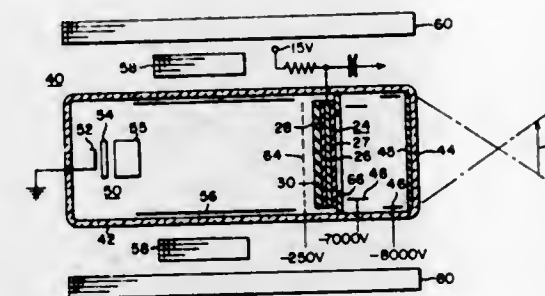
Gerhard W. Goetze, Elmira, and Alvin H. Boerio, Horseheads Township, Elmira, both of N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 20, 1965, Ser. No. 457,430

Int. Cl. H01j 31/58, 31/28, 31/36

U.S. Cl. 313-68

12 Claims



This invention relates to such electron image devices as television camera tubes and image intensifier tubes and includes in one illustrative embodiment an electrically conductive member upon which there is disposed a first layer or region of a secondary emissive material deposited in a porous form to allow conduction of the secondary electrons through the voids of the porous material, and a second layer or region of greater density than the first layer disposed upon the first region to inhibit the escape of the secondary electrons emitted within the volume of the first layer.

3,657,597

ARRANGEMENT FOR IGNITING AND A SUPPLYING GAS AND/OR VAPOUR DISCHARGE LAMP

Jozef Cornelis Moerkens, and Giovanni Porro, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

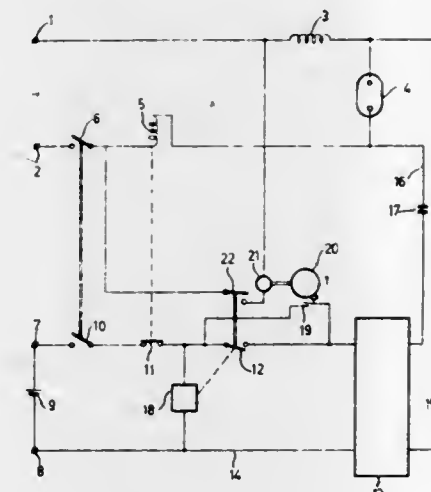
Filed Apr. 8, 1970, Ser. No. 26,610

Claims priority, application Netherlands, Apr. 12, 1969, 6905676

Int. Cl. H05b 37/00

U.S. Cl. 315-86

10 Claims



The invention relates to igniting and supplying a gas-and/or vapour discharge lamp.

According to the invention a second voltage source is used in addition to the common voltage source, which second source ensures both the ignition of the lamp and the maintenance of a current flowing through the lamp when the first voltage source has failed due to interference.

3,657,598

APPARATUS FOR OPERATING ELECTRIC DISCHARGE LAMPS

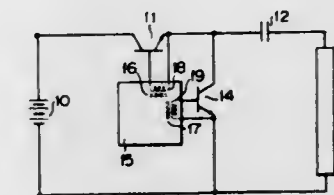
Osamu Nomura, and Fumio Kamiya, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Nov. 5, 1970, Ser. No. 87,181

Claims priority, application Japan, Nov. 11, 1969, 44/89749

Int. Cl. H05b 41/30

7 Claims



There is disclosed an improved discharge lamp lighting apparatus having a first semiconductor switching element connected in series with the discharge lamp and a second semiconductor switching element connected in parallel with the discharge lamp. A control circuit included in the lighting apparatus for switching on the first and second semiconductor switching elements alternately to light and operate the discharge lamp at a high frequency and prevents short circuit fault of the electric power source due to a simultaneous on-condition of two switching elements by imparting a time interval longer than the turn-off time of the first and second semiconductor switching elements between two pulses respectively driving the first and second switching elements.

3,657,599

INK ACCELERATING UNIT FOR USE IN INK JET PRINTER

Toshio Kashio, Tokyo, Japan, assignor to Casio Computer Kabushiki Kaisha, Tokyo, Japan

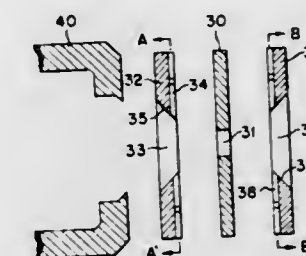
Filed Mar. 12, 1971, Ser. No. 123,744

Claims priority, application Japan, Mar. 18, 1970, 45/22287

Int. Cl. G01d 15/18

U.S. Cl. 317-3

4 Claims



Upon one or both surfaces of an accelerating electrode having a center aperture is overlaid and fixed concentrically a disk member or members each having a center aperture tapered so as to converge toward the accelerating electrode. Unnecessary ink attached to the accelerating electrode may be sucked through the interface or interfaces between the disk member or members and the accelerating electrode under capillary action and ink attached to the disk members may readily flow toward the interfaces along the tapered peripheral surfaces or walls of the center apertures of the disk members. Grooves may be formed in the surfaces of the disk members in contact with the accelerating electrode so as to facilitate the collection and discharge of unnecessary ink sucked into the interfaces under capillary action. Removal of ink attached to the accelerating electrode may be much facilitated, thus assuring the stable operation of the accelerating electrode. In addition, fabrication of the accelerating electrode structure may be much facilitated and simplified yet with a higher degree of accuracy.

3,657,600

AUXILIARY IONIZATION OF DC ELECTRIC DISCHARGE ELECTRODE BOUNDARY SHEATHS

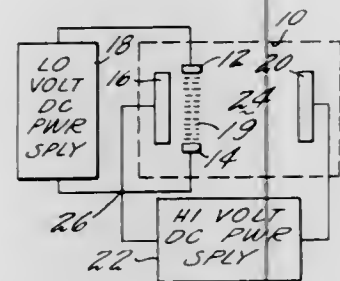
Walter J. Wiegand, Jr., Glastonbury, Conn., assignor to United Aircraft Corporation, East Hartford, Conn.

Filed May 18, 1970, Ser. No. 38,033

Int. Cl. H01j 61/54

U.S. Cl. 317-4

5 Claims



Auxiliary ionization is provided in a DC electric discharge plasma immediately adjacent one or more electrodes, whereby the tendency for streamering or incipient arcing and non uniform attachment of the discharge to electrodes is mitigated. Separate RF electrodes, RF electrodes combined with a DC cathode, separate and combined low voltage DC auxiliary ionization are disclosed. Photon and particle beam ionization are discussed.

3,657,601

VITAL VEHICLE BRAKE ASSURING AND WHEEL SLIP

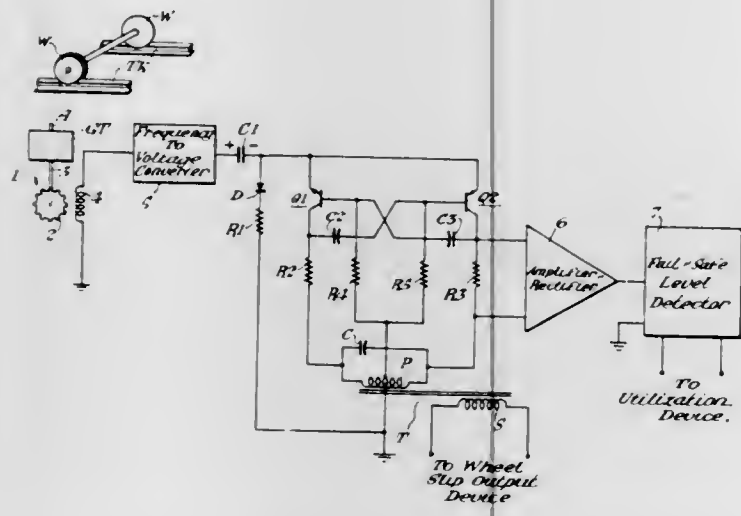
John O. G. Darrow, Murrysville, Pa., assignor to Westinghouse Air Brake Company, Swissvale, Pa.

Filed Feb. 16, 1971, Ser. No. 115,491

Int. Cl. B61b 13/16

U.S. Cl. 317-5

10 Claims



A fail-safe deceleration and wheel slip detection circuit which includes a signal generator for producing signals having a frequency proportional to the speed of a vehicle, a converter for converting the frequency of the signals to a proportional voltage signal, a differentiator for differentiating the voltage signal and for producing a rate of change signal, a multivibrator powered by the rate of change signal for producing output signals proportional thereto, an amplifier-rectifier for amplifying and rectifying the output signals, a level detector for measuring the amplitude of the amplified-rectified signals and energizing a utilization device when and only when the amplitude of the signals exceeds a predetermined minimum level, thereby signifying that the vehicle is decelerating at a sufficient rate, and a wheel slip detector for indicating excessive slippage of a wheel of the vehicle.

**3,657,602
METHOD AND MEANS FOR DETECTING INCIPENT CAPACITOR FAILURE**

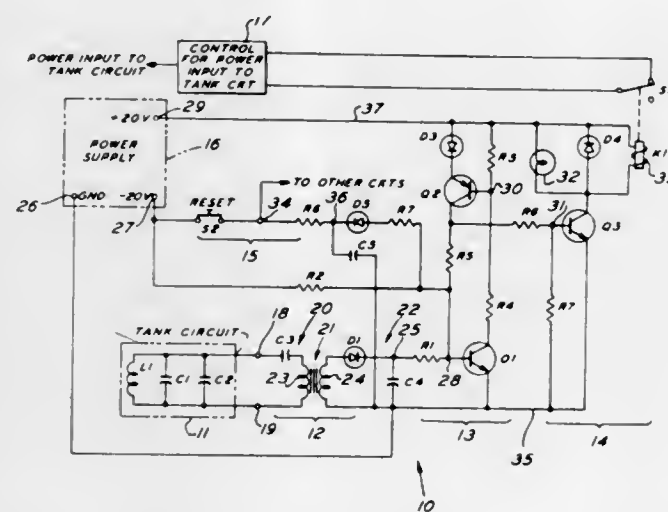
Paul C. Boehm, and Theodore R. Kennedy, both of Willingboro, N.J., assignors to Inductotherm Corporation, Ranocas, N.J.

Filed Apr. 5, 1971, Ser. No. 131,015

Int. Cl. H02h 7/16

U.S. Cl. 317-12 R

10 Claims



Incipient failure of a capacitor operating as a part of an induction furnace circuit is detected by monitoring the capacitor to determine the presence of high-frequency signals generated by the capacitor as its dielectric material deteriorates. The lower limit of the frequencies of such signals is in the range from 50 to 200 kHz. The sensing apparatus for a 3 kHz induction heating circuit includes detector means for converting the generated signals exceeding about 150 kHz into a control signal whose level exceeds a predetermined value when the generated signals are representative of incipient deterioration of the dielectric. Indicator means responsive to the control signal is operated when the latter signal exceeds said predetermined value, and may disconnect power from the capacitor.

3,657,603

RELAY CONTROL RESPONSIVE TO OVERVOLTAGE AND UNDERVOLTAGE

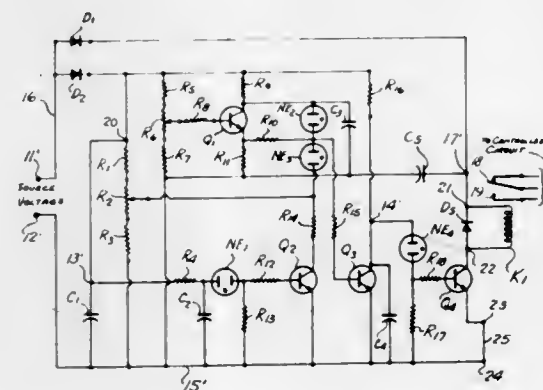
William M. Adams, 746 Oak Lane, Bryan, Tex.

Filed July 24, 1970, Ser. No. 57,965

Int. Cl. H02h 3/20, 3/12

U.S. Cl. 317-16

7 Claims



A line voltage guard circuit having a network including neon lamps, resistor-capacitor timing branches, diodes and transistors, the network being connected to a switching relay to control the availability of the supply line voltage to apparatus utilizing same and to disconnect the supply line from the apparatus when the line voltage is either below a bottom

limit for a definite length of time or above a top limit. The circuit automatically reconnects the line to the apparatus a predetermined time after the supply voltage returns to a value between the top and bottom limits. fault currents are roughly sinusoidal, and give wide pulses with only narrow gaps.

3,657,604

SHOCK PROTECTION DEVICE CIRCUIT

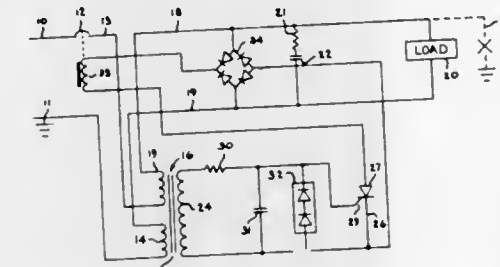
Henry G. Willard, Wethersfield, Conn., assignor to General Electric Company

Filed Apr. 19, 1971, Ser. No. 135,118

Int. Cl. H02h 3/34

U.S. Cl. 317-18 D

20 Claims



A ground fault protection circuit utilizing a differential transformer whose output is connected by means of a resistance-capacitance transient surge filter to a silicon controlled rectifier which, when turned on energizes a solenoid which trips a circuit breaker controlling a load circuit. The differential transformer, the resistance, and the capacitance are selected to constitute a circuit whose resonance changes with temperature in such a way as to produce an output which varies in amplitude in a manner closely matching and correcting for the inherent temperature-varying sensitivity of the silicon controlled rectifier.

3,657,605

OVERCURRENT TRANSIENT NON-RESPONSIVE TRIP DEVICE

Anthony Hill, Weeping Cross, England, assignor to Associated Electrical Industries Limited, London, England

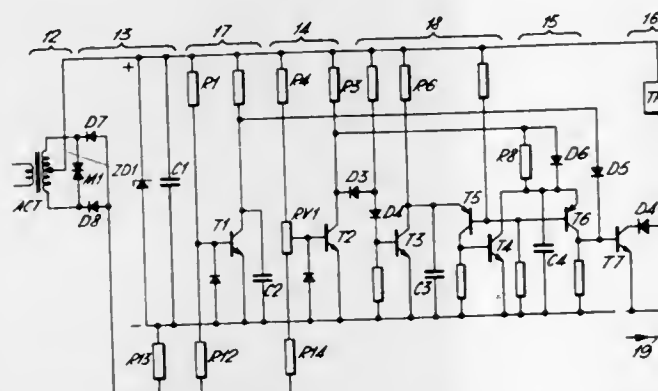
Filed July 1, 1970, Ser. No. 51,463

Claims priority, application Great Britain, July 2, 1969, 33,362/69; Aug. 8, 1969, 39,847/69

Int. Cl. H02h 3/08

U.S. Cl. 317-36 TD

7 Claims



This invention relates to protective relays for systems with transformer loading, either power transformers or transmission lines with transformer feed-offs. In such systems, transformer inrush currents may cause relay tripping on initial energization. To prevent this false tripping, inrush currents may be detected and tripping inhibited. By the invention, inrush currents are detected by squaring the monitored quantity at the trip level, and determining whether the resulting rectangular pulses are separated from each other by more than a present amount. Inrush currents give peaky waveforms, with wide gaps between pulses, while genuine

**3,657,606
BUS DUCT PLUG-IN UNIT WITH IMPROVED INTERLOCK**

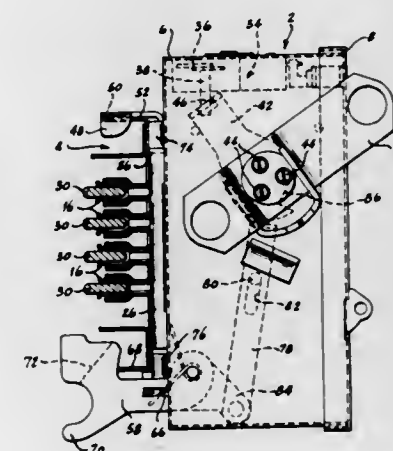
George Greger, and James J. Rusenko, both of Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Mar. 25, 1971, Ser. No. 128,002

Int. Cl. H02b 1/08, 1/104

U.S. Cl. 317-112

6 Claims



A plug-in unit is hooked into notches in the upper flange of a bus duct, plugged into the duct by swinging it down against the side of the duct wherein stab connectors enter a duct opening to engage the bus bars therein, and latched to the side of the duct by spring biased latches which engage the bottom flange of the duct. An interlock between the unit operator and one of the latches blocks movement of that latch wherein it interferes with the bottom flange to prevent plugging in or removal of the unit with the enclosed switch thereof in the "ON" condition. Indicators are provided on the sides of the bus duct to assist in positioning the unit into the notches when the upper flange is not visible.

3,657,607

IMPEDANCE-INCREASING METHOD AND APPARATUS AS PART OF A HVDC CIRCUIT BREAKER

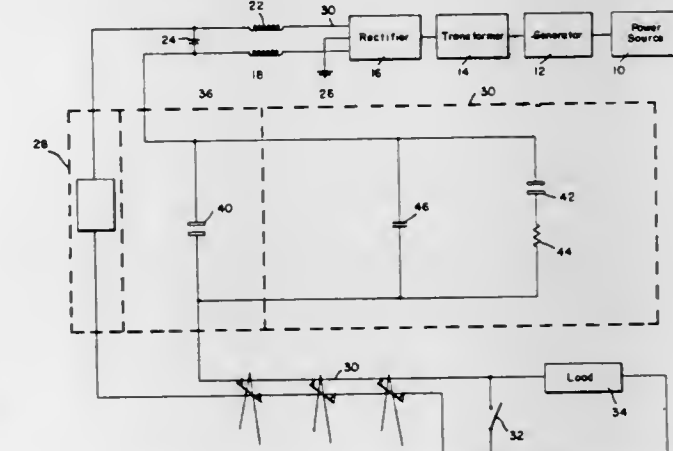
Wolfgang Knauer, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Mar. 9, 1971, Ser. No. 122,396

Int. Cl. H02h 7/22

U.S. Cl. 317-11 C

10 Claims



The high voltage DC circuit breaker must generate a variable impedance which increases gradually from negligibly small, when the breaker is closed, to infinitely large, after it has been opened. This invention describes a novel im-

pedance-increasing method comprising serially connected resistance and switch means and a capacitor which shunts both. The switch means, which must be capable of opening and closing a high voltage, is programmed to rapidly switch on and off with increasing offtime so that the time averaged impedance of the DC circuit is increased to an offswitched condition.

3,657,608

FRAME STRUCTURE FOR ELECTRICAL CHASSIS WITH REMOVABLE WIRING CHANNELS

Girolamo Leone, Via Baracca 17, and Giulio Vignola, Via Bassi 17, both of Monza, Italy

Filed Aug. 21, 1970, Ser. No. 66,042

Claims priority, application Italy, Aug. 23, 1969, 53092 A/69

Int. Cl. H02b 1/04

U.S. Cl. 317-118

10 Claims



A bearing structure for telecommunication equipments, consisting of a frame for bearing the wirings and the drawers containing the functional units, comprising the first housing for the power and the servicing wirings and a second housing for the coaxial cables. These housings are provided with connectors which are removably coupled to counterpieces provided in the frame, and the drawers have fixed thereto means operated by a screw for coupling the connectors of the first housing with their conjugate counterpieces.

3,657,609

ELECTRICAL DEVICE CONTROLLED BY AT LEAST TWO TUNABLE CAPACITANCE DIODES

Gernot Oswald, Wolfgang Wenzig, both of Munich, and Hugo Ruchardt, Gauting, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Munich, Germany

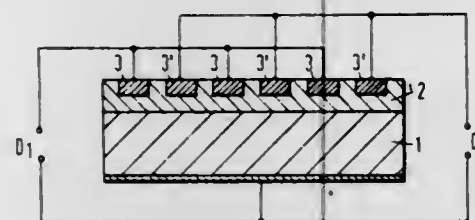
Filed Oct. 15, 1969, Ser. No. 866,487

Claims priority, application Germany, Oct. 18, 1968, P 18 03 883.0

Int. Cl. H01g 9/06

U.S. Cl. 317-234

8 Claims



Electrical device controlled by at least two tunable capacitance diodes and means impressing a tunable voltage upon said diodes. The device is so characterized that the capacitance diodes which are combined, in a known manner,

within a single semiconductor crystal, have as their common component, a surface region produced at one flat side of the semiconductor crystal, whose boundary to the semiconductor crystal is at least essentially parallel to the flat semiconductor surface. The other component of the capacitance diodes, simultaneously produced regions are embedded therein. The embedded regions of opposite conductance type are so arranged over the entire area of the surface region and provided for the individual tuning diodes. Each square amounting to a maximum of 20 percent of the total area of the surface region, contains at least a portion of the active PN-junctions of each of the provided tuning diodes.

3,657,610

SELF-SEALING FACE-DOWN BONDED SEMICONDUCTOR DEVICE

Hirohiko Yamamoto, and Masamichi Shiraiishi, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

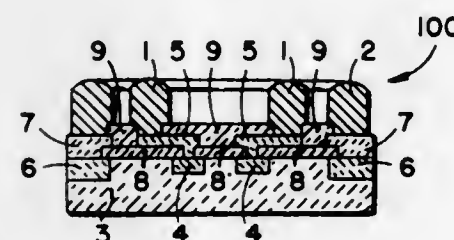
Filed June 24, 1970, Ser. No. 49,441

Claims priority, application Japan, July 10, 1969, 44/54891

Int. Cl. H01l 5/02

U.S. Cl. 317-234

11 Claims



In a self-sealing semiconductor device of the face-down bonding type, a plurality of electrode bumps are formed on one surface of semiconductor substrate and surrounded by a sealing projection of substantially uniform height.

3,657,611

A SEMICONDUCTOR DEVICE HAVING A BODY OF SEMICONDUCTOR MATERIAL JOINED TO A SUPPORT PLATE BY A LAYER OF MALLEABLE METAL

Yoshitada Yoneda, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

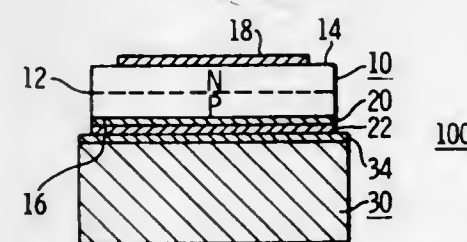
Filed Aug. 21, 1970, Ser. No. 65,986

Claims priority, application Japan, Aug. 25, 1969, 44/67074

Int. Cl. H01l 3/00, 5/00

U.S. Cl. 317-234 R

5 Claims



This disclosure relates to a semiconductor device comprising a wafer of semiconductor material with ohmic contacts affixed to opposed parallel major surfaces of the wafer. The device is bonded to a metal support block along at least one of the major surfaces of the wafer.

3,657,612

INVERSE TRANSISTOR WITH HIGH CURRENT GAIN

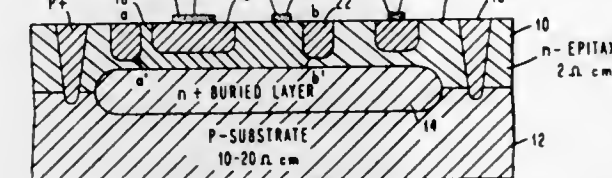
Siegfried K. Wiedmann, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 20, 1970, Ser. No. 29,814

Int. Cl. H01l 5/00, 11/06, 19/00

U.S. Cl. 317-235

5 Claims



This specification discloses an inversely operated planar transistor with a high current gain. That is, what is described is a scheme for improving the gain of a planar transistor formed with a base region set within an emitter region and having a collector region within the base region. The higher gain is obtained by placing a heavily doped lateral junction around the periphery of the base so that the main portion of the carrier injections into the emitter occur in a vertical direction to a closely spaced, highly doped, highly conductive buried layer.

3,657,613

THIN FILM ELECTRONIC COMPONENTS ON FLEXIBLE METAL SUBSTRATES

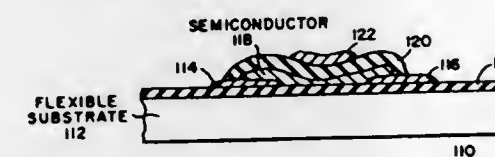
Thomas P. Brody; Derrick J. Page, both of Pittsburgh, and Paul O. Raygor, Irwin, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of application Ser. No. 747,064, June 24, 1968. This application May 4, 1970, Ser. No. 34,463

Int. Cl. H01l 1/14

U.S. Cl. 317-235 R

7 Claims



This disclosure is concerned with thin film field effect transistor (FET) formed on flexible metal substrates by vapor deposition techniques. The FET is electrically insulated from the metal substrate by an electrically insulating varnish.

3,657,614

MIS ARRAY UTILIZING FIELD INDUCED JUNCTIONS

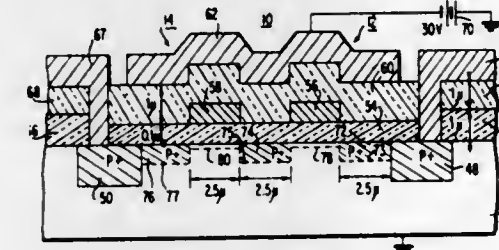
James R. Crkchi, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 15, 1970, Ser. No. 46,381

Int. Cl. H01l 1/14

U.S. Cl. 317-235 R

10 Claims



A high density MIS array on a single substrate wherein at least two series coupled transistors are provided comprising two diffused junctions separated laterally in one surface of the substrate with a pair of spaced apart gate electrodes located intermediate thereof and separated therefrom by a first layer of insulated material. Another or top electrode

separated from the pair of gate electrodes by a second layer of insulated material extends above and across to at least the closest edge of the two diffused junctions. A bias potential is applied between the substrate and the top electrode whereby field induced regions and respective P-N junctions are generated in the surface of the substrate between the diffused junctions in the region not subtended by the two gate electrodes. Two MIS transistors result having a common field induced junction therebetween, said common field induced junction acting as the drain for one transistor and the source for the other transistor.

3,657,615

LOW THERMAL IMPEDANCE FIELD EFFECT TRANSISTOR

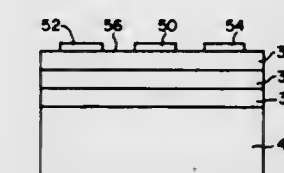
Michael C. Driver, Trafford, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 30, 1970, Ser. No. 51,147

Int. Cl. H01l 1/14

U.S. Cl. 317-235 R

5 Claims



This disclosure is directed to a Schottky Barrier field effect transistor (FET) having a low thermal impedance and to a process of producing it.

The thermal impedance of the device is reduced by reducing the thickness of a semiinsulating layer of semiconductor material through which the device is joined to a heat sink.

The process for making the device disclosed makes possible the reducing of the layer.

3,657,616

SEMICONDUCTOR SWITCHING ELEMENT

Yoshihiko Mizushima, and Tsuneta Sudo, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

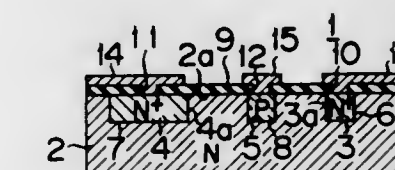
Filed Dec. 15, 1969, Ser. No. 885,388

Claims priority, application Japan, Dec. 20, 1968, 43/93347

Int. Cl. H01l 1/08

U.S. Cl. 317-235 R

10 Claims



A semiconductor switching element which comprises at least one collector region diffused in a semiconductor substrate from its surface, the collector region containing a high concentration of impurities imparting thereto the same type of conductivity as the substrate and displaying a higher degree of conductivity than the substrate and being formed into a fully narrow area, a base region diffused at a space of approximately 50 microns max. from the collector region, as measured from the same surface of the substrate as that on which there is formed the collector region, such that the edge of the base region facing the collector region is sufficiently longer than that of the collector region, the base region containing a high concentration of impurities imparting thereto the same type of conductivity as the semiconductor substrate and displaying a higher degree of conductivity than the substrate, and at least one emitter region diffused from the same

surface of the substrate as that through which the aforesaid two regions are diffused and having an opposite type of conductivity as the substrate.

3,657,617

POINT CONTACT SEMICONDUCTOR DEVICE

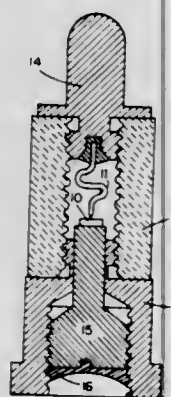
Cyril Morgan, Marblehead, Mass., assignor to Alpha Industries, Inc., Newton, Mass.

Filed July 9, 1970, Ser. No. 53,533

Int. Cl. H0115/04

U.S. Cl. 317-236

7 Claims



Point contact semiconductor diode including a catwhisker of tungsten or molybdenum having its pointed tip coated with a thin layer of chromium, nickel-chromium, cobalt, platinum, or an alloy of chromium and platinum.

3,657,618

WINDSHIELD WASHER AND WIPER

Takaaki Ori, Nagoya, and Keltaro Kanada, Toyohashi-shi, both of Japan, assignors to Nippon Denso Kabushiki Kaisha, Kariya-shi, Japan

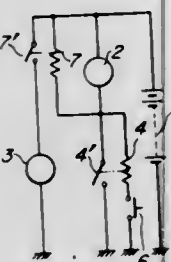
Filed July 31, 1969, Ser. No. 846,386

Claims priority, application Japan, Aug. 6, 1968, 43/67388; 43/67389; Sept. 28, 1968, 43/84425; Mar. 7, 1969, 44/20902; Mar. 10, 1969, 44/18219

Int. Cl. H02p 1/58; B60s 1/02

U.S. Cl. 318-102

6 Claims



A windshield washer and wiper system inducing a washer motor circuit and a wiper motor circuit both connected in parallel with a source of power. The system comprises a washer and wiper interlocking control circuit having a heating wire connected in parallel with a washer motor and a thermal switch provided with the wiper motor and adapted to be opened and closed by said heating wire. A switch means is also connected in series with the parallel circuit of said heating wire and said washer motor for controlling the starting and stopping of said washer and wiper interlocking device, and may incorporate a thermal switch utilizing a transition between a stress-deformed state and a self-returned state of a snap strip provided with a tension wire which expands or contracts with the application of heat.

3,657,619 STARTING CONTROLLER FOR ELECTRIC MOTOR

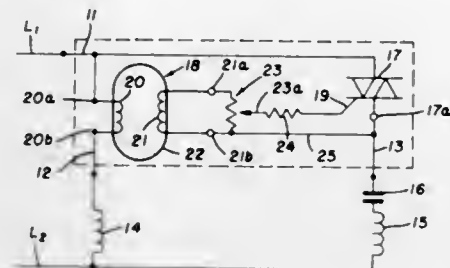
Winston A. Love, 118 Maple Street, Marietta, Ohio

Filed July 22, 1970, Ser. No. 57,286

Int. Cl. H02p 1/44

U.S. Cl. 318-221 R

10 Claims



A starting controller is provided for electric motors of the split-phase type. This controller incorporates an electrical switching circuit utilizing a bi-directional, solid-state switching device as the element which effects the switch function. The circuit elements and components are incorporated in a mechanical structure having an electrical current transformer provided with a core that also forms a heat sink for the solid-state switching device. The core thus mechanically supports both the switching device and the transformer windings, performing a heat dissipation function as well as forming a part of the magnetic circuit for the transformer controlling operation of the solid-state switching device. All components including the transformer core, are embedded in a dielectric potting compound within an outer iron core shell forming the remainder of the magnetic circuit for the transformer.

3,657,620

SOLID STATE MOTOR START SWITCH

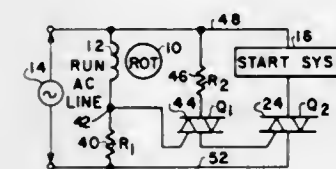
David C. Fricker, Hurst, Tex., assignor to ECC Corporation, Euless, Tex.

Filed Mar. 12, 1971, Ser. No. 123,734

Int. Cl. H02p 1/44

U.S. Cl. 318-221 E

9 Claims



An electronic switch circuit for controlling the start operation of a single phase induction motor in accordance with the speed of the motor.

3,657,621

SPEED RESPONSIVE MOTOR STARTING SYSTEM

Leon Fink, Jr., Arlington, and David C. Fricker, Hurst, both of Tex., assignors to ECC Corporation, Euless, Tex.

Filed Mar. 12, 1971, Ser. No. 123,735

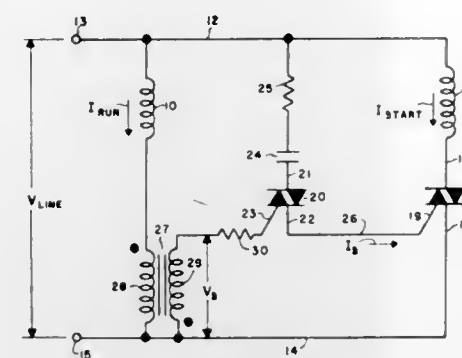
Int. Cl. H02p 1/44

U.S. Cl. 318-221 E

10 Claims

A semiconductor switching circuit responsive to the speed of a single phase induction motor for controlling the starting operation thereof. A power bilateral semiconductor switching device is connected in series with the motor starting reactance for controlling current flow therethrough. A logic bilateral semiconductor switching device is coupled to the gate electrode of the power device for enabling and disabling the operation thereof. A current sensing transformer is coupled in circuit with the motor run winding for controlling

the logic switching device in accordance with the motor speed. A capacitor is connected in series in the gate electrode circuit.



trode circuit for the power switching device for advancing the phase angle of the gating current supplied thereto.

3,657,622

CONTROL FOR ADJUSTING AND REGULATING THE SPEED OF AN ELECTRIC MOTOR

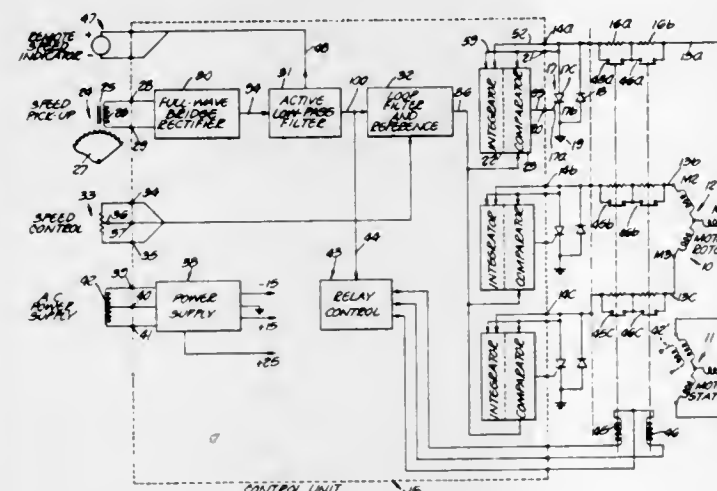
Frank E. Reuland, Newport Beach, and Richard R. Palm, Brea, both of Calif., assignors to Reuland Electric Company, Industry, Calif.

Filed Apr. 30, 1970, Ser. No. 33,184

Int. Cl. H02p 7/62

U.S. Cl. 318-237

5 Claims



Control means for adjusting and regulating the speed of an alternating current electric motor of the wound rotor type, wherein the motor stator is connected to an alternating current power line, and the circuit leads of the rotor winding are connected through gate controlled solid-state switching elements which are operable to rapidly close and open the rotor winding circuit so as to produce pulsed power, and by varying the duration of the produced pulses the average torque will be varied and the motor speed regulated. The gate controlled switching elements are automatically controlled in response to changes in a sensed signal resulting from a comparison of a speed sensitive transducer output voltage with a reference voltage which can be adjustably set according to the desired motor speed. Changes in the reference voltage thus provide for adjustment of the motor speed, while the variations of the transducer voltage in relation to the adjusted reference voltage provide for speed regulation at the selected motor speed.

3,657,623 SYSTEM FOR TRACKING MILL STAND MOTOR CURRENTS FOR OPTIMIZING THE DUTY CYCLE

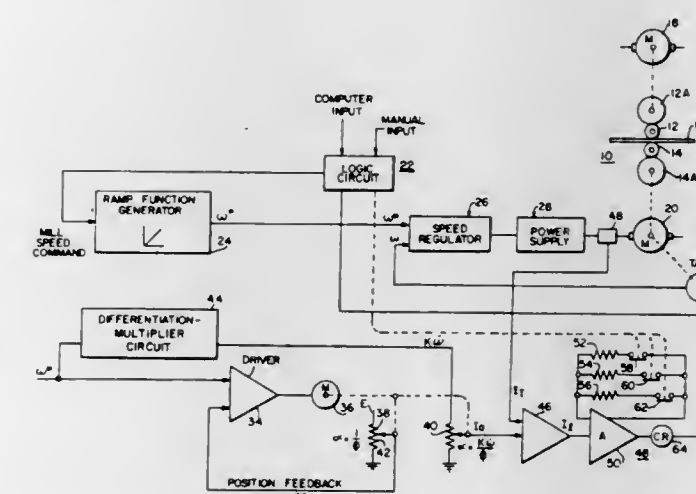
Jan M. Fludzinski, Williamsville, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 17, 1970, Ser. No. 64,450

Int. Cl. H02p 5/00

U.S. Cl. 318-326

5 Claims



This disclosure relates to a system for automatically monitoring mill drive motor accelerating and load currents in the full field and weakened field range, for speed regulated drives with automatic cutoff of acceleration on reaching operator preset load conditions. The system enables obtaining maximum acceleration rates and maximum speeds compatible with motor overload ratings, so as to optimize the known duty cycle to make full utilization of the mill stand motor consistent with design specifications.

3,657,624

SPEED CONTROL MECHANISM FOR A D.C. ELECTRIC MOTOR

Masahiko Nagano, Tokyo, Japan, assignor to Akai Electric Co., Ltd., Tokyo, Japan

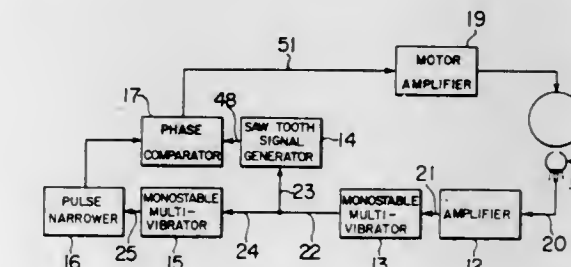
Filed Sept. 21, 1970, Ser. No. 73,816

Claims priority, application Japan, Sept. 19, 1969, 44/74428

Int. Cl. H02p 5/16

U.S. Cl. 318-341

5 Claims



The speed controller includes a first pulse generator which operates in response to a motor revolution pickup head to produce a sawtooth pulse with the pulse interval being proportional to the speed of the motor and a second pulse generator for producing a series of pulses having a constant time lag relative to a certain preceding one of said sawtooth pulses. The combined pulses produce a control signal pulse series for control of the motor current.

3,657,625

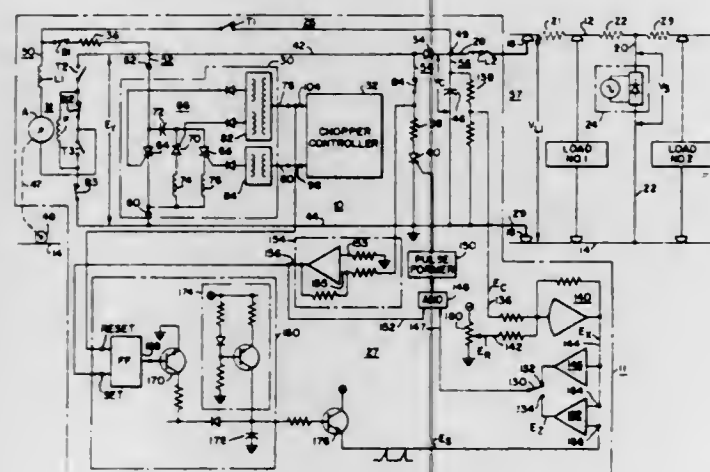
SYSTEM FOR BLENDING DYNAMIC AND
REGENERATIVE BRAKING

Lanan G. Miller, and Terry D. Sanders, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 24, 1969, Ser. No. 879,500
Int. Cl. H02p 3/06

U.S. Cl. 318—370

8 Claims



A method and a system wherein the electric power generated by a motor in the braking mode is distributed between a dynamic brake resistor and the motor supply lines in a ratio that varies as a function of the degree of power receptivity of the motor supply lines. Power receptivity is the capability of the supply lines to accept the power generated by the motor in the braking mode at a given time.

3,657,626

TIMED CONTROL SYSTEMS OF WINDSCREEN WIPERS

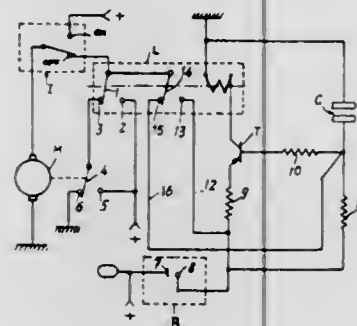
Philippe Rouvre, and Francois Peroy, both of Billancourt, France, assignors to Regie Nationale des Usines Renault, Billancourt and Automobiles Peugeot, Paris, France

Filed Sept. 14, 1970, Ser. No. 71,681

Claims priority, application France, Sept. 17, 1969, 6931586
Int. Cl. B60s 1/02

U.S. Cl. 318—443

5 Claims



This control system with a timing characteristic for windscreen wiper of automotive vehicles, which comprises a wiper driving motor and an ON-OFF switch, further includes a control circuit connected to the stop contact of said switch, said control circuit comprising a relay with contact means for energizing the wiper motor, a transistor and a push-button switch, disposed in series, the base circuit of said transistor comprising a capacitor the charging time of which determines the conductive time of said transistor and therefore the energization of the wiper motor as a consequence of the actuation of said push-button switch, said relay comprising a contact adapted to hold the transistor and relay assembly in its energized condition when said relay is energized, and also to discharge said capacitor when said relay resumes its operative condition.

3,657,627

TOOL SELECTION SYSTEM

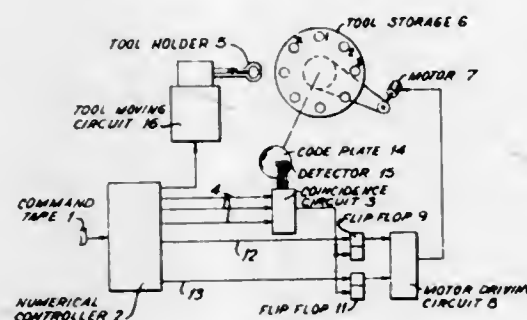
Seluemon Inaba, and Kengo Kobayashi, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed July 15, 1970, Ser. No. 55,148

Claims priority, application Japan, July 23, 1969, 44/58147
Int. Cl. G05b 19/26

U.S. Cl. 318—601

4 Claims



Recorded instructions in a memory include a plurality of tool codes corresponding to tools to be selected and a plurality of corresponding tool addresses. A plurality of tools are stored in a movable tool storage. When a tool code is commanded in a tape, the storage address corresponding to such tool code is read out from the memory and moves the tool storage to a position at which the desired tool may be removed therefrom. The tool storage is halted when the tool address of the desired tool corresponds to the tool address read out from the memory.

3,657,628

PROGRAMMED COIL WINDING MACHINE

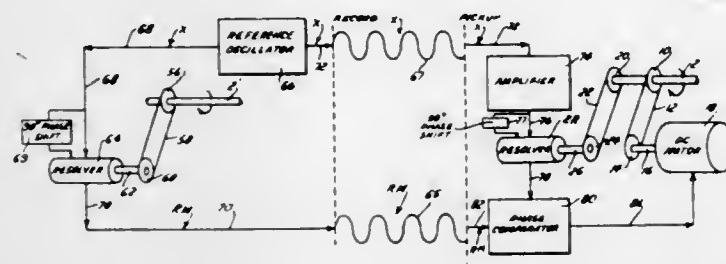
John Chesney, Roselle Park; Vincent P. Friberg, Leonia, and Richard B. Phelps, New Milford, all of N.J., assignors to General Instrument Corporation, Newark, N.J.

Filed July 13, 1970, Ser. No. 54,152

Int. Cl. G05b 1/01

U.S. Cl. 318—606

33 Claims



A coil winding machine in which the rotational position of the form on which the coil is to be wound and the translational position of the guide which leads the wire onto the form are both controlled by electrical signals of a type which may readily be recorded onto a tape or other record medium, preferably in the form of phase modulated and/or frequency modulated signals. The signals may be artificially created or created from a master winding machine the operations of which are to be duplicated by the machines controlled by the recorded signals. Thus a single standard record-controlled winding machine can be used without adaptation to form any desired number of coils of any desired characteristic within the capabilities of the machine. Separate control signals are produced for rotational positioning of the coil form and translational positioning of the wire guide, and those signals, together with a reference signal, are impressed onto the record and are then reproduced so as to control the operation of the machine.

3,657,629

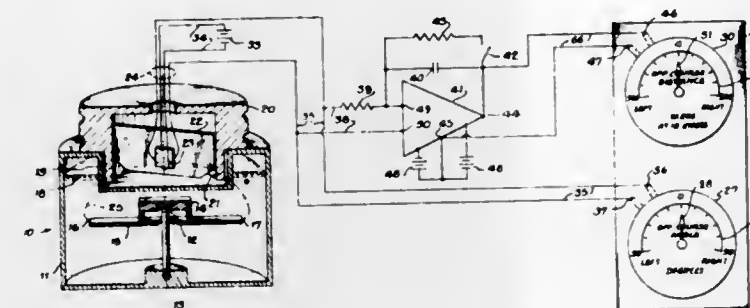
NAVIGATIONAL INSTRUMENT

Edward C. Lloyd, 8624 Red Coat Lane, Potomac, Md.
Filed Feb. 26, 1970, Ser. No. 14,367

Int. Cl. G05f 1/00

U.S. Cl. 318—647

3 Claims



A Hall-effect transducer mounted on the axis of rotation of the magnet of a shipboard or aircraft magnetic compass produces a time-varying electrical signal having magnitude proportional to the sine of the angle between a preselected heading of the craft and the actual heading at any moment. The signal, and its time-integral which is proportional to the off-course distance of the craft at constant speed, are displayed on indicating meters for the use of the pilot in steering or are applied to control an automatic steering system.

3,657,630

ELECTRO SERVOSYSTEM FOR A FORCE BALANCING
GAUGE

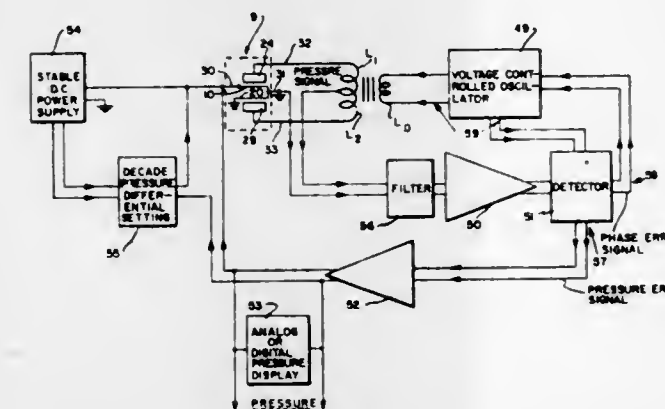
Owen O. Fiet, Redondo Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Oct. 9, 1968, Ser. No. 766,261

Int. Cl. G05b 1/01

U.S. Cl. 318—676

2 Claims



A very sensitive servosystem is provided for use with measuring instruments or gauges of the type wherein the force to be measured is counterbalanced by an identical force which tends to maintain the force sensing element in a null position. The restoring force may be current sensitive. Deviations from the null position are represented as an output of an alternating current bridge circuit. The bridge output is utilized in feedback circuit to control a current supplied to the gauge restoring force device. High resolution is accomplished by means of an amplified bridge output, a narrow band filter, and a phase-lock loop circuit. When used in association with a pressure gauge of the type described, the force and counter force are per unit area of sensing element.

The pressure gauge disclosed herein is disclosed and claimed in copending application Ser. Number 766,261, filed concurrently herewith and assigned to the assignee of the present application.

3,657,631

CONVERTER CIRCUITS

Jean Victor Martens, Deurne-Antwerp; Marcel Clement Rene Natens, and Amanuel De Aguilre, both of Antwerp, all of Belgium, assignors to International Standard Electric Corporation, New York, N.Y.

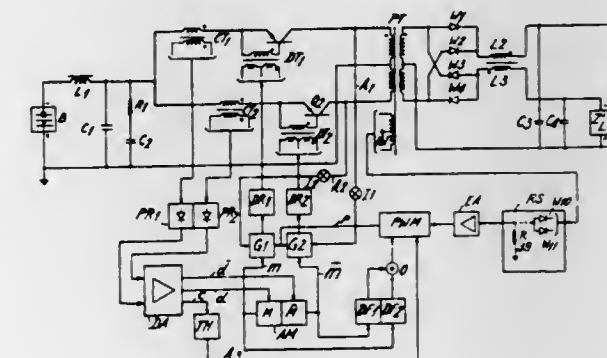
Filed Nov. 25, 1970, Ser. No. 92,718

Claims priority, application Netherlands, Dec. 19, 1969, 6919147

Int. Cl. H02m 3/32

U.S. Cl. 321—2

2 Claims



This invention relates to a chopper circuit for converting the voltage from an input DC source into an alternative output voltage. The ends of the primary winding of the output transformer are coupled to one pole of said DC source via first and second switching devices. The other pole of the DC source is coupled to a mid-tapping of the primary winding. A control signal generator provides first and second phase pulse sequences which are fed to said first and second devices to alternately switch them ON and OFF. To eliminate DC magnetizing current the pulse widths of the first and second pulse sequence so that the current pulse widths at the output of the power transistors are maintained substantially equal.

3,657,632

RECTIFYING DEVICE

Keisuke Miyoshi, Takatsuki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

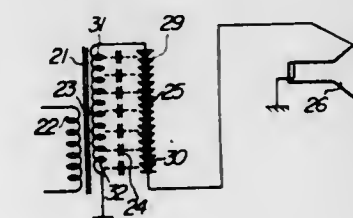
Filed Oct. 22, 1970, Ser. No. 83,143

Claims priority, application Japan, Oct. 29, 1969, 44/87045; 44/87046; 44/87047; 44/87048; 44/87049; Dec. 9, 1969, 44/99654; 44/117749; 44/117750; 44/117751

Int. Cl. H02m 7/00

U.S. Cl. 321—8 R

8 Claims



A rectifying device in which the high-voltage side coils of the secondary winding of an a-c voltage-generating transformer are placed opposite the a-c side rectifier elements of a stacked-type semiconductor rectifier and the low-voltage side coils thereof opposite the d-c side rectifier elements of said rectifier, thereby rendering almost uniform the reverse voltages across each of the rectifier elements by means of the distributed capacitance between the winding and the electrodes of the rectifier elements.

3,657,633 MULTIPLE BRIDGE DIFFERENTIAL VOLTAGE STATIC INVERTER

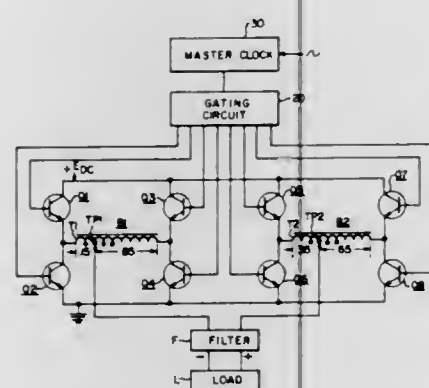
Joseph M. Urish, Lima, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 27, 1970, Ser. No. 93,143

Int. Cl. H02m 1/12

U.S. Cl. 321-9 A

11 Claims



This invention relates to a static inverter circuit utilizing a combination of two or more bridge type inverter circuits interconnected by means of movable tap interphase transformers for developing a stepwise inverter output waveform with little harmonic distortion. Through selective positioning of the taps and proper sequential actuation of the power switch elements comprising the bridge circuits, a stepwise sinewave inverter output waveform can be generated.

3,657,634 INVERTER CIRCUIT

Robert Henry Eastop, London, England, assignor to Westinghouse Brake and Signal Company Limited, London, England

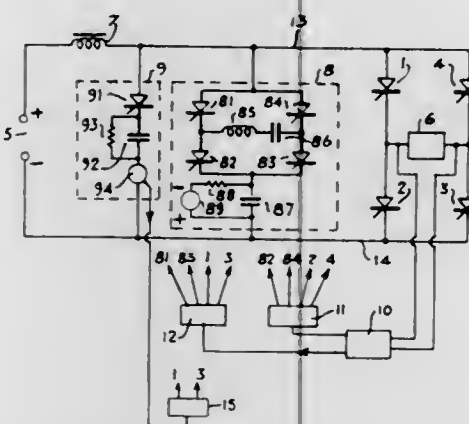
Filed Nov. 3, 1970, Ser. No. 86,538

Claims priority, application Great Britain, Nov. 26, 1969, 57,921/69; July 17, 1970, 34,880/70

Int. Cl. H02m 7/52

U.S. Cl. 321-45 S

15 Claims



In an inverter circuit including first and second pairs of main controllable rectifier devices connected in a bridge configuration between d.c. supply terminals and a resonant load connected across the bridge, an auxiliary commutation circuit is provided for diverting current, over a number of cycles following starting of the inverter, from the controllable rectifier devices at the instant a controllable rectifier device is to be commutated into the non-conducting condition thereof so as to assist in said commutation. An additional circuit is provided for "shocking" the load circuit into resonance during start-up. The load circuit provides natural commutation of the pairs of controllable rectifier devices during normal operation and, during starting, triggering pulses are applied to the incoming controllable rectifier devices

sufficiently before the voltage zero of the natural resonant load circuit frequency to ensure adequate build-up of current in these incoming devices.

3,657,635 DIGITAL PHASE SHIFT FREQUENCY SYNTHESIZER

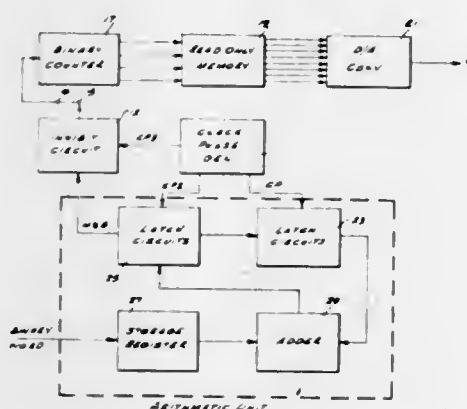
Richard D. Quinn, Palos Verdes Estates, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed June 25, 1970, Ser. No. 49,687

Int. Cl. H02m 5/00

U.S. Cl. 321-69 R

13 Claims



A digital phase shifter for synthesizing an output frequency where, in one embodiment, a counter is responsive to first clock pulses received from a clock generator via an inhibit circuit to produce a plurality of output signals which selectively switch a plurality of resistors in or out of the input circuit of an amplifier to digitally produce an output frequency. Any output frequency within a desired band may be generated upon the application of a corresponding binary command number to an arithmetic unit, which continually adds the command number to itself at each occurrence of second clock pulses. Each time that the count of the arithmetic unit overflows an inhibit signal is applied to the inhibit circuit to prevent the following first clock pulse from being passed to the counter, thereby shifting the phase and hence the frequency of the output signal by changing the counting period of the counter. The output frequency is an inverse function of the amplitude of the command number.

3,657,636 THERMALLY STABLE COIL ASSEMBLY FOR MAGNETIC SUSCEPTIBILITY LOGGING

Donald J. Dowling, and George R. Atwood, both of Houston, Tex., assignors to Texaco Inc., New York, N.Y.

Filed Jan. 2, 1970, Ser. No. 328

Int. Cl. G01v 3/10, 3/18

U.S. Cl. 324-6

5 Claims

A borehole magnetic susceptibility apparatus is disclosed which includes a transmitter search coil, a receiver search coil, both wound over a low thermal co-efficient core element such as glass, an AC power supply coupled with the transmitter search coil for generating an alternating magnetic field which after passing at least in part through the earth formation couples magnetically with the receiver search coil for inducing therein a voltage signal dependent in part on the magnetic susceptibility of the formation and which is in quadrature phase relationship with the transmitter coil current. The apparatus includes a nulling coil having a primary winding connected in series with the transmitter coil and a secondary winding connected in series opposition with the receiver coil to render detectable the small variations of the quadrature phase signal representing the magnetic susceptibility. A thermally stable and shock resistant sub-assembly of the transmitter and receiver search coils is provided for improved environmental stability of the tool. The method of subjecting the earth formation to an alternating magnetic

field to induce therein a field which depends on the magnetic susceptibility of the formation, detecting the induced magnetic field by permitting it to act on a receiver element to induce therein a first signal which depends on the magnetic susceptibility of the formation, generating a reference second



signal representing the susceptibility of a reference medium, and generating a third signal corresponding the difference between the first and second signal whereby the third signal represents the magnetic susceptibility of the formation with respect to the magnetic susceptibility of the reference medium.

3,657,637 APPARATUS FOR MEASURING THE ATTITUDE OF A BOREHOLE

Rene Claret, Sceaux, France, assignor to Societe D'Applications Generales D'Electricite Et De Mecanique Sagem, Paris, France

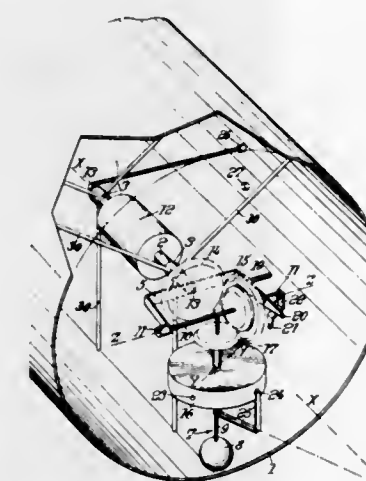
Filed June 15, 1970, Ser. No. 45,966

Claims priority, application France, June 19, 1969, 6920513

Int. Cl. G01v 3/00; E21b 47/022

U.S. Cl. 324-8

10 Claims



The measuring apparatus includes a hollow shaft coaxial with the drilling line, a pendulum device, a driving motor, driving through a central spindle and gears, a rotary device, sensitive to the earth magnetic field and mounted pivotably around a vertical rod of the pendulum device. Rotary and fixed detecting members produce signals indicating the inclination with respect to the vertical and the azimuth with respect to magnetic north of the drilling line. One detector means may comprise a ball or roller of electrically conduct-

ing material, moving over two rails in the form of a loop. One rail is of electrically conducting material and the other is partly of electrically conducting material and partly of insulating material. The two rails are at different potentials.

3,657,638 METHOD OF MAGNETIC FLAW DETECTION IN BODIES OF NON-CIRCULAR CROSS SECTION USING UNIDIRECTIONAL MAGNETIZATION AND DEMAGNETIZATION PULSES TO ELIMINATE EDGE DISTORTION OF THE MAGNETIC FIELD

Paul Holler, Oberhausen, and Paul Schotten, Essen-Frintrop, both of Germany, assignors to Huttenwerk Oberhausen AG, Oberhausen, Germany

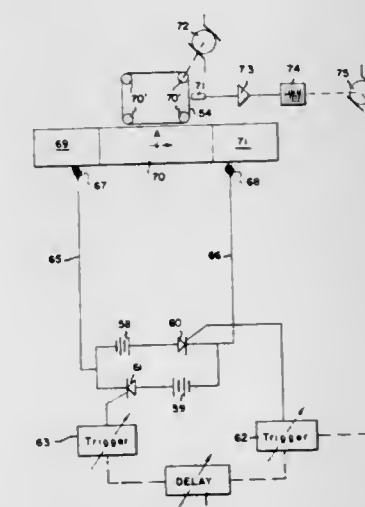
Continuation-in-part of application Ser. No. 775,665, Nov. 14, 1968, now abandoned. This application Jan. 7, 1970, Ser. No. 1,275

Claims priority, application Germany, Jan. 9, 1969, P 19 00 992.8

Int. Cl. G01r 33/12

U.S. Cl. 324-37

5 Claims



Method of detecting the location and extent of superficial faults, especially cracks, and for measuring the depths of such cracks in bars, billets, blooms, ingots, rods and tubes, especially of noncircular cross section. An electric current is passed axially through the elongated metallic body in one direction, and the magnetic flux of field (crossflux) generated by the passage of the electric current through the body is detected along the surface thereof. To avoid or reduce the effects of the edges of the noncircular body upon the detected magnetic field strength or flux and, therefore, to reduce the possibility that longitudinal cracks in the region of these edges will be undetected or poorly evaluated, the electric current passed axially through the bar is pulsed with the pulse shape being selected such that, in relation to the geometry of the bar, cracks in the surface in the region of the edges are detected. The pulsed current may derive from, say, a 50 or 60 Hz line source subjected to half-wave rectification; preferably pulse frequencies of 20 to 100 Hz are used. Periodically, or prior to each pulse, an erasing pulse is passed through the bar in the opposite direction to eliminate the residual magnetism from the previous scanning pulse or pulses. Hence the magnetization pulse is applied only to a non-magnetized or previously demagnetized body.

3,657,639 METHOD AND APPARATUS FOR MEASURING THE STATE OF CHARGE OF A BATTERY USING A REFERENCE BATTERY

Eugene A. Willihnganz, Lafayette Hill, Pa., assignor to ELTRA Corporation, Toledo, Ohio

Filed June 22, 1970, Ser. No. 47,935

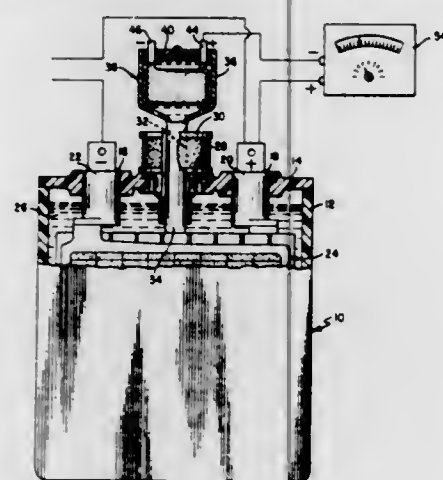
Int. Cl. G01n 27/46

U.S. Cl. 324-29.5

8 Claims

A device for testing storage batteries particularly of the lead-acid type to determine whether the individual cells of the battery are accepting charge and are in suitable condition

to perform their intended function, which comprises a miniature reference cell cooperating with the cell being tested by means of a tube filled with electrolyte in electrical circuit with the cell electrolyte, so that electrical potentials between



the negatives of the reference cell and the test cell, and also the potentials between the positives can be determined by a suitable voltmeter to indicate the condition of the respective negative and positive plates of the cell being tested.

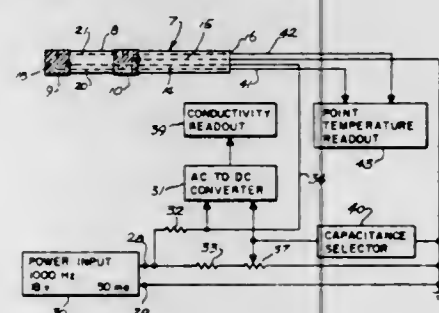
3,657,640

GLASS CONDUCTIVITY AND TEMPERATURE PROBE
James W. Jelinek, Lancaster, Ohio; Joseph J. Kozlowski, and Jack E. Gooding, both of Muncie, Ind., assignors to Ball Corporation, Muncie, Ind.

Filed Feb. 5, 1969, Ser. No. 796,682
Int. Cl. G01r 27/42, 27/02

U.S. Cl. 324—30 R

4 Claims



A device for measuring the conductivity and/or temperature of glass in molten state. A probe including a hollow elongated member of nonconductive material has a pair of spaced external bands of conductive material near one end with an internal lead from each band extending to the other end of the elongated member. The leads are connected with power input means and an AC to DC converter, the latter of which is connected with a voltage readout to supply direct voltages thereto which are indicative of the conductivity of the molten glass between the bands on the probe. In addition, a thermocouple is positioned within the elongated member at the end with the bands thereon with leads therefrom being connected with a temperature readout that is externally positioned with respect to the probe.

3,657,641

ANISOTROPIC THIN FILM PLATED WIRE MAGNETOMETER UTILIZING A COIL OF PLATED WIRE HAVING A PLURALITY OF TURNS

Vahram S. Kardashian, Plymouth Village, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

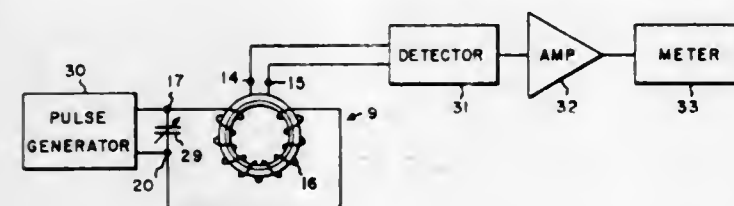
Filed June 11, 1970, Ser. No. 45,466
Int. Cl. G01r 33/02

U.S. Cl. 324—43 R

6 Claims

A thin film plated wire magnetometer in which the plated wire configurations are arranged to provide a very sensitive and compact instrument. The device is sensitive to magnetic field variations in the order of a fraction of one gamma. A

plated wire is wound a number of turns around a cylindrical or rectangular core, the plated wire acting as both sensor



material and pickup coil. A high frequency energized driver coil is wound over the plated wire sensor coil, in one embodiment the driver coil is a toroidal winding.

3,657,642

ION-FOCUSED ELECTRON BEAM DIRECTIONAL MAGNETOMETER

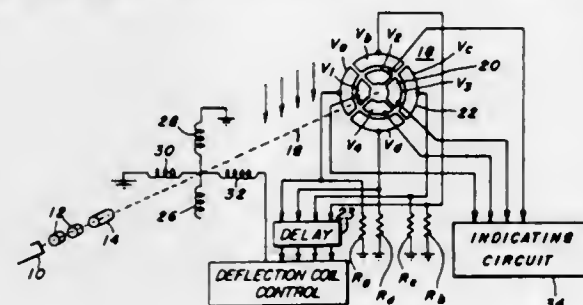
Michael A. Goldman, Pikesville, and Harry Goldie, Randallstown, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1969, Ser. No. 862,278

Int. Cl. G01r 33/02

U.S. Cl. 324—44

7 Claims



Described is an electron beam magnetometer of the type adapted to detect disturbances in magnetic fields, particularly the magnetic field of the earth. This is accomplished by means of a space-charge-neutralized low voltage electron beam. Positive ions, obtained either by ion injection or weak ionization of a low pressure gas within an envelope through which the electron beam passes, hold the beam together along its path. The beam is normally centered by means of conventional horizontal and vertical deflection coils. Disturbances in a magnetic field traversing the beam cause it to deflect; and this deflection is sensed to indicate the disturbance.

3,657,643

CONTROL SYSTEM FOR ELECTRON BEAM MAGNETOMETER SENSOR

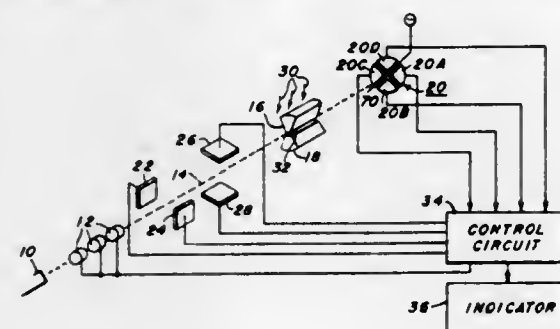
James F. Nicholson, Severna Park, and Clarence Williams, Baltimore, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1969, Ser. No. 862,375

Int. Cl. G01r 33/02

U.S. Cl. 324—44

4 Claims



Described is a control system for an electron beam magnetometer sensor of the type adapted to detect disturbances in magnetic field, particularly the magnetic field of the earth,

by means of a vacuum tube containing an electron gun which emits an electron beam and directs it between spaced pole pieces located within the envelope of the vacuum tube itself. The earth's magnetic field surrounding the tube is concentrated at the gap between the pole pieces such that the presence of a magnetically permeable body near the tube will alter the magnetic field intensity across the gap and cause the electron beam to deflect. The invention resides in the provision of electrical circuitry for sensing this deflection and for indicating the existence of a disturbance and its magnitude, which circuitry is capable of detecting small time varying signals in the presence of a strong static field.

3,657,644

THERMOCALCULIC RADIOMETER UTILIZING POLYMER FILM

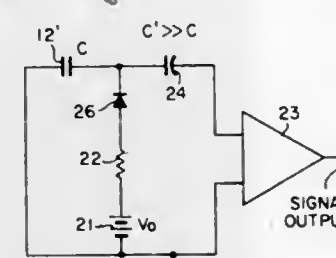
Benjamin H. Beam, Sunnyvale, and Larry D. Russell, San Jose, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Nov. 12, 1968, Ser. No. 774,733

Int. Cl. G01r 27/26; G01t 1/16; H01g 7/04

U.S. Cl. 324—61 R

8 Claims



A thermoelectric radiometer employing a polymer film or a capacitor dielectric. The film is charged to a suitable voltage gradient and, when it is heated by absorbed radiation, it produces a proportional open-circuit voltage increment which can be measured to provide an indication of the total energy or power of a short-duration pulse of radiant flux.

The invention described herein was made by employees of the United States Government and may be manufactured and used by or for the Government for governmental purposes without the payment of any royalties thereon or therefor.

3,657,645

THICKNESS MEASURING DEVICE HAVING A SEGMENTED ROLLER AND HIGH GAIN AMPLIFIER
Emile Van Nueten, Herentals, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

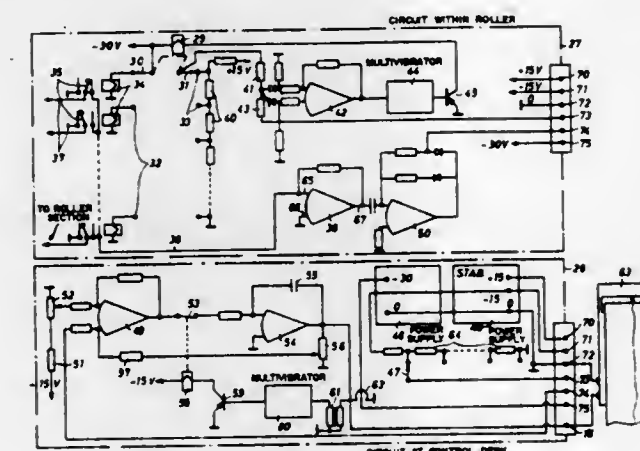
Filed Apr. 11, 1969, Ser. No. 815,386

Claims priority, application Great Britain, Apr. 11, 1968, 17,621/68

Int. Cl. G01n 27/02

U.S. Cl. 324—65 R

4 Claims



The thickness of an electroconductive coating on an electrically non-conductive web is measured in the transverse

direction by an arrangement including a first roller connected to an AC tension and a second roller having a plurality of roller sections located in close side by side insulated relation transversely across the web, electric change-over contacts movable between an inoperative position connecting under the control of an appropriate controller, the roller sections in succession to the input of a high gain amplifier with resistive feedback, and a measuring device for measuring the output signal of the amplifier.

3,657,646

METHOD AND APPARATUS OF AUTOMATIC ESTIMATION OF NONREGULAR CURVES, ESPECIALLY ELECTROMIOGRAPHIC CURVES AND THE DIGITAL SYSTEM FOR REALIZATION OF THE METHOD

Wojciech Zmyslowski, Warszawa; Zofia Decowska, Warszawa; Ryszard Gawronski, Warszawa; Zdzislaw Borejko, Warszawa; Marek Decowski, Warszawa, and Janusz Wirski, Konstancin, all of Poland, assignors to Polska Akademia Nauk

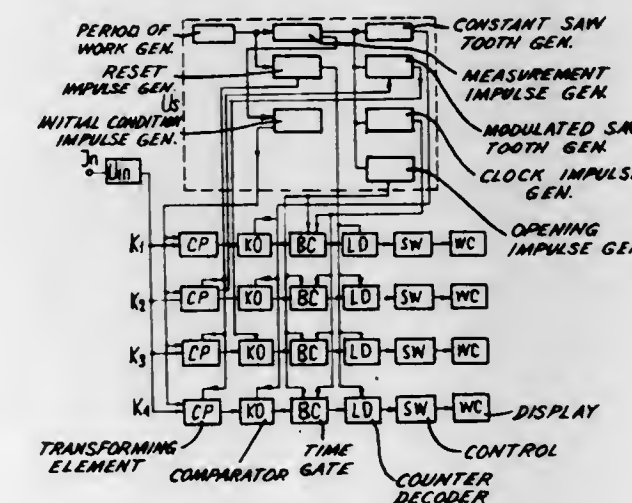
Filed Dec. 18, 1969, Ser. No. 886,093

Claims priority, application Poland, Dec. 20, 1968, P 130689

Int. Cl. G01r 23/16

U.S. Cl. 324—77 A

7 Claims



A method and apparatus for analyzing an irregular signal and providing a digital read-out in which the signal is applied to four processing channels. In a first channel, a coefficient of interference is obtained by counting transitions of the signal through several values, multiplying the sum of the transitions. In a second channel for obtaining mean peak value, the signal is rectified, supplied to a comparator also fed with a constant amplitude saw tooth wave and the time interval obtained between the initiation of the saw tooth wave and the instant when the saw tooth wave potential is equaled by a potential representing the signal intensity. In a third channel, a duty factor is obtained by dividing the signal after it has been integrated by its mean peak value. In a fourth channel the number of groups of impulses in the signal is determined.

3,657,647

VARIABLE BORE MERCURY MICROCOULOMETER
Curtis C. Beusman, Mount Kisco, and Eugene P. Finger, Brewster, both of N.Y., assignors to Curtis Instruments, Inc.

Continuation-in-part of application Ser. No. 683,903, Nov. 17, 1967, now abandoned. This application Feb. 10, 1970, Ser. No. 10,179

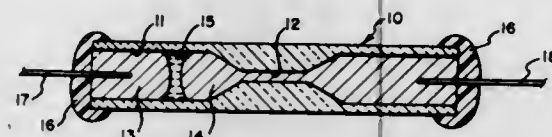
Int. Cl. G01r 27/22; G01n 27/42

U.S. Cl. 324—94

9 Claims

An electrochemical coulometer having a bore of varying cross section is disclosed. The resistance of the coulometer

varies with time in a manner corresponding to the bore cross section as electric current is passed through the device caus-



ing the electrolyte in the coulometer to take on varying configurations within the bore.

3,657,648

ELECTRICAL TESTING DEVICE

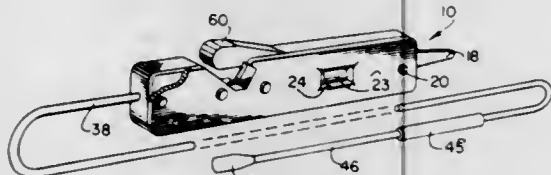
Elmer K. Malme, St. Charles, Ill., assignor to Wire Sales Company, Chicago, Ill.

Filed Feb. 8, 1971, Ser. No. 113,479

Int. Cl. G01r 13/36, 19/14

U.S. Cl. 324-122

2 Claims



An electrical testing device has an electrically insulating housing with one projecting electrode and another insulated wire containing a second projecting electrode. A neon tube is included within the housing and gives a visual indication of voltage. The exposed electrodes are generally spade-shaped to permit introducing the same into the slots of a conventional receptacle to determine if the receptacle electrodes are live. In addition, the testing device also has an auxiliary electrode within a slotted portion of the housing.

3,657,649

METER FOR MEASURING DIFFERENT RANGES OF ALTERNATING ELECTRICAL QUANTITIES

Roberto Odorici, Via Rutilia, Milan, Italy

Continuation-in-part of application Ser. No. 810,510, Mar. 26, 1969, now abandoned. This application Nov. 20, 1970,

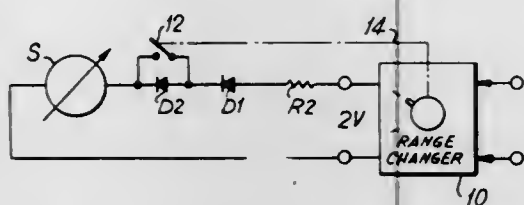
Ser. No. 91,499

Claims priority, application Italy, Apr. 4, 1968, 14824 A/68

Int. Cl. G01r 15/08, 15/10

U.S. Cl. 324-115

4 Claims



A meter for measuring alternating electrical quantities. The meter is particularly designed to provide readings of different ranges of these quantities on the same scale. An electrical circuit of the meter is provided with a pair of rectifiers which are connected in series, and a range changer coacts with one of the rectifiers for connecting it into and disconnecting it from the circuit when the range changes.

**3,657,650
CURRENT AND VOLTAGE MONITORING MODULE FOR ELECTRIC CONDUCTOR TERMINATIONS**

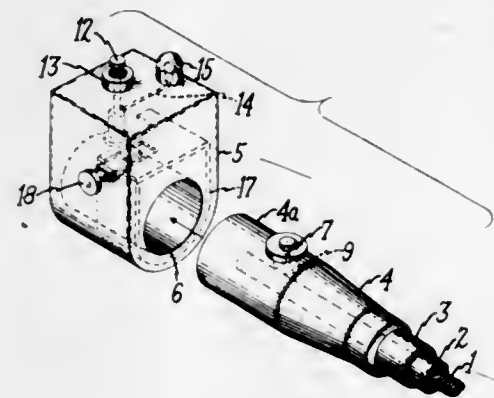
Richard H. Arndt, Lenox, Mass., assignor to General Electric Company

Continuation-in-part of application Ser. No. 694,720, Dec. 29, 1967, now abandoned. This application Sept. 8, 1969, Ser. No. 855,912

Int. Cl. G01r 1/22, 19/14

U.S. Cl. 324-126

2 Claims



A monitoring module for a power conductor termination adapted to be quickly and easily placed in operating position on such a termination. The module is equipped to house either or both current and voltage monitoring means for detecting variations in current and voltage on the power conductor.

3,657,651

ONE PIECE METER CURRENT CIRCUIT

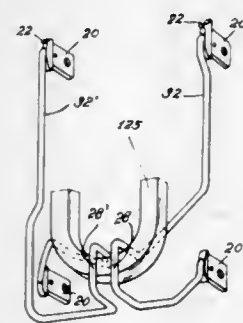
Richard A. Road, Lafayette, and James H. Schlatter, Frankfurt, both of Ind., assignors to Duncan Electric Company, Inc., Lafayette, Ind.

Filed June 2, 1969, Ser. No. 829,278

Int. Cl. G01r 11/02

U.S. Cl. 324-137

11 Claims



A one-piece electric meter current circuit including integral current coil and meter connectors can be formed from a length of heavy wire. First its ends are thickened by axial thrust in a die, then flattened and shaped by transverse thrust in another die to produce integral cross work-hardened blades, with shoulders for abutting an elastomeric washer at the meter base plate. A preferred circuit piece is sharply bent adjacent the blades. The forming method not only eliminates all connections (which are potentially troublesome) within the electric meter current circuit, but moreover provides work-hardened, strengthened portions in crucial regions such as at the neck of the blades.

3,657,652

INTER-COMPARTMENT COUPLING DEVICE

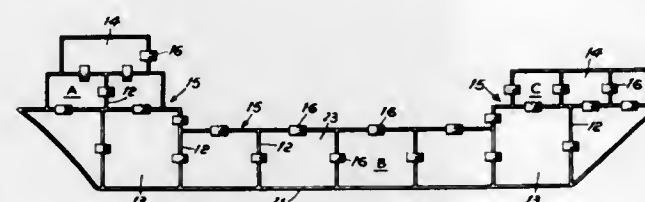
Harry R. Smith, Verona, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed Dec. 17, 1969, Ser. No. 885,773

Int. Cl. H04b 1/38; H01q 1/12, 1/34

U.S. Cl. 325-15

6 Claims



Inter-compartment coupling devices are described for improving on-board communications for large ships. The described devices permit efficient electrical coupling between compartments so that communications by hand-held transceivers is possible. The couplers described include a slot antenna, loop and monopole antennas which interconnect the various areas on either side of a partition or deck.

3,657,653

PULSE CODE MODULATION SYSTEM

Roger Martin Wilkinson, Christchurch, England, assignor to Minister of Technology in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

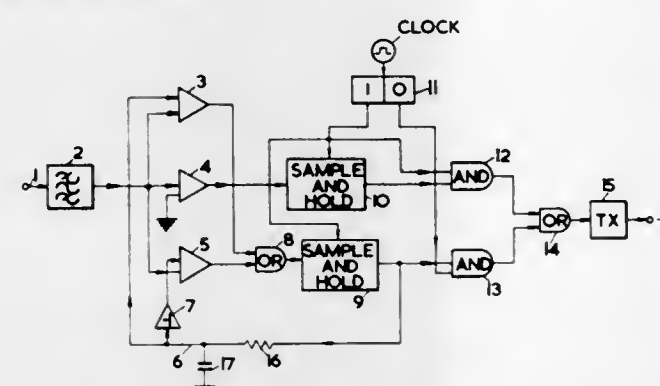
Filed Apr. 27, 1970, Ser. No. 32,322

Claims priority, application Great Britain, Apr. 30, 1969, 22,042/69

Int. Cl. H03k 13/22

U.S. Cl. 325-38 B

15 Claims



A pulse code telecommunications system in which samples of an analogue signal to be transmitted are each represented by a binary word. In each binary word, one signal bit represents the polarity of the sample with respect to a reference level and one or more further signal bits represent the magnitude of the sample with respect to a second, variable, reference level which is derived from the coded representation of the magnitudes of preceding samples. The system includes a binary signal multiplexer and a transmitter.

A receiver for use with the system includes a binary signal demultiplexer, circuits for correctly allocating the polarity and magnitude bit signals to polarity and magnitude signal channels, and decoder circuits for reconstituting the analogue signal from the binary word signal.

3,657,654

COMMUNICATIONS RECEIVER EMPLOYING VARACTOR CONTROLLED TUNING STAGES

Vincent P. Friberg, Leonia, N.J., assignor to General Instrument Corporation, Newark, N.J.

Filed Sept. 11, 1969, Ser. No. 857,150

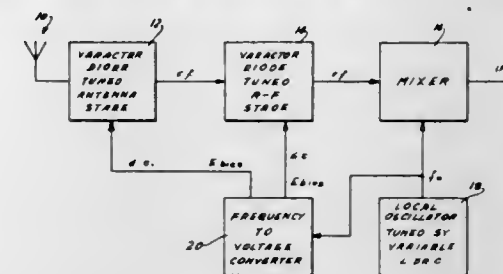
Int. Cl. H04b 1/16; H03j 3/28

U.S. Cl. 325-452

11 Claims

In a communications receiver the local oscillator output signal is converted to a voltage signal proportional to the

oscillator frequency. That voltage signal is applied to the voltage-sensitive tuning elements in the receiver's tuning



stages to vary the tuning parameters of these elements. An improved frequency-to-voltage converter effectively converts the oscillator output to the tuning voltage signal.

3,657,655

DETECTION SYSTEM FOR CONTROL INFORMATION

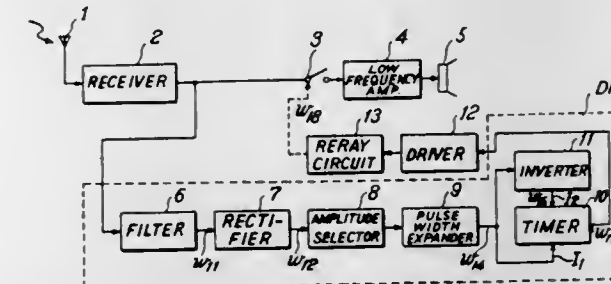
Masayuki Fukata, 94 Shimorenjaku, Mitaka-shi, Tokyo, Japan

Filed Apr. 15, 1969, Ser. No. 816,295

Int. Cl. H04b 1/16

U.S. Cl. 325-64

5 Claims



Disclosed herein is a detection system for control information transmitted from the sending side to the receiving side in a broadcast system, in which the control information is detected in consideration of the following two conditions: (1) if a control signal representative of the control information is intermitted by the control at the sending side or by noise, the control signal is deemed continuous in case of the intermitted time of the control signal is less than a predetermined first time (t); and (2) if a signal deemed continuous exceeds a predetermined second time (T) longer than the first time (t), this signal is decided as the control information.

3,657,656

SWITCHED HIGH POWER PULSED ARRAY

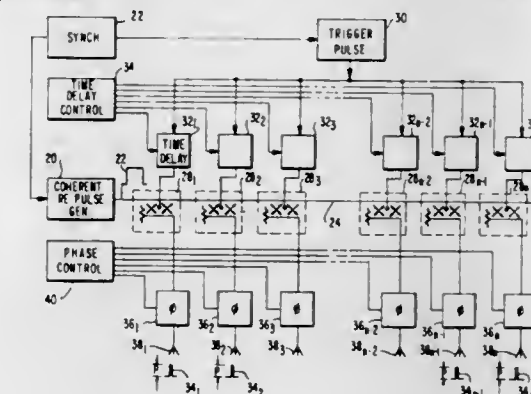
Herbert W. Cooper, Hyattsville, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 8, 1970, Ser. No. 79,182

Int. Cl. H04b 3/02

U.S. Cl. 325-130

11 Claims



A time domain power divider wherein a relatively long coherent RF pulse is separated into a plurality of relatively shorter length pulses having substantially the same peak power as the input pulse by coupling a plurality of low loss type waveguide switches to a common waveguide section

propagating a relatively long input pulse. The plurality of waveguide switches are selectively separated over a length of the waveguide and operated in timed relationship with respect to the input pulse wherein the pulsewidth of the relatively long input pulse is at least equal to the total span of the plurality of waveguide switches. The relatively shorter coherent RF pulses formed from the input pulse are then respectively coupled to separate antenna means through controlled phase shifters to provide a phase array output of microwave energy.

3,657,657

DIGITAL SINE WAVE GENERATOR

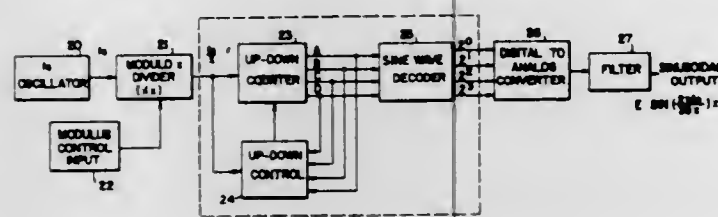
William T. Jefferson, 1461 Monteleone Drive, San Jose, Calif.

Filed Aug. 3, 1970, Ser. No. 60,266

Int. Cl. H03b 19/00; H03k 13/00

U.S. Cl. 328-14

10 Claims



An accurate source of constant frequency pulses drives an adjustable modulus digital divider, which divides the input pulse repetition rate by exact integers. The pulse repetition rate of the output of the divider is made directly proportional to the desired frequency of a sine wave that is to be generated. The output of the divider continuously clocks a four-bit binary up-down counter from the all-zero condition to the all-one condition and then back down cyclically. This up-down counter programs a digital sine wave decoder in which logic circuits convert the binary pattern from the output of the up-down counter into a binary pattern that is a stepwise approximation to a sine wave. A conventional digital-to-analog converter converts the binary pattern from the sine wave decoder into a corresponding analog signal, which is filtered to remove undesirable frequency components. The result is a reasonably pure sine wave whose frequency is accurately controlled by the pulse repetition rate from the variable modulus divider.

3,657,658

PROGRAM CONTROL APPARATUS

Moritada Kubo, Tokyo, Japan, assignor to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

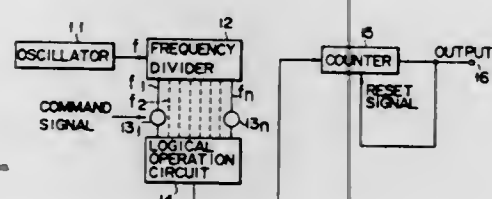
Filed Dec. 11, 1970, Ser. No. 97,285

Claims priority, application Japan, Dec. 13, 1969, 44/99842

Int. Cl. H03k 1/00

U.S. Cl. 328-61

10 Claims



Program control apparatus for generating programmed control signals comprises a clock pulse oscillator, a frequency divider or multiplier for converting the clock pulse into a plurality of frequency signals of different frequencies, a logical operation circuit for selecting the frequency signals in accordance with a command signal, a counter for counting a preset number of the outputs from the logical operation cir-

cuit for successively providing the programmed control signal, and means responsive to each control signal for resetting the counter.

3,657,659

METHOD AND MEANS FOR MEASURING PHASE DIFFERENCE

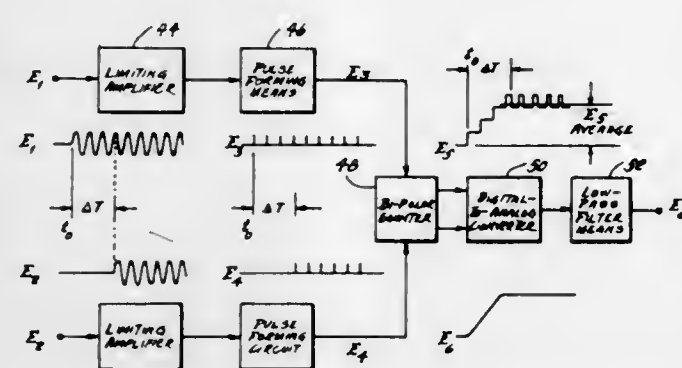
Robert P. Johnson, Sun Valley, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed July 13, 1964, Ser. No. 382,697

Int. Cl. H03d 13/00

U.S. Cl. 328-133

1 Claim



1. Apparatus for obtaining an output signal whose value corresponds to the phase difference between two sinusoidal waves displaced in time comprising, in combination:

- a first limiting amplifier connected to receive the earlier of said sinusoidal waves as its input;
- a first pulse-forming means connected to receive as its input the output of said first limiting amplifier and to produce a spike pulse whenever a positive-going portion of the output wave of said first limiting amplifier crosses its zero axis;
- a second limiting amplifier connected to receive the later of said sinusoidal waves as its input;
- a second pulse-forming means connected to receive as its input the output of said second limiting amplifier and to produce a spike pulse whenever a positive-going portion of the output wave of said second limiting amplifier crosses its zero axis;
- a bi-polar counter having a positive input and a negative input, said counter being connected to receive at its positive input the output of said first pulse-forming means and at its negative input the output of said second pulse-forming means, said counter providing a positive count for each pulse at its positive-signal input and subtracting one count for each pulse at its negative-signal input;
- a digital-to-analog converter connected to receive as its input the output of said bi-polar counter and to provide a step output comprising a fixed increase in value for each pulse at the positive-signal input of said bi-polar counter and a corresponding fixed decrease in value for each pulse at the negative-signal input of said bi-polar counter, the increases and decreases being cumulative in effect; and
- low-pass filter means connected to receive as its input the output of said digital-to-analog converter, said filter means acting to average out the changes in the output wave of said converter.

3,657,660

ERROR DETECTING AND FAILURE INDICATING SYSTEM AND METHOD IN A SERVO LOOP

George H. Pfersch, Randolph Township Morris County, N.J., assignor to The Bendix Corporation

Filed July 24, 1970, Ser. No. 62,215

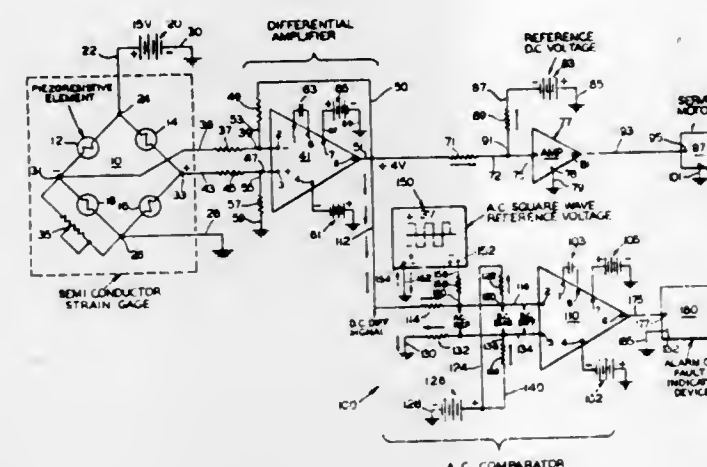
Int. Cl. G06g 7/14

U.S. Cl. 328-148

8 Claims

An error detecting and failure indicating system and method in a servo loop in which an electrical bridge network

is provided having a D.C. output to operate a differential amplifier, and a comparator including another differential amplifier responsive to both the D.C. output and an A.C. square wave reference voltage, one of the arms of the electrical bridge network being purposely unbalanced so as to provide over a predetermined control range of the servo loop a D.C. output signal voltage which may be varied over the control



range in accordance with a sensed condition and which output signal voltage upon a failure arising in the system may exceed or decrease below preset limits of the predetermined control range set by the peaks of the A.C. square reference voltage so as to cause the differential amplifier of the comparator to provide a steady D.C. output voltage of a polarity dependent upon the sense of the failure arising in the system.

3,657,661

FM DEMODULATOR SYSTEM

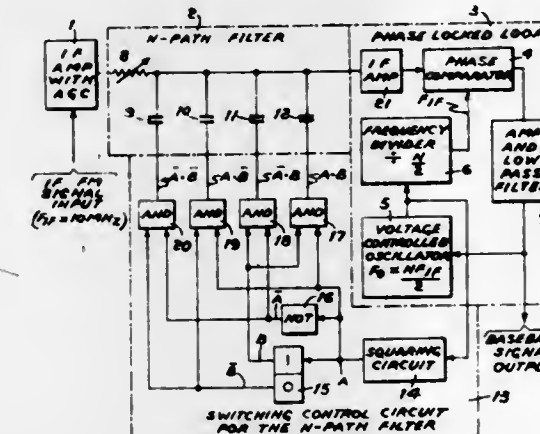
Harold F. Jarger, Rochelle Park, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J.

Filed June 16, 1970, Ser. No. 46,707

Int. Cl. H03d 3/00

U.S. Cl. 329-122

10 Claims



An improved threshold performance for an FM demodulator is obtained by employing the combined features of a phase locked loop demodulator and a N-path (digital) filter. The bandwidth of the filter is adjusted to approximately two times the highest baseband frequency and its center frequency is determined by the switching frequency employed in the filter which is derived from the output signal of the phase locked loop's voltage control oscillator (VCO). The VCO output signal is determined by the instantaneous IF input frequency resulting in an IF filter having a minimum bandwidth that tracks the input IF frequency.

3,657,662

ELECTRONIC APPARATUS FOR CONVERTING IMPEDANCES AND ELECTRICAL MEASUREMENTS

Joseph Antoine Lemouzy, 32 Boulevard de la Bastille, Paris 12, France

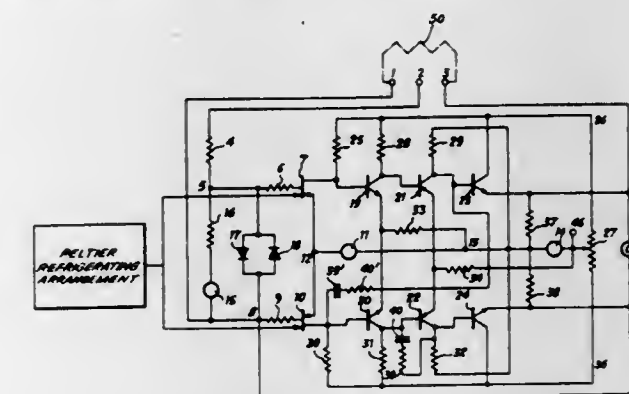
Filed July 18, 1969, Ser. No. 843,083

Claims priority, application France, July 30, 1968, 161091

Int. Cl. H03f 3/18

U.S. Cl. 330-17

7 Claims



This specification discloses an electronic apparatus of the tripole type for converting impedances. A transistorized differential symmetrical amplifier comprises first and second identical half-amplifiers which both have high input impedance and low output impedance.

A negative feedback connection exists between the input and output of the first half-amplifier. A tripole is formed by three connecting terminals connected respectively to the feedback connection, the input of the second half-amplifier, and the output of the second half-amplifier.

Substantially zero impedance exists at an output between the first and third terminals and at an input between the first and second terminals, and an extremely high impedance is present between the second and third terminals, when the second and third terminals are connected by a non-infinite impedance.

3,657,663

AC THRESHOLD AMPLIFIER FOR USE IN FAILSAFE APPLICATIONS

Richard S. Rhoton, Pittsburgh, and George M. Thorne-Booth, Murrysville, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

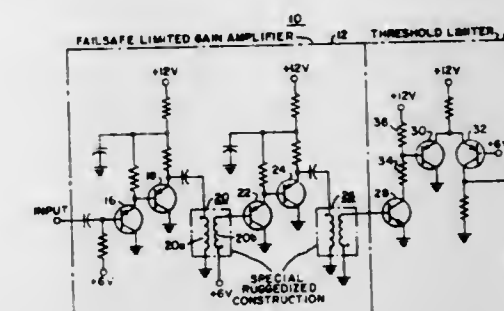
Continuation of Ser. No. 752,870, Aug. 15, 1968, abandoned.

Filed May 27, 1970, Ser. No. 41,706

Int. Cl. H03f 1/00

U.S. Cl. 330-165

4 Claims



An AC amplifier having a built-in threshold has a circuit structure inherently providing a single predetermined output mode under any conditions of failure of its individual components or combinations thereof. The circuit employs the impedance transformation characteristics of unity gain amplifier stages coupled by step-up transformers to preamplify the signal. Another step-up transformer coupled the last gain stage to a transistor threshold circuit employing the forward conduction voltage of its base-emitter junction for the

cludes a plurality of elongated conductors each directly connected electrically at one end only to one or the other end wall within the cavity and disposed in lapped and spaced relationship to each other with means for varying the spacing between the conductors to alter the distributed capacitance thereinbetween whereby the cavity may be tuned.

3,657,672

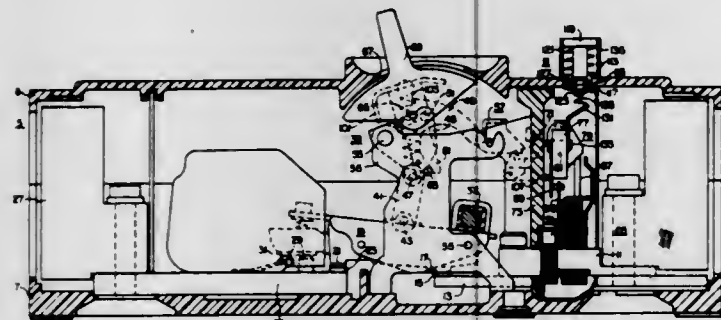
CIRCUIT BREAKER WITH MANUAL TRIP STRUCTURE
Robert H. Flick; Glenn R. Thomas, both of Beaver, and John Majcher, Beaver Falls, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 24, 1970, Ser. No. 75,198

Int. Cl. H01h 73/12

U.S. Cl. 335—21

7 Claims



A molded case type circuit breaker comprises an externally operable trip structure manually operable to an actuating position to trip the breaker with means for padlocking the trip structure in the actuating position.

3,657,673

CONTACT SPRING ARRANGEMENT FOR ELECTRO-MAGNETIC MULTI-CONTACT RELAYS

Wolfgang Hagen, Leonberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

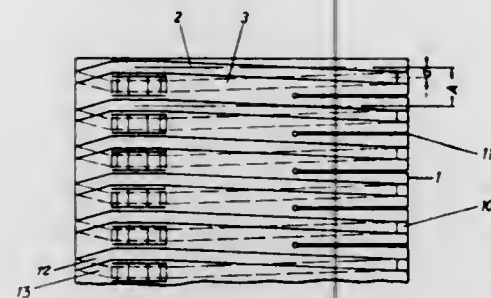
Filed Aug. 29, 1969, Ser. No. 854,072

Claims priority, application Germany, Sept. 13, 1968, P 17 64 965.9

Int. Cl. H01h 1/06

U.S. Cl. 335—199

6 Claims



Flat-type contact relays are produced by an automatic procedure employing a small number of parts. The contact spring planes are fabricated from plates of elastic or flexible insulating material. Conductor leads corresponding to the contact springs are deposited on these plates by a printing or etching procedure. The plates have embossed areas which facilitate piling, stacking, adjusting and fixing the plates to one another and to the relay core.

3,657,674
COIL SUSPENSION ARRANGEMENT FOR A CATHODE RAY TUBE

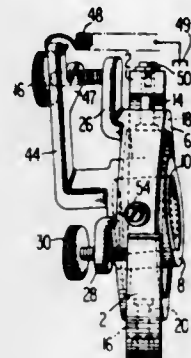
Freeland Robert Goldammer, Princeton, and Harold Denton Albrecht, Jr., Camden, both of N.J., assignors to RCA Corporation

Filed Aug. 28, 1970, Ser. No. 67,755

Int. Cl. H01f 7/00

U.S. Cl. 335—210

12 Claims



A gimbals whose axes initially are at right angles to the long axis of a cathode ray tube, supports a coil, such as the focusing coil, on the neck of the tube. Adjustment screws in arms extending from the outer and inner gimbals, respectively, permit movement about its axis of the outer gimbal relative to the gimbals supporting structure and movement about its axis of the inner gimbal relative to the outer gimbal. A single spring secured between the inner gimbal arm and the gimbals supporting structure maintains the gimbals and coil in the position to which they have been adjusted.

3,657,675

CONVERGENCE UNITS FOR COLOR TELEVISION PICTURE TUBES

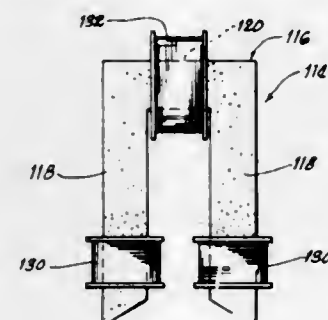
Albert M. Anthony, Conneaut, and Richard J. Anthony, Ash-tabula, both of Ohio, assignors to Tracor, Inc., Austin, Tex.

Filed July 16, 1970, Ser. No. 55,387

Int. Cl. H01f 7/00

U.S. Cl. 335—210

14 Claims



Generally U-shaped cores are employed, each having a pair of legs and an intermediate portion extending between the legs. The intermediate portion may be either solid or formed with a gap. A reduced number of coils is employed on each core. In each case, there is only one vertical convergence coil, and either one or two horizontal coils. The vertical coil may be mounted on the intermediate portion, or on one of the legs. The horizontal coil or coils may be mounted on one or both legs.

3,657,676

TEMPERATURE-COMPENSATED MAGNETIC BEARINGS

James W. Milligan, W. Lafayette, Ind., assignor to Duncan Electric Company, Inc., Lafayette, Ind.

Filed Aug. 26, 1970, Ser. No. 66,917

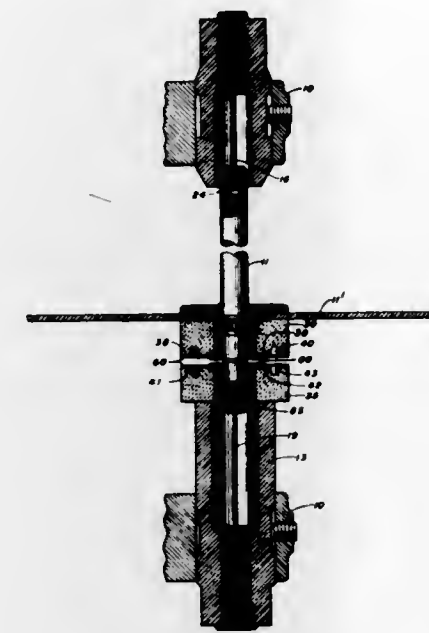
Int. Cl. H01f 7/00

U.S. Cl. 335—217

4 Claims

In a watt-hour meter having magnetic suspension of its disk, variations of vertical disk positioning in the gaps of the driv-

ing element, with changes in temperature, are reduced or avoided by temperature compensation of the suspension



magnets. The suspension magnets use a material of relatively low cost even though it has a relatively high temperature coefficient of remanence.

3,657,677

ELECTRICAL TRANSFORMER

Clarence W. Hunt, Transfer; Ralph W. Johnston, and Donald S. Stephens, both of Sharpsville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application June 20, 1969, Ser. No. 835,018, now

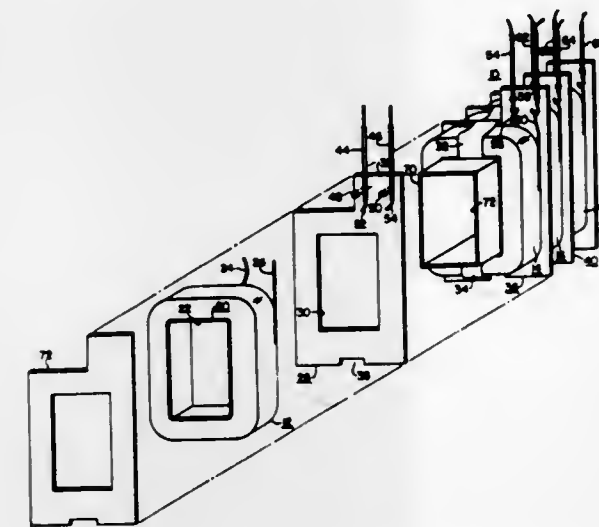
Patent No. 3,609,859. Divided and this application Feb. 10,

1971, Ser. No. 114,207

Int. Cl. H01f 15/02, 27/30

U.S. Cl. 336—96

7 Claims



An electrical transformer wherein a plurality of electrical coils are wound on separate coil forms. The plurality of coils are each attached to a separate insulating washer member, with the coil leads also being fixed to the washer member. The coils and washer members are disposed on a common insulating tube in side-by-side relation, and a magnetic core is assembled about the coils, including a portion which extends through the opening in the common insulating tube. The coil forms and common insulating tube provide the coil to core insulation, while the insulating washer members provide barrier insulation between the coils.

3,657,678

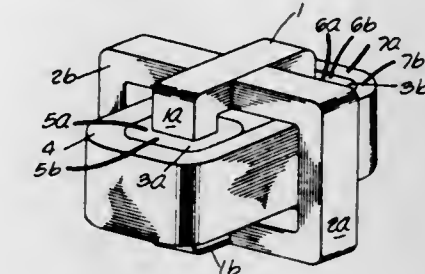
MULTI-PURPOSE, MULTI-VOLTAGE TRANSFORMER
Carl A. Schwenden, 1218 C Edith Street, Alhambra, Calif.

Filed June 8, 1970, Ser. No. 44,214

Int. Cl. H01f 21/08, 27/28

U.S. Cl. 336—160

18 Claims



Multi-purpose multi-coil single-unit transformer for accommodating a number of phases and voltages by making different appropriate external connections between the transformer coils. The core has at least two parallel legs connecting two appropriate yokes of transformer iron. At least one coil encircles each of the legs and at least one coil encircles all other coils. C-shaped magnetic shunt members abutting opposed faces of the yoke extend essentially parallel to the legs, and embrace the periphery of the coils, to create a magnetic-flux by-pass beyond the coils. Parallel and series connections of the coils encircling said legs with interconnections between said coils so that the flux generated by a primary a.c. current passing through said coils is forced to flow partially through the magnetic shunt members, and generates a secondary voltage in the coil encircling all other coils. Two sets of three identical coils wound on a two-leg core with magnetic shunt members, each set consisting of two coils wound around one leg each and a third coil encircling the two coils, operate to generate a secondary 3-phase a.c. current from one set of coils when the other set is energized by a primary 3-phase a.c. current. The multi-coil transformer operates as a saturable core reactor if a d.c. current is passed through one coil electrically insulated from the other coils with an a.c. current flowing through the other coils to a load, and with interconnections between the latter coils to render the desired reactance of the coil/core configuration.

3,657,679

FUSE DEVICE

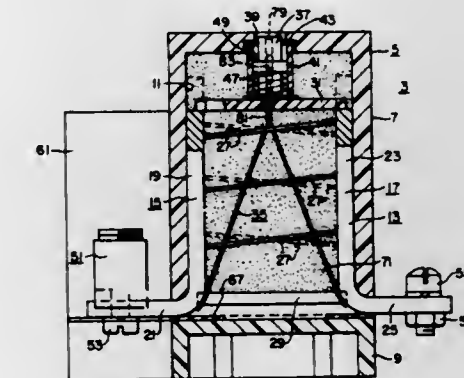
James C. Wilson, Beaver, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 31, 1970, Ser. No. 68,222

Int. Cl. H01h 85/30

U.S. Cl. 337—244

3 Claims



A fuse device with a conducting strain wire structure connected at the opposite ends thereof to spaced terminals and intermediate the ends thereof to an indicator to hold the indicator in an operative position until the fuse device blows whereupon the strain wire structure fuses to release the indicator which then moves to an indicating position.

3,657,680

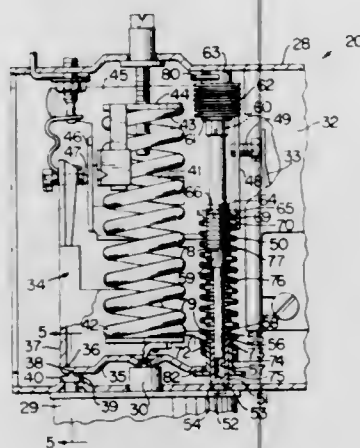
TEMPERATURE CONTROL SYSTEM AND CONTROLLER AND METHOD THEREFOR OR THE LIKE

Joseph M. Stegina, Orange; Edward Perry Cumming, Milford, and Theodore Y. Korsgren, Orange, all of Conn., assignors to Robertshaw Controls Company, Richmond, Va.
Filed Dec. 29, 1969, Ser. No. 888,522

Int. Cl. H01h 37/18; 37/36

U.S. Cl. 337—308

8 Claims



A housing carrying an actuator for controlling a heat exchanger and carrying a condition responsive means that is responsive to the output effect of the heat exchanger. Lever means operatively interconnect the condition responsive means to the actuator whereby the condition responsive means will tend to actuate the actuator when sensing an actuating condition of the heat exchanger and will tend to deactuate the actuator when sensing a heat actuating condition of the heat exchanger. An ambient temperature responsive device is operatively interconnected to the lever means to vary in relation to the ambient temperature sensed by the device only the deactuating condition that the condition responsive means must sense in operating the actuator so that at different ambient temperatures, the sensed temperature for causing the turn off of the heat exchanger will vary whereas the turn on temperature remains the same for any ambient temperature.

3,657,681

SELF-PURGING MULTI-CONTACT ELECTRICAL CONNECTOR

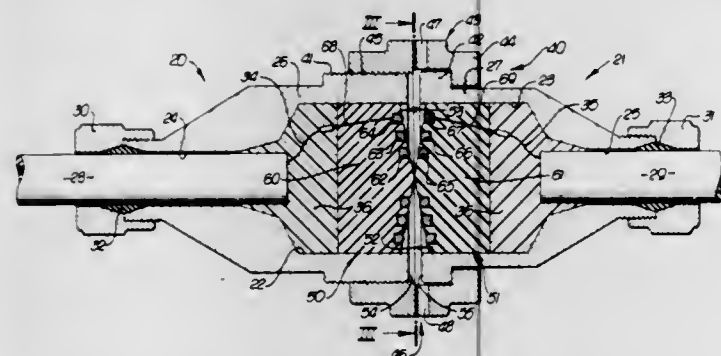
Chester B. Falkner, Whittier, Calif., assignor to Deep Oil Technology, Inc., Long Beach, Calif.

Filed May 29, 1969, Ser. No. 828,831

Int. Cl. H01r 13/52

U.S. Cl. 339—61 M

7 Claims



A self-purging, multi-contact electrical connector for use in a hostile fluid environment which includes a pair of connector housings each of which is connected to an electrical wire and each of which defines a chamber, mechanical means for releasably interconnecting the housings, an

elastomeric body sealingly carried in each of the housing chambers and each of the bodies having exposed, aligned, convex surfaces, and each of the bodies carrying at least one electrically conducting contact member exposed at the convex surface and electrically connected to the wires, so that progressive engagement of the elastomeric bodies through the interconnecting means purges hostile fluid environment from the housings engaging the contact members in pressure contact.

3,657,682

ELECTRICAL CONNECTOR

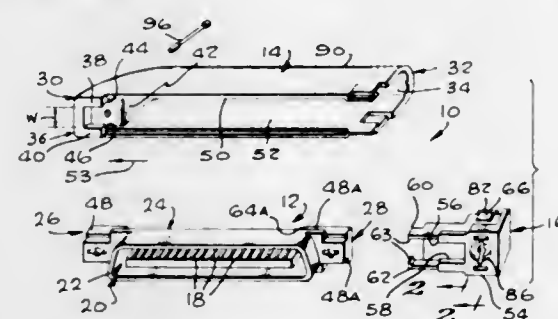
Ralph T. Iversen, Los Angeles, Calif., assignor to Viking Industries, Inc., Chatsworth, Calif.

Filed Aug. 26, 1970, Ser. No. 66,981

Int. Cl. H01r 13/58, 13/54

U.S. Cl. 339—103 M

7 Claims



An electrical connector is described which includes male and female frames that can be rapidly coupled to interconnect multiple contact elements on each frame, and which also includes a hood for each frame to cover the face of the frame where wires can be soldered or crimped to the contact elements. Each frame and hood is constructed to allow the hood to be mounted in either of two positions, to lead the wires in either of two directions. Each end of a frame has a pair of flanges for reception at a first end of the hood. A clamp is provided which can firmly engage a second end of the hood and either end of the frame, to securely hold the frame to the hood, the clamp also serving to securely hold the wires which pass through the second end of the hood.

3,657,683

COMBINATION LEAD WIRE TERMINAL

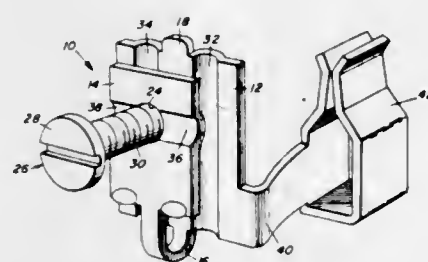
Gunther S. Grieshaber, Camillus, N.Y., assignor to Pass & Seymour, Inc., Syracuse, N.Y.

Filed Aug. 14, 1970, Ser. No. 63,856

Int. Cl. H01r 7/24

U.S. Cl. 339—246

2 Claims



A combination lead wire terminal comprising a base having a centrally positioned threaded hole therein and a clamping plate in spaced relation thereto provided with an opening aligned with the threaded hole. The base and clamping plate are connected for relative movement by means of a narrow strip integral with both the base and clamping plate. A terminal screw having a head and a threaded shank is threadably mounted in the threaded hole in the base with the

shank extending through the opening in the clamping plate whereby rotation of the terminal screw will cause the terminal head to engage the clamping plate and move it toward the base.

3,657,684

FRAME CLAMP FOR ELECTRICALLY CONNECTING ELECTRICAL LEADS

Gunther Rauter, and Edgar Wiessner, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Germany

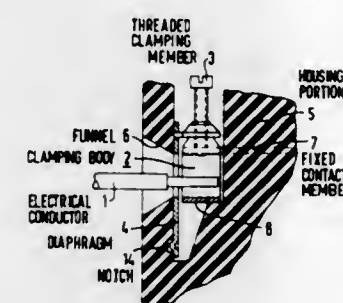
Filed June 17, 1970, Ser. No. 47,000

Claims priority, application Germany, June 19, 1969, P 19 31 175.2; Feb. 28, 1970, P 20 09 508.3

Int. Cl. H01r 7/08

U.S. Cl. 339—266 R

10 Claims



A plate-like diaphragm member has an insertion opening formed therethrough corresponding to and cooperating with the funnel of a housing for a frame clamp when the diaphragm member is in position in the housing. One of the walls of the funnel of the housing and the diaphragm member may be provided as an integral member of synthetic material. A clamping body is affixed to the diaphragm member at the insertion opening thereof so that an electrical conductor passes through the funnel and the opening into the clamping body. A threaded clamp threadably coupled to the clamping body moves the bottom of the clamping body upward thereby bringing the electrical conductor into electrical contact with a fixed contact member in the clamping body.

3,657,685

NON-CONTACTING LIMIT SWITCH

Josef Pfeffer, Amtzell near Wangen, Germany, assignor to Rafi Raimund Finsterholze Elektrotechnische Spezialfabrik, Ravensburg, Germany

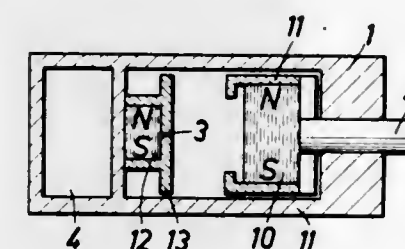
Filed Jan. 3, 1969, Ser. No. 788,710

Claims priority, application Germany, Feb. 10, 1968, P 16 38 108.1

Int. Cl. H01v 5/00

U.S. Cl. 338—32 R

6 Claims



A contact-less limit switch for path-responsive release of switching procedures, which comprises a housing, a magnet producing a magnetic field and disposed in the housing. At least one field plate has electric current flowing therethrough, and is disposed within the range of the magnetic field. The resistance of the at least one field plate is variable by the magnetic field, and a member is provided

which is operable from the outside for varying within selected limits the density or position of the magnetic field with respect to the field plate.

3,657,686

GALVANO-MAGNETRO EFFECT APPARATUS

Noboru Masuda, Kawaguchi, and Takeshi Hidai, Yokohama, both of Japan, assignors to Denki Onkyo Co., Ltd.

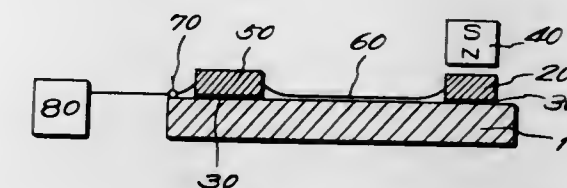
Filed Dec. 11, 1970, Ser. No. 97,098

Claims priority, application Japan, Dec. 17, 1969, 44/119915

Int. Cl. H01c 7/16

U.S. Cl. 338—32 H

7 Claims



A galvano-magnetro effect apparatus comprised of a substrate with excellent electric insulating ability, at least one galvano-magnetro effect device which is fixed on the substrate, a magnet which is provided opposite to the device so that the magnetic flux is applied to the device and the density of the magnetic flux may be varied, and a load which is fixed on the substrate while being isolated from the device so that it is not affected by the magnetic flux of the magnet and is connected to the device with a conductor.

3,657,687

SWITCHING APPARATUS

Tunekazu Kobayashi, Kawasaki, Japan, assignor to Denki Onkyo Co., Ltd.

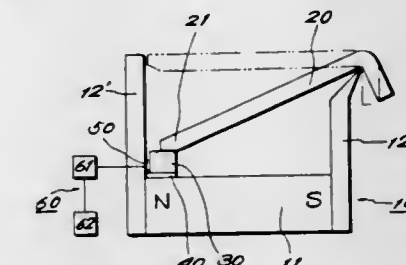
Filed Jan. 18, 1971, Ser. No. 107,367

Claims priority, application Japan, Jan. 19, 1970, 45/5634

Int. Cl. H01c 7/16

U.S. Cl. 338—32

9 Claims



A switching apparatus comprised of a U-shaped magnetic base, the opposed yokes of which are made of a material with a large saturation magnetic flux density, a rotary yoke which is made of the same material as the yokes of the base and is mounted on to a free end of one yoke of the base, a galvano-magnetro effect device which is fixed on one internal surface of the yoke, and a magnetic piece with a smaller saturation magnetic flux which is provided at the magnetic base so that the magnetic piece closely approaches or contacts the device and is magnetically isolated from the magnetic base, wherein the moving end of the rotary yoke is magnetically connected to and disconnected from the magnetic piece along with rotation of the rotary yoke.

3,657,688

COMPACT VARIABLE RESISTOR WITH ROTARY RESISTANCE ELEMENT

Harry B. Casey, Willow Grove, Pa., and Carl E. Clark, St. Petersburg, Fla., assignors to TRW, Inc., Cleveland, Ohio

Filed June 16, 1970, Ser. No. 46,685

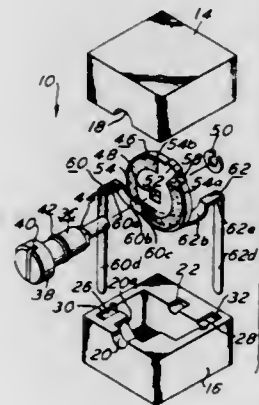
Int. Cl. H01c 9/02

U.S. Cl. 338—150

20 Claims

A variable resistor which is made up of a minimum number of parts so that it can be made small in size and yet be easily

assembled. Also, the variable resistor can be made as either a two terminal rheostat or a three terminal potentiometer. The variable resistor includes a hollow housing having a shaft rotatably mounted therein and projecting from a wall thereof so as to be rotatable from outside the housing. A rotor is on the shaft and has a resistance path and a contact path thereon with the contact path being electrically connected to one end of the resistor path. A pair of contacts are mounted



in the housing. Each of the contacts has a terminal extending through and projecting beyond the housing, and a finger which slidably engages either the resistance path or the contact path. For a three terminal potentiometer, a second contact path is on the rotor and is electrically connected to the other end of the resistance path. A third contact is in the housing and has a terminal extending from the housing and a finger slidably engaging the second contact path.

3,657,689

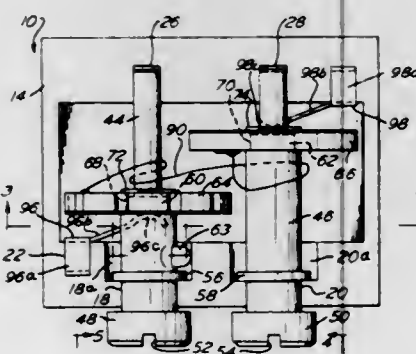
VARIABLE LOW NOISE ELECTRICAL RESISTOR WITH PLURAL VARIABLE RESISTORS CONNECTED IN SERIES

Harry B. Casey, Willow Grove, Pa., and Carl E. Clark, St. Petersburg, Fla., assignors to TRW, Inc., Cleveland, Ohio
Filed Sept. 25, 1970, Ser. No. 75,638

Int. Cl. H01c 9/04

U.S. Cl. 338-150

19 Claims



A rheostat which includes a hollow housing having a pair of rotors rotatably mounted therein, and a resistance path on each of the rotors. One of the resistance paths provides relatively large incremental changes in resistance value over a wide range of resistance values, and the other resistance path provides small incremental changes in resistance value over a range equal to each increment of the resistance value of the one resistance path. The resistance paths are connected in series and terminals, which extend from the housing, are electrically connected to the resistance paths. By rotating the rotors, any desired resistance value over a wide range of values can be obtained. In one form of the rheostat, a separate shaft is provided to rotate each rotor. In another form of the rheostat, a single shaft drives both rotors.

3,657,690 MINIATURE VARIABLE-RESISTANCE DEVICE WITH FLEXIBLE DISK CONTACT

Radovan Tavzes; Jelko Koron, and Evgen Kinsky, all of Ljubljana, Yugoslavia, assignors to Institut Za Elektroniko In Vakuumsko Tehniko, Ljubljana, Yugoslavia

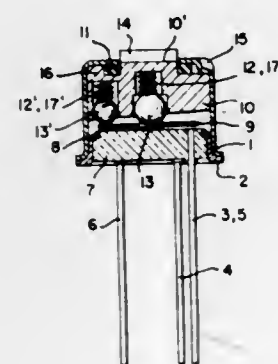
Filed Aug. 10, 1970, Ser. No. 62,419

Claims priority, application Yugoslavia, Aug. 11, 1969, P. 2069/69

Int. Cl. H01c 9/02

U.S. Cl. 338-154

10 Claims



A potentiometer comprising a body of homogeneous vitreous material in which a plurality of wire leads are embedded flush with a surface of the vitreous body which is received in a metal frame. A cup-shaped housing encloses the flush surface of the body and engages the frame while receiving a rotatable plug having a boss with a screwdriver slot extending through this cover. An arcuate contact strip is applied, e.g. by vacuum depositing to the surface while a thin deformable plate yieldably overlies the contact strip in spaced relation therewith, the contact strip being angularly fixed upon rotation in the plug, a spring-loaded ball presses a limited region of the disk against the contact strip to form the wiper.

3,657,691

LINEAR POTENTIOMETER WITH SEGMENTED TERMINAL AND COLLECTOR MEANS

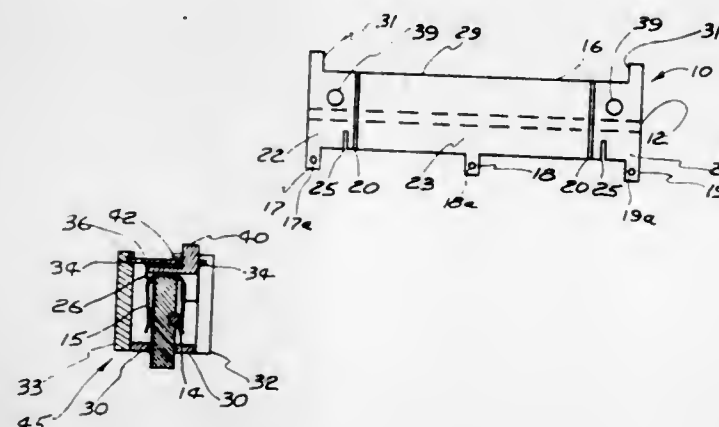
Jerzy J. Wilentchik, Yonker, N.Y.

Filed May 20, 1971, Ser. No. 146,738

Int. Cl. H01c 5/02

U.S. Cl. 338-182

7 Claims



3,657,692 TRIMMER RESISTOR

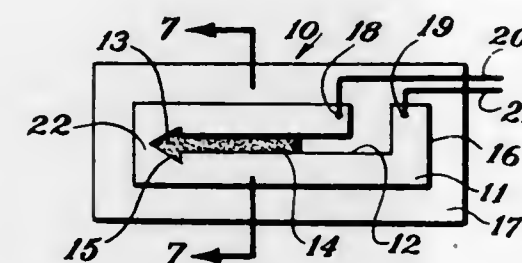
Hans H. Wormser, New Milford, N.J., assignor to Markite Corporation, New York, N.Y.

Filed Mar. 12, 1971, Ser. No. 123,609

Int. Cl. H01c 1/00

U.S. Cl. 338-252

20 Claims



A variable resistance pad comprising a strip of conductive material which has a channel formed partly therein. Resistive material fills at least a portion of said channel which has a specified shape including a converging section. Electrical terminals are connected to the conductive material on opposite sides of the channel. The resistance may be varied by trimming away portions of the conductive material to decrease the channel length.

3,657,693

MULTIPLE BEAM SCANNED PLANAR ARRAY

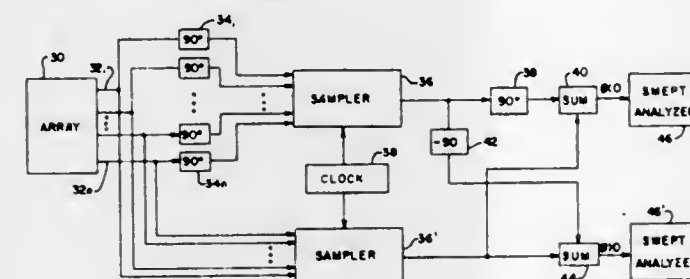
Walton Graham, Roslyn; Sheldon Gardner, Dix Hills, Huntington, and John Cabot, Jackson Heights, all of N.Y., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Nov. 15, 1965, Ser. No. 507,961

Int. Cl. G01s 3/00

U.S. Cl. 340-6 R

6 Claims



Apparatus for determining the direction of arrival of an incoming wave front comprises a planar array of transducer elements arranged in N rows and N columns. The transducers are scanned serially in each row, and row by row, by a sequential sampler the output voltage of which comprises the sampled transducer voltages. A frequency spectrum analyzer such as a swept analyzer or bank of filters determines the frequency components of the sampler output which are related in a particular way to the angle of arrival of the incoming wave front.

3,657,694

DATA INSERTION SYSTEM

James M. Lindsey, Houston, Tex.

Filed Nov. 21, 1969, Ser. No. 879,008

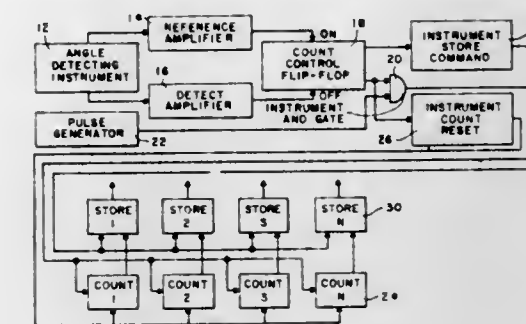
Int. Cl. G01v 1/22

U.S. Cl. 340-15.5 BH

16 Claims

The particular embodiment described herein as illustrative of one form of the invention utilizes an instrument system for detecting parameters of borehole conditions and storing data bits indicative of such parameters. A scan circuit determines the presence or absence of such stored data bits and causes a bit insert circuit to superimpose corresponding data pulses on

a conductor supplying line power from the surface to the instrument system in the borehole. A synchronization pulse is also superimposed on the line power to distinguish series of



data bits. Surface equipment separates the data and synchronization pulses from the line power and utilizes such data pulses for computing wellbore conditions.

3,657,695

LEVELING INDICATOR

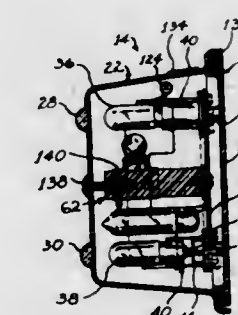
Robert C. Birmingham, Box 261 R 6, Adrian, Mich.

Filed Apr. 13, 1970, Ser. No. 27,641

Int. Cl. B60g 1/00

U.S. Cl. 340-52 H

7 Claims



A leveling indicator is provided for house trailers and the like to aid in parking the trailer on the level. The indicator incorporates mercury switches which operate four lamps, two to indicate transverse tilting of the trailer and two to indicate longitudinal tilting thereof. The indicator mounts on the front wall of the trailer in a position to be seen in the rear view mirror of the towing vehicle. It is thereby a simple maneuver to manipulate the trailer back and forth at the site until all four lamps are off, indicating that the trailer is in a level attitude.

3,657,696

SYSTEM FOR THE REMOTE STARTING OF MOTOR VEHICLE ENGINES

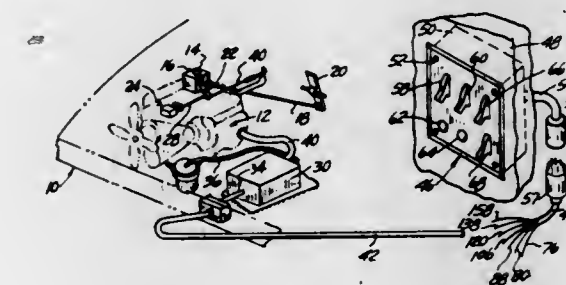
Victor Lessard, 3335 Willow Street, and Gilles Morin, 3547 Weddel Street, both of Dearborn, Mich.

Filed June 15, 1970, Ser. No. 46,259

Int. Cl. B60g 1/00; B60k 33/02

U.S. Cl. 340-54

1 Claim



A system for the remote starting of motor vehicle engines consisting of an electrical control panel mountable in the

home, and detachably connected by an extension cord to the vehicle. Switches on the control panel and electrical components mounted on the vehicle enable the engine to be started from inside the home, and pilot lights adjacent the switches indicate when the engine is in operation. When the engine had idled sufficiently to be warm, it may be stopped by a switch on the control panel, and the driver can then disconnect the extension cord from the vehicle, and re-start the warm engine in the customary manner by using the ignition key. The driver is thus able immediately to heat the interior of the vehicle to a comfortable temperature, as well as benefit from the improved operating efficiency of a warm engine.

3,657,697

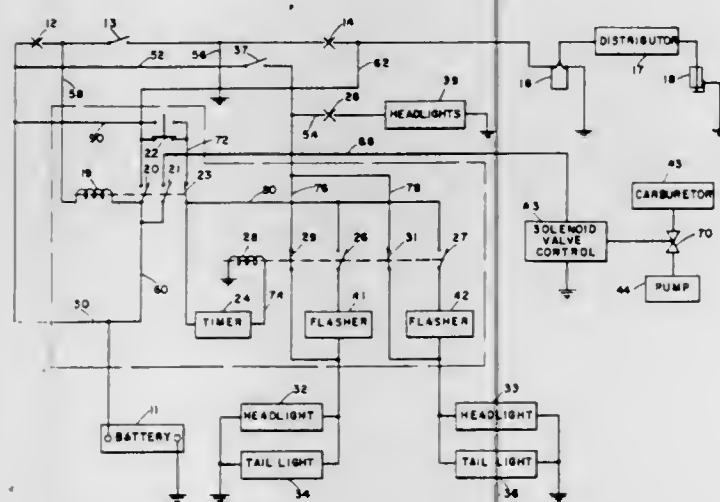
VEHICLE IGNITION SWITCH JUMP CIRCUIT RESPONSIVE DEVICE

Wilderich C. Schultz, San Diego, Calif., assignor to Frank Marino, Jr. and Hadrian J. Liberatore, San Diego, Calif., part interest to each

Filed June 1, 1970, Ser. No. 42,272
Int. Cl. B60r 25/10

U.S. Cl. 340-64

5 Claims



A vehicle theft preventive device that is inserted into the ignition circuit and light circuit of a vehicle that, in response to jump circuiting or short circuiting the battery to the ignition system, the lights of the vehicle are caused to intermittently flash after a given time delay and a solenoid controlled valve is closed in the fuel system stopping fuel flow to the engine.

3,657,698

SIGNALLING SUPERVISION UNIT

Bernard Pierre Jean Durteste, Sevres; Jean-Claude Gadre, Boulogne-Billancourt, and Jean Francois Pierre Julien Loisel, Versailles, all of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Feb. 19, 1970, Ser. No. 12,698

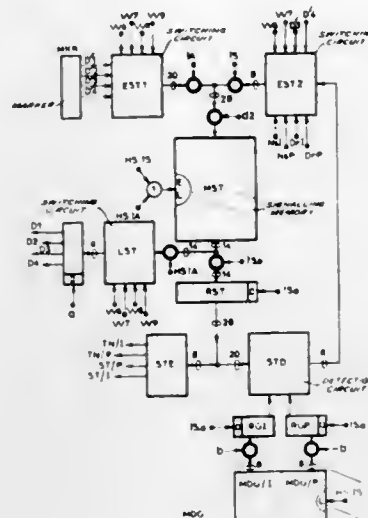
Claims priority, application France, Feb. 19, 1969, 6904113
Int. Cl. G08c 25/00

U.S. Cl. 340-146.1

4 Claims

A signalling supervision unit for pulse code modulation systems provides for detecting and interpreting signalling

signals by comparing an incoming stream of signals with a



stored state corresponding to the signals expected and storing any differences detected during the comparison.

3,657,699

MULTIPATH ENCODER-DECODER ARRANGEMENT

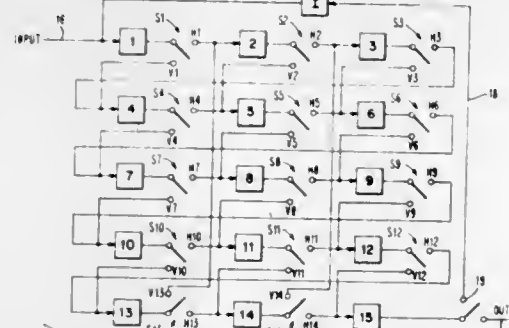
Edouard Y. Rocher, Ossining, and Stanley E. Schuster, Granite Springs, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1970, Ser. No. 51,260

Int. Cl. G08c 25/00

U.S. Cl. 340-146.1

17 Claims



A multipath encoder-decoder arrangement which consists of a plurality of storage devices such as memory cells, for example, which can be shifted from one series configuration into at least a second series configuration. The storage devices or at least a portion of them are switched from a first series path to a second series path. In one configuration, the outputs of all the storage devices are switched to the input of a succeeding storage device in a first path to the input of a different storage device in a second series path. In another embodiment, only a portion of the storage devices in one path are switched to form a series arrangement of storage devices in a second path in conjunction with fixed interconnections between certain other of the storage devices. By simply switching between paths, the order of information can be changed, i.e., interleaved, in such a way that errors which occur in bursts when transmitting data are spread out over the entire message with an inter-error space large enough to improve error correction. By providing control means which controls the shifting of data along the series configurations and the switching between configurations, in accordance with a given key, it is possible to scramble transmitted data at various levels of complexity. The complexity at one level, for example, is provided by a feedback loop connected between the input and output of the series configurations which permits data held in the series paths to be changed in both posi-

tion and polarity. Another level of complexity can be achieved by modifying the key with another key which has been logically combined with previously transmitted encoded data. After transmission, the data is received and unscrambled in a similar encoder-decoder arrangement except that the decoding process is effectively reversed.

3,657,700

FORWARD ERROR CORRECTING SYSTEM

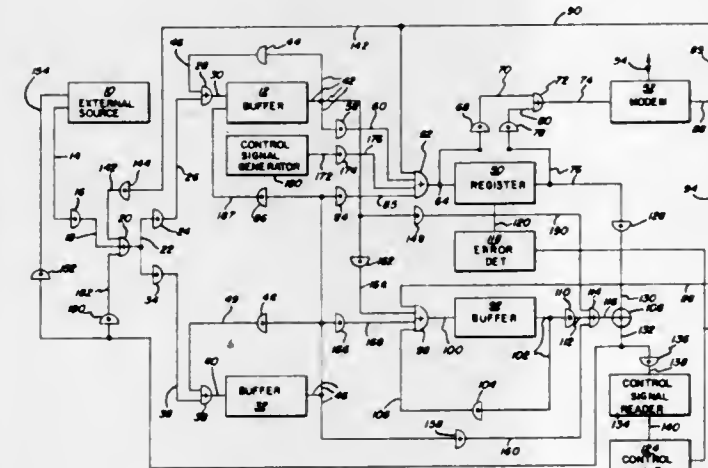
Lawrence Lutzker, Palo Alto, Calif., assignor to American Computer Communications Company, Inc.

Filed July 13, 1970, Ser. No. 54,505

Int. Cl. G08c 25/00; G06f 11/00

U.S. Cl. 340-146.1

8 Claims



An adaptively coded forward error correcting data communications system having the capability of varying error correction potential without the necessity of variation in codes and without the necessity of increasing the percentage redundancy of transmitted data by adaptively varying the block length of the data transmitted utilizing varying data block lengths and in which more than a single block of data may be processed in over-lapping time relationship without full duplication of circuitry while permitting decoding and evaluation of the transmitted and received message.

3,657,701

DIGITAL DATA PROCESSING SYSTEM HAVING A SIGNAL DISTRIBUTION SYSTEM

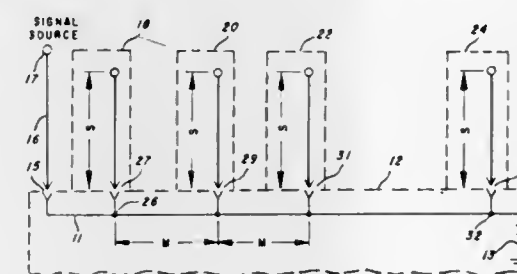
Emory C. Garth, Austin, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 2, 1970, Ser. No. 86,014

Int. Cl. H05k 1/04

U.S. Cl. 340-147 R

17 Claims



Logic signals are distributed to a plurality of logic cards in a digital computer. Each logic card taps into a motherboard transmission line with a conductor stub. Signal distribution on the motherboard is along a transmission line of a primary system impedance up to a first stub. At the first stub, signal

distribution continues along a secondary impedance line of a suitable impedance such that signal discontinuities due to stubs and loads will be minimized. At a last stub signal distribution continues along a transmission line of the primary system impedance and is terminated in the primary impedance.

3,657,702

TRANSACTION ACCUMULATOR FOR A CREDIT VERIFICATION SYSTEM

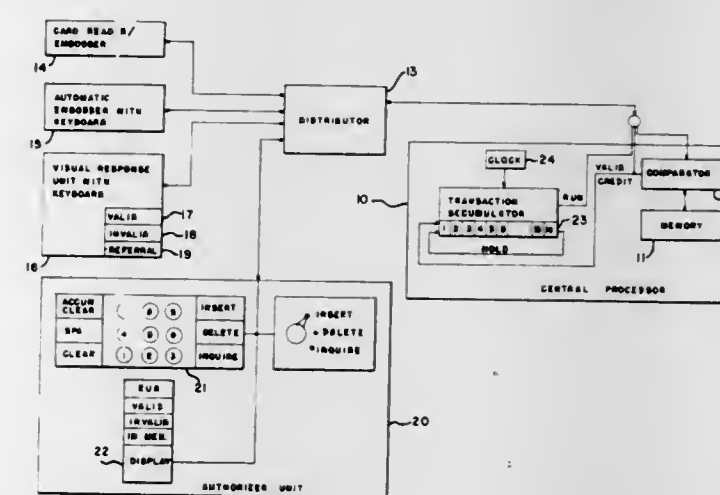
Kenrick O. Stephenson, Jr., Upper Montclair, N.J., assignor to Digital Data Systems Corp.

Filed Aug. 19, 1970, Ser. No. 64,976

Int. Cl. G06k 5/00; H04g 3/00

U.S. Cl. 340-149 R

8 Claims



In a system for verification of a customer's credit status in response to entry of a charge account number at a remote location, the level of credit sale activity is accumulated. Each time that a valid credit signal is sent to a remote location the accumulated level of credit sale activity is incremented. This accumulated level is compared to a predetermined run level. When it exceeds this level a run signal is sent to the point of sale to prevent completion of the sale. The accumulated credit sale activity is stored in sectors of a magnetic drum. The accumulation is periodically advanced from sector to sector. When the accumulation reaches the last sector it is timed out. In this way unusual credit card activity in a given period of time is determined. This activity is also compared to a hold level. If the activity exceeds the hold level the accumulation is inserted back into the first sector of the drum so that it is held in the accumulator for another period of time.

3,657,703

CODE-RESPONSIVE CONTROL RECEIVER

Hans-Wolfgang Steinlein, Nurnberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin, Germany

Filed Mar. 10, 1971, Ser. No. 122,828

Claims priority, application Germany, Mar. 12, 1970, P 20

11 672.7

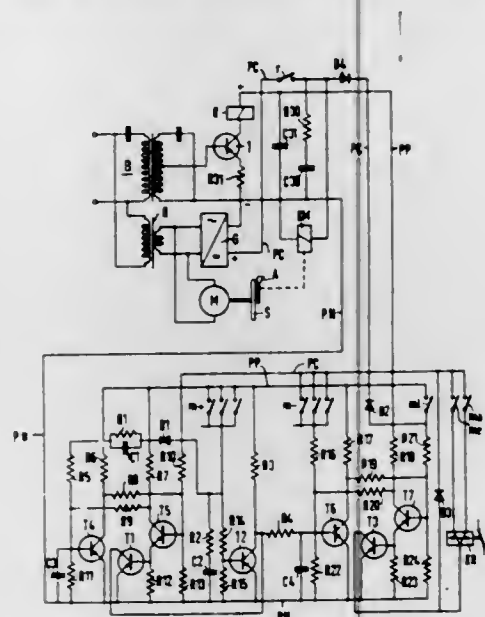
Int. Cl. H04q 9/00

U.S. Cl. 340-167 R

5 Claims

A code-responsive control receiver for response to preselectable code combinations, which operates on the pulse interval principle and has a synchronous selector and switching device for connecting a command relay to the pulse receiving circuit. The receiver is provided with a receiver relay responsive to the arriving preselector pulses and control pulses. A transistor flip flop circuit is connected to a direct voltage supply. The transistors of the flip flop cooperate with the switching members and through further

flip flop circuitry upon two differential coils of the command relay so that the system operates to selectively activate par-



ticular loads or load groups in accordance with the preselected code pulse combination.

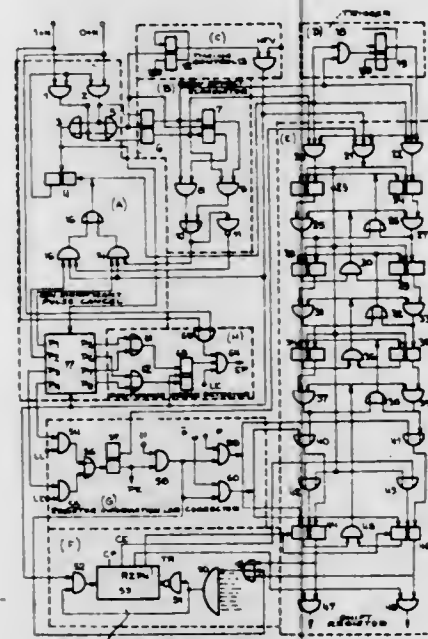
3,657,704 MAGNETIC TAPE READOUT SIGNAL PROCESSING SYSTEMS

Albert L. Boehm, Boulogne, France, assignor to Compagnie Internationale Pour L'Informatique, Louvechennes, France
Filed May 18, 1970, Ser. No. 38,191

Claims priority, application France, June 3, 1969, 18202
Int. Cl. G11b 5/00

U.S. Cl. 340-172.5

11 Claims



A system is provided for processing the signals read out from a phase modulated recorded magnetic tape. From each track of the tape are derived two distinct series of digital value significant pulses in which nonsignificant pulses appear. The system provides for elimination of such nonsignificant pulses and rearrangement of the remaining pulses for temporary registration in a plural stage assembly elementary register. It further provides for detection of various defects resulting from dynamic and magnetic skew and casual reconstitution of mutilated characters.

3,657,705 INSTRUCTION TRANSLATION CONTROL WITH EXTENDED ADDRESS PREFIX DECODING

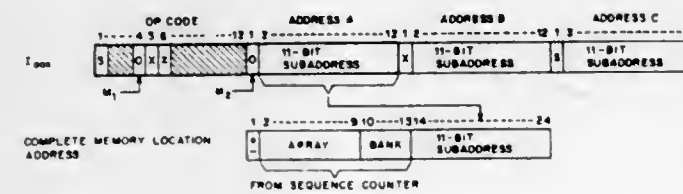
John E. Mekota, Jr., Belmont; David M. Hudson, Holliston; Thomas G. Rankin, Harvard, and Jean E. Champagne, Wellesley, all of Mass., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 12, 1969, Ser. No. 875,902

Int. Cl. G06F 9/18

U.S. Cl. 340-172.5

9 Claims



are such that a stable film of air, a few tens of micro-inches thick, separates the recording head from the memory element. A conventional stabilizing bearing surface is provided along the leading edge of the plane bearing surface and angulated at a very small angle relative thereto. In the improved bearing a second stabilizing bearing surface is disposed along the leading edge of the first stabilizing bearing surface and angulated relative thereto so as to be at a greater angle relative to the plane bearing surface than is the first stabilizing bearing surface.

3,657,711

MULTIPLE HEAD UNIT FOR MAGNETIC DISC MEMORY

Gilbert A. Thiaffey-Rencorel, Saint-Michel Sur Orge, France, assignor to Societe D'Applications Generales D'Electricite et de Mecanique, Paris, France

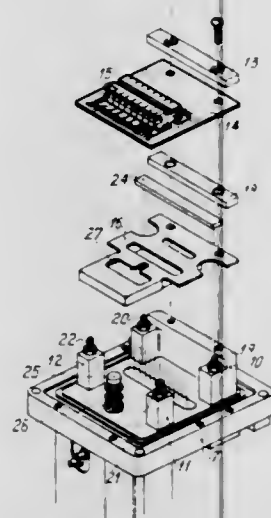
Filed July 10, 1970, Ser. No. 53,809

Claims priority, application France, July 15, 1969, 6924090

Int. Cl. G11b 5/60

U.S. Cl. 340—174.1 E

1 Claim



Magnetic multiple head unit for a magnetic disc memory store. The head unit comprises a shoe on which are mounted two parallel staggered rows of mutually equi-spaced recording and reading heads and a blade spring mounting for said shoe enabling it to float close to the surface of the magnetic disc. The blade spring is rectangular, and is fixed along one side to a cross piece thereof and contains two windows defining a framework itself defining and end-notched crosspiece connected to the frame work on which the shoe is mounted.

3,657,712

STORING DEVICE FOR SIGNALS

Gerhard Dirks, Los Altos Hills, Calif., assignor to Dirks Computer Systems Corporation, Los Altos Hills, Calif.

Original application Dec. 22, 1964, Ser. No. 420,294, which is a division of application Ser. No. 627,441, Dec. 10, 1956, now Patent No. 3,172,082. Divided and this application Nov. 14, 1969, Ser. No. 876,872

Claims priority, application Great Britain, Dec. 8, 1955, 35,358/55

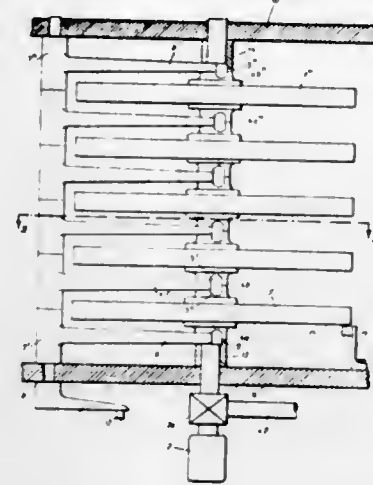
Int. Cl. G11b 25/04

U.S. Cl. 340—174.1 C

6 Claims

A selective signal storing device in which a plurality of discs each having at least one signal storing surface at one face thereof are mounted about a common axis, and in which a plurality of transducer means are coupled together to move simultaneously in a direction transverse to said axis into a position to respectively cooperate with a selected track on the signal storing surface of corresponding discs. The device includes further drive means operable for effecting relative movement between the discs and the transducer means, and

means to cause at least a selected one of the transducer means at least during part of such relative movement to effect



3,657,713

DEVICE FOR TESTING IONIZATION SMOKE DETECTOR

Koju Sasaki, Tokyo, and Akihiro Kobayashi, Fujisawa, both of Japan, assignors to Nittan Company, Limited, Tokyo, Japan

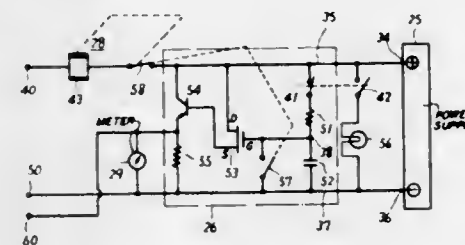
Filed May 21, 1970, Ser. No. 39,329

Claims priority, application Japan, June 2, 1969, 44/4256; 44/75975; Sept. 11, 1969, 44/71586; 44/78974

Int. Cl. G08b 17/10

U.S. Cl. 340—214

3 Claims



A testing device for an ionization smoke detector having series connected opened and closed ionization chambers and means for detecting a change of impedance of the open chamber wherein means are employed to generate a variable voltage which is applied to the open ionization chamber to produce a change in voltage across the ionization chamber corresponding to that produced by a change in smoke concentration and means for interrupting the variation in voltage immediately upon operation of the detector to determine the sensitivity of the detector to the presence of smoke.

3,657,714

GROUND ELIMINATOR SYSTEM

Arthur R. Kessler, St. Louis, Mo., assignor to Electro Devices, Inc., St. Louis, Mo.

Filed June 10, 1970, Ser. No. 45,018

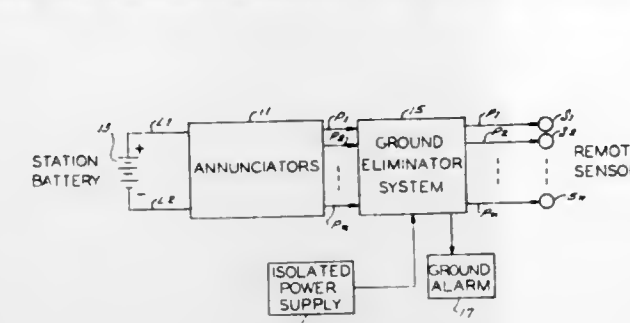
Int. Cl. 340 409; G08b 21/00

U.S. Cl. 340—255

21 Claims

Apparatus for use in an annunciator system wherein the system includes a plurality of remote sensors for detecting out-of-limit conditions and a central annunciator station with a plurality of alarm annunciator means for continuously monitoring the respective sensors and for giving an alarm indication in response to detection of an out-of-limit condition by the respective sensors, the sensors each being interconnected with the respective annunciator means by respective sensor leads which are subject to undesirable grounding. The apparatus includes means, constituted by relay circuitry, for detecting the grounding of an unidentified one of the sensor

leads. A stepping switch constitutes means for scanning respective sensor leads for the presence of a grounded condition, and circuitry interconnected with the respective alarm



annunciator means acts as a means operative during scanning for selectively causing any alarm annunciator means to indicate a grounded condition of its respective sensor lead.

3,657,715

ULTRASONIC PAGING SYSTEM

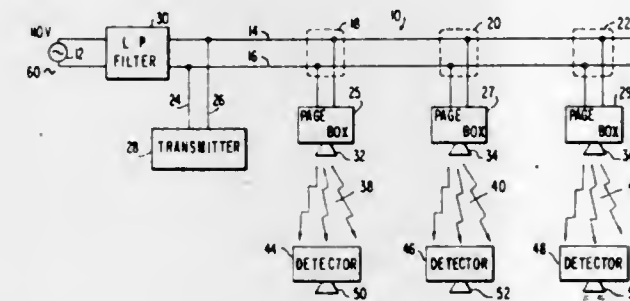
William J. Curtin, 25 West Main Street, Madison, Wis.

Filed Apr. 13, 1970, Ser. No. 27,750

Int. Cl. G08b 1/02

U.S. Cl. 340—311

12 Claims



A system for paging or calling persons without disturbing anyone other than the person or persons being paged. A transmitter applies an electrical signal to a power line at a predetermined ultrasonic frequency indicative of the person sought. The power line is connected to a plurality of power outlets into which are plugged transducers which convert the electrical signal into an ultrasonic signal at the same frequency. The ultrasonic signal is broadcast from a speaker at each transducer and detected by the person carrying an ultrasonic detector responsive to that frequency.

3,657,716

CHARACTER GENERATOR FOR CATHODE RAY TUBE DISPLAY DEVICE

Louis E. Ambrico, Hyde Park, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

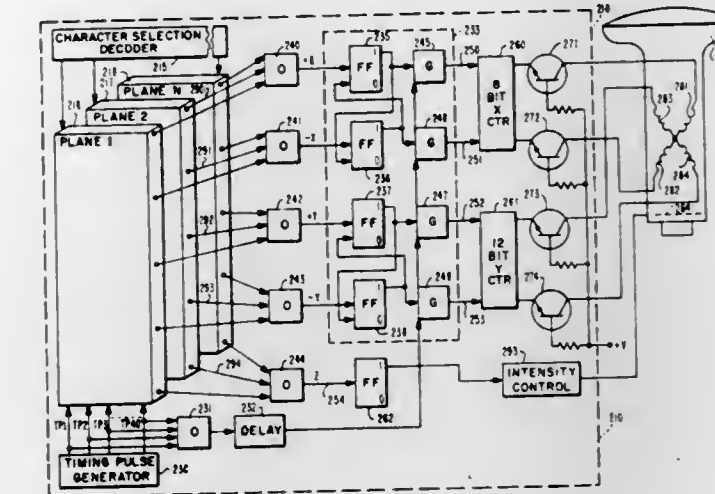
Filed June 15, 1970, Ser. No. 45,964

Int. Cl. G06f 3/14

U.S. Cl. 340—324 A

5 Claims

A character generator for a cathode ray tube display device generates X and Y deflection potentials and intensity control signals for the cathode ray tube by utilizing a separate storage matrix for each character with the storage elements in each such matrix being disposed where, and only where, a change is required in the direction of the X deflection, a change in the direction of the Y deflection, or a change in the intensity control signal, thereby to reduce the number of storage elements required in the storage matrices for the characters. Control signals from a selected storage matrix operate bistable storage devices which in turn operate gates to supply timing pulses to an up-down X counter and



control the vertical and horizontal deflection of the electron beam of the cathode ray tube to generate a character.

3,657,717

SYSTEM OF DIGITAL MEASUREMENT OF THE POSITION OF A FIRST MEMBER SLIDABLY MOUNTED UPON A SECOND ROTATING MEMBER

Fritz Glantschnig, Neuenhof, and Manfred Tiesnes, Nussbaumen, both of Switzerland, assignors to Patenhold Patentverwertungs- & Elektro-Holding AG, Glarus, Switzerland

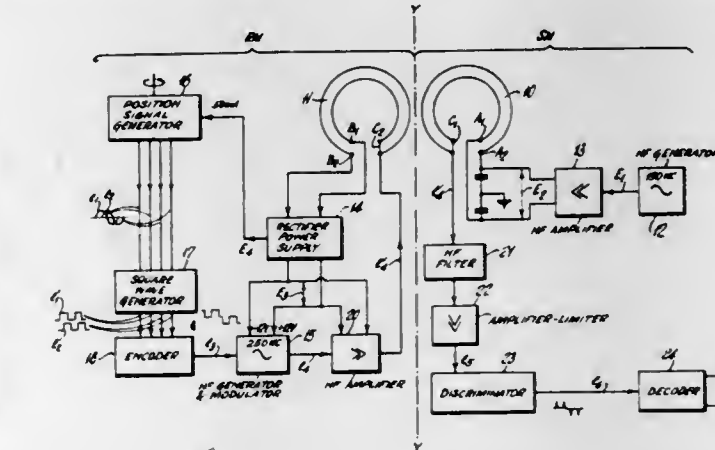
Filed June 5, 1970, Ser. No. 43,844

Claims priority, application Switzerland, June 6, 1969, 8636/69

Int. Cl. G08c 9/04; H03k 13/00

U.S. Cl. 340—347 SY

9 Claims



A system of digital measurement of the position of a first member slidably mounted upon a second rotating member comprises a first stationary coupling coil and a second similar coupling coil mounted upon the second member coaxially with the rotary axis thereof and parallel to said first coil. Energy produced by a stationary high frequency power generator is fed to said first coil and transmitted inductively to the second coil from which it is derived and rectified, to provide d.c. power upon the rotating member for the energization of a pulse former producing digital position signals proportional to the movement of said first member and of a high-frequency signal generator modulated by said position signals. The output energy of the signal generator is transmitted inductively via said coils in a direction opposite to the transmitting direction of the power energy and the signal energy derived from the first coupling coil demodulated, to retrieve the original position signals for application to a translating device. In order to effect full decoupling between

the power and signalling circuits, the power energy is transmitted in symmetrically balanced relation and the signal energy is transmitted in unbalanced relation to the center points of the coils as potential reference.

3,657,718

CODE COMPRESSION SYSTEM

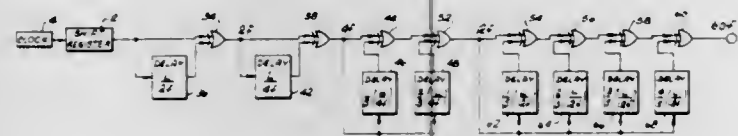
Francis J. O'Farrell, Sepulveda, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 29, 1970, Ser. No. 50,628

Int. Cl. H03r 13/32, 13/00

U.S. Cl. 340—347 DD

3 Claims



A code compression system comprises a generator for producing a maximal length sequence code at a first predetermined frequency. The code is delayed with respect to the generated code, and both codes are then combined to produce an output code having an identical maximal length sequence code as the generated code, at a higher multiple frequency than the generated code. The circuit for combining the generated code and the delayed code may comprise an exclusive OR gate.

3,657,719

AIRBORNE PULSED RANGE FINDING RADAR

David Rooksby Bollard, North Cambridge, and William Alfred Jenkins, Westcliff-on-Sea, both of England, assignors to Ekco Electronics Limited, Essex, England

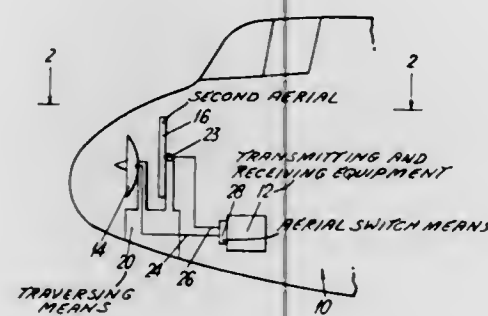
Filed Aug. 20, 1969, Ser. No. 851,576

Claims priority, application Great Britain, Aug. 21, 1968, 40,084/68

Int. Cl. G01s 9/04

U.S. Cl. 343—7 TA

12 Claims



An airborne pulsed range-finding radar adapted for use in an aircraft and suitable for terrain range finding by a downwardly inclined radar beam, comprises means to apply to a voltage storage device for successive short periods a derived voltage derived from and dependent upon a detected received video echo signal, means to produce an integrated difference voltage by integrating the difference between the derived voltage and a stored voltage in said voltage storage device when said derived voltage is the greater, control means operable to initiate each said short period at a time having a relation to the time of commencement of each transmitted radar pulse determined by the instantaneous magnitude of the integrated difference voltage, and means to utilize the integrated difference voltage as an indication of range.

3,657,720

REMOTE ENGINE START AND STOP SYSTEM

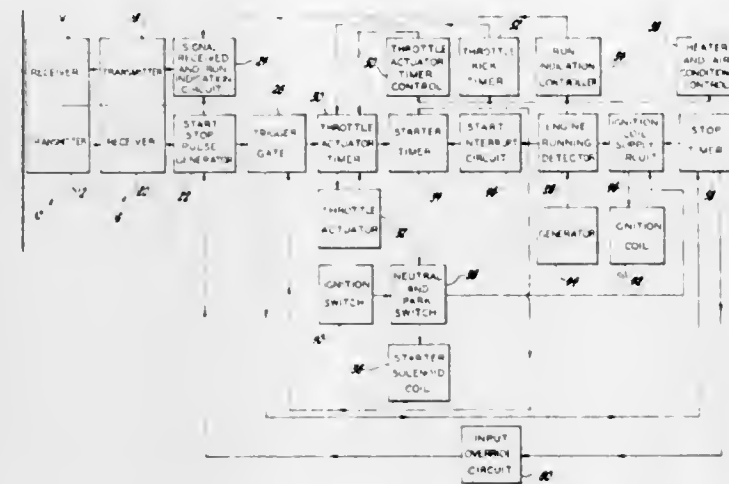
Anatol Avdenko, Rochester, and Bruce C. Erway, Honeoye Falls, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed June 1, 1970, Ser. No. 41,872

Int. Cl. G08c 19/32

U.S. Cl. 343—225

5 Claims



A remote engine start and stop system for remotely starting and stopping a vehicle engine by a pair of single channel radio transceivers. An engine running detector senses the started or stopped condition of the vehicle engine and controls a trigger gate so that, when a signal is received, the vehicle engine is stopped if running and started if stopped. Prior to the cranking of the vehicle engine, a throttle actuator fully opens the vehicle throttle to permit the carburetor choke and a fast idle cam to be positioned for starting and accelerator pump shot to be ejected. A microswitch, which is responsive to the return of the throttle to a closed position, senses the failure of the throttle to return to its closed position to prevent the vehicle from being started when the throttle is stuck. In addition, an input override circuit prevents a signal from starting the vehicle engine during the time period when the vehicle engine is being stopped so as to prevent the clashing of the starter gears.

3,657,721

RECORDING TAPE WITH PARTIALLY OXIDIZED ALUMINUM FILM

Eberhard Traub; Alfred Orlieb; Klaus Brill, and Wolfgang Grothe, all of Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Sept. 9, 1970, Ser. No. 70,679

Claims priority, application Germany, Sept. 11, 1969, P 19 45 939.3

Int. Cl. G01d 15/34

U.S. Cl. 346—135

6 Claims



This invention is concerned with a recording tape in which the information becomes visible as a result of burning away a trace from a metallic film deposited on the carrier. The metallic film consists of metallic aluminum containing imbedded therein quantities of aluminum oxide and aluminum oxyhydrate. The presence of the oxide and the oxyhydrate decreases both the required writing pressure and the voltage necessary for producing a current sufficiently high to burn away the metallic layer.

ERRATA

For Classes 100—42 thru 343—12 R see: Patent Nos. 3,657,722 thru 3,657,738

3,657,722

CONTROL APPARATUS

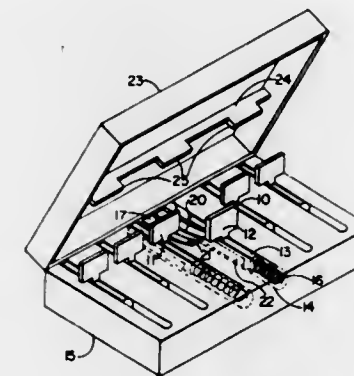
Richard C. Givens, and Robert A. Glass, both of Clearwater, Fla., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Oct. 14, 1969, Ser. No. 866,799

Int. Cl. H01b 27/00

U.S. Cl. 200—42

7 Claims



A signal actuator module having a set of spring loaded levers which can be in one of at least two operating positions is disclosed. The various positions of the levers in the set represents a code. The module is for mounting on other equipment such as a signal transmitter which contains cooperating switches. The switches are operated by magnetic or mechanical means attached to the levers and movable therewith. The module is completely enclosed by a cover which when opened permits all of the levers to return to the same position thereby preventing discovery of the code.

3,657,723

SEGMENTED INSULATOR FOR CONTACT BLADE DRIVE BAR OF A MANUAL SWITCH

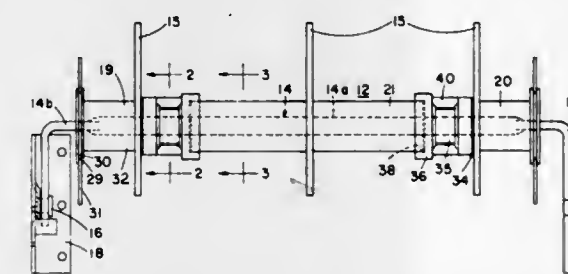
Tadeusz J. Rys, Lexington, Ky., assignor to Square D Company, Park Ridge, Ill.

Filed Apr. 9, 1970, Ser. No. 26,917

Int. Cl. H01h 9/00

U.S. Cl. 200—166 A

9 Claims



The insulator comprises three molded segments which are mounted in interlocked end-to-end relation along the drive bar. The two end segments are of fixed length, and the intermediate segment is selectable in length depending upon the length of the drive bar which in turn depends upon the width of the switch. The segments are generally U-shaped in transverse cross-section, and are held in position on the drive bar by a flexible strip of insulating material inserted between spaced shoulders on the end segments after the segments are placed on drive bar. Arc shields may be secured to either or both of the end segments.

3,657,724

METHOD OF AND POWER SUPPLY FOR ELECTRIC ARC WELDING

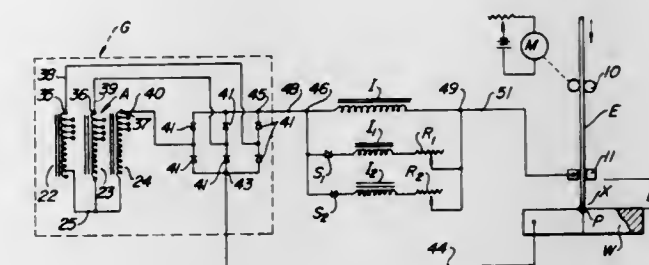
Albert G. Feeley, and George G. Landis, both of Chagrin Falls, Ohio, assignors to The Lincoln Electric Company, Cleveland, Ohio

Filed Oct. 24, 1969, Ser. No. 869,091

Int. Cl. B23k 9/10

U.S. Cl. 219—131 R

13 Claims



Electric power supply for arc welding of the drop transfer type with a small diameter electrode which changes its dynamic characteristics when the drop short circuits the electrode to the weld pool. The supply is a DC power source having a short circuit current rate of rise greater than 100,000 amperes per second in series with an inductive choke which substantially reduces the rate of rise.

Two circuits, each including a generally low resistance and/or low inductance and each including an appropriately polarized diode, are each in electrical parallel with the inductive choke. One circuit functions to increase the short circuit current rate of rise when the drop contacts the weld pool and the current starts to rise. The other absorbs the inductive energy in the choke when the short is broken and the current starts to decrease.

3,657,725

PARTICLE COUNTING SYSTEM

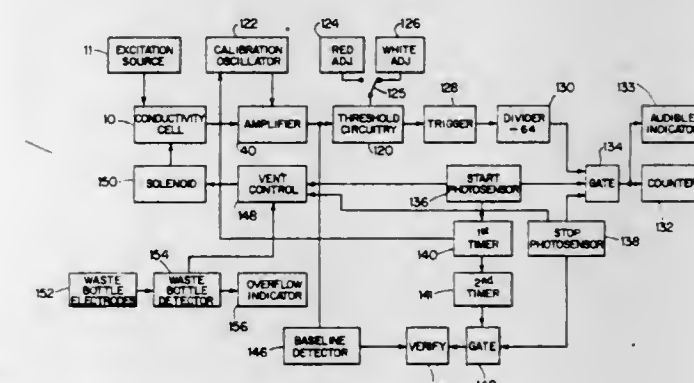
Weems E. Estelle, Southport; Henry R. Angel, Trumbull, and Pasquale M. Petrucci, Orange, all of Conn., assignors to General Science Corp., Bridgeport, Conn.

Filed Apr. 28, 1970, Ser. No. 32,582

Int. Cl. G06m 11/04

U.S. Cl. 235—92 PC

24 Claims



A particle counting system especially adapted for blood cell counting and which is essentially automatic in operation. The system includes an easily replaceable conductivity cell and electro-optical metering of a predetermined volume of sample fluid and also includes calibration and self-checking circuitry to enable reliable and accurate analysis.

3,657,726

FUNCTION EVALUATING APPARATUS

Michael Etherington, San Mateo, Calif., assignor to Electric & Musical Industries Limited, Hayes, Middlesex, England

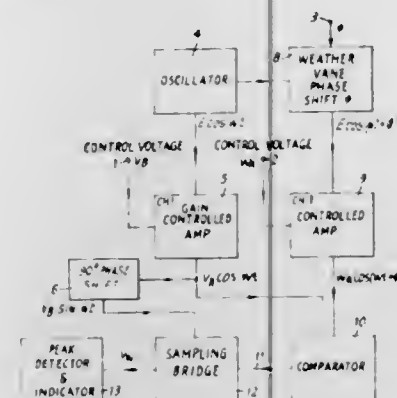
Filed Dec. 19, 1969, Ser. No. 886,557

Claims priority, application Great Britain, Dec. 19, 1968, 60,277/68

Int. Cl. G06g 7/18, 7/22

U.S. Cl. 235-150.2

4 Claims



Apparatus for evaluating a first function of a variable, the variable being determined by the solution of an equation represented by the equality of two other functions of the variable, includes means which produce a first electrical signal which oscillates so as to periodically set up successive representations of the first function for different values of the variable, and means which produce two further electrical signals which oscillate so as to periodically set up successive representations of the two other functions for corresponding values of the variable. Instants of equality of the two further electrical signals are detected and the first electrical signal is sampled at such instants for evaluating the first function of the variable. Such apparatus adapted for evaluating the speed of a yacht to windward or downwind is disclosed.

3,657,727

METHOD AND APPARATUS FOR DETECTING FLAWS IN A FABRIC WEB BY COMPARING THE WEB DIFFRACTION PATTERN WITH A STANDARD MASK

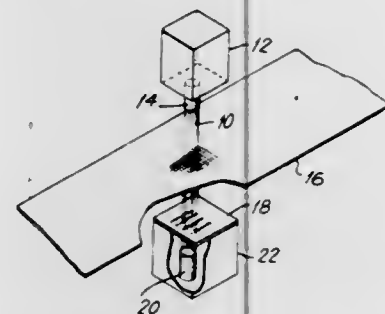
Maurice E. Blevins, Spartanburg, S.C.

Filed Mar. 10, 1970, Ser. No. 18,196

Int. Cl. G01n 21/30

U.S. Cl. 250-219 WE

11 Claims



A method and apparatus to inspect and detect deviations in a repetitive mesh pattern from a predetermined norm for the particular mesh pattern wherein a highly collimated monochromatic light beam, such as a laser beam, is directed to pass through the mesh pattern, such as a woven or knitted fabric, is diffracted by the mesh pattern, and the diffracted laser pattern is directed onto a mask which is indicative of a norm for the mesh pattern. A light-detecting apparatus, such as a photocell, is placed beyond the mask and any deviation in the mesh of the fabric from a predetermined norm for that particular fabric results in a deviation of the diffracted pattern of the laser beam through the mask which affects, and is detected by, the photocell.

3,657,728

INTERCONNECTING APPARATUS WITH IMPEDANCE INSERTION MEANS FOR ELECTRIC POWER SYSTEMS

Tsuneo Mitsui, Tokyo; Keizo Nakayama, Hitachi-shi; Tetsuo Kobayashi, Mito-shi, and Kenzo Okuda, Hitachi-shi, all of Japan, assignors to The Tokyo Electric Power Co., Inc. and Hitachi, Ltd., Tokyo, Japan

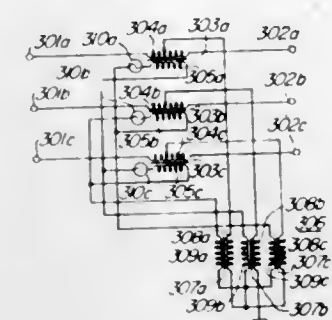
Filed Aug. 7, 1969, Ser. No. 848,314

Claims priority, application Japan, Aug. 14, 1968, 43/57330

Int. Cl. H02j 1/10

U.S. Cl. 307-20

10 Claims



An interconnecting apparatus for electric power systems wherein two electric power systems are connected to each other with a series transformer and the secondary winding of the series transformer is energized with a compensating voltage whose value and polarity are such that it cancels the voltage drop developed across said transformer when said electric power systems are normally operating. The compensating voltage is derived from the secondary winding of an exciting transformer inserted between the central point of the series transformer and the earth. The secondary winding of the series transformer is connected in delta and the secondary winding of the exciting transformer is star-connected. If it is necessary, the exciting transformer may be provided with a tertiary winding to control the voltages of the respective power systems by the voltage of this tertiary winding.

3,657,729

DEGAUSSING CIRCUIT WITH BUCKING CURRENT SOURCE FOR REDUCING CURRENT IN DEGAUSSING COIL TO ZERO

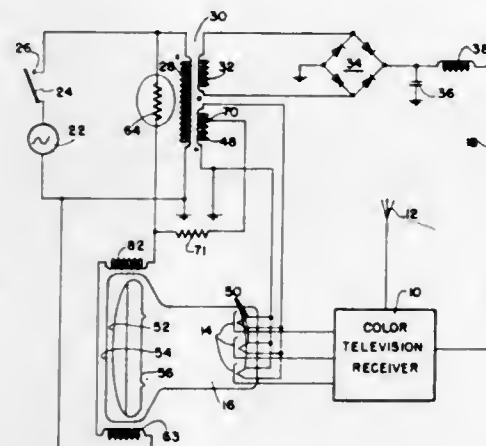
Robert B. Hansen, Arlington Heights, and William H. Slavik, Oak Lawn, both of Ill., assignors to Motorola, Inc., Franklin Park, Ill.

Filed May 6, 1970, Ser. No. 34,985

Int. Cl. H01j 31/20; H01f 13/00

U.S. Cl. 315-8

3 Claims



A degaussing circuit used in a color television receiver includes a positive temperature coefficient resistor connected in series with the degaussing coil, and in addition includes a circuit coupled with the filament winding of the receiver for applying a current through the coil in phase opposition to the

current through the positive temperature coefficient resistor. The opposition current is of a magnitude equal to the residual current through the positive temperature coefficient resistor to reduce the current in the degaussing coil to zero after the degaussing operation is complete.

3,657,730

METHOD FOR DETERMINING RESIDUAL HYDROCARBONS PRESENT IN A SUBTERRANEAN EARTH FORMATION

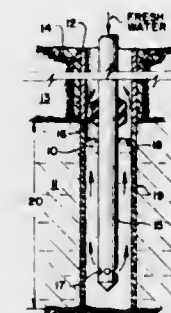
Joseph D. Robinson, Houston, Tex.; Jay D. Loren, New Orleans, La., and William T. Higdon, Lamoni, Iowa, assignors to Shell Oil Company, New York, N.Y.

Filed Jan. 14, 1970, Ser. No. 2,712

Int. Cl. G01n 27/78

U.S. Cl. 324-0.5

12 Claims



A method for determining residual hydrocarbons present in a subterranean earth formation by quantitatively determining the amplitude of the proton free-precession signal that is due to the protons contained in the residual hydrocarbons that are present in an interval of the subterranean hydrocarbon-bearing earth formation. The mud cake is removed or made permeable along a section of a well borehole adjacent the interval to be tested. An aqueous solution is injected down the well borehole and into the interval to be tested until the injected fluid occupies substantially all of the space within the well borehole and the interval to be tested that was previously occupied by other aqueous liquids in a zone extending into the interval to be tested at least substantially as deeply as a nuclear magnetism measuring device is to be responsive to proton free-precession signals. The solution which is injected contains sufficient dissolved paramagnetic material to provide a water phase nuclear magnetism thermal relaxation time that is too short to be responded to by the nuclear magnetism measuring device. A nuclear magnetism measuring device is disposed within the well borehole adjacent the interval to be tested and measurements are made of the responses with time of the device to (a) noise in the absence of polarization and (b) proton free-precession signal plus noise. At least one function of the noise and at least one function of the signal plus noise are combined to determine the signal amplitude at the end of the polarization.

3,657,731

TEMPERATURE DETECTOR FOR AUTOMATICALLY COMPENSATING THE INFLUENCE OF TEMPERATURE UPON ELECTROLYTIC CONDUCTIVITY

Werner Krauer; Alfred Martinelli, both of Zurich, and Friedrich Oehme, Bassersdorf, all of Switzerland, assignors to Polymetron Ltd., Glattdrugg, Switzerland

Filed Nov. 17, 1969, Ser. No. 877,297

Claims priority, application Switzerland, Apr. 24, 1969, 6237/69

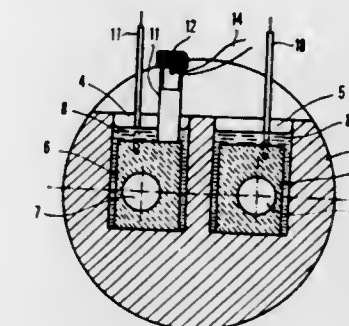
Int. Cl. G01n 27/42

U.S. Cl. 324-30 R

19 Claims

A temperature detector for a conductivity-measuring cell having a heat-sensitive element which has electrical properties that vary in accordance with temperature. The heat-sensitive element is inserted in a bore of an electrode of the conductivity-measuring cell and is not in direct contact with the

sample liquid. A metal beaker is first inserted in the electrode, preferably made of graphite, and a small diameter metal tube with a cap is located above the metal beaker. A high thermal conductivity paste is inserted in the space



between the bore of the electrode and the metal beaker. The heat-sensitive element can be in the form of a removable cartridge and can consist, for example, of a semiconductor or a platinum resistance thermometer.

3,657,732

PHASE SYNCHRONIZING SYSTEM

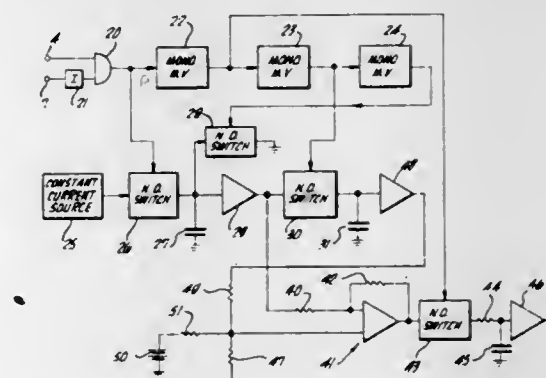
Peter L. Krause, Thousand Oaks, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Continuation of application Ser. No. 780,160, Nov. 29, 1968, now abandoned. This application Mar. 9, 1971, Ser. No. 122,544

Int. Cl. H03k 5/18

U.S. Cl. 328-155

17 Claims



A source of periodic controlled signals is synchronized to periodic reference signal by sensing the time interval between given points of the controlled signal and the reference signal during each cycle and correcting the source simultaneously responsive to the sensed time interval in successive cycles. Specifically, the source is corrected by a control signal that is proportional in amplitude to the difference between the sensed time interval in one cycle and twice the sensed time interval in the next subsequent cycle. The period of the source changes in direct proportion to the amplitude of the control signal.

3,657,733

SOLID STATE RING LASER

William A. Shapiro, Hackensack, N.J., and Robert P. Kemmerer, Jr., Bloomington, Calif., assignors to The Bendix Corporation

Filed Aug. 25, 1969, Ser. No. 852,708

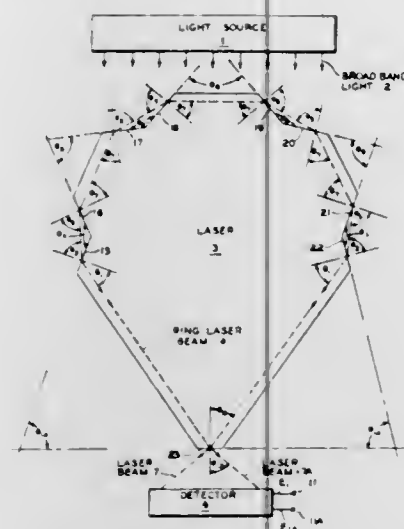
Int. Cl. H01s 3/02, 3/05

U.S. Cl. 330-4.3

2 Claims

A solid state one-piece ring laser having a plurality of surfaces for converting broad band light to a ring laser beam. At least one surface is refractive and is arranged at a Brewster's angle to the ring laser beam to linearly polarize the ring laser beam. Some of the surfaces may be reflective and are ar-

ranged at critical angles to the ring laser beam. With this arrangement, none of the surfaces needs to be coated with a



dielectric which deteriorates with age and environment. In a preferred arrangement, as many of the surfaces as possible are refractive to provide a more coherent laser beam.

3,657,734

AUDIO POWER AMPLIFIER

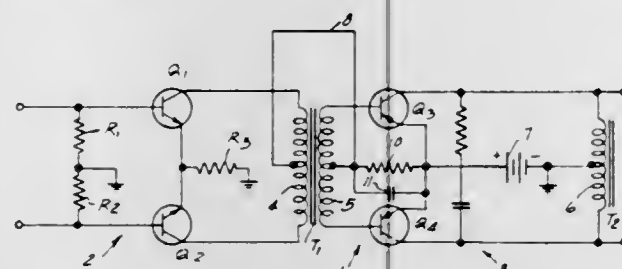
Daniel L. Queen, Chicago, Ill., assignor to Chamberlain Manufacturing Corporation, Waterloo, Iowa

Filed Oct. 31, 1969, Ser. No. 873,005

Int. Cl. H03F 3/26

U.S. Cl. 330-15

3 Claims



A transistor amplifier having a push-pull transistor driver stage and a push-pull transistor output stage operatively coupled thereto in which the transistors of the driver stage are biased for class B operation and the transistors of the output stage are biased to approximately collector current cutoff when in a quiescent condition generally corresponding to class B operation, the collector current of the driver stage, in the presence of a signal, being utilized to derive a bias voltage applied to the transistors of the output stage as a forward bias, whereby collector current in such stage flows substantially continuously during a complete electrical cycle of such signal, corresponding to class A operation.

3,657,735

ELECTRON BEAM EXCITED LASER

Frederick Hermes Nicoll, Princeton, N.J., assignor to RCA Corporation

Filed Mar. 20, 1970, Ser. No. 21,292

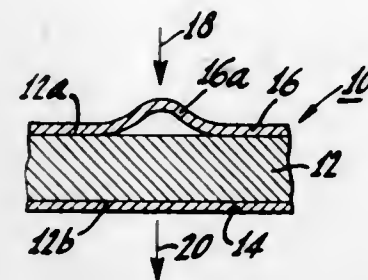
Int. Cl. H01s 3/05, 3/09, 3/18

U.S. Cl. 331-94.5

7 Claims

An electron beam excited laser element including a body of a material which is capable of generating light when excited by an electron beam and having a pair of opposed, substantially parallel, spaced surfaces. A partially reflective layer is provided on one surface of the body to allow emission of a portion of the light from the body. A metal layer is provided over the other surface of the body with at least a portion of the metal layer being spaced from the surface of

the body. The metal layer is substantially fully light reflective but transmits the electrons of the electron beam with little loss. When an electron beam is directed at the spaced portion of the metal film, the material of the body is excited to



generate light which is emitted through the partially reflective layer. The spacing of the metal layer from the surface of the body reduces the electron beam power necessary to cause lasing of the element.

3,657,736

METHOD OF ASSEMBLING SUBROUTINES

Roger J. Boom; John M. Cotton; Martin J. Goodier, and David C. Cosserrat, all of Taplow, England, assignors to Plessey Btr Limited, Taplow, England

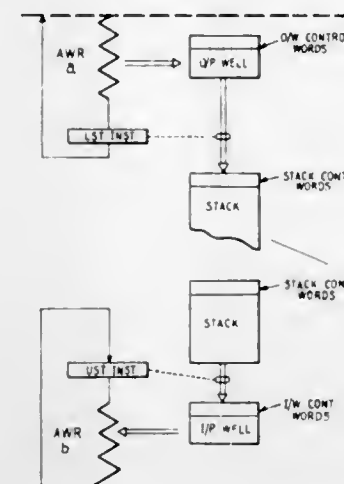
Filed Dec. 22, 1969, Ser. No. 887,144

Claims priority, application Great Britain, Jan. 2, 1969, 193/69

Int. Cl. G06F 9/00

U.S. Cl. 340-172.5

4 Claims



The invention relates to data processing systems and particularly to intercommunication arrangements for use in multiprocessor systems of the distributed algorithm type. In such systems each programme routine is provided with at least one input data area (input well) and at least one output data area (output well) each routine being arranged to process a block of data (input data packet) in an input well and to produce a processed block of data (output data packet) in an output well. Additionally common data areas (queues) are provided arranged to temporarily store related data packets on a first-in first-out basis. The processor input-output instructions are used to provide automatically activated arrangements to transfer a data packet from a relevant queue to a particular routine related input well immediately prior to the commencement of a programme routine and to transfer the processed data packet to a relevant queue from an output well immediately after the completion of the routine regardless of the relative locations of the co-operating wells and queues. The provision of input and output wells allows for the use of self-contained programme-routines while the provision of queues between routines allows for the asynchronous performance of those routines.

3,657,737

METHOD OF AND DEVICE FOR SMOKE DETECTION AND CIRCUITS THEREFOR

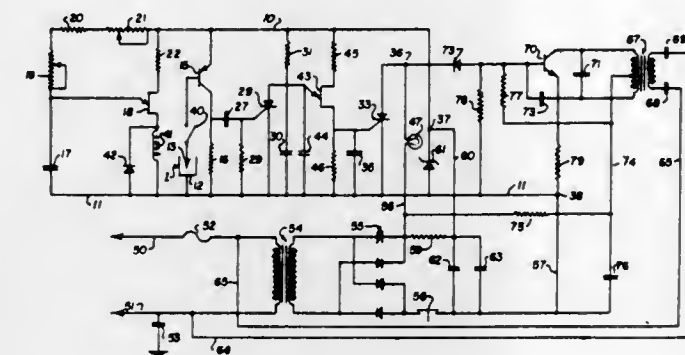
Jeffrey E. Hamm, 1062 South Decatur Street, Denver, Colo., and Harley E. Watkins, 14425 Garden Road, Golden, Colo.

Filed Dec. 29, 1969, Ser. No. 888,281

Int. Cl. G08b 21/00

U.S. Cl. 340-237 S

10 Claims



A smoke detection method and device in which a momentary charging pulse, such as of one-tenth second duration, is intermittently imposed on an ionization chamber, such as once every second to once every 3 seconds. A resistor-capacitor timer coupled with a unijunction transistor produces the momentary, intermittent pulses which are transferred to the chamber through a field effect transistor or a reed relay switch. The current through the ionization chamber triggers a transistor when clear air or no smoke is present, but fails to trigger the transistor when smoke or other types of particles are present. A continuously charging capacitor is discharged when the above transistor fires, but is permitted to become fully charged when the above transistor is not fired. This triggers another unijunction transistor which produces a signal for lighting a lamp, etc. An oscillator produces a different frequency than the a.c. supply line and is coupled therewith to superimpose the oscillations on the supply line, the oscillator stopping when the above signal is produced. A receiver may be plugged into the supply line

and receive signals of different frequencies from detectors at different locations, in order to trigger an audible alarm and indicate which detector has detected smoke.

3,657,738

RADAR SYSTEMS

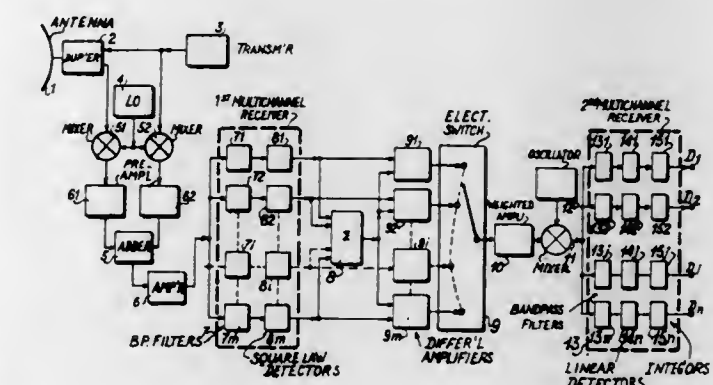
Michel F. Carpentier, and Robert G. L. Gullhem, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 5, 1969, Ser. No. 882,469

Int. Cl. G01s 9/04

U.S. Cl. 343-12 R

11 Claims



A radar system referred to as a noise radar system operating in a continuous or quasi-continuous mode, which transmits a noise signal toward a target. The receiver signal from the target is summed up with a replica of the transmitted signal and the composite signal obtained is processed in a first multichannel receiver wherein it is directed in a preferred manner, to square law detectors. The signal issuing from the detectors is a sinusoid the frequency of which is proportional to the range of the target. This signal is then processed in another multichannel receiver through a switch which transforms the spatial representation delivered at the output of the detectors into a temporal representation, the range information being obtained at the output of a distance channel of the second receiver.

DESIGNS

APRIL 18, 1972

223,430

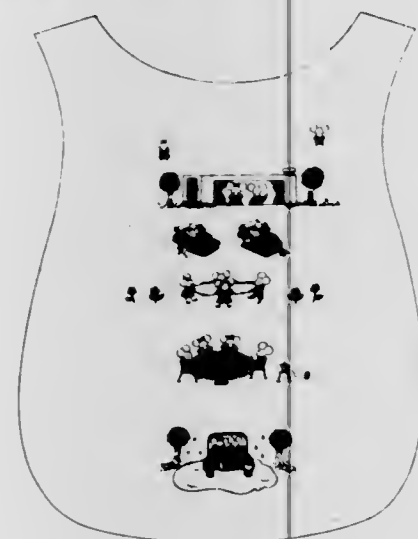
DRESS OR LIKE GARMENT

Doris Brosk, 150 E. 16th St., New York, N.Y. 10021
Filed Apr. 13, 1970, Ser. No. 22,388

Term of patent 14 years

Int. Cl. D2-02

U.S. Cl. D2-81



223,433

KNOB

George F. Miller, Monterey Park, and Ray Tintary, Covina, Calif., assignors to Ajax Hardware Manufacturing Corp., City of Industry, Calif.

Filed Sept. 18, 1970, Ser. No. 25,055

Term of patent 14 years

Int. Cl. D8-07

U.S. Cl. D8-144



223,434

TREE BRACKET

William H. Dalley, 18175 SW. Kinniman Road, Aloha, Oreg. 97006

Filed June 17, 1970, Ser. No. 23,534

Term of patent 14 years

Int. Cl. D8-03

U.S. Cl. D8-234



223,431

ELECTRIC CONTROL KEY

Dan C. Muesel, Stamford, Conn., and William Eisenreich, White Plains, N.Y., assignors to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Dec. 9, 1970, Ser. No. 26,367

Term of patent 14 years

Int. Cl. D8-06

U.S. Cl. D8-136



223,432

ELECTRICAL KEY

William Eisenreich, White Plains, N.Y., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio

Filed Dec. 9, 1970, Ser. No. 26,381

Term of patent 14 years

Int. Cl. D8-06

U.S. Cl. D8-136



223,435

RETAINING CLIP FOR AN INFORMATION CARRYING MEMBER OR SIMILAR ARTICLE

Arthur Walter Hood, Benfleet, England, assignor to Falconcraft (Aluminium) Limited, Romford, England

Filed Apr. 29, 1970, Ser. No. 22,702

Claims priority, application Great Britain Nov. 5, 1969

Term of patent 14 years

Int. Cl. D8-08

U.S. Cl. D8-259



APRIL 18, 1972

U. S. PATENT OFFICE

1123

223,436

BOTTLE

David G. Hills, Collinsville, Conn., assignor to Monsanto Company, St. Louis, Mo.

Original design application Oct. 28, 1968, Ser. No. 14,188, now Patent No. 220,611. Divided and this application

Mar. 17, 1970, Ser. No. 22,225

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-117



223,438

COMBINED BOTTLE AND CLOSURE THEREFOR

Alberto Parera Lluch, Barcelona, Spain, assignor to Perfumeria Parera, S.A., Barcelona, Spain

Filed May 28, 1970, Ser. No. 23,188

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-169



223,437

COMBINED BOTTLE AND CLOSURE THEREFOR

Alberto Parera Lluch, Barcelona, Spain, assignor to Perfumeria Parera, S.A., Barcelona, Spain

Filed May 28, 1970, Ser. No. 23,189

Term of patent 14 years

Int. Cl. D9-01

U.S. Cl. D9-131



223,439

DOOR

Melvyn Dale Stilwell, Boise, Idaho, assignor to Old World Arts, Inc., Boise, Idaho

Filed Mar. 30, 1970, Ser. No. 22,114

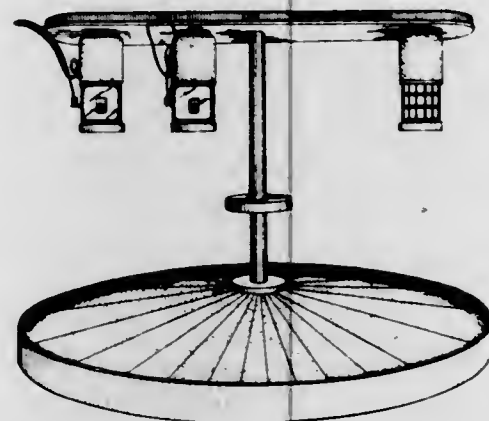
Term of patent 14 years

Int. Cl. D25-02

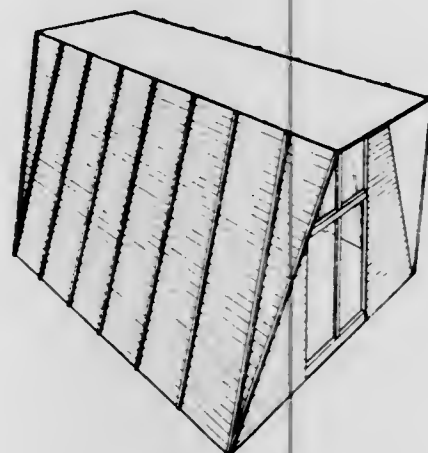
U.S. Cl. D13-1



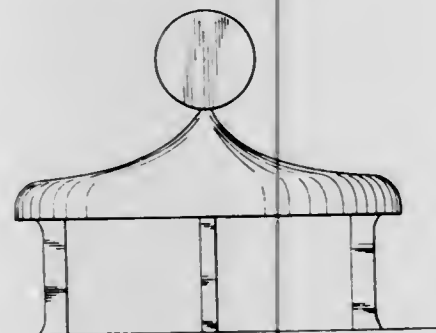
223,440
GASOLINE SERVICE STATION ISLAND CANOPY
 WITH ANNULAR LIGHT FIXTURE
 Elliot F. Noyes, New Canaan, Conn., assignor to
 Mobil Oil Corporation
 Filed July 15, 1970, Ser. No. 23,948
 Term of patent 14 years
 Int. Cl. D25-99; D26-03
 U.S. Cl. D13-1



23,441
BUILDING
 John E. Holt, P.O. Box 264,
 South Laguna, Calif. 92677
 Filed Aug. 3, 1970, Ser. No. 24,263
 Term of patent 14 years
 Int. Cl. D25-03
 U.S. Cl. D13-1



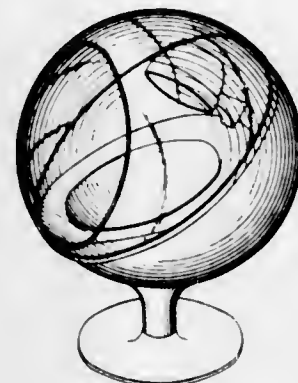
223,442
CANOPY FOR A GASOLINE DISPENSING STATION
 Watrons A. Nielsen, Chicago, Ill., assignor to
 Card, Inc., Chicago, Ill.
 Filed Jan. 14, 1970, Ser. No. 20,918
 Term of patent 14 years
 Int. Cl. D25-03
 U.S. Cl. D13-1



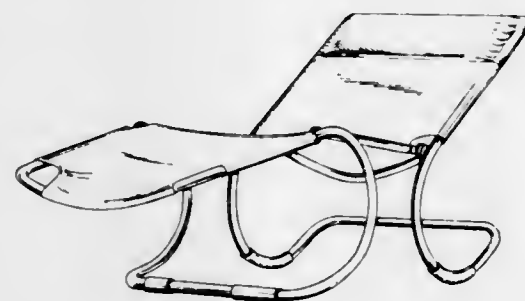
223,443
SHAMPOO CHAIR
 Frederick Glaser, 1000 Lake Shore Plaza,
 Chicago, Ill. 60611
 Filed Jan. 19, 1970, Ser. No. 20,964
 Term of patent 14 years
 Int. Cl. D6-02
 U.S. Cl. D15-3



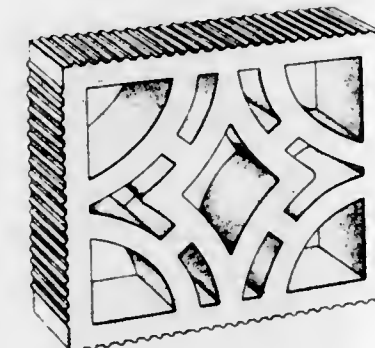
223,444
COMBINED CHAIR AND HAIR DRYER
 Frederick Glaser, 1000 Lake Shore Plaza,
 Chicago, Ill. 60611
 Filed Jan. 19, 1970, Ser. No. 20,994
 Term of patent 14 years
 Int. Cl. D6-02
 U.S. Cl. D15-3



223,445
CHAISE LONGUE
 Thomas Larry Lamb, Toronto, Ontario, Canada, assignor
 to Thomas Lamb & Associates Limited, Toronto,
 Ontario, Canada
 Filed Apr. 13, 1970, Ser. No. 22,403
 Claims priority, application Canada Oct. 17, 1969
 Term of patent 14 years
 Int. Cl. D6-02
 U.S. Cl. D15-11



223,446
DECORATIVE BUILDING BLOCK
 Pierre Charles Jean Gilson, 55A Grande Rue, Saint
 Sulpice, Vaud, Switzerland
 Filed Sept. 30, 1970, Ser. No. 25,269
 Claims priority, application France Aug. 19, 1970
 Term of patent 14 years
 Int. Cl. D25-01
 U.S. Cl. D18-2



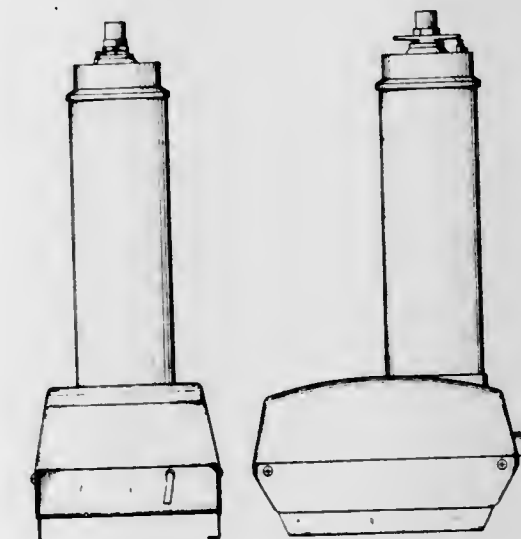
223,447
FISH LURE
 Henry E. Stormer, 3255 S. Adams Road 48057, and
 Loren B. Palen, Jr., 2345 Hammerslea 48055, both
 of Pontiac, Mich.
 Filed May 25, 1970, Ser. No. 23,144
 Term of patent 3 1/2 years
 Int. Cl. D22-05
 U.S. Cl. D22-27



223,448
FISHING SINKER LIFTER
 Charles Anaclerio, 243 Hermosa Circle Road, Rancho
 Cabeza, and Carl R. Anaclerio, 1632 Hillview Terrace,
 both of Santa Rosa, Calif. 95405
 Filed Oct. 20, 1970, Ser. No. 25,565
 Term of patent 14 years
 Int. Cl. D22-05
 U.S. Cl. D22-30



223,449
FILTERING UNIT FOR A SWIMMING POOL
 Norbert L. Reiner, Wallingford, Conn., Donald Huffman,
 Montreal, Canada, and Joseph Diamond, Simsbury,
 Conn., assignors to Coleco Industries, Inc., Hartford,
 Conn.
 Filed Oct. 22, 1970, Ser. No. 25,603
 Term of patent 14 years
 Int. Cl. D23-01
 U.S. Cl. D23-4



223,450
HORIZONTAL INLET BALL COCK
 Adolf Schoepe, 1620 N. Raymond Ave., Fullerton, Calif.
 92631, and Frederic E. Schmuck, 535 Century Drive,
 Anaheim, Calif. 92805
 Filed July 2, 1970, Ser. No. 23,815
 Term of patent 14 years
 Int. Cl. D23-01
 U.S. Cl. D23-40

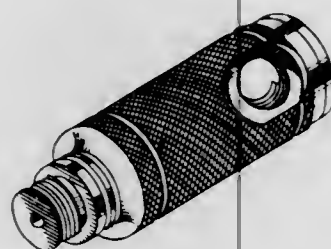


223,451

SPARK PLUG TESTER

Kenneth W. Huntwork, Rte. 5, Gladwin, Mich. 48624
 Filed Apr. 27, 1970, Ser. No. 22,670
 Term of patent 14 years
 Int. Cl. D10—10

U.S. Cl. D26—1

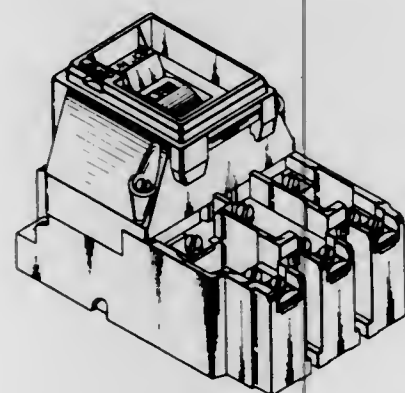


223,452

ELECTRICAL SWITCH

Joseph J. Gribble and Don J. Arneberg, Milwaukee, Wis.,
 and David E. Scott, Royal Oak, Mich., assignors to
 Square D Company, Park Ridge, Ill.
 Filed Feb. 6, 1970, Ser. No. 21,316
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—13



223,453

TELESCOPING ANTENNA ELEMENT

Edward Finkel, New York, N.Y., assignor to JFD
 Electronics Corporation, Brooklyn, N.Y.
 Filed Oct. 28, 1970, Ser. No. 22,925
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14

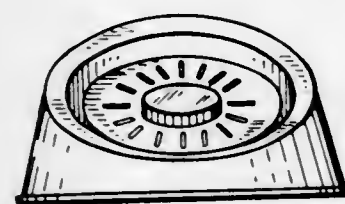
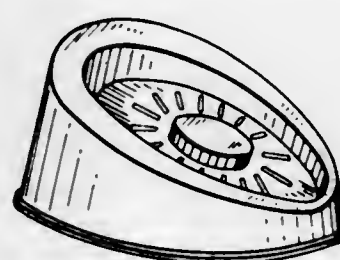


223,454

ANTENNA BASE

Edward Finkel, New York, N.Y., assignor to JFD
 Electronics Corporation, Brooklyn, N.Y.
 Filed Oct. 28, 1970, Ser. No. 22,927
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14



223,455

ANTENNA BASE

Edward Finkel, New York, N.Y., assignor to JFD
 Electronics Corporation, Brooklyn, N.Y.
 Filed Oct. 28, 1970, Ser. No. 22,929
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14

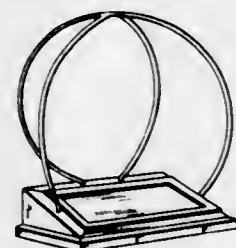


223,456

ANTENNA

Edward Finkel, New York, N.Y., assignor to JFD
 Electronics Corporation, Brooklyn, N.Y.
 Filed Oct. 28, 1970, Ser. No. 22,930
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14

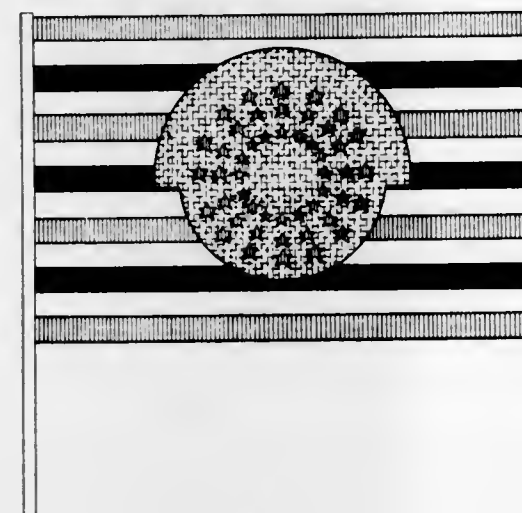


223,457

FLAG

Bruce Romanoff, 32 Court St., Brooklyn, N.Y. 11201
 Filed May 22, 1970, Ser. No. 23,099
 Term of patent 14 years
 Int. Cl. D11—05

U.S. Cl. 29—17

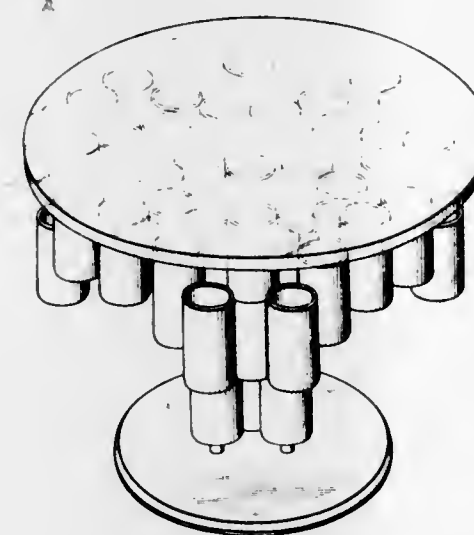


223,458

COFFEE TABLE

Irving H. Merritt, 211 Newman St.,
 Metuchen, N.J. 08840
 Filed Nov. 14, 1969, Ser. No. 19,807
 Term of patent 7 years
 Int. Cl. D6—03

U.S. Cl. D33—14



223,459

GOLF CLUB GRIP

Clifford A. Spencer, Akron, Ohio, assignor to Eaton
 Yale & Towne Inc., Cleveland, Ohio
 Filed Mar. 18, 1970, Ser. No. 21,949
 Term of patent 14 years
 Int. Cl. D21—02

U.S. Cl. D34—5

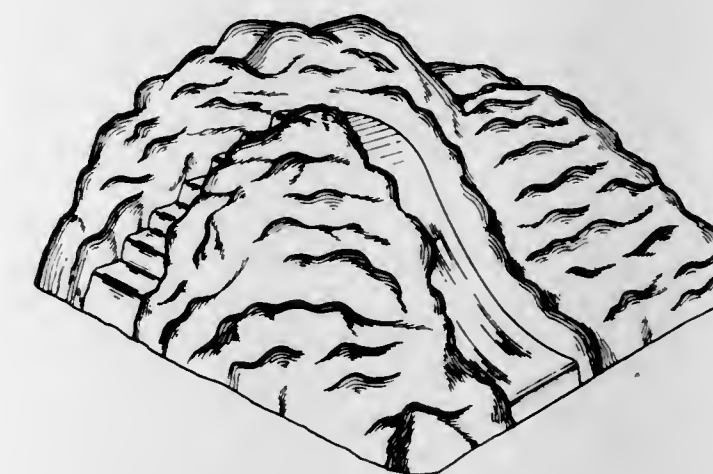


223,460

PLAYGROUND SLIDE APPARATUS

Claude W. Ahrens, West Highway 6,
 Grinnell, Iowa 50112
 Filed Sept. 18, 1970, Ser. No. 25,056
 Term of patent 14 years
 Int. Cl. D21—03

U.S. Cl. D34—5



223,461

GOLF CLUB GRIP OR SIMILAR ARTICLE
 Clifford A. Spencer, Akron, Ohio, assignor to Eaton
 Yale & Towne Inc., Cleveland, Ohio
 Filed Nov. 23, 1970, Ser. No. 26,119
 Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-5



223,462

GOLF CLUB GRIP
 Clifford A. Spencer, Akron, Ohio, assignor to Eaton
 Yale & Towne Inc., Cleveland, Ohio
 Filed Mar. 5, 1971, Ser. No. 121,615
 Term of patent 14 years
 Int. Cl. D21-02

U.S. Cl. D34-5

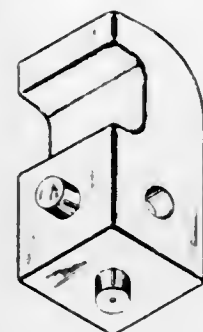


223,463

**COMPONENT FOR A MULTIPIECED BLOCK
 TOY OR THE LIKE**
 Robert Daenen, Ereembodegem, Belgium, assignor to Dart
 Industries, Inc., Los Angeles, Calif.
 Original design application Aug. 8, 1969, Ser. No. 18,587.
 Divided and this application Mar. 18, 1970, Ser. No.
 22,226

Term of patent 14 years
 Int. Cl. D21-01

U.S. Cl. D34-15



223,464

FLOWER POT
 Leon Tisset, 22 Rue de Mercier, Nantua, France
 Filed Jan. 4, 1971, Ser. No. 103,939
 Term of patent 14 years
 Int. Cl. D11-02

U.S. Cl. D35-3



223,465

CARAFE OR THE LIKE
 Ronald G. De Puy, Corning, N.Y., assignor to Corning
 Glass Works, Corning, N.Y.
 Filed July 30, 1970, Ser. No. 24,221
 Term of patent 14 years
 Int. Cl. D7-01

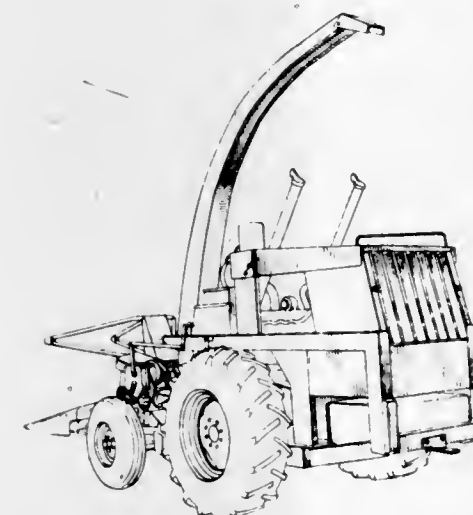
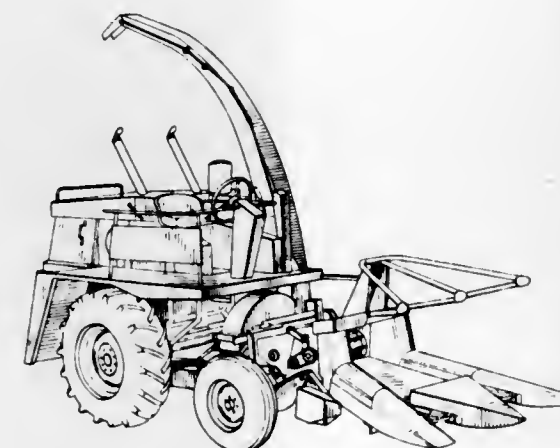
U.S. Cl. D44-21



223,466

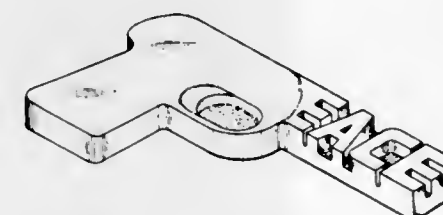
SELF-PROPELLED FORAGE HARVESTER
 Ferol S. Fell, Newton, William D. Long, Hesston,
 and Bernard L. Wells and Richard E. Ten Eyck,
 Wichita, Kans., assignors to Hesston Corporation, Hes-
 ton, and Field Queen Incorporated, Maize, Kans., frac-
 tional part interest to each
 Filed June 2, 1970, Ser. No. 23,585
 Term of patent 14 years
 Int. Cl. D15-03

U.S. Cl. D40-1

223,467
PIN

Daniel D. Molinoff, New Rochelle, and Jerrold H. Gott-
 lieb, Scarsdale, N.Y., assignors to Idex, Inc., New
 Rochelle, N.Y.
 Filed Nov. 12, 1970, Ser. No. 25,929
 Term of patent 14 years
 Int. Cl. D11-01

U.S. Cl. D45-19



223,468

COMBINED LAMP, METRONOME AND DESK SET
 Robert D. Veech, 11 Yates Ave., Commack, N.Y. 11725
 Filed May 1, 1970, Ser. No. 22,782
 Term of patent 14 years
 Int. Cl. D26-05

U.S. Cl. D48-20



223,469

COMBINED LAMP AND RADIO FOR BICYCLES
 Lester Kenneth Franklin, 23 Repulse Bay Road, Apt. 10A,
 Hong Kong
 Filed Oct. 28, 1970, Ser. No. 25,700
 Term of patent 14 years
 Int. Cl. D26-06; D17-05

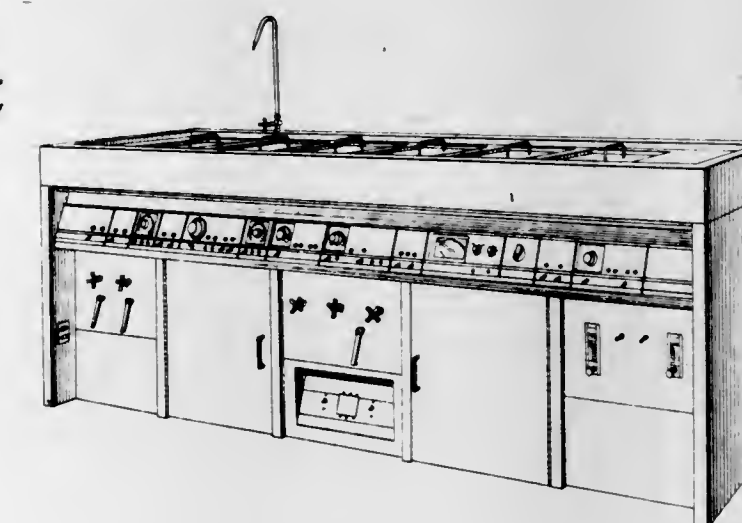
U.S. Cl. D48-24



223,470

**MULTI-STAGE MICRO-CIRCUIT CLEANING
 STATION**
 Howard M. Layton, Ossining, N.Y., assignor to
 Interlab, Inc., Pleasantville, N.Y.
 Filed May 13, 1970, Ser. No. 22,949
 Term of patent 14 years
 Int. Cl. D15-05

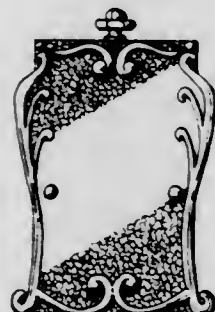
U.S. Cl. D49-11



223,471

DISPOSABLE CUP DISPENSER
 Ralph La Rue Dubois, 4242 E. 111th St.,
 Tulsa, Okla. 74135
 Filed Sept. 22, 1969, Ser. No. 19,251
 Term of patent 14 years
 Int. Cl. D9—99

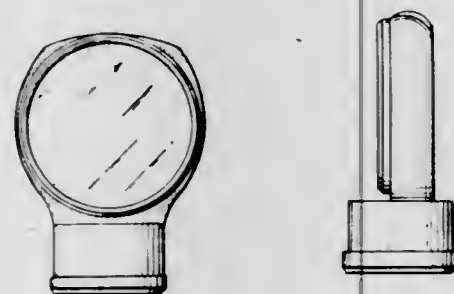
U.S. Cl. D52—2



223,472

CASING FOR A DIAL INDICATOR
 Zygmunt Natkanski, 6609 W. Melrose St.,
 Chicago, Ill. 60634
 Filed Sept. 4, 1970, Ser. No. 24,838
 Term of patent 14 years
 Int. Cl. D10—05

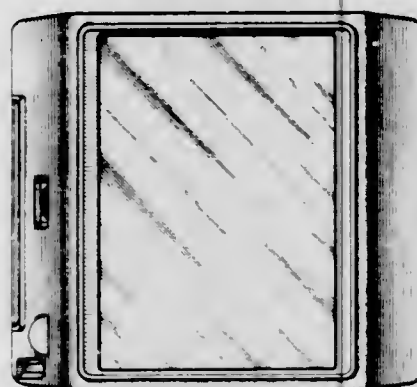
U.S. Cl. D52—6



223,473

PORTABLE MICROFICHE VIEWER
 Paul B. Specht, Evanston, and Alan N. Taylor, Skokie,
 Ill., assignors to Library Resources Inc., Chicago, Ill.
 Filed Mar. 18, 1971, Ser. No. 125,915
 Term of patent 14 years
 Int. Cl. D16—02

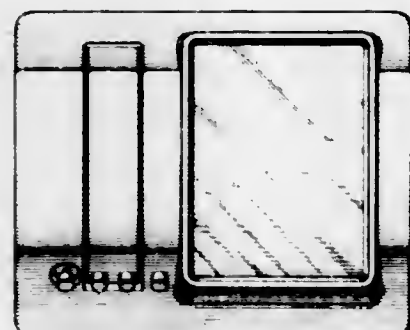
U.S. Cl. D61—1



223,474

MICROFICHE VIEWER
 Paul B. Specht, Evanston, Ill., assignor to Library
 Resources Inc., Chicago, Ill.
 Filed Mar. 18, 1971, Ser. No. 125,916
 Term of patent 14 years
 Int. Cl. D16—02

U.S. Cl. D61—1

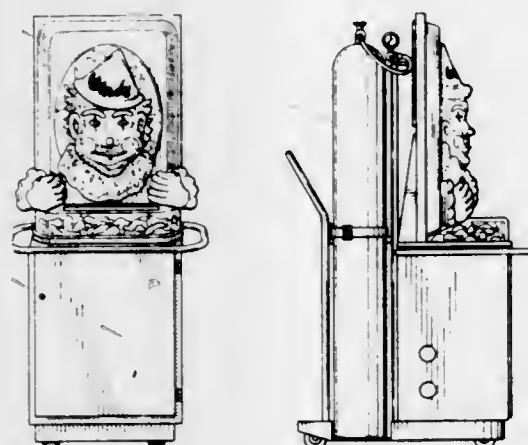


223,475

BALLOON INFLATOR
 Edward E. Elson, Anaheim, Bert Lane, Palm Springs, and
 George H. Karlin, Beverly Hills, Calif., assignors to
 Automatic Helium Balloon Systems, Inc., Beverly Hills,
 Calif.

Filed Oct. 23, 1970, Ser. No. 25,616
 Term of patent 14 years
 Int. Cl. D15—02

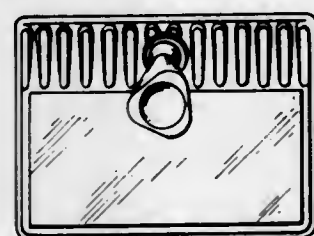
U.S. Cl. D65—1



223,476

WRITING IMPLEMENT HOLDER
 Roland Longarzo, Valley Stream, N.Y., assignor to
 Consolidated Foods Corporation, Chicago, Ill.
 Filed Sept. 18, 1970, Ser. No. 25,319
 Term of patent 14 years
 Int. Cl. D19—02

U.S. Cl. D74—5



223,477

DISPLAY RACK
 Michael Wahl, Flushing, N.Y., assignor to Wahl
 Associates, Inc., Long Island City, N.Y.
 Filed June 17, 1970, Ser. No. 23,528
 Term of patent 14 years
 Int. Cl. D6—06

U.S. Cl. D80—10

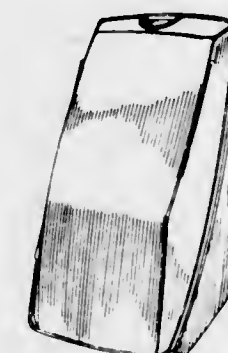


223,478

STEAM BATH CABINET
 Dale L. Cosper, 1603 E. Hoover Ave., South Bend, Ind.
 46615, and David W. Cosper, 15631 Robin Lane,
 Mishawaka, Ind. 46544

Filed Sept. 14, 1970, Ser. No. 24,992
 Term of patent 14 years
 Int. Cl. D24—99

U.S. Cl. 83—1



223,479

HEADER FOR A BODY-FLUID DRAINAGE BAG
 Edgwin R. Polk, Fords, N.J., Sidney Polansky, Great
 Neck, N.Y., and Louis Mirando, Upper Saddle River,
 N.J., assignors to Packaging Associates, Inc.
 Filed Jan. 13, 1970, Ser. No. 21,173
 Term of patent 14 years
 Int. Cl. D24—99

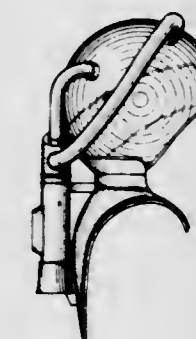
U.S. Cl. D83—1



223,480

HAIR DRYER
 Fredrick Glaser, 1000 Lake Shore Plaza,
 Chicago, Ill. 60611
 Filed June 15, 1970, Ser. No. 23,481
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 Int. Cl. D28—03

U.S. Cl. D86—10



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- Brunetti, Brunette; and Pini, Emilio, to Laboratori farmaco-biologici Ellem S.p.A. Thymus extract having a therapeutic action. 3,657,417, Cl. 424-95.
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 Yomiyama, Akira: See—
 Seko, Maomi; Yomiyama, Akira; Miyake, Tetsuya; Nakagawa, Koji; Yoshida, Muneo; and Inada, Koji, 3,657,099.
 Yoneda, Yoshitada, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device having a body of semiconductor material joined to a support plate by a layer of malleable metal. 3,657,611, Cl. 317-234.
 York, Jerome B., Jr., to General Motors Corporation. Fluid amplifier controlled carburetor. 3,656,736, Cl. 261-72.
 Yoshida, Masaji: See—
 Yamamoto, Nobuo; Nishio, Fumihiko; Yoshida, Masaji; and Kawano, Hideo, 3,656,956.
 Yoshida, Muneo: See—
 Seko, Maomi; Yomiyama, Akira; Miyake, Tetsuya; Nakagawa, Koji; Yoshida, Muneo; and Inada, Koji, 3,657,099.
 Yoshida, Noble H., to National Cash Register Company, The. Encapsulation process. 3,657,144, Cl. 252-316.
 Yoshida, Toyohiko; Wako, Shinichi; Koshimura, Masamitsu; Matsuzaka, Junichi; and Haruta, Yukinori, to Nippon Oils and Fats Company, Limited. Thermosetting coating compositions. 3,657,384, Cl. 260-856.
 Yoshidome, Hideo: See—
 Kitazawa, Tohru; Maeda, Hiroshi; Yoshidome, Hideo; and Sakata, Hidehiko, 3,657,178.
 Yoshino, Takachika; Saito, Shigeru; Sasaki, Yutaka; and Nakamura, Yoshimi, to Nitto Chemical Industry Co., Ltd. Production of attrition resistant solid catalysts containing antimony oxide suitable for use in a fluidized bed reaction. 3,657,155, Cl. 252-454.
 Yu, Quin Shen, to United States Steel Corporation. Flexible starter bar. 3,656,538, Cl. 164-274.
 Yusa, Haruhiko: See—
 Tanaka, Takashi; and Yusa, Haruhiko, 3,657,390.
 Zagar, Irvin F., to Wilfley, A. R., and Sons, Inc. Centrifugal pump with mating case plate volute halves and constant section impeller. Recording tape with partially oxidized aluminum film. 3,656,861, Cl. 346-135.
 Zahradnik, George J., to Dick, A. B., Company. Film cartridge guide assembly. 3,656,675, Cl. 226-89.
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 Zawadzki, Edward A.: See—
 Egnaczak, Raymond K.; Myers, Charles H.; and Zawadzki, Edward A., 3,656,847.
 Zeile, Karl: See—
 Mentrup, Anton; Schromm, Kurt; Zeile, Karl; and Thoma, Otto, 3,657,244.
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 Stepanek, Karel; and Zelinka, Josef, 3,656,677.
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 Zickeloose, Ellis J., to Amsted Industries Incorporated. Apparatus for casting molten metal. 3,656,539, Cl. 164-309.
 Zimmerman, Carl A., to Standard Brands Chemical Industries, Inc. Carboxylic acid latices providing unique thickening and dispersing agents. 3,657,175, Cl. 260-29.6
 Zimmerman, Carl W., to Halliburton Company. Compensated nuclear densometer and method. 3,657,532, Cl. 250-43.5
 Zimmerman, D. W., Mfg., Inc.: See—
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 Zuurveen, Frans, to U.S. Philips Corporation. Shaving-head assembly. 3,656,235, Cl. 30-346.51
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 Hejzlar, Sid; Zweig, Robert M.; and Reynolds, George D., Jr., 3,656,568.

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TO WHOM

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Anderson, Frederic W., to Arthur Bright, Almond tree. 3,125, 4-18-72, Cl. 80.
 Arthur Bright: See—
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 Baron, Milton, to J. Frank Schumdt and Son, Co. Mountain ash tree. 3,114, 4-18-72, Cl. 51.
 Boerner, Eugene S., deceased, by Lincoln Rochester Trust Co., and R. L. Boerner, executors, to Jackson & Perkins Co. Rose plant. 3,118, 4-18-72, Cl. 22.
 Boerner, Roger L.: See—
 Boerner, Eugene S. 3,118.
 Byrum, Roy L., to Joseph H. Hill Co. Rose plant. 3,126, 4-18-72, Cl. 18.
 Curtis, Eldon C., to E. V. Kimbrew. Rose plant. 3,115, 4-18-72, Cl. 18.
 Driscoll Strawberry Associates, Inc.: See—
 Johnson, Harold A., Jr., and Thomas. 3,123.
 Ecke, Paul, to Paul Ecke, Inc. Poinsettia plant. 3,119, 4-18-72, Cl. 86.
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 Ecke, Paul. 3,119.
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 Ecke, Paul, to Paul Ecke, Inc. Poinsettia plant. 3,120, 4-18-72, Cl. 86.
 Garabedian, John M. Grapevine. 3,124, 4-18-72, Cl. 47.
 Hill, Joseph H., Co.: See—
 Byrum, Roy L. 3,126.
 Holm, Josef, to Mikkelsen Inc. Poinsettia plant. 3,122, 4-18-72, Cl. 86.
 Jackson & Perkins Co.: See—
 Boerner, Eugene S. 3,118.
 Johnson, Harold A., Jr., and H. E. Thomas, to Driscoll Strawberry Associates, Inc. Strawberry plant. 3,123, 4-18-72, Cl. 49.
 Kendall, Harold E. Avocado tree. 3,116, 4-18-72, Cl. 44.
 Kendall, Harold E. Avocado tree. 3,117, 4-18-72, Cl. 44.
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 Curtis, Eldon C. 3,115.
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 Patterson Roses: See—
 Patterson, John W. 3,113.
 Patterson, John W., to Patterson Roses. Rose plant. 3,113, 4-18-72, Cl. 19.
 Schmidt, J. Frank, and Son, Co.: See—
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 Staggs, Wilton L. and S. E. 3,127.
 Staggs, Wilton L. and S. E. Peach tree. 3,127, 4-18-72, Cl. 43.
 Stark Bro's Nurseries & Orchards Co.: See—
 Taylor, Alvah. 3,121.
 Taylor, Alvah, to Stark Bro's Nurseries & Orchards Co. Apple tree. 3,121, 4-18-72, Cl. 34.
 Thomas, Harold E.: See—
 Johnson, Harold A., Jr., and Thomas. 3,123.
 Verbeek, Gijbert. Rose plant. 3,112, 4-18-72, Cl. 18.

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Ahrens, Claude W. Playground slide apparatus. 223,460, 4-18-72, Cl. D34—5.
 Ajax Hardware Mfg. Corp.: See—
 Miller, George F., and Tintary. 223,433.
 Anacletio, Carl R.: See—
 Anacletio, Charles and C. R. 223,448.
 Anacletio, Charles and C. R. Fishing sinker lifter. 223,448, 4-18-72, Cl. D22—30.
 Arneberg, Don J.: See—
 Gribble, Joseph J., Arneberg, and Scott. 223,452.
 Automatic Helium Balloon Systems, Inc.: See—
 Elson, Edward E., Lane, and Karlin. 223,475.
 Broek, Doris. Dress or like garment. 223,430, 4-18-72, Cl. D2—81.
 Card, Inc.: See—
 Nielsen, Watrons A. 223,442.
 Coleco Industries, Inc.: See—
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 Consolidated Foods Corp.: See—
 Longarzo, Roland. 223,476.
 Corning Glass Works: See—
 De Puy, Ronald G. 223,465.
 Cosper, Dale L. and D. W. Steam bath cabinet. 223,478, 4-18-72, Cl. D83—1.
 Cosper, David W.: See—
 Cosper, Dale L. and D. W. 223,478.
 Daenen, Robert, to Dart Industries, Inc. Component for a multi-piece block toy or the like. 223,463, 4-18-72, Cl. D34—15.
 Dalley, William H. Tree bracket. 223,434, 4-18-72, Cl. D8—234.
 Dart Industries, Inc.: See—
 Daenen, Robert. 223,463.
 De Puy, Ronald G., to Corning Glass Works. Carafe or the like. 223,465, 4-18-72, Cl. D44—21.
 Diamond, Joseph: See—
 Reiner, Norbert L., Huffman, and Diamond. 223,449.
 Dubols, Ralph L. Disposable cup dispenser. 223,471, 4-18-72, Cl. D52—2.
 Eaton Yale & Towne Inc.: See—
 Muessel, Dan C., and Eisenreich. 223,431.
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 Spencer, Clifford A. 223,459.
 Spencer, Clifford A. 223,461.
 Spencer, Clifford A. 223,462.
 Eisenreich, William: See—
 Muessel, Dan C., and Eisenreich. 223,431.
 Eisenreich, William, to Eaton Yale & Towne Inc. Electrical key. 223,432, 4-18-72, Cl. D8—136.
 Elson, Edward E., B. Lane, and G. H. Karlin, to Automatic Helium Balloon Systems, Inc. Balloon inflator. 223,475, 4-18-72, Cl. D65—1.
 Falconcraft (Aluminum) Ltd.: See—
 Hood, Arthur W. 223,435.
 Fell, Ferrol S., W. D. Long, B. L. Wells, and R. E. Ten Eyck, to Hesston Corp., and Field Queen Inc., a fractional part interest to each. Self-propelled forage harvester. 223,466, 4-18-72, Cl. D40—1.
 Field Queen Inc.: See—
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 Finkel, Edward, to JFD Electronics Corp. Telescoping antenna. 223,453, 4-18-72, Cl. D26—14.
 Finkel, Edward, to JFD Electronics Corp. Antenna base. 223,454, 4-18-72, Cl. D26—14.
 Finkel, Edward, to JFD Electronics Corp. Antenna base. 223,455, 4-18-72, Cl. D26—14.
 Finkel, Edward, to JFD Electronics Corp. Antenna. 223,456, 4-18-72, Cl. D26—14.
 Franklin, Lester K. Combined lamp and radio for bicycles. 223,469, 4-18-72, Cl. D48—24.
 Gilson, Pierre C. J. Decorative building block. 223,446, 4-18-72, Cl. D18—2.
 Glaser, Frederick. Shampoo chair. 223,443, 4-18-72, Cl. D15—3.
 Glaser, Frederick. Combined chair and hair dryer. 223,444, 4-18-72, Cl. D15—3.
 Glaser, Frederick. Hair dryer. 223,480, 4-18-72, Cl. D86—10.
 Gottlieb, Jerrold H.: See—
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 Gribble, Joseph J., D. J. Arneberg, and D. E. Scott, to Square D Co. Electrical switch. 223,452, 4-18-72, Cl. D26—13.
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 Holt, John E. Building. 223,441, 4-18-72, Cl. D13—1.
 Hood, Arthur W., to Falconcraft (Aluminum) Ltd. Retaining clip for an information carrying member or similar article. 223,435, 4-18-72, Cl. D8—259.
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 Lamb, Thomas, & Associates Ltd.: See—
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 Layton, Howard M., to Interlab, Inc. Multi-stage micro-circuit cleaning station. 223,470, 4-18-72, Cl. D49—11.
 Library Resources Inc.: See—
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Lluch, Alberto P., to Perfumeria Parera, S.A. Combined bottle and closure therefor. 223,437, 4-18-72, Cl. D9—131.
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 Longarzo, Roland, to Consolidated Foods Corp. Writing implement holder. 223,476, 4-18-72, Cl. D74—5.
 Merritt, Irving H. Coffee table. 223,458, 4-18-72, Cl. D33—14.
 Miller, George F., and R. Tintary, to Ajax Hardware Mfg. Corp. Knob. 223,433, 4-18-72, Cl. D8—144.
 Mirando, Louis: See—
 Polk, Edgwin R., Polansky, and Mirando. 223,479.
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 Noyes, Elliot F. 223,440.
 Molinoff, Daniel D., and J. H. Gottlieb, to Idex, Inc. Pin. 223,467, 4-18-72, Cl. D45—19.
 Monsanto Co.: See—
 Hills, David G. 223,436.
 Muessel, Dan C., and W. Eisenreich, to Eaton Yale & Towne Inc. Electric control key. 223,431, 4-18-72, Cl. D8—136.
 Natkanski, Zygmunt. Casing for a dial indicator. 223,472, 4-18-72, Cl. D52—6.
 Nielsen, Watrons A., to Card, Inc. Canopy for a gasoline dispensing station. 223,442, 4-18-72, Cl. D13—1.
 Noyes, Elliot F., to Mobile Oil Corp. Gasoline service station island canopy with annular light fixture. 223,440, 4-18-72, Cl. D13—1.
 Old World Arts, Inc.: See—
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 Packaging Associates, Inc.: See—
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 Lluch, Alberto P. 223,438.
 Polansky, Sidney: See—
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 Polk, Edgwin R., S. Polansky, and L. Mirando, to Packaging Associates, Inc. Header for a body-fluid drainage bag. 223,479, 4-18-72, Cl. D83—1.
 Reiner, Norbert L., D. Huffman, and J. Diamond, to Coleco Industries, Inc. Filtering unit for a swimming pool. 223,449, 4-18-72, Cl. D23—4.
 Romanoff, Bruce. Flag. 223,457, 4-18-72, Cl. D29—17.
 Schmuck, Frederic E.: See—
 Schoepe, Adolf, and F. E. Schmuck. Horizontal inlet ball cock. 223,450, 4-18-72, Cl. D23—40.
 Scott, David E.: See—
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 Specht, Paul B., and A. N. Taylor, to Library Resources Inc. Portable microfiche viewer. 223,473, 4-18-72, Cl. D61—1.
 Specht, Paul B., to Library Resources Inc. Microfiche viewer. 223,474, 4-18-72, Cl. D61—1.
 Spencer, Clifford A., to Eaton Yale & Towne Inc. Golf club grip. 223,459, 4-18-72, Cl. D34—5.
 Spencer, Clifford A., to Eaton Yale & Towne Inc. Golf club grip or similar article. 223,461, 4-18-72, Cl. D34—5.
 Spencer, Clifford A., to Eaton Yale & Towne Inc. Golf club grip. 223,462, 4-18-72, Cl. D34—5.
 Square D Co.: See—
 Gribble, Joseph J., Arneberg, and Scott. 223,452.
 Stilwell, Melvyn D., to Old World Arts, Inc. Door. 223,439, 4-18-72, Cl. D13—1.
 Stormer, Henry E., and L. B. Palen, Jr. Fish lure. 223,447, 4-18-72, Cl. D22—27.
 Taylor, Alan N.: See—
 Specht, Paul B., and Taylor. 223,473.
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 Tintary, Ray: See—
 Miller, George F., and Tintary. 223,433.
 Tissot, Leon. Flower pot. 223,464, 4-18-72, Cl. D35—3.
 Veech, Robert D. Combined lamp, metronome and desk set. 223,468, 4-18-72, Cl. D48—20.
 Wahl Associates, Inc.: See—
 Wahl, Michael. 223,477.
 Wahl, Michael, to Wahl Associates, Inc. Modular unit for display rack. 223,477, 4-18-72, Cl. D80—10.
 Wells, Bernard L.: See—
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CLASSIFICATION OF PATENTS

ISSUED APRIL 18, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

1	CLASS 3	3,656,184	25.35	3,656,217	46	3,656,276	349	3,656,335	1.26	3,657,463	64	3,656,435
		3,656,185	33F	3,656,218	67	3,656,277	397	3,656,336	267	3,656,395	CLASS 104	
		3,656,186	80	3,656,216	240	3,656,278	399	3,656,334	380	3,657,464	138	3,656,436
12.8		3,656,187	95	3,656,219	269	3,656,280			418	3,657,465	CLASS 105	
	CLASS 4	3,656,188	95.1	3,656,220		3,656,281	1B	3,656,337	9	3,656,396	240	3,656,437
199			149.5B	3,656,221			17R	3,656,338		3,656,397	355	3,656,438
			156.8H	3,656,222	1	CLASS 56	23.1	3,656,339	CLASS 85		CLASS 106	
	CLASS 5		183	3,656,217		3,656,282	88.5R	3,656,340	37	3,656,398	1	3,656,975
12		3,656,189	196.1	3,656,218	14.5	3,656,283	104	3,656,341	CLASS 87		38.3	3,656,983
60		3,656,190	197	3,656,219	244	3,656,284	146	3,656,343	CLASS 89		47Q	3,656,976
63		3,656,191	408	3,656,223	294	3,656,285	154	3,656,344	1G	3,656,399	53	3,656,984
81R		3,656,192	471.1	3,656,224	328TS	3,656,286	170R	3,656,342	138	3,656,400	55	3,656,977
92		3,656,193	472.7	3,656,225		3,656,287		3,656,345	CLASS 90		67	3,656,978
98R		3,656,194	502	3,656,226	34HS	3,656,288	354	3,656,346	10	3,656,401	90	3,656,985
99		3,656,195	530	3,656,227	54	3,656,289	398R	3,656,347	13.05	3,656,402	95	3,656,979
	CLASS 8		578	3,656,228	77.4	3,656,290	421B	3,656,348	13.9	3,656,403	285	3,656,980
21C		3,656,880	603	3,656,229	156	3,656,291	425.4R	3,656,350			288B	3,656,981
94.23		3,656,881	604	3,656,230			425.6	3,656,351	38	3,656,404	291	3,656,982
115.5		3,656,882	624	3,656,231	94	3,656,292	492	3,656,352	176	3,656,405	302	3,656,986
		3,656,883		3,656,232	86	3,656,293	493	3,656,353	401	3,656,406	CLASS 108	
116		3,656,884	629	3,656,233			505	3,656,354	490	3,656,407	113	3,656,439
116.3		3,656,885							500	3,656,408	CLASS 110	
	CLASS 9		90	3,656,234			7B	3,656,355	504	3,656,409	8R	3,656,440
313		3,656,196	346.51	3,656,235	1	CLASS 60	63	3,656,356			CLASS 112	
	CLASS 10			3,656,236	24	3,656,295	89	3,656,357	49	3,656,410	77	3,656,443
152		3,656,197	2	3,656,236	26.1	3,656,296	89.15	3,656,358	51	3,656,411	214	3,656,442
	CLASS 13			3,656,237	39.23	3,656,297	234	3,656,359	82	3,656,412	CLASS 114	
12		3,657,455	27D	3,656,237	39.65	3,656,298		3,656,360	98D	3,656,413	39	3,656,444
	CLASS 14		76R	3,656,238	53A	3,656,299	240	3,656,361	249	3,656,414		3,656,445
27		3,656,198	141R	3,656,239	59	3,656,300	393	3,656,362	13	3,656,415	77R	3,656,446
71		3,656,199			236	3,656,301	394	3,656,363	52	3,656,416	208A	3,656,448
	CLASS 15		92	3,656,240	254	3,656,304	422	3,656,364		3,656,417	240R	3,656,447
97		3,656,200			261	3,656,302	473P	3,656,365	CLASS 93		CLASS 115	
118		3,656,201			273	3,656,303	492	3,656,366	13	3,656,415	9	3,656,449
121		3,656,202	8R	3,657,456				3,656,367	50PR	3,656,418	63	3,656,450
147B		3,656,207	11	3,657,457	8	CLASS 61	551.3	3,656,368	50	3,656,419	CLASS 116	
230.31		3,656,208	19A	3,656,242	36	3,656,306	567	3,656,369	31EL	3,656,420	70	3,656,451
349		3,656,209	19R	3,656,241	63	3,656,307	568R	3,656,370	42	3,656,421	114.5	3,656,452
	CLASS 16		24B	3,657,458	69R	3,656,308	645	3,656,371	45	3,656,422	CLASS 117	
			48B	3,656,243	72.1	3,656,309	869	3,656,372	CLASS 94		3.4	3,656,987
35		3,656,203			72.3	3,656,310		3,656,373	50PR	3,656,418	5.5	3,656,988
52		3,656,204	CLASS 36						50	3,656,419	16	3,656,989
125		3,656,205	1	3,656,244					31EL	3,656,420	17.5	3,656,990
	CLASS 17		67D	3,656,245	28	CLASS 62	9	3,656,933	45	3,656,422	33.3	3,656,991
11		3,656,206			85	3,656,312	82	3,656,934	CLASS 95		33.5CM	3,657,009
	CLASS 21		144	3,656,246	97	3,656,313	101R	3,656,935	1.2	3,656,947	43	3,656,992
2.5		3,656,886			124	3,656,314		3,656,936	1.4	3,656,948	56	3,656,993
	CLASS 23		21C	3,656,247	306	3,656,315	101	3,656,937	1.5	3,656,949	62	3,656,994
2R		3,656,887	32	3,656,248	467	3,656,316	108	3,656,938	22	3,656,950	68	3,656,995
15W		3,656,888					108	3,656,939	35.1	3,656,951	73	3,656,996
50R		3,656,889					119	3,656,940	48PD	3,656,952	75	3,656,997
52		3,656,890					120	3,656,941	53	3,656,953	93.31	3,657,000
59		3,656,891					120	3,656,942	67	3,656,954	105.1	3,657,001
63		3,656,892					124	3,656,943	107	3,656,955	120	3,657,003
77		3,656,893					128A	3,656,944	108	3,656,956	141	3,657,002
88		3,656,894					135	3,656,945	114	3,656,957	201	3,657,004
		3,656,895					162	3,656,946	120	3,656,958		3,657,005
106		3,656,896					226	3,656,946	127	3,656,959		3,657,006
158		3,656,897							134	3,656,960		3,657,007
165		3,656,898					101R	3,656,974	139	3,656,958		3,657,008
168		3,656,900							CLASS 76		CLASS 118	
182		3,656,901							139	3,656,958	48	3,656,453
188		3,656,902							2.15	3,656,423	49	3,656,454
209.1		3,656,903							CLASS 98		630	3,656,455
		3,656,904							14	3,656,963	CLASS 119	
212R		3,656,905							71	3,656,964	1	3,656,456
230B		3,656,906							81	3,656,965	4	3,656,457
230R		3,656,907							83	3,656,966	95	3,656,458
		3,656,908							86	3,656,967		3,656,459
253TP		3,656,909							87	3,656,968		
253A		3,656,911							100	3,656,969		
259		3,656,912							107	3,656,970		
259.5		3,656,910							139	3,656,971		
288F		3,656,915								3,656,972		
288M		3,656,913							141A	3,656,973		
		3,656,914							256	3,656,974		
357		3,656,916							348	3,656,974		
	CLASS 24										CLASS 123	
123A		3,656,210									41.86	3,656,460
230		3,656,211									90.42	3,656,461
250		3,656,212									122D	3,656,462
252GC		3,656,213									136	3,656,463
	CLASS 28										139BF	3,656,464
1.4		3,656,214									179H	3,656,465
21		3,656,215									198E	3,656,466
											CLASS 124	
											35	3,656,467
											CLASS 125	
											13	3,656,468

CLASS 126	CLASS 150	210	CLASS 178	CLASS 203	85	CLASS 244	199
21A 3,656,469	5 3,656,530	CLASS 178	52 3,657,074	CLASS 204	120 3,657,508	2 3,656,723	CLASS 244
110AA 3,656,470	CLASS 152	3 3,657,470	15 3,657,075	CLASS 204	121LA 3,657,510	2 3,656,723	CLASS 244
200 3,656,471	8 3,656,531	5.4CD 3,657,471	16 3,657,076	CLASS 204	125 3,657,511	2 3,656,723	CLASS 244
CLASS 127	353 3,656,532	6.7A 3,657,473	35N 3,657,077	CLASS 204	131R 3,657,512	2 3,656,723	CLASS 244
70 3,657,010	361 3,656,533	7.86 3,657,474	35R 3,657,078	CLASS 204	200 3,657,513	22 3,656,725	CLASS 244
CLASS 128	CLASS 156	18 3,657,475	51 3,657,079	CLASS 204	201 3,657,514	124 3,656,726	CLASS 244
2R 3,656,472	11 3,657,029	22 3,657,476	105R 3,657,081	CLASS 204	211 3,657,515	399 3,656,728	CLASS 244
3,656,473	13 3,657,030	3,657,477	130 3,657,082	CLASS 204	211 3,657,515	18 3,656,729	CLASS 244
2.1R 3,656,474	62.2 3,657,031	3,657,478	140.5 3,657,083	CLASS 204	211 3,657,515	134 3,656,730	CLASS 244
90 3,656,475	62.4 3,657,032	CLASS 179	147 3,657,084	CLASS 204	211 3,657,515	135 3,656,731	CLASS 244
3,656,476	73 3,657,033	1C 3,657,479	157.1R 3,657,085	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
91R 3,656,477	77 3,657,034	1D 3,657,480	158R 3,657,086	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
214E 3,656,478	78 3,657,035	6.3R 3,657,481	159.15 3,657,088	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
214.4 3,656,479	79 3,657,036	7MM 3,657,482	164 3,657,089	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
218P 3,656,480	92 3,657,037	15AT 3,657,483	164 3,657,090	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
260 3,656,481	106 3,657,038	16AA 3,657,484	181 3,657,091	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
261 3,656,482	123 3,657,039	18EB 3,657,485	195 3,657,093	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
264 3,656,483	178 3,657,040	18J 3,657,486	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
349R 3,656,485	190 3,657,041	100R 3,657,487	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
419P 3,656,486	196 3,657,042	100.1R 3,657,488	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
30A 3,656,488	212 3,657,043	100.2S 3,657,489	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 130	296 3,657,045	121D 3,657,490	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
9 3,656,489	315 3,657,046	CLASS 180	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
267 3,656,484	322 3,657,047	6.48 3,656,570	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 132	331 3,657,048	11 3,656,571	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
39 3,656,490	345 3,657,049	21 3,656,572	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 134	350 3,657,050	44R 3,656,573	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
17 3,657,011	384 3,657,051	114 3,656,574	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
26 3,657,012	435 3,657,052	120 3,656,575	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
56R 3,656,491	540 3,657,053	CLASS 181	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
64 3,656,492	542 3,657,054	.5A 3,656,585	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
113 3,656,493	580 3,657,056	33G 3,656,576	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 135	583 3,657,055	CLASS 182	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
15PO 3,656,494	47 3,656,534	20 3,656,578	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 136	CLASS 161	48 3,656,579	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
28 3,657,013	2 3,657,057	82 3,656,580	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
64 3,657,014	37 3,657,058	224 3,656,581	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
83R 3,657,015	47 3,657,059	CLASS 184	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
83 3,657,016	73 3,657,060	6.11 3,656,583	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
100R 3,657,017	81 3,657,061	6.5 3,656,582	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
111 3,657,018	173 3,657,062	7R 3,656,584	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
133 3,657,019	192 3,657,063	CLASS 185	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
170 3,657,020	30 3,657,064	37 3,656,586	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
173 3,657,021	65 3,657,065	CLASS 186	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 137	166 3,657,066	1A 3,656,587	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
81.5 3,656,495	199 3,657,067	CLASS 188	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
116.3 3,656,496	205 3,657,069	73 3,656,588	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
116.5 3,656,497	358 3,657,068	62 3,656,589	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
246.22 3,656,498	CLASS 164	72.5 3,656,590	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
270 3,656,499	52 3,656,535	73.4 3,656,591	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
271 3,656,500	89 3,656,536	82.84 3,656,591	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
315 3,656,501	251 3,656,537	270 3,656,592	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
327 3,656,502	274 3,656,538	300 3,656,593	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
359 3,656,503	309 3,656,539	CLASS 190	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
363 3,656,504	CLASS 165	57 3,656,594	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
399 3,656,505	1 3,656,540	CLASS 191	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
414 3,656,506	16 3,656,541	12.2 3,657,491	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
454 3,656,507	66 3,656,542	CLASS 192	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
495 3,656,508	74 3,656,543	.055 3,656,600	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
560 3,656,509	66 3,656,544	13R 3,656,595	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
608 3,656,510	66 3,656,545	17R 3,656,596	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
624.11 3,656,511	81 3,656,546	35 3,656,597	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
625.4 3,656,512	106 3,656,547	42 3,656,598	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 138	159 3,656,548	CLASS 195	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
141 3,656,513	CLASS 166	30 3,657,070	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
166 3,656,514	5 3,656,549	66R 3,657,071	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
171 3,656,515	270 3,656,550	81 3,657,072	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 140	279 3,656,551	127 3,657,073	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
149 3,656,516	315 3,656,552	CLASS 197	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 141	1 3,656,517	20 3,656,601	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
1 3,656,518	1A 3,656,553	133P 3,656,602	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 143	14 3,656,554	CLASS 198	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
159C 3,656,519	16 3,656,555	20 3,656,603	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 144	212 3,656,556	33AA 3,656,604	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
32 3,656,520	277 3,656,557	34 3,656,605	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
219 3,656,521	803 3,656,558	118 3,656,607	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 145	805 3,656,559	138 3,656,608	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
50A 3,656,522	CLASS 173	224 3,656,609	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
61L 3,656,523	12 3,656,560	230 3,656,610	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 146	163 3,656,561	CLASS 200	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
1R 3,656,524	CLASS 174	5R 3,657,492	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
2D 3,656,525	15C 3,657,466	6B 3,657,493	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
3N 3,656,526	212 3,657,467	11DA 3,657,494	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
174 3,656,528	25 3,657,468	16B 3,657,495	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
224 3,656,529	73SC 3,657,469	42 3,657,496	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
238 3,656,527	4.51 3,656,562	43 3,657,497	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 148	22 3,656,563	50A 3,657,498	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
2 3,657,022	228 3,656,564	61.04 3,657,499	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
6.15R 3,657,023	323 3,656,565	61.45R 3,657,500	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
31.5 3,657,024	59 3,656,566	81.4 3,657,501	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
31.55 3,657,025	CLASS 176	144B 3,657,502	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
120 3,657,026	155R 3,657,503	155R 3,657,503	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
CLASS 149	163 3,657,504	166A 3,657,505	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244
19 3,657,027	155 3,656,567	166C 3,657,505	173 3,657,094	CLASS 204	211 3,657,515	179 3,656,732	CLASS 244

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190	3,656,864	415	3,656,874	118	3,657,418	228	3,657,428	263	3,657,439	277	3,657,448
221	3,656,865			119	3,657,419	229	3,657,429	267	3,657,440	279	3,657,453
		CLASS 417		121	3,657,420	230	3,657,430	273	3,657,441	283	3,657,450
38	3,656,866	54	3,656,875	122	3,657,421		3,657,431		3,657,442	288	3,657,451
50	3,656,867	185	3,656,876		3,657,422	232	3,657,432		3,657,443	300	3,657,452
53	3,656,868			127	3,657,423	235	3,657,433		3,657,445	301	3,657,454
220	3,656,869	81	3,657,413	153	3,657,424	241	3,657,434	274	3,657,444	CLASS 425	3,656,877
300	3,656,870	84	3,657,414	167	3,657,412		3,657,435		3,657,446	CLASS 431	
361	3,656,871	88	3,657,415	178	3,657,425	244	3,657,436		3,657,447	10	3,656,878
364	3,656,872	94	3,657,416	200	3,657,426	248	3,657,437		3,657,449	349	3,656,879
395	3,656,873	95	3,657,417	216	3,657,427		3,657,438	276			

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D 2—	81	223,430	D13—	1	223,439	D23—	30	223,448	D29—	17	223,457	D40—	1	223,466	D61—	1	223,473
D 8—	136	223,431			223,440		4	223,449	D33—	14	223,458	D44—	21	223,465			223,474
		223,432			223,441		40	223,450	D34—	5	223,459	D45—	19	223,467	D65—		223,475
	144	223,433			223,442	D26—	1	223,451			223,460	D48—	20	223,468	D74—	5	223,476
	234	223,434	D15—	3	223,443		13	223,452			223,461	D49—	11	223,470	D80—	10	223,477
	259	223,435			223,444		14	223,453			223,462	D52—	2	223,471	D83—	1	223,478
D 9—	117	223,436			223,445			223,454	D35—	15	223,463			223,472	D86—	10	223,480
	131	223,437	D18—	2	223,446			223,455			223,464						
	169	223,438	D22—	27	223,447			223,456									

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P. —		3,115	P. —	22	3,118	P. —	43	3,127	P. —	47	3,124	P. —	86	3,119	P. —		3,122
P. —		3,126	P. —	30	3,125	P. —	44	3,116	P. —	49	3,123						

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1	3,656,328	3,656,637	3,657,517	3,657,383	3,657,407	3,657,248
	3,656,437	3,656,667	3,657,524	3,657,408	3,657,424	3,657,271
	3,657,363	3,656,696	3,657,542	3,657,449	3,657,476	3,657,273
2	3,657,462	3,656,701	3,657,543	3,657,453	3,657,722	3,657,286
	3,657,141	3,656,705	3,657,559	3,657,474	3,657,207	3,657,289
	3,657,615	3,656,713	3,657,572	3,657,587	3,657,298	3,657,290
4	3,656,477	3,656,732	3,657,588	3,657,600	3,656,190	3,657,353
	3,656,892	3,656,737	3,657,607	3,657,604	3,656,205	3,657,403
6	3,656,210	3,656,745	3,657,622	3,657,680	3,656,217	3,657,479
	3,656,211	3,656,749	3,657,630	3,657,725	3,656,256	3,657,485
	3,656,216	3,656,762	3,657,635	3,657,241	3,656,264	3,657,491
	3,656,224	3,656,764	3,657,644	3,656,432	3,656,279	3,657,508
	3,656,232	3,656,768	3,657,657	3,656,668	3,656,320	3,657,513
	3,656,233	3,656,769	3,657,659	3,656,835	3,656,371	3,657,556
	3,656,237	3,656,784	3,657,678	3,656,862	3,656,388	3,657,567
	3,656,249	3,656,789	3,657,681	3,656,893	3,656,390	3,657,579
	3,656,252	3,656,797	3,657,682	3,656,984	3,656,393	3,657,591
	3,656,257	3,656,822	3,657,697	3,657,047	3,656,424	3,657,648
	3,656,270	3,656,833	3,657,700	3,657,149	3,656,499	3,657,729
	3,656,276	3,656,838	3,657,707	3,657,158	3,656,504	3,657,734
	3,656,283	3,656,850	3,657,710	3,657,159	3,656,513	3,656,188
	3,656,313	3,656,852	3,657,712	3,657,171	3,656,539	3,656,209
	3,656,340	3,656,853	3,657,718	3,657,175	3,656,556	3,656,338
	3,656,345	3,656,857	3,657,726	3,657,179	3,656,558	3,656,346
	3,656,352	3,656,886	3,657,732	3,657,186	3,656,581	3,656,350
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	3,656,368	3,656,891	3,657,732	3,657,203	3,656,610	3,656,428
	3,656,402	3,656,905	3,657,732	3,657,292	3,656,612	3,656,448
	3,656,418	3,656,970	3,657,297	3,657,296	3,656,614	3,656,462
	3,656,425	3,656,974	3,657,737	3,657,307	3,656,629	3,656,573
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	3,656,452	3,657,063	3,656,296	3,657,317	3,656,648	3,656,731
	3,656,454	3,657,081	3,656,376	3,657,345	3,656,652	3,656,805
	3,656,464	3,657,108	3,656,395	3,657,368	3,656,675	3,656,864
	3,656,485	3,657,109	3,656,434	3,657,394	3,656,682	3,657,040
	3,656,486	3,657,115	3,656,475	3,657,439	3,656,710	3,657,110
	3,656,488	3,657,121	3,656,497	3,657,443	3,656,746	3,657,127
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3,656,427	3,656,971	3,657,337	3,657,229	3,657,592	3,657,663
3,656,473	3,656,972	3,657,344	3,657,235	3,657,619	3,657,672
3,656,510	3,657,129	3,657,347	3,657,251	3,657,633	3,657,677
3,656,602	3,657,181	3,657,362	3,657,272	3,657,640	3,657,679
3,656,604	3,657,183	3,657,382	3,657,295	3,657,675	3,657,688
3,656,613	3,657,213	3,657,385	3,657,304	3,657,724	3,657,689
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3,656,802	29 : 3,656,221	3,657,428	3,656,712	3,656,712	3,656,885
3,656,841	3,656,244	3,657,430	3,656,726	3,656,726	3,656,289
3,656,906	3,656,482	3,657,431	3,656,783	3,656,783	3,656,451
3,656,962	3,656,506	3,657,432	3,656,868	3,656,868	3,657,727
3,657,044	3,656,519	3,657,436	3,656,911	3,656,911	3,656,263
3,657,051	3,656,563	3,657,438	3,657,100	3,657,100	3,656,245
3,657,104	3,656,615	3,657,440	3,657,101	3,657,101	3,656,383
3,657,106	3,656,686	3,657,441	3,657,426	3,657,301	3,657,187
3,657,162	3,656,734	3,657,481	3,657,435	3,657,326	3,657,193
3,657,190	3,656,778	3,657,518	3,657,447	3,657,455	3,657,389
3,657,338	3,656,920	3,657,534	3,657,502	3,657,532	3,656,250
3,657,340	3,656,951	3,657,550	3,657,522	3,656,287	3,656,251
3,657,348	3,656,982	3,657,602	3,657,537	3,656,542	3,656,258
3,657,478	3,657,128	3,657,628	3,657,554	3,656,555	3,656,275
3,657,489	3,657,133	3,657,652	3,657,566	3,656,638	3,656,278
3,657,506	3,657,134	3,657,654	3,657,581	3,656,771	3,656,344
3,657,535	3,657,143	3,657,660	3,657,590	3,657,496	3,656,375
3,657,541	3,657,145	3,657,661	3,657,591	3,656,219	3,656,498
3,657,548	3,657,370	3,657,666	3,657,596	3,656,242	3,656,501
3,657,552	3,657,427	3,657,668	3,657,612	3,656,246	3,656,549
3,657,569	3,657,433	3,657,674	3,657,623	3,656,265	3,656,552
3,657,617	3,657,714	3,657,692	3,657,647	3,656,303	3,656,562
3,657,650	30 : 3,656,192	3,657,702	3,657,664	3,656,351	3,656,564
3,657,669	31 : 3,656,359	3,657,733	3,657,683	3,656,364	3,656,565
3,657,705	3,656,360	3,657,735	3,657,691	3,656,396	3,656,619
3,657,706	33 : 3,656,366	3,656,337	3,657,693	3,656,397	3,656,669
3,656,220	3,656,370	3,656,187	3,657,699	3,656,463	3,656,694
3,656,227	3,657,469	3,656,200	3,657,709	3,656,524	3,656,697
3,656,298	3,657,503	3,656,225	3,657,716	3,656,535	3,656,706
3,656,309	34 : 3,656,271	3,656,234	3,657,720	3,656,538	3,656,711
3,656,333	3,656,273	3,656,243	3,656,560	3,656,560	3,656,788
3,656,372	3,656,333	3,656,254	3,656,583	3,656,583	3,656,795
3,656,387	3,656,369	3,656,260	3,656,594	3,656,594	3,656,849
3,656,401	3,656,416	3,656,267	3,657,095	3,656,621	3,656,944
3,656,407	3,656,443	3,656,315	3,657,411	3,656,676	3,656,987
3,656,408	3,656,490	3,656,384	3,657,547	3,656,676	3,656,995
3,656,423	3,656,543	3,656,392	3,657,564	3,656,708	3,657,029
3,656,438	3,656,574	3,656,399	3,656,723	3,656,733	3,657,087
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	3,656,645	3,656,440	3,656,314		

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3,657,533	49 : 3,656,247	3,656,993	3,656,801	3,656,316	3,657,238
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3,657,560	3,656,378	3,657,050	3,657,446	3,656,358	3,657,448
3,657,563	3,656,557	3,657,059	3,656,323	3,656,415	3,657,452
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3,657,603	50 : 3,656,671	3,657,339	3,657,356	3,656,584	3,657,606
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3,657,621					

DESIGN PATENTS

6 : 223,433	16 : 223,439	18 : 223,478	36 : 223,430	223,457	39 : 223,459
223,441	223,442	19 : 223,460	223,465	223,465	223,461
223,448	223,443	20 : 223,466	223,432	223,467	223,462
223,450	223,444	26 : 223,447	223,453	223,468	223,471
223,475	223,472	34 : 223,451	223,454	223,470	41 : 223,434
223,436	223,473	223,458	223,455	223,476	43 : 223,464
223,440	223,474	223,479	223,456	223,477	55 : 223,452
223,449	223,480				

PLANT PATENTS

6 : 3,119	3,124	18 : 3,117	26 : 3,114	45 : 3,127	3,115
6 : 3,120	3,125	3,126	36 : 3,118	48 : 3,113	53 : 3,121
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PATENT OFFICE NOTICES

Notice of Daylight Saving Time

The Patent Office will operate on Daylight Saving Time from April 30, 1972 through October 29, 1972.

Certificates of Correction for the Week of Apr. 25, 1972

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3,631,127

3,440,161.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated Apr. 22, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,441,493.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated Apr. 29, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,444,069.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated May 13, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,444,070.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated May 13, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,449,226.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC DEBURRING APPARATUS AND METHOD. Patent dated June 10, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,466,235.—Lynn A. Williams, Winnetka, Ill. ELECTROCHEMICALLY MACHINING A WORKPIECE BETWEEN ADVANCING ELECTRODES HAVING Juxtaposed Working Faces Using Alternating Current. Patent dated Sept. 9, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,472,754.—Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC SHAPING APPARATUS. Patent dated Oct. 14, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,511,767.—Lynn A. Williams, Winnetka, Ill. ELECTRODE FOR ELECTROLYTIC SHAPING. Patent dated May 12, 1970. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,563,876.—Leonard R. Malkowski, La Grange, and Sigmund H. Bielak, Downers Grove, Ill. ELECTROCHEMICAL MACHINING APPARATUS HAVING RAM MEANS. Patent dated Feb. 16, 1971. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

APRIL 25, 1972

U. S. PATENT OFFICE

1185

3,573,188.—Lynn A. Williams, Winnetka, Leonard R. Malkowski, La Grange, and Sigmund H. Bielak, Downers Grove, Ill. ELECTROCHEMICAL MACHINING APPARATUS. Patent dated Mar. 30, 1971. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

3,616,433.—Lynn A. Williams, Winnetka, Ill. ELECTROCHEMICAL MACHINING APPARATUS HAVING ELECTROLYTE PRESSURE RESPONSIVE LOAD COMPENSATING MEANS. Patent dated Oct. 26, 1971. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

Disclaimer

3,634,327.—Jerry Marvin Hawkins, Lake Jackson, Tex. PROCESS FOR PREPARING IMPROVED EPOXY RESIN ADHESIVES CONTAINING MINOR AMOUNT OF A URETHANE MODIFIER AND A BISPHENOL TYPE COMPOUND.

PLING AGENT. Patent dated Jan. 11, 1972. Disclaimer filed Apr. 22, 1971, by the assignee, The Dow Chemical Company.

Hereby disclaims all the portion of the term of the patent subsequent to Aug. 25, 1987.

Service by Publication

Robert M. Johnson

In accordance with Rule 47(b) of the Rules of Practice of the United States Patent Office in Patent Cases, notice is hereby given of the filing on April 27, 1970, of an application for patent entitled "Liquid Developing Apparatus," on behalf of Robert M. Johnson, whose last known address is 109 Ridge Street, Prospect Heights, Illinois. The application was made in compliance with Rule 47(b) and 35 U.S.C. 118 by Addressograph Multigraph Corporation without execution by the said Robert M. Johnson. Notice of the filing directed to the above noted address has been returned undelivered.

Any action to be taken by the said Robert M. Johnson in connection with the said application must be taken within thirty days of the publication of this notice.

RICHARD A. WAHL,
Assistant Commissioner of Patents.

Dedications

Re. 26,531.—Joseph L. Bender, Wheeling, and Lynn A. Williams, Winnetka, Ill. ELECTROLYTIC CAVITY SINKING APPARATUS. Patent dated Mar. 4, 1969. Dedication filed Dec. 23, 1971, by the assignee, Anocut Engineering Company.

Hereby dedicates to the Public the portion of the term of the patent subsequent to Dec. 24, 1971.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
F. H. BRONAUGH, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 21, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Ignition Devices.	1-11-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director..... Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-04-70
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director..... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	1-25-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director.... Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	2-01-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Director.... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	10-01-70
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7-21-71
SECURITY, GROUP 220—R. L. CAMPBELL, Director..... Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	2-11-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director..... Communications; Multiplexing Techniques; Facsimile; Data Processing; Computation and Conversion; Storage Devices and Related Arts.	3-03-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	4-01-71
PHYSICS, GROUP 260—R. L. EVANS, Director..... Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	1-06-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director..... Industrial Arts; Household, Personal and Fine Arts.	1-06-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid Flexible and Special Receptacles and Packages.	2-03-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director..... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding; Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	1-08-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletary; Printing; Typewriters; Stationery; Information Dissemination.	1-04-71
HEAT, POWER AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director..... Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission; Fluid Handling; Lubrication; Joint Packing.	3-17-71
CONSTRUCTIONS, SUPPORTS, TEXTILES, CLEANING, GROUP 350—T. J. HICKEY, Director..... Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures; Centrifugal Separations; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes; Sewing Machines; Winding and Reeling.	2-03-71

Expiration of patents: The patents within the range of numbers indicated below expire during April 1972, except those which may have expired earlier due to shortened terms under the provisions of Public Law 600, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Numbers 2,705,322 to 2,707,276, inclusive
Plant Patents.....
Numbers 1,874 to 1,388, inclusive

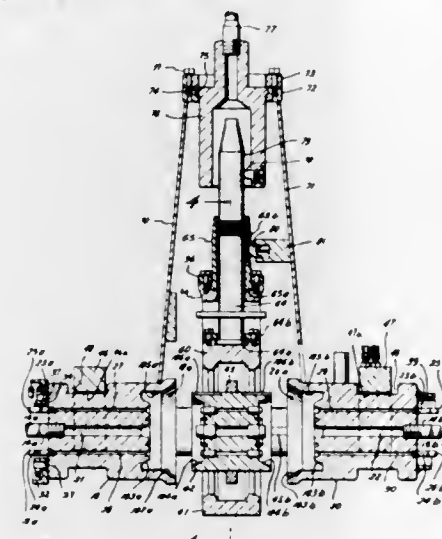
REISSUES

APRIL 25, 1972

Matter enclosed in heavy brackets [] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,340
CONNECTOR FOR UNDERWATER PIPELINES
Leonard E. Williams and David L. Gruller, Houston, Tex., assignors to Cameron Iron Works, Inc.
Original No. 3,481,396, dated Dec. 2, 1969, Ser. No. 748,122, June 27, 1968, which is a continuation of Ser. No. 585,549, Oct. 10, 1966. Application for reissue Mar. 2, 1970, Ser. No. 15,972

U.S. Cl. 166—.6 Int. Cl. E21b 7/12 43 Claims

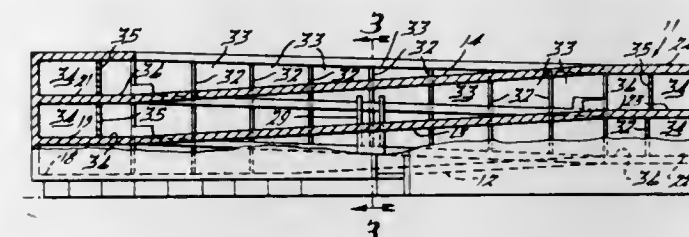


An underwater wellhead assembly include a Christmas tree having a bore therethrough, a first pipeline section connected at one end to the tree to communicate with the bore and having its other end supported in a substantially horizontal position, and a second pipeline section supported in a generally horizontal position with its end axially aligned with and spaced from the substantially horizontal end of the first section. A connector body is lowered on a running tool from the surface of the water into a position between the spaced-apart flowline ends so as to dispose a passageway through the body in alignment with the flowline ends. The first section is curved intermediate its ends to permit its other end to be moved axially toward and away from the end of the first section, and a means supported by the running tool is engageable with the flowline sections and remotely operated for moving the end of the first section into engagement with the body and the body into engagement with the second section so as to fluidly connect the sections. Additional means supported by the running tool is remotely operable for holding the ends of the flowline sections and the body in engagement independently of the moving means, and the tool is releasable from the connector body and holding means to permit it and said moving means to be returned to the surface of the water.

27,341
BUILDING WITH WALKWAYS AND A MALL
Gray Graham, 4138 Rich Drive, Waterford, Mich. 48095
Original No. 3,438,162, dated Apr. 15, 1969, Ser. No. 483,153, Aug. 27, 1965. Application for reissue May 25, 1970, Ser. No. 40,464

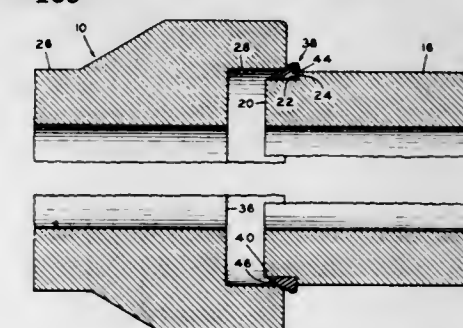
Int. Cl. E04h 6/42, 1/00; E01f 9/00
U.S. Cl. 52—175 15 Claims
A building assembly consisting of spaced series of interconnected, non-coplanar levels. Each level is adapted to house building units that are set back from a walkway provided thereupon. The spaced series of levels define a mall

and the walkways on the levels adjoin the mall. Interconnecting means permit the passage of people from one level to the other. Specifically the building is made up of



spaced inclined ramps extending at an acute angle to the horizontal and interconnected at their opposite ends by pairs of horizontally extending ramps.

27,342
PIPE JOINT
Frank P. Valenziano, Summit, N.J., assignor to Interpace Corporation, Wheaton, N.J.
Original No. 3,432,176, dated Mar. 11, 1969, Ser. No. 652,355, Mar. 31, 1967, which is a continuation-in-part of Ser. No. 411,893, Nov. 17, 1964. Application for reissue Nov. 3, 1970, Ser. No. 86,508
Int. Cl. F16j 15/00, 9/00; F16k 41/00
U.S. Cl. 277—168 12 Claims

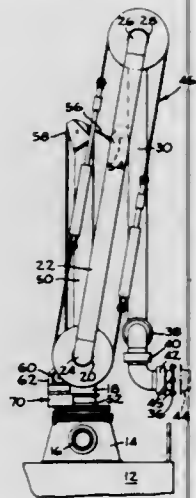


A push-on joint for bell and spigot pipe having a wedge shaped resilient gasket, stretched over, and abutted against a bearing surface on the spigot end of one pipe, the wedge shaped portion of the gasket centering the spigot in the bell opening of an abutting pipe when the spigot is inserted and pushed into the bell.

27,343
MATERIAL TRANSFERRING APPARATUS
Neal E. Jameson, Orange, Calif., assignor to FMC Corporation, San Jose, Calif.
Original No. 3,442,307, dated May 6, 1969, Ser. No. 523,788, Jan. 28, 1966. Application for reissue Nov. 16, 1970, Ser. No. 90,166

Int. Cl. B65b 3/04
U.S. Cl. 141—387 10 Claims
A fluid material transferring apparatus of the marine loading arm type, including an upright riser conduit, an inner arm conduit mounted on the riser conduit for pivotal movement about a generally horizontal axis, a winch and cable mechanism powered by an hydraulic system for pivoting the arm conduit about this axis, and a brake mechanism associated with the winch and hydraulic system in such a manner that in the absence of a predetermined hydraulic pressure the brake will automatically set and prevent the winch from rotating, and in the presence of that hydraulic pressure the brake will automatically release the winch. Also provided are a manual lockout as-

sembly for holding the brake in released position when the hydraulic system is underpressured, and a slip coupling



to permit the winch to rotate, though the brake is set, when excessive strain is exerted on the cable.

27,344

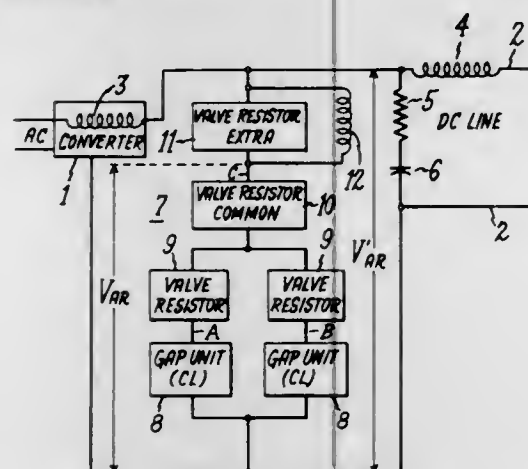
VOLTAGE SURGE DIVERTER

James S. Kresge and Stanley A. Miske, Jr., Pittsfield, Mass., assignors to General Electric Company
Original No. 3,538,388, dated Nov. 3, 1970, Ser. No. 762,265, Sept. 16, 1968. Application for reissue Jan. 18, 1971, Ser. No. 107,600

Int. Cl. H02h 3/22, 7/24, 9/06

U.S. Cl. 317—68

5 Claims



A valve type current limiting gap lightning arrester having extra series valve resistance shunted by inductance to control the discharge voltage of the arrester.

27,345

STAND-FORMING CONTAINER AND FLEXIBLE BAG ASSEMBLY

Sydney R. Weisberg, 7806 S. Clyde, Chicago, Ill. 60649

Original No. 3,547,660, dated Dec. 15, 1970, Ser. No. 640,606, May 23, 1967. Application for reissue Feb. 10, 1971, Ser. No. 114,402

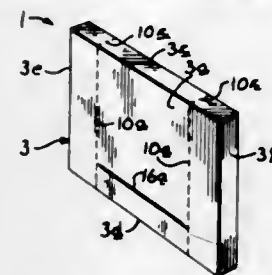
Int. Cl. B65b 25/22

U.S. Cl. 99—171 PP

21 Claims

A non-self-supporting flexible bag having sealed therein a food product or some other material to be heated in a pot of boiling water while in the bag is secured or securable at its upper end to the upper extremity of an outer container enclosing the flexible bag on all sides thereof. The container has at least one main stand-forming body portion and one or more sections joining the main body portion along severance lines which permit the one or more sections of the container to be severed from one or more margins of the main body portion of the container to form, in one design without any folding of the main body portion and in another design by folding the same, a triangular stand with a water ingress opening in at least the lower portion of the stand which permits

entry of heated water within the stand where it can flow around the food product containing portion of the bag. The upper portion of the stand is sized to extend above



the level of the water in the pot and is designed to expose an upper corner of the flexible bag so the corner of the bag can readily be severed to form a pouring spout or other emptying orifice.

27,346

TANK UNIT FOR RECEIVING AND TRANSPORTING SEWER SOLIDS

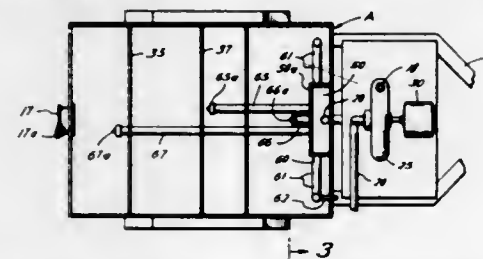
William S. Naylor, Pasadena, Tex., assignor to Naylor Pipe Cleaning Company

Original No. 3,463,172, dated Aug. 26, 1969, Ser. No. 696,083, Jan. 5, 1968. Application for reissue July 27, 1970, Ser. No. 58,354

Int. Cl. B08b 13/00, 3/00, 9/00

U.S. Cl. 134—169 R

10 Claims



A tank unit for receiving and transporting sewer solids removed by a sewer cleaner or obtained from any source, wherein means are provided for introducing sewer fluid into the tank unit to settle and collect the solids while discharging the liquid by gravity from the tank unit back to the sewer or other location, and wherein means are provided for removing the solids from the tank unit after transporting the tank unit and solids to a waste disposal area.

27,347

METHOD OF COMBATING INSECTS AND ACARIDS WITH CERTAIN PHENYL-CARBAMATE DERIVATIVES

Horst Peissker, Wolfenbuttel, Albert Jäger, Berlin-Hermesdorf, Walter Steinhausen, Grossburgwedel, and Gerhard Boroschewski, Berlin-Charlottenburg, Germany, by Schering AG, Berlin, Germany, assignee

No Drawing. Original No. 3,336,186, dated Aug. 15, 1967, Ser. No. 290,586, June 26, 1963. Application for reissue Jan. 21, 1969, Ser. No. 827,434

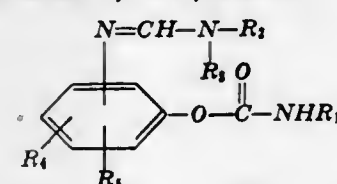
Claims priority, application Germany, Aug. 2, 1962, Sch 31,834

Int. Cl. A01n 9/22

U.S. Cl. 424—248

26 Claims

This invention relates to the insecticidal and acaricidal effects of compounds of the formula



wherein R_1 is lower alkyl or cyclohexyl, R_2 and R_3 are lower alkyl and R_2 and R_3 together with the nitrogen atom is a heterocyclic ring selected from the group consisting of five-member and six-member heterocyclic rings; and R_4 and R_5 are hydrogen, lower alkyl, lower alkenyl or halogen.

PLANT PATENTS

GRANTED APRIL 25, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,128

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed May 6, 1970, Ser. No. 35,305

Int. Cl. A01h 5/00

U.S. Cl. Plt.—11

A grandiflora rose, nearly continuous in bloom during growing season, the plant having above average resistance to mildew and having blooms which retain their freshness for as long as six or seven days on the bush in the garden. The petals of the bloom are precisely imbricated and formally arranged in the flower. The bloom develops a strong purplish pink color. The fragrance is slight. The blooms are average in size and are borne in clusters of from two to four to the stem.

1 Claim

3,132

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed May 27, 1970, Ser. No. 41,121

Int. Cl. A01h 5/00

U.S. Cl. Plt.—20

A hybrid tea rose of upright-spreading and much branched habit, free and vigorous in growth and bearing blooms in great quantity almost continuously during the growing season. More than average resistance to mildew. Flowers borne singly usually but sometimes in clusters of two or three to a stem. Blooms are large and retain their freshness on the bush in the garden for from 6 to 7 days. The flower is cupped on opening; becomes flat with somewhat high-centered-globular interior. Strong purplish red is general color effect.

1 Claim

3,129

ROSE PLANT

Walter E. Lammerts, Freedom, Calif., assignor to Germain's, Inc., Los Angeles, Calif.

Filed May 11, 1970, Ser. No. 36,504

Int. Cl. A01h 5/00

U.S. Cl. Plt.—20

A hothouse variety of hybrid tea rose originating as a seeding of Baccara (P.P. 1,367) × Rumba (P.P. 1,919) and distinguished by an improved and more uniform red coloring of its flowers when compared with the seed parent Baccara, particularly at the ¼ to ½ opened stage, and by a much more abundant production of flowers, which bloom from early to late season in the garden and the year around under glass.

1 Claim

3,133

NECTARINE TREE

John M. Garabedian, 3158 Hamilton St., Fresno, Calif. 93712

Filed June 19, 1970, Ser. No. 47,813

Int. Cl. A01h 5/03

U.S. Cl. Plt.—41

1. A new and distinct variety of nectarine tree substantially as illustrated and described which is characterized by its vigorous growth; and its regular and heavy bearing of brilliantly colored fruit which is somewhat larger than the fruit of the Regular Le Grand nectarine tree (unpatented), which it most nearly resembles, but from which it is distinguished in that its fruit ripens somewhat earlier than the Le Grand and has a more intense highly colored skin and flesh which is more nearly similar to the flesh of the fruit of the Elberta peach tree (unpatented).

1 Claim

3,130

ALMOND TREE

Frederic W. Anderson, Merced, Calif., assignor to Arthur Bright, Le Grand, Calif.

Filed May 14, 1970, Ser. No. 37,357

Int. Cl. A01h 5/00

U.S. Cl. Plt.—30

A dense, medium size, vigorous almond tree having a medium to upright branching habit, abundant foliage with small ovate leaves, heavy white bloom, and small, well-sealed nuts borne regularly and heavily in clusters on short spurs, and in harvest before the Mission (unpatented); the variety being self-fertile, and having substantial resistance to spring frost damage.

1 Claim

3,134

APPLE TREE

Daniel F. Dayton, Urbana, and James B. Mowry, Carbondale, Ill., L. Frederick Hough, Bloomsbury, and Catherine Bailey, Englishtown, N.J., Edwin B. Williams, Lafayette, and Jules Janick, West Lafayette, Ind., James Ralph Shay, Corvallis, Oreg., and Frank H. Emerson, Lafayette, Ind., assignors to Purdue Research Foundation, representing the State Agricultural Experiment Stations of Illinois, Indiana and New Jersey, and the Agricultural Research Service, United States Department of Agriculture

Filed June 17, 1970, Ser. No. 54,090

Int. Cl. A01h 5/03

U.S. Cl. Plt.—34

1. A new and distinct variety of apple tree substantially as described and illustrated and particularly characterized by resistance to apple scab, excellent fresh fruit quality as regards rich flavor and crisp texture, and maturing approximately 4 weeks earlier than "Delicious."

1 Claim

3,131

ROSE PLANT

David L. Armstrong, Upland, Calif., assignor to Armstrong Nurseries, Inc., Ontario, Calif.

Filed May 27, 1970, Ser. No. 41,120

Int. Cl. A01h 5/00

U.S. Cl. Plt.—11

An upright, vigorous many-branched rose plant of the hybrid tea class, having a scarcity of large prickles on its main stems, and slightly above average resistance to mildew. Plant blooms grow on single, long strong stems, and are of large size. Petalage is very double, the petals being thick and slightly shiny. Overall color effect is white, with pink-tinted apices on certain of the reflexed petals and in the heart of the bloom.

1 Claim

3,135

KENTUCKY BLUEGRASS (POA PRATENSIS)

William H. Daniel, West Lafayette, Ind., assignor to Purdue Research Foundation

Filed July 7, 1969, Ser. No. 839,732

Int. Cl. A01h 5/00

U.S. Cl. Plt.—88

1. A new and distinct variety of bluegrass plant, substantially as described and illustrated, and particularly

1 Claim

characterized by a low and slow growth habit, dark green color and good disease resistance with good recovery from injury.

3,136

DWARF BOSTON FERN PLANT

Merchant Neal Robinson, Brownsville, Tex.; Don M. Robinson, executor, Brownsville, Tex.
Filed Aug. 1, 1969, Ser. No. 846,982
Int. Cl. A01h 9/00

U.S. Cl. Plt.—88

1 Claim

1. A new and distinct variety of Boston fern, substantially as herein shown and described, characterized particularly as to novelty by its general resemblance to the *Nephrolepis exaltata* "Fluffy Ruffles" (unpatented) from which it sported, except for its distinctive dwarf size which usually averages less than 3 inches in height, a well shaped and compact plant habit, a rich green frond color, with the fronds being upright, stiff and pinnate when young, but tightly bi-pinnate when mature and having crenate margins on both the leaflets and the pinnae, said fronds attaining their mature height relatively quickly and then filling out laterally without increasing in height, and a compact crown which develops natural stools or divisions which are easily separable for propagation purposes.

3,137

MINIATURE ROSE PLANT

Ralph S. Moore, 2519 E. Noble Ave.,
Visalia, Calif. 93277
Filed Sept. 2, 1969, Ser. No. 854,806
Int. Cl. A01h 5/00

U.S. Cl. Plt.—9

1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, rounded, much branched, bush type, as illustrated and described, characterized by buds and flowers resembling in form the Yellow Doll (Plant Patent No. 2,450) miniature rose with the flower color being shades of rose pink or light red, resembling Pixie Rose (Patent No. 2,095) miniature rose in this respect, the buds and flowers generally smaller and with less petals than Yellow Doll; and further characterized by a plant which is vigorous and compact, easy to propagate from cuttings, with reddish or bronze colored new shoots and foliage, with small deep green glossy mature foliage and an abundance of bloom, with flowers born singly or several to the stem in loose clusters.

3,138

BLUEGRASS PLANT

Benedict O. Warren, 8400 W. 111th St.,
Palos Park, Ill. 60464
Filed Sept. 18, 1969, Ser. No. 859,215
Int. Cl. A01h 5/00

U.S. Cl. Plt.—88

1 Claim

A Kentucky bluegrass having an extremely high turf density, the individual blades being very stiff in comparison to the well-known bluegrasses and exhibiting an upright and erect growth pattern in mowed turf. The plant in varied geographical areas has exhibited an extremely high degree of resistance to bluegrass plant diseases and has a low diploid chromosome number in comparison with other well-known bluegrasses.

3,139

ROSE PLANT

Michel Krilloff, Antibes, France, assignor to Paul Pekmez,
Strasbourg-Cronenbourg, France
Filed Sept. 23, 1969, Ser. No. 860,441
Claims priority, application France, Sept. 25, 1968,
167,464
Int. Cl. A01h 5/00

U.S. Cl. Plt.—16

1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class characterized by its long lasting, generally colored blossom, its ability to repeat bloom, good foliage and good disease resistance.

3,140

JUNIPERUS CHINENSIS

Frank J. Serpa, Fremont, Calif., assignor to Hines
Wholesale Nurseries, Santa Ana, Calif.
Filed Oct. 1, 1969, Ser. No. 862,980
Int. Cl. A01h 7/00

U.S. Cl. Plt.—50

1 Claim

1. A new and distinct variety of *Juniperus chinensis*, substantially as herein shown and described, characterized particularly as to novelty by its distinctive and unique compact and symmetrical low habit of growth, its restrained spreading habit, which makes pruning or trimming unnecessary, its relatively dense and profuse scale-like and needle-like foliage, its attractive color, its disease and pest resistance, and good temperature tolerance.

3,141

WALNUT TREE

Giacomo Muratore, Merced, Calif., assignor to
Guido Bandoni, Merced, Calif.
Filed Nov. 21, 1969, Ser. No. 878,962
Int. Cl. A01h 5/03

U.S. Cl. Plt.—32

1 Claim

A new and distinct variety of English walnut tree which is extremely vigorous and rapid in growth, of large size in maturity, of medium form, of medium density with large to very large leaves, and a regular and heavy to very heavy bearer of large to very large, early maturing nuts borne to a great extent in clusters; many of which clusters are on lateral buds.

3,142

WALNUT TREE

Rodney E. Peterman, 2606 W. Linne Road,
Tracy, Calif. 95376
Filed Dec. 29, 1969, Ser. No. 889,008
Int. Cl. A01h 5/03

U.S. Cl. Plt.—32

1 Claim

A new and distinct variety of English walnut tree, of general adaptability, which is vigorous in growth, of medium size in maturity, of medium form, of medium density with large leaves, the time of leafing being very early, and a regular and very productive bearer of large nuts; the nuts—which are very early in forming and relatively early in ripening—are of good quality and have crisp kernels of excellent flavor.

PATENTS

GRANTED APRIL 25, 1972

GENERAL AND MECHANICAL

3,657,739

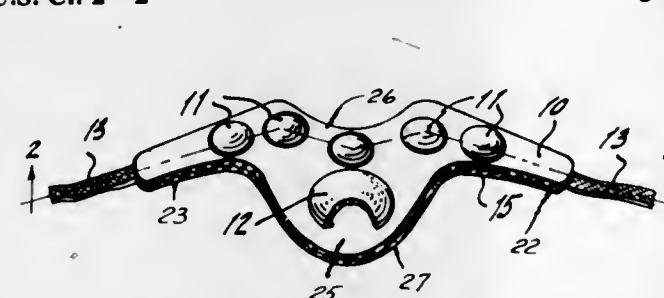
PROTECTIVE COLLAR DEVICES

Frederick M. Holmes, Sr., 321 Spring Street, Treton, N.J.
Filed Mar. 27, 1970, Ser. No. 23,136
Int. Cl. A41d 13/00

U.S. Cl. 2—2

5 Claims

U.S. Cl. 2—59



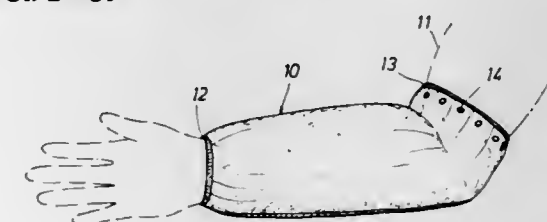
A protective collar device employs an elastomeric member having a general triangular configuration. The member has straps coupled at the right and left sides thereof and each of a sufficient length to encircle the torso of a person and to be secured at his back. The member as positioned serves to protect the posterior neck brachial plexus and spinal column region of the person, and is held securely in that position by means of the straps.

3,657,741

PROTECTIVE SURGICAL SLEEVE

Victor M. Blanco, 323 Crown Point Drive, El Paso, Tex.
Filed Nov. 27, 1970, Ser. No. 93,176
Int. Cl. A41d 27/12

4 Claims



A surgical protective sleeve made of a fluid impervious material and adapted to cover at least the forearm portion of a surgeon's gown to prevent soaking thereof by body fluids. The sleeve includes an elastic portion at each end thereof to hold the sleeve tightly against the wrist and arm and maintain the sleeve extended along the forearm. Ventilation holes are provided in the upper portion of the sleeve to prevent perspiration between the arm and the sleeve.

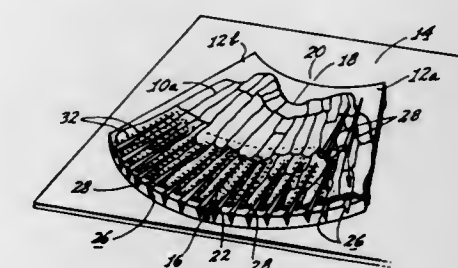
3,657,742

FUR COAT PROCESS

Sidney J. Gittin, 9441 Wilshire Boulevard, Suite 525, Beverly Hills, Calif.
Filed Sept. 8, 1970, Ser. No. 70,430
Int. Cl. A41d 5/00

U.S. Cl. 2—65

4 Claims



In the practice of the present invention furs are stretched on a unique channelled surface so that the resulting fur coat may have a fluted configuration.

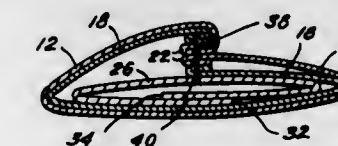
3,657,743

NECKTIE CONSTRUCTION

Goffredo Bucci, 148 Barrett Avenue, North Providence, R.I.
Filed July 13, 1970, Ser. No. 54,520
Int. Cl. A41d 25/06

U.S. Cl. 2—146

4 Claims



A necktie construction having means for imparting a gently rounded appearance to opposite longitudinal edges of the front flap portion of the tie, said means comprising an interlining of flexible fabric folded into a tubular-like configuration.

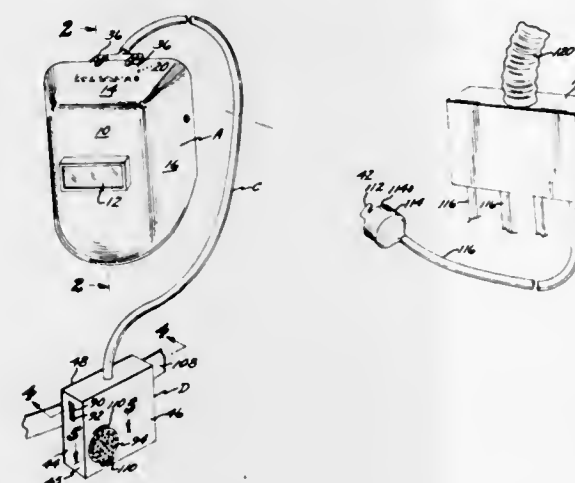
3,657,740

VENTILATED WELDER'S MASK ASSEMBLY

Armando A. Clalone, 5304 Killder, Long Beach, Calif.
Filed Nov. 26, 1969, Ser. No. 880,054
Int. Cl. A61f 9/06

U.S. Cl. 2—8

1 Claim



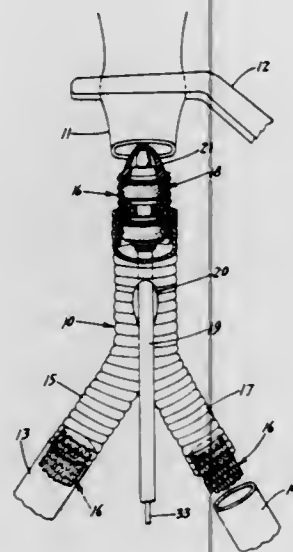
A ventilated welder's mask assembly in which the user's head is subjected to a stream of air for cooling purposes, which air stream maintains a slightly higher pressure than that of the ambient atmosphere within the mask to minimize the possible entry of toxic fumes into the latter.

The stream of air into the mask is supplied from a supported electrically operated blower unit worn by the user, but with the unit being removably connectable to a flexible hose that extends to a source of fresh air under pressure remote from the welding area. The unit is connected to a hose in the manner described when the mask assembly is worn in a confined space in which toxic fumes are present.

3,657,744
METHOD FOR FIXING PROSTHETIC IMPLANTS IN A LIVING BODY
 Robert A. Ersek, St. Louis Park, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.
 Filed May 8, 1970, Ser. No. 35,815
 Int. Cl. A61f 1/22, 1/24

U.S. Cl. 3-1

3 Claims

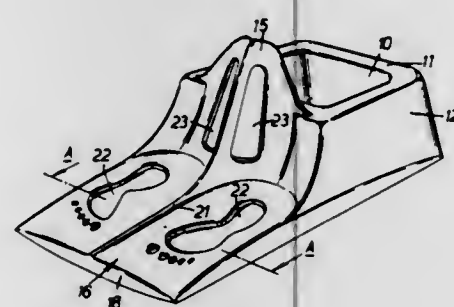


A device and method for facilitating the rapid positive fixation of implanted prosthetic members in a living body. The device comprises a tubular sleeve of deformable material to which the prosthetic member is secured and which is capable of being expanded radially into intimate engagement with surrounding tissue. The fixation device and prosthetic member, such as heart valve, vessel graft, etc., are prepared by assembly prior to surgery. The assembly may be rapidly introduced into the transplant situs during surgery and secured in place by expansion of the deformable sleeve by use of an expansion tool.

3,657,745
CHILD'S TOILET POT
 Ronald P. Hickman, "Badgers," Middle Street, Nazeing, Waltham Abbey, England
 Filed June 26, 1970, Ser. No. 50,185
 Claims priority, application Great Britain, June 27, 1969, 32,666/69
 Int. Cl. A47k 11/02

U.S. Cl. 4-138

8 Claims

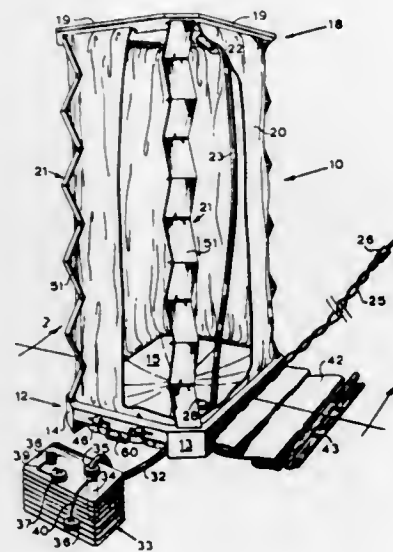


A toilet pot, particularly for children and produced by a moulding process, has a receptacle with an integral foot rest. This enables a child to exert a stabilizing downward load during movement onto and off the pot. The foot rest is provided with 'footprint' recesses. A splashguard has a pair of recesses forming a carrying handle.

3,657,746
PORTABLE SHOWER UNIT
 Mackenzie A. Downey, Edmonton, Alberta, Canada, assignor to Sultcase Shower Ltd., Grand Cayman, Cayman Islands, British W. Indies
 Filed Nov. 12, 1970, Ser. No. 88,770
 Claims priority, application Canada, Nov. 17, 1969, 067586
 Int. Cl. A47k 3/23

U.S. Cl. 4-155

12 Claims

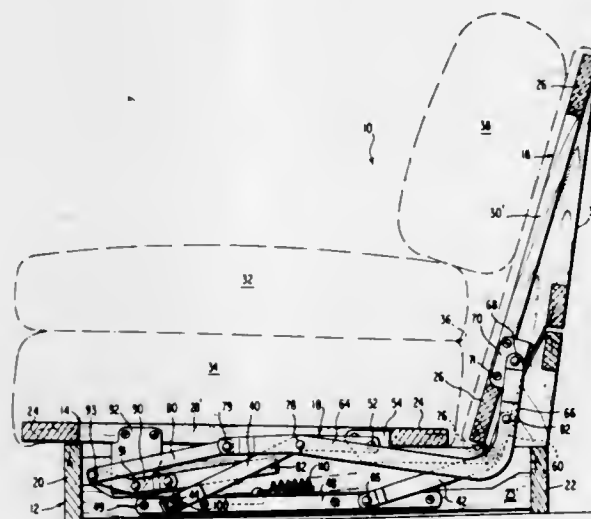


A portable shower unit for campers includes a water-collecting tray and a curtain-supporting frame carried at the upper ends of collapsible corner posts. The posts are urged into extended elevated positions by spring means such as spiral springs or elastic bands associated with pivots interconnecting individual linkages forming the extendable corner posts. The unit is held in its collapsed configuration by a pliable wrapper which usefully also served to contain a collapsible water-supply container and a collapsible waste water-receiving bladder.

3,657,747
SOFA BED AND LINKAGE MECHANISM
 Walter Clark Rogers, Jr., 1207 Hurdover Street, High Point, N.C., and Morton Snitzer, 3217 Ridgecrest Drive, Rocky Mount, N.C.
 Filed Dec. 7, 1970, Ser. No. 95,695
 Int. Cl. A47c 17/14

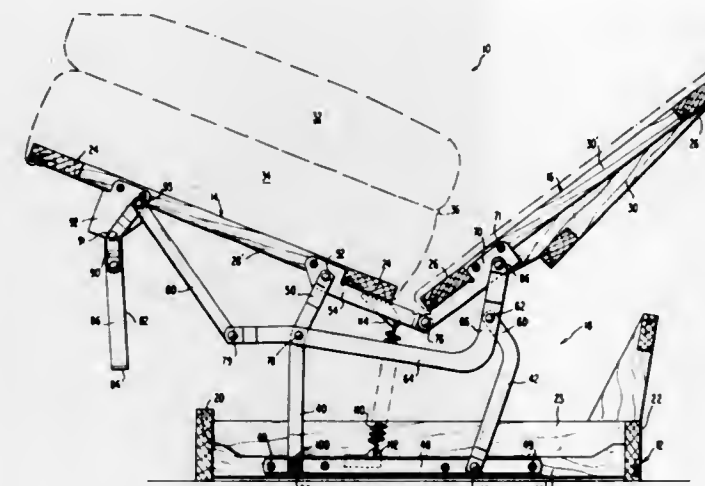
U.S. Cl. 5-29

22 Claims



A sofa bed including a base, a seat section; and a back-rest section movable relative to the seat section between a generally upright position when the sofa bed is positioned for use as a sofa bed and a retracted, generally horizontal position coplanar with the front section when the sofa bed is

positioned for use as a bed. In the sofa position, the seat section rests on the base with the back-rest section projecting generally upwardly at the rear side of the seat section while in the bed position, the seat section is displaced upwardly and forwardly relative to the base while the back-rest section is displaced forwardly into a horizontal portion coplanar with the seat section and overlying the base. The seat and back-rest sections are supported relative to the base by linkage mechanism which includes on each end thereof, front and rear swing arms both of which are pivotally mounted to the base at their lower ends with the front swing arm being

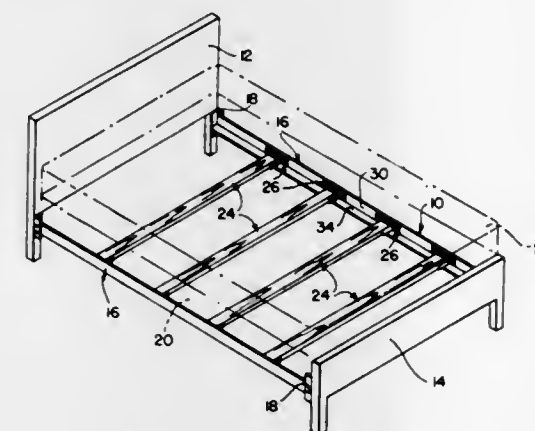


pivotally connected at its upper end to the seat section. The upper end of the rear swing arm is pivotally connected to a carrier link, one end of which is pivotally connected to the backrest section with an intermediate portion thereof being pivoted to an intermediate portion of the front swing arm. The forward extremity of the carrier link is pivotally connected to an actuating link which in turn is pivotally connected to a support leg for the seat section to move the support leg between extended and retracted positions when the sofa bed is moved between the bed and sofa positions.

3,657,748
SAFETY BED SLAT BRACKET
 Maurice Weinhardt, 18620 Ardmore, Detroit, Mich.
 Filed Jan. 15, 1971, Ser. No. 106,687
 Int. Cl. A47c 23/06

U.S. Cl. 5-238

11 Claims



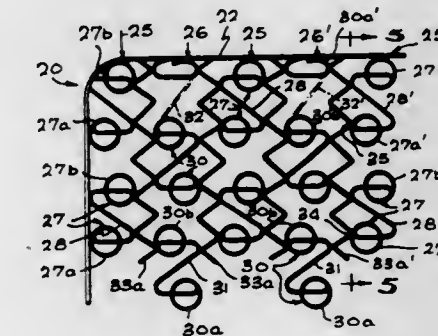
The invention relates to safety bed slat brackets for engagement with the ends of bed slats supported upon metal or wooden side rails of a bed frame, the brackets having an adjustable feature to accommodate the varying lengths of bed slats between the upstanding vertical legs of the side rails upon which the slats are at rest. The brackets are provided with resilient flexible wing portions for positive engagement either with the side rail vertical legs or with the ends of the

bed slats to substantially retard movement longitudinally of the side rails. Although the brackets are adapted for use with conventional wooden bed slats, they can be easily adapted to varying shapes of such bed slats.

3,657,749
SPRING ASSEMBLY
 Harry H. Norman, Los Angeles, Calif., assignor to Stephen Baliski, Gardena, Calif., a part interest
 Continuation-in-part of application Ser. No. 795,303, Jan. 30, 1969, now abandoned. This application June 22, 1970, Ser. No. 48,047
 Int. Cl. A47c 23/04

U.S. Cl. 5-271

17 Claims

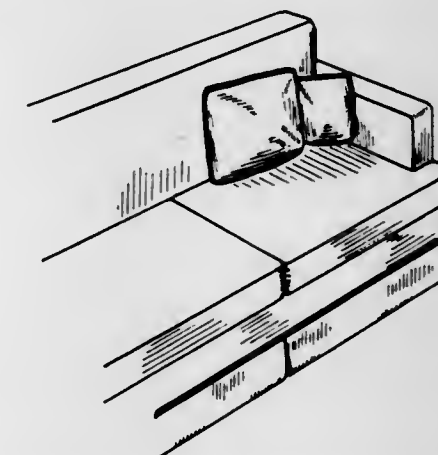


A spring assembly for mattresses, innersprings, upholstered furniture and the like. The assembly utilizes rows of coils, each row comprising a continuous length of wire formed into a plurality of like-handed coils interconnected by Z-shaped wire segments alternately disposed at the top and bottom of the coils. Adjacent rows of coils are coupled by zig-zag connectors. The bends of the zig-zag connectors are looped over portions of the Z-shaped coil interconnection segments, providing an assembly allowing relatively independent coil compression with minimal lateral deflection, and having a maximized surface platen for the support of padding and fabric. A unitary double border wire assembly or alternatively, a rail-type construction may be used as a border for the spring assembly.

3,657,750
FURNITURE SKIRT CONSTRUCTION
 Herbert C. Staley, P.O. Box 1812, High Point, N.C.
 Filed May 24, 1971, Ser. No. 146,178
 Int. Cl. A47c 21/00

U.S. Cl. 5-333

4 Claims



An upholstered furniture skirt construction and method for making same wherein a U-shaped curtain with evenly and upwardly positioned first and second edges is secured adjacent the front surface of the upholstered furniture article, and a double welt is extended continuously along and over these edges so that the skirt hangs substantially vertically from the front surface of the furniture article.

3,657,751

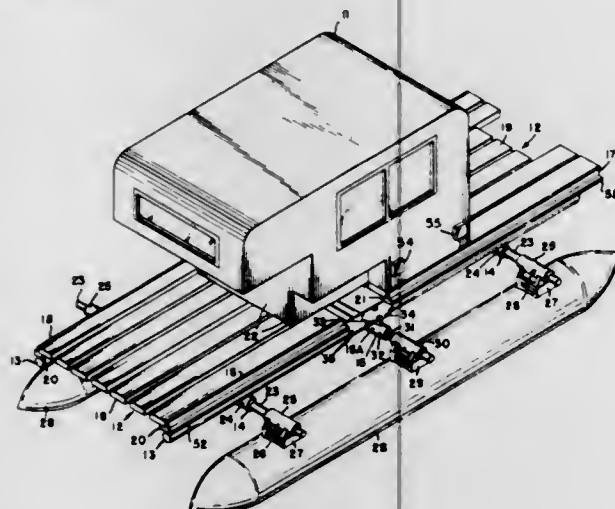
AMPHIBIOUS CAMPER

Robert H. Shaw, 131 Oakwood Lane, Ithaca, N.Y.
Continuation-in-part of application Ser. No. 733,711, May 31
1968, now abandoned. This application Feb. 20, 1970, Ser.
No. 12,935

Int. Cl. B63b 35/00

U.S. Cl. 9-1 R

4 Claims



An amphibious type of camper includes a raft on which a camper body is removably attached and flotation pontoons are attached to the side of the raft. The pontoons are so attached that they can be readily swung from operative positions at the sides of the raft to retracted positions over the raft for storage purposes when it is necessary to transport it over a highway, such as on a truck trailer.

3,657,752

LOCATOR DEVICES

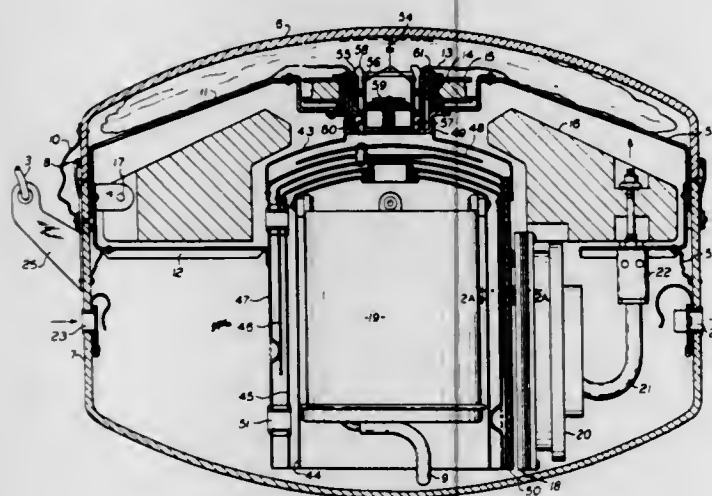
William M. Davidson, and Howard W. Cole, Jr., both of
Mountain Lakes, N.J., assignors to Proteus, Inc., Mountain
Lakes, N.J.

Filed Dec. 29, 1969, Ser. No. 888,400

Int. Cl. B63c 7/26

U.S. Cl. 9-9

8 Claims



This invention relates to a device useful as an aid in locating submerged equipment and submersibles while at depth or after the equipment has returned to the surface of the ocean. The device comprises a clam-shaped container, made up of a top and bottom cover, an inflatable aerial balloon-kite, embodying a radar reflective material, a kite string and reel, a fixed flotation ring, a triggering valve, a fuel cartridge actuator, a fuel cartridge, a gas cooler-water separator and as-

sociated flood valves and release mechanisms. The balloon-kite is releasably attached to the cooler outlet from the gas generator that produces hydrogen gas to inflate the balloon-kite when the device returns to the surface of the sea after being submerged with oceanographic equipment to which it has been attached either by tether or by fixed mounting. The gas generating means, preferably made up of solid chemical fuel, reactive upon contact with water to generate a gas, such as hydrogen gas, is provided within the container. The container is free-flooding and when the gas generating means is activated to expose said chemical compound, such as a hydride of a metal selected from the group consisting of lithium, sodium, calcium, potassium and aluminum and mixtures thereof, to contact with water, the resulting generated gas releases the top cover from the bottom cover and, being attached to the balloon-kite, inflates the balloon-kite fully and then causes the balloon-kite to detach itself automatically from the generator and fly aloft tethered to the container by means of a kite string. The passive reflector surface incorporated in the balloon-kite enables the device to be located by surface radar equipment and, thereby, provides a target by means of which the oceanographic equipment has previously been attached can be located from great distances.

3,657,753

FOLDING INFLATABLE SURFBOARD

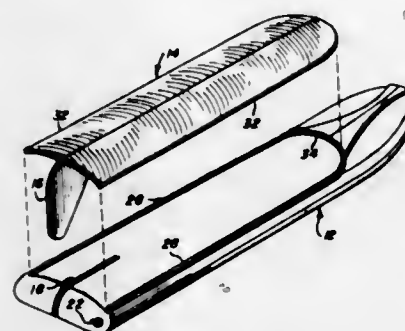
Leo J. Le Blanc, Sr., 1116 Cypress Lake Drive, Fort Myers,
Fla.

Filed Sept. 29, 1970, Ser. No. 76,366

Int. Cl. A63c 15/02

U.S. Cl. 9-310 F

10 Claims



An elongated inflatable body including a flexible but substantially non-elastic and transversely convexed top wall. An elongated flexible panel constructed of flexible but stiff material is also provided and is capable of being bowed in only one direction at a time. The panel overlies the top wall of the inflatable body, when the latter is inflated, in surface-to-surface contact therewith and with the panel in a corresponding transversely bowed condition. The opposite marginal edge portions of the panel and the adjacent portions of the top wall of the body include coating portions preventing lateral shifting of the panel edge portions outwardly relative to the aforementioned corresponding portions of the top wall and the internal pressure within the body serves to maintain the body top wall in a transversely bowed condition. Thus, the distance between the aforementioned corresponding portions of the top wall at the opposite sides thereof is maintained to thereby maintain the overlying stiff panel in a transversely bowed condition. Inasmuch as the panel is maintained in a transversely bowed condition and therefore resists being bowed longitudinally, the inflatable body is braced against longitudinal bowing. Further, the panel and body, when the latter is deflated, are each capable of being longitudinally rolled into a compact state with the rolled body nested within the rolled panel and a carrying case is provided to receive the rolled panel and the rolled body nested therein, the carrying case being of a size and shape to maintain the panel in a rolled condition.

3,657,754

WIPER STOP FOR SHOE LASTING MACHINE

Collin V. Brown, Leicester, England, assignor to USM Corporation, Boston, Mass.

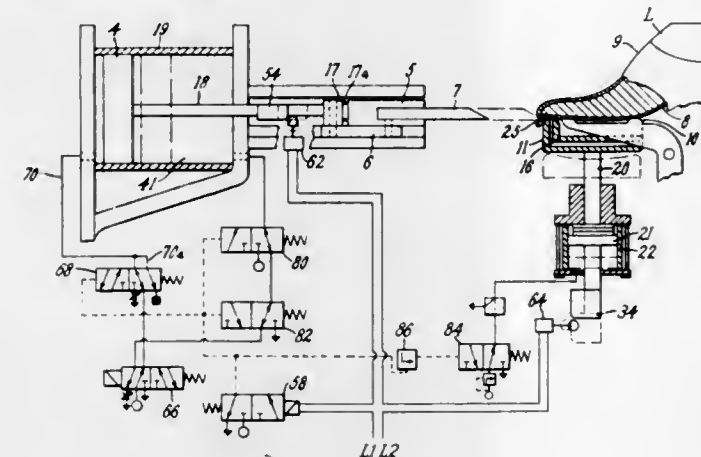
Filed Nov. 9, 1970, Ser. No. 87,825

Claims priority, application Great Britain, Nov. 19, 1969, 56,603/69

Int. Cl. A43d 21/00

U.S. Cl. 12-12.4

6 Claims



A shoe lasting machine having pneumatically operated wipers, in which a piston operatively connected to the wipers is automatically stopped by pneumatic circuitry at a predetermined intermediate position in its wiper operating movement so that the upper has been wiped over a shoe bottom only enough to hold an insole against the last bottom, after which an insole plate which previously held the insole is retracted and controls continued operation of the piston and movement of the wipers.

3,657,755

SHOE LAST

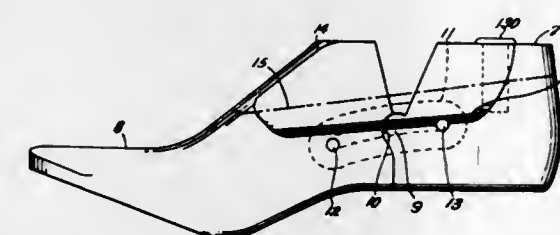
Kenneth E. Holmes, Pembroke, Mass., assignor to Vulcan Corporation, Cincinnati, Ohio

Filed Aug. 20, 1970, Ser. No. 65,501

Int. Cl. A43d 3/00

U.S. Cl. 12-136 B

1 Claim



A shoe last having recesses formed in the sides of the cone thereon to laterally reduce the body of the cone and provide relief for the closed edge on a shoe upper formed thereon and producing a shoe with a closed top edge having rounded ends and straight side portions.

3,657,756

COMBINED HEEL, FOREPART AND CEMENT-LASTING MACHINE

Herbert Schindler, Pirmasens, and Gerhard Winter, Havenstein, both of Germany, assignors to Firma Schon & Cie. Gesellschaft mit beschränkter Haftung, Pirmasens, Germany

Filed July 30, 1970, Ser. No. 59,484

Claims priority, application Germany, Aug. 5, 1969, P 19 39 748.9

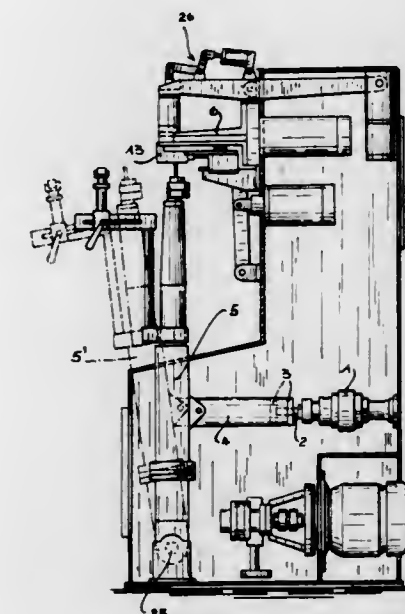
Int. Cl. A43d 21/00, 3/00

U.S. Cl. 12-12.5

3 Claims

A combined heel, forepart and cement-lasting machine having a last holder and a carriage. The carriage carries a

heel-band, a pair of wipers and the like, and also a tripping blade which is associated with a switch. The switch controls a motor which displaces the last holder in a direction towards the tripping blade. The switch stops the motor when the last holder comes in contact with the tripping blade wherein the



last holder is in a precise position to apply cement to proper locations on the last. The tripping blade is also adjustably disposed on the carriage to adjust the position of the last with respect to the edge of the wiper in the operating position of the last holder.

3,657,757

VINYL BOOTS, GLOVES OR THE LIKE

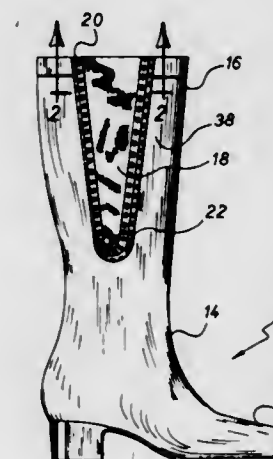
Andre Vilder, 117 Boulevard Graham, Montreal, Quebec,
Canada

Filed Aug. 11, 1970, Ser. No. 62,796

Int. Cl. A43d 00/00; A43b 1/10; A41d 19/00

U.S. Cl. 12-146 C

7 Claims



The disclosure described an improvement in the making of vinyl moulded boots, gloves or the like: an elastic material, such as cotton fiber, synthetic fiber or goring, is affixed to the vinyl article by electronic welding thereby eliminating the need of fasteners.

3,657,758

APPARATUS FOR CLEANING TRAYS AND THE LIKE

Harvey B. Lazar, P.O. Box 73, and Frank J. Andrews, 1066
South 1st, both of Turlock, Calif.

Filed Mar. 27, 1969, Ser. No. 811,137

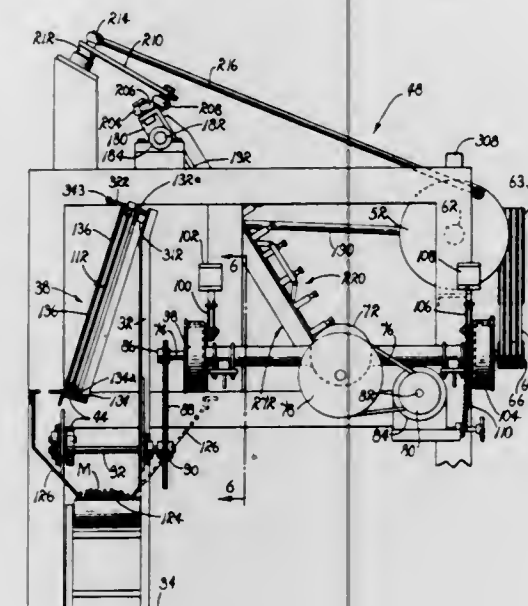
Int. Cl. B67c 1/10

U.S. Cl. 15-93

20 Claims

An apparatus for cleaning material from trays and the like disposed in substantially upright dumping position including

a conveyor for successively placing trays at a scraping station and removing them therefrom, and a pivotally mounted scraper movable into engagement with the successive trays



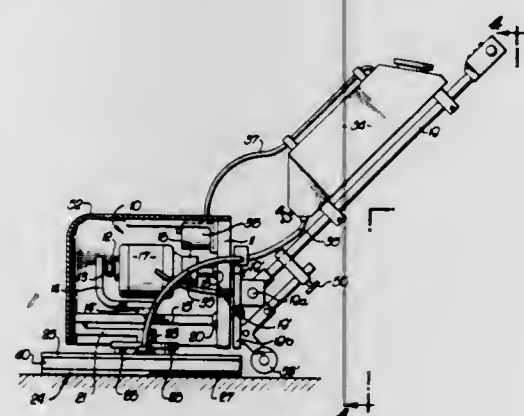
and removable therefrom having elements to which a cyclic scraping motion is imparted, the conveyor and scraper being actuated sequentially by drive mechanisms driven differentially from a common source of power.

3,657,759 SURFACE CONDITIONER

Harold T. Sawyer, Pacific Palisades, Calif., assignor to Vernon D. Beehler, Los Angeles, Calif., a part interest
Continuation-in-part of application Ser. No. 832,156, June 11, 1969, which is a continuation-in-part of application Ser. No. 832,180, June 11, 1969, which is a continuation-in-part of application Ser. No. 631,736, Apr. 18, 1967, now Patent No. 3,507,695. This application Apr. 9, 1970, Ser. No. 26,885
Int. Cl. A47I 11/03, 11/06

U.S. Cl. 15—98

13 Claims



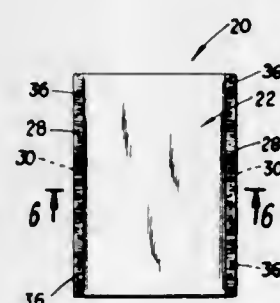
A machine capable of performing one or another of a variety of conditioning operations on a surface by use of vibration energy. A vertically extending base holding plate has a cantilever beam extending from it, with a captive stationary end fastened by a resilient mount to the plate. A source of vibration energy is mounted on the cantilever beam intermediate to its ends. A main resonant plate substantially parallel to the cantilever beam has a work shoe removably attached to it through a resilient pad. The end of said cantil-

ever beam remote from the base holding plate has a second resonant plate secured to it in a position substantially parallel to the cantilever beam and the main resonant plate through a plurality of spaced resilient mounts, the combined structure of all the parts being such that they can be vibrated at or near their natural frequency by the chosen source of vibration energy.

3,657,760 CLEANING PAD FOR INFANT'S CARE Leonard Kudisch, 161 Brite Avenue, Westchester, N.Y. Continuation-in-part of application Ser. No. 49,248, June 24, 1970, now abandoned. This application Aug. 6, 1970, Ser. No. 61,639

Int. Cl. A47k 7/03, 7/08
U.S. Cl. 15—104.93

1 Claim

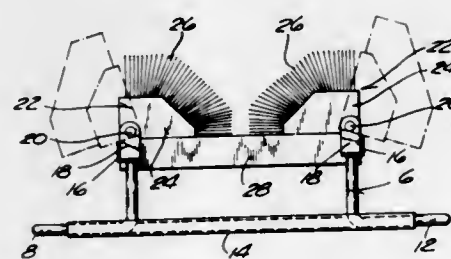


A lotion-applying pad, especially for infant's care, is provided, comprising a pad of cotton batting impregnated with a lotion for application to the infant especially in making diaper change, the pad of lotion-impregnated batting having a liquidproof surface opposite the lotion-applying surface. The pad of a plurality of the pads are enclosed in a liquidproof wrapper or packaging container. In the container, the pads may be arranged so that the lotion-applying surfaces of the pads are next to the liquidproof surfaces of the adjacent pads, or the lotion applying surfaces of the pads may be covered with removable liquidproof films.

3,657,761 SHOE BRUSH AND SCRAPER Joseph A. Larson, Sparta, Wis., assignor to Sparta Brush Co., Incorporated, Sparta, Wis. Filed Aug. 20, 1970, Ser. No. 65,543 Int. Cl. A47I 23/22

U.S. Cl. 15—112

3 Claims



A frame includes a scraper which provides support for pivoted shoe brushes that rest upon and conceal the scraper except when pivoted aside to expose the scraper for use.

3,657,762 AUTOMOTIVE WINDSHIELD WIPER BLADE CONSTRUCTION Dario Arman, Piazza Adriano 15, Turin, Italy Filed Dec. 1, 1970, Ser. No. 94,147 Claims priority, application Italy, Dec. 2, 1969, 54229 A/69 Int. Cl. B60s 1/40

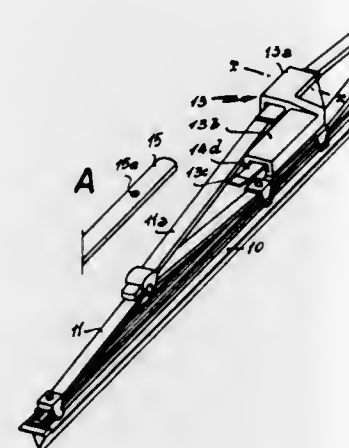
U.S. Cl. 15—250.32

6 Claims

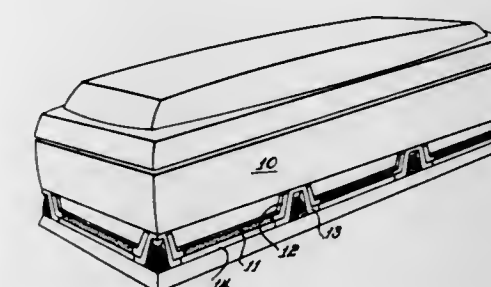
3,657,764 STATIONARY HINGE FOR CASKET HANDLES Robert H. Relly; Charles F. Winburn, both of Cincinnati, Ohio, and Herbert K. Y. Sun, Sunman, Ind., assignors to Batesville Casket Company, Inc., Batesville, Ind. Filed Sept. 25, 1970, Ser. No. 75,584 Int. Cl. A47b 95/02; A61g 17/04

U.S. Cl. 16—112

9 Claims



The invention relates to improvements in the lateral connection members disposed between the end of the wiper arm and the wiper blade of windshield wiper devices mounted on automotive vehicles.

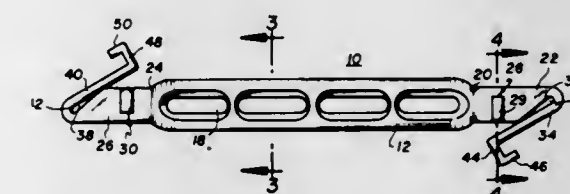


Hinge mechanism for mounting several handles upon a casket shell in such a manner that each handle is swingable through a predetermined arc from inoperative to operative position independently of the other handles.

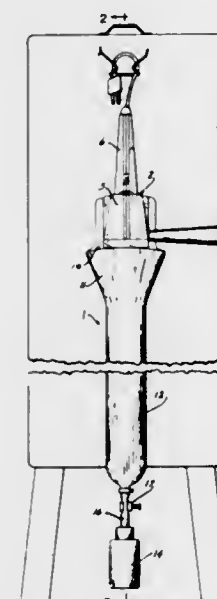
3,657,765 HANDLE FOR PACKAGES OR THE LIKE George H. Geisinger, Mountainside, N.J., assignor to Alfred Eisenberg, Woodmere and Henry Eisenberg, Nassau County, N.Y. Filed Dec. 21, 1970, Ser. No. 100,309 Int. Cl. B23k 3/06

U.S. Cl. 16—114 B

7 Claims



The disclosure is directed to a handle for packages or the like having a binding cord thereabout and which can be selectively locked to such binding cord to prevent separation of the handle from the package. Extending from the ends of a central longitudinal member, proportioned and contoured to fit the hand of a person, are two portions flexibly coupled thereto but limited as to their maximum flexure. Placed upon each of the extending portions is a stop member arranged to engage one end of a locking arm coupled at its other end to the extending portions. At the coupling between the locking arms and the extending portions are formed cavities to capture and engage portions of the binding cord. Additional arms cooperate with the stop members to prevent disassembly in directions transverse to and in line with the central longitudinal member.



3,657,763 TOOL SHEATH Raymond M. Hurd, 2548 South 78th, Milwaukee, Wis. Filed Oct. 6, 1969, Ser. No. 864,129 Int. Cl. A01g 3/04; F16n 7/28

U.S. Cl. 15—268

5 Claims

3,657,766 HINGE

Francis C. Peterson, Affton, Mo., assignor to C. Hager & Sons Hinge Manufacturing Company, St. Louis, Mo.
Filed July 6, 1970, Ser. No. 52,588
Int. Cl. E05f 1/14

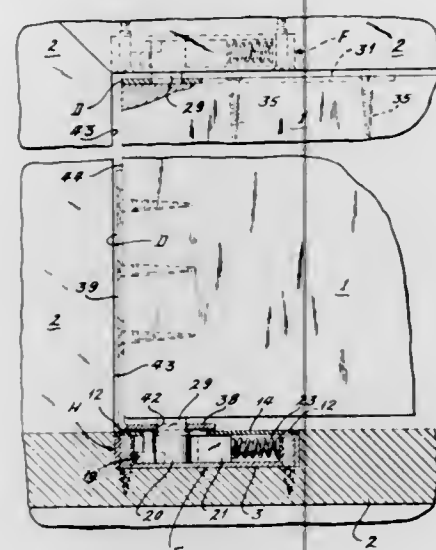
U.S. Cl. 16—182

10 Claims

A sheath providing for cleaning, lubricating and storage is disclosed for a tool such as a hedge clipper having relatively moving blades driven by a motor unit. The sheath opens upwardly to provide a lip for the support of the motor unit while the blades project downwardly into a blade immersion chamber filled with a suitable cleaner-lubricant. A sediment collecting chamber is disposed beneath and connected to the blade immersion chamber by a vertical passageway means. The sediment collecting chamber is removable to provide for periodic cleaning of the dirt and debris settling therein.

A double action concealed pivot or hinge for use in connection with a door. The opening of the door causes a bracket on the door to rotate a stud connected to follower in a housing secured to the frame. The follower rotates and moves laterally a predetermined amount so as to move the

vertical edge of the door from the frame a predetermined amount as the door is opened. The housing includes the fol-



lower which is in contact with a cam, and means for biasing the follower against the cam.

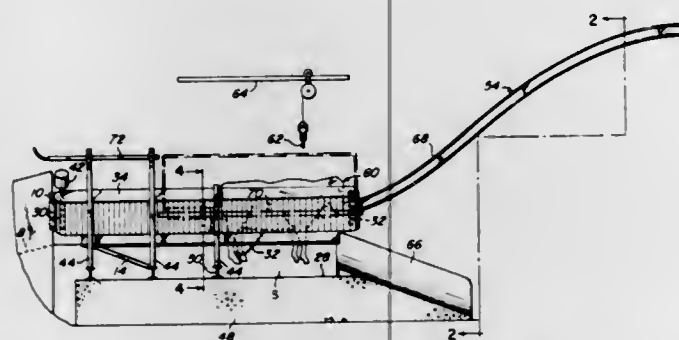
3,657,767

CATTLE HANDLING APPARATUS

Carl Oscar Schmidt, Jr., Cincinnati, Ohio, assignor to The Cincinnati Butchers' Supply Company, Cincinnati, Ohio
Filed Mar. 2, 1970, Ser. No. 15,764
Int. Cl. A22b 1/00

U.S. Cl. 17-1 A

18 Claims



Beef animals are driven with regularity into the embrace of a restraining conveyor wherein they are stunned, and the legs are unobstructedly exposed for shackling at a cantilevered portion of the conveyor with no risk of injury to attendants; and then the shackled animals are automatically spaced and hoisted with unusual regularity and speed for subsequent treatment.

3,657,768

VAPORIZING TECHNIQUE FOR TREATMENT OF ANIMAL CARCASSES

Bryan T. Snowden, Grapevine, Tex., assignor to Food Equipment, Inc., Dallas, Tex.

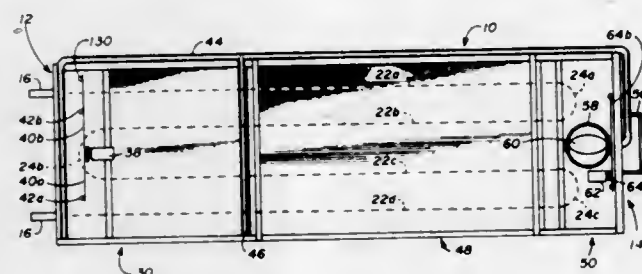
Continuation-in-part of application Ser. No. 831,964, June 10, 1969. This application Feb. 24, 1970, Ser. No. 13,604
Int. Cl. A22c 2/00

U.S. Cl. 17-11.2

6 Claims

A vaporizing spray system for treatment of slaughtered animals includes a hosing extending at a predetermined angle to the horizontal which is substantially less than 90°. An overhead conveyor extends through the housing along a predetermined path along which the slaughtered animals are carried by shackles. The path includes at least four reversing traverses between the lower end and upper end of the housing. Spray structure is supported on walls between the traverses to direct high temperature steam and water against the

animals carried through the housing. The entry of ambient air into the housing is selectively controlled to create an upward draft in the housing for regulation of the internal temperature of the housing. In one embodiment of the invention, the head and feet portions of the animals are elevated above the straddle areas of the animals to thereby expose the straddle areas to the steam and/or water spray. In another embodiment of the invention, oscillating spray conduits are



disposed within the housing for spraying oscillating streams of fluid or steam to treat the animals being carried therethrough. In another embodiment of the invention, line splitter structure is provided to pivot shackles hanging from the conveyor to first one and then another of two opposed inclined positions, with a spray conduit being disposed beneath the two inclined positions for alternately directing spray medium against the animal carcasses as they pass thereby.

3,657,769

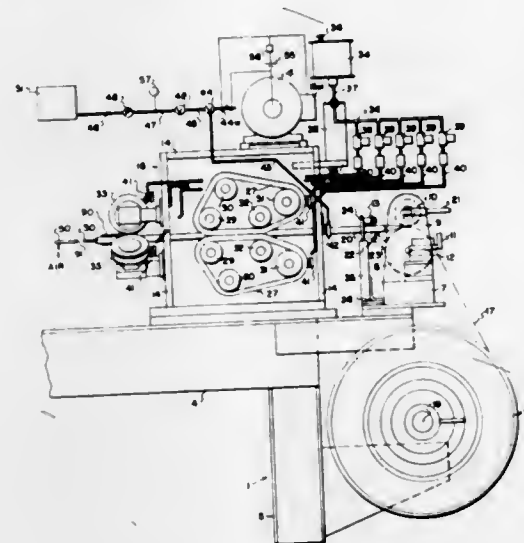
HUMIDIFICATION OF SYNTHETIC SAUSAGE CASINGS

Thomas W. Martinek, Covington, Ind., assignor to Tee-Pak, Inc., Chicago, Ill.

Filed Dec. 29, 1969, Ser. No. 888,701
Int. Cl. A22c 13/00

U.S. Cl. 17-42

6 Claims



Method and apparatus for shirring synthetic sausage casings, e.g. regenerated cellulose, amylose, alginate, collagen casings, etc., wherein a flattened tubular casing is fed from a storage reel, inflated, and shirred mechanically and the casing, after leaving the storage reel and prior to being discharged from the shirring apparatus, is passed axially through a symmetrical, radially converging pattern of water in which the casing is contacted by and consequently adsorbs a predetermined metered amount of water. The spraying of the casing preferably is effected by an annular spray nozzle having a plurality of equiangularly spaced orifices positioned in its inner periphery to direct water uniformly onto the outside surface of the casing. Control of the spraying is accomplished by positioning valve control means in the water feed line to the spray device and operatively connecting the valve means to be responsive to the operation of the means for feeding casing through the shirring machine.

3,657,770

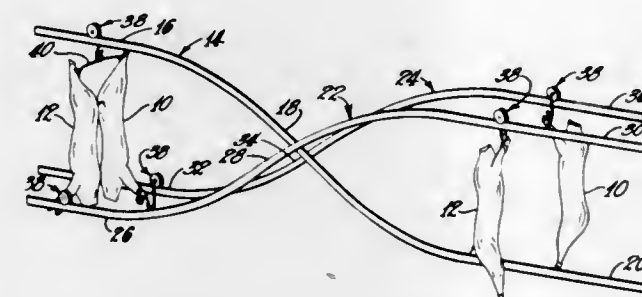
METHOD AND APPARATUS FOR SLAUGHTERING ANIMALS

Charles H. Wallace, Sylvania, Ohio, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed June 18, 1970, Ser. No. 47,216
Int. Cl. A22b 1/00

U.S. Cl. 17-45

8 Claims



An animal is slaughtered in a head-down position and is subsequently inverted after bleeding to place the hindquarters down while the animal muscles are still flaccid. The carcass is maintained in the latter position until rigor mortis sets in, the carcass is thoroughly chilled, or both. By positioning the animal carcass with the hindquarters down and with the animal muscles flaccid, the meat drifts or settles downwardly toward the hindquarters. Consequently, the meat is distributed more toward the hindquarters of the animal carcass where the more expensive cuts are located. Higher monetary value of the carcass is thereby achieved. To increase the movement of the muscle or meat toward the hindquarters, the carcass can be subjected to vibrations or shock in addition to the force of gravity. Also, this movement of the meat can be increased by subjecting the carcass to centrifugal force with the animal rotated about an axis which is perpendicular to the longitudinal extent of the carcass and is located nearer to the forefeet than the hind feet.

3,657,771

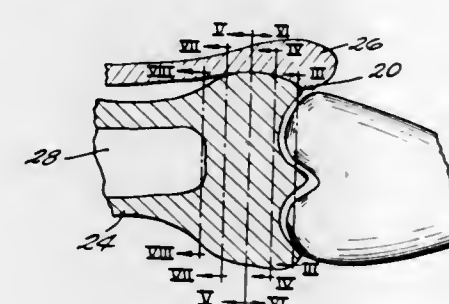
METHOD FOR REMOVING AN ANIMAL FOOT IN THE VICINITY OF THE TARSUS JOINT

Theodore C. Zwlep, Grand Rapids; Konrad H. Marcus, and Ferdinand Welts, both of Holland, all of Mich., assignors to Prince Corporation, Holland, Mich.

Filed Feb. 26, 1970, Ser. No. 14,503
Int. Cl. A22c 17/06

U.S. Cl. 17-52

15 Claims



A method of severing a portion of an animal leg uniformly at a fixed point near a joint such as the tarsus joint with respect to a reference position, the medial axes of the portions to be severed being generally aligned, the method comprising the steps of bending the joint so that the medial axes of the portions form an angle of approximately 90°, and severing the portion at a point spaced a predetermined distance along the medial axis of one of the portions from the intersection of the two medial axes. No matter what size the leg, the cut will occur at the same fixed point utilizing the same predetermined distance. To allow the joint to bend

after rigor mortis has set in, a preliminary partial cut is made, which, in case of a foot removal, is of either the hamstring or the tuber calcis bone.

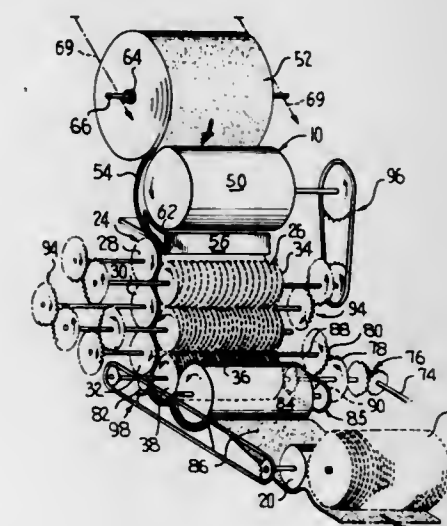
3,657,772

REFINING FEED UNIT FOR A CARDING MACHINE

Maurice A. Goldman, P. O. Box 1179, Newark, N.J.
Filed Nov. 25, 1969, Ser. No. 879,886
Int. Cl. D01g 15/40

U.S. Cl. 19-105

9 Claims



A card feed unit is positioned at a carding machine in place of a standard lap stand to refiningly act on a supported picker lap so as to supply a light weight blanket of aligned fibers to the carding machine and thereby greatly increase the production rate of a carding machine. Such unit has a two column, frame supported, stack of horizontally disposed rolls of small diameter with the rolls of one column being in nested relation with the rolls of the companion column. The rolls from the lap receiving top of the blanket delivering bottom of the unit have an increased number of spirally arranged teeth and are driven at increased speeds. Each roll performs in two drafting stages; it drafts from the upper proceeding roll and holds against the lower succeeding roll.

3,657,773

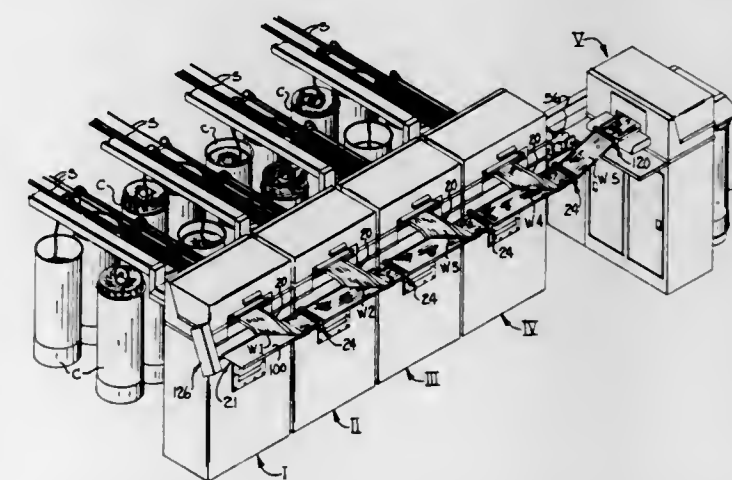
APPARATUS FOR BLENDING FIBERS

Joe R. Whitehurst, Bessemer City, N.C., assignor to The Warner & Swasey Company, Cleveland, Ohio

Original application July 15, 1966, Ser. No. 565,580, now Patent No. 3,495,304. Divided and this application May 13, 1969, Ser. No. 824,188
Int. Cl. D01h 5/00

U.S. Cl. 19-243

3 Claims



Apparatus for blending fibers in which a plurality of primary drafting units for drafting respective masses of textile

fibers are arranged to direct fibrous webs therefrom to a common secondary drafting unit, and wherein means are provided between the primary and secondary drafting units for successively arranging the fibrous webs in stacked superposed relationship, and including means for aiding in the advancement of the webs into stacked relationship and to the secondary drafting unit.

3,657,774

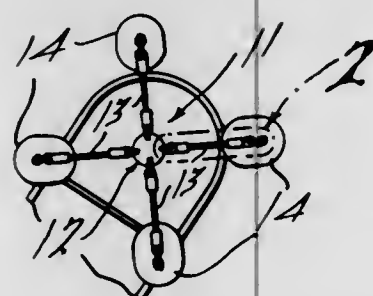
CONNECTOR FOR GOLF CLUB COVERS

Harry E. Reynolds, 1493 Yosemite Street, Birmingham, Mich.
Filed Nov. 10, 1969, Ser. No. 875,414

Int. Cl. A44b 21/00

U.S. Cl. 24-73 CF

7 Claims U.S. Cl. 24-81 E



The connector comprises a central carrier from which a plurality of links extend having a clip on the end which snaps over a ring or loop on the end of a cover for a golf club head. The link may be made of a short length of Nylon braided cord which is looped at the ends and joined in unit relation at one end to a ring with the loops at the other end provided with a releasable clip. The link may have the ends of the cord provided with a sleeve containing an aperture on the end for supporting a clip. The clip at one end of the link is secured within an aperture of a disc having additional apertures in which clips of additional links are secured. By supplying discs with three, four, five or any number of apertures, the same number of links can be secured thereto to have a cover connector which the purchaser can have assembled with links of the same or a series of colors.

3,657,775

TAPE JOINING CLIP

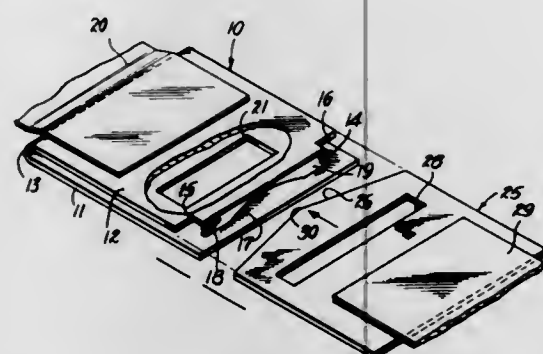
John B. Hancock, Tully, and George R. Salbert, Syracuse, both of N.Y., assignors to Advanced Digital Systems, Inc., Mohawk, N.Y.

Filed May 14, 1970, Ser. No. 37,262

Int. Cl. A44b 19/00, 11/25

U.S. Cl. 24-230 R

4 Claims



A releasable connector having two elements, one being a U-shaped member of spring metal. The arms of the U are of different lengths, the shorter arm having an inwardly extending tooth or hook portion with a recess. The longer arm has an opening. The second element is flat with a pointed end which, when it is inserted in the recess of the hook portion, spreads the arms of the U and permits the second element to enter. The second element has an opening through which the hook portion can move, completing engagement of the two.

Separation is accomplished by using the second element as a first base lever to spread the arms of the first element. Pivoting the second arm in the direction opposite the separating motion allows the elements to assume an angular relationship without separation.

3,657,776

HOLDER FOR DISHED RECEPTACLES

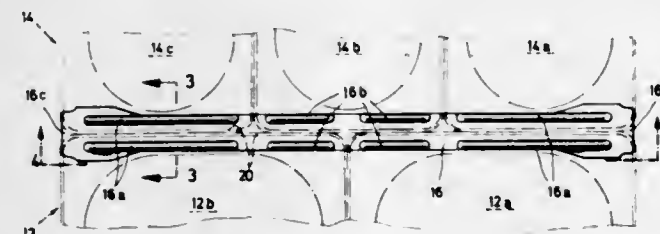
Werner R. Herbold, Oberderdingen, Germany, assignor to Blanc & Co., Oberderdingen, Germany
Filed Nov. 30, 1970, Ser. No. 93,782

Claims Priority, Application Germany, Dec. 12, 1969,

P 19 60 343.1

Int. Cl. F24b 9/00; A44b 21/00

9 Claims



An elongated strip-shaped body portion of stainless steel sheet material has a side facing upwardly when the holder is in use. The upwardly facing side is provided with longitudinally extending transversely spaced beads which are adapted to be received in turned-over peripheral margins of respective receptacles so that the latter are thus coupled to the holder.

3,657,777

RAG PICKER

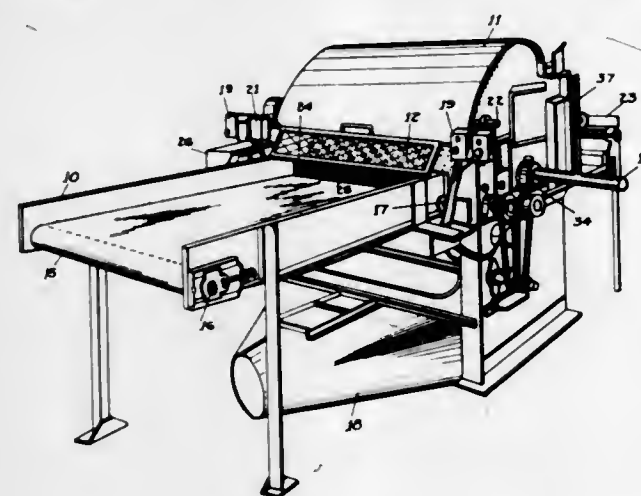
Henry F. Benoit, c/o Benoit Manf. Co., P. O. Box 356, Charlton City, Mass.

Filed May 21, 1970, Ser. No. 39,447

Int. Cl. D04b 19/00

U.S. Cl. 28-17

5 Claims



This invention relates to a rag picker and, more particularly, to apparatus for forming shoddy fibers from discarded cloth by engaging the cloth with a rotating pin cylinder.

3,657,778

METHOD OF MAKING ELECTROLUMINESCENT DISPLAY DEVICES HAVING ETCHED CHARACTER ELECTRODES

Gerald Boucher, Hudson, N.H., assignor to Sanders Associates Inc., Nashua, N.H.

Original application May, 1968, Ser. No. 731,191, now Patent No. 3,573,532. Divided and this application June 12, 1970, Ser. No. 57,857

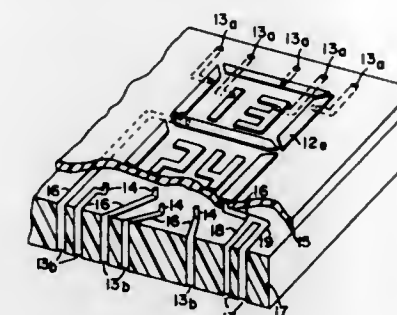
Int. Cl. H01j 9/18, 9/36

U.S. Cl. 29-25.16

4 Claims

An electroluminescent display device is provided, in which a substrate of the display is comprised of character elec-

trodes, external connecting means for facilitating connections to external apparatus and a plurality of interconnecting means between the character electrodes and external con-



necting means. The character electrodes, interconnecting means and external connecting means form one integral unit, with the display device itself being a monolithic structure.

3,657,779

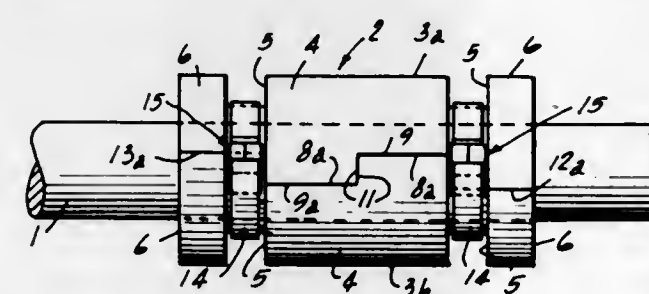
IDLER ASSEMBLY FOR CONVEYOR BELTS

Roger A. Granberry, 5757 North Elston Avenue, Chicago, Ill.
Filed Oct. 30, 1970, Ser. No. 85,535

Int. Cl. B21b 31/08

U.S. Cl. 29-124

8 Claims



A quick-change idler roller comprising a roller structure in the form of two longitudinally extending mating halves adapted to be clamped upon a supporting shaft by clamping straps or the like in which the two halves are so constructed that upon mounting on the supporting shaft that the outer peripheral portions of the halves will be subjected at their junctures to greater circumferential compression forces than the inner peripheral portions thereof.

3,657,780

METHOD FOR MAKING A BEARING

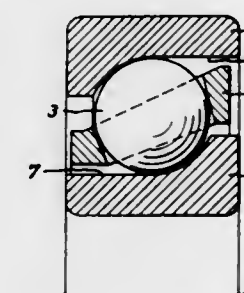
Werner Stolle, Hamburg, Germany, assignor to Licentia Patent Verwaltungs GmbH, Frankfurt, Germany

Filed Mar. 10, 1970, Ser. No. 18,069

Int. Cl. B21h 1/12, 1/14; B23p 11/00

U.S. Cl. 29-148.4 R

7 Claims



A method for making a lightweight, precision, angular-contact bearing, the ball-contacting rings of which are forged from a forging alloy principally of aluminum, with small amounts of copper, magnesium, nickel, iron, silicon, manganese, zinc and titanium. After forging and precipitation-hardening, the rings are pre-stretched from about 2 percent to 3 percent, then rough-worked to within approximately one

millimeter of final dimension, and then shock-normalized by exposing them alternately to high and low, mutually approaching temperatures. In this way it is possible to obtain rings suitable for a precision, lightweight bearing whose coefficient of thermal expansion can be matched to that of a piece of machinery also constructed of lightweight materials.

3,657,781

METHOD FOR THE MANUFACTURE OF ROLLING BEARINGS

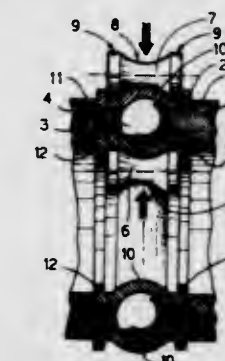
Domenico Camosso, Turin, Italy, assignor to RIV-SKF Officine di Villar Perosa S.p.A., Turin, Italy

Filed Nov. 20, 1970, Ser. No. 91,244

Claims priority, application Italy, Nov. 20, 1969, 54,114 A/69
Int. Cl. B23p 11/00, 19/00

U.S. Cl. 29-148.4 A

5 Claims



Rolling bearings are formed by disposing a crown of rolling bodies such as balls in contact with each other between a pair of concentric cylindrical deformable metal tubes, and then deforming the tubes toward each other on axially opposite sides of the balls by simultaneously exerting on the sleeves pressures directed toward the balls, thus utilizing the balls as forming elements for generating rolling tracks for the balls on the races provided by the sleeves. The sleeves are rotated relative to each other during this deformation by contour forming rollers applied to the inner and outer surfaces of the inner and outer races, respectively.

3,657,782

PROCESS FOR AIR ROLLER MANUFACTURE

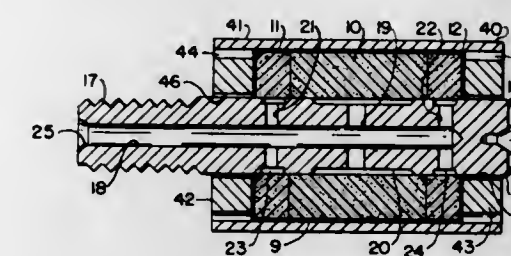
Lambert H. Mott, c/o Mott Metallurgical, P.O. Drawer "L", Farmington, Conn.

Filed Dec. 7, 1970, Ser. No. 95,604

Int. Cl. B23p 11/00; B23d 53/10; B22f 3/24

U.S. Cl. 29-148.4 D

3 Claims



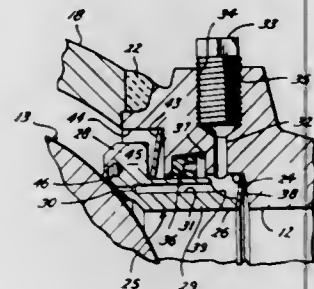
An air roller is constructed using the steps of forming a cylindrical porous metal core by bonding more porous end portions on a less porous center section, fixing the core on a shaft containing air passages leading to the center section and the end portions, rotating the shaft to grind the outer surface of the core to close tolerances and close its pores, coating the ground ends of the outer surface of the core to prevent etching, etching the uncoated center of the outer surface to open pores therein, and placing an outer cylindrical shell having end flanges about the core, and end flanges containing air escape apertures so that air escaping through the etched portion of the center section radially supports the shell and air escaping through the more porous end portions longitudinally supports the shell.

3,657,783

ESTABLISHMENT OF A SEAL BETWEEN CONCENTRIC SURFACES IN A HIGH TEMPERATURE ENVIRONMENT
Frank V. Ellis, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex.

Original application Nov. 22, 1968, Ser. No. 778,283, now Patent No. 3,575,198, dated Apr. 20, 1971. Divided and this application May 11, 1970, Ser. No. 48,716

Int. Cl. B21d 53/00; B21k 29/00; B23p 15/26
U.S. Cl. 29—15.1 R 2 Claims



A valve comprising a valve body having a central portion in which a ball is rotatably mounted, a tubular extension welded to each side of the central portion, and an annular seat mounted in the flowway through each tubular extension. In the assembly of the valve, the seat is mounted within the flowway during welding of the extension to the central portion of the body. There is a groove in the flowway about each valve seat, and a sealing ring is carried within each groove. The ring is of a material such as Teflon which, if confined against expansion while heated due to its proximity to the weld between the body portions, would reform into a different, non-sealing shape when cooled to ambient temperature. The base of the groove is deeper at one end than at the other and wider than the seal ring, so that said ring is relatively loosely received within the deeper end of the groove and relatively tightly engaged between the seat and the shallower end of the groove. The seal ring is arranged within the deeper end of the groove during welding and then moved into the shallower end thereof when the ring is cooled.

3,657,784

CLADDING OF METALS

Gordon Leslie Selman, High Wycombe, and Alan S. Darling, Northwood, both of England, assignors to Johnson, Matthey & Co., Limited, London, England

Continuation-in-part of application Ser. No. 631,592, Apr. 18, 1967, now abandoned. This application Mar. 5, 1970, Ser. No. 16,943

Int. Cl. B32b 15/04; C03b 5/18

U.S. Cl. 29—195 17 Claims

This invention relates to articles for use at high operating temperatures (1,100°–1,500° C.) and comprising a core made from a refractory metal or alloy and clad with a sheath of a platinum group metal or alloy based on at least one platinum group metal. Such articles in the form of stirrers, crucibles, spinning dies and the like have particular application in the glass industry.

3,657,785

APPARATUS FOR ATTACHING PROJECTING MEMBERS IN A HOLLOW SUPPORT OF AN AGRICULTURAL IMPLEMENT

Herbert Vißers, Nieuw-Vennep, Netherlands, assignor to H. Vißers N.V., Rotterdam, Netherlands

Filed Jan. 23, 1970, Ser. No. 5,184

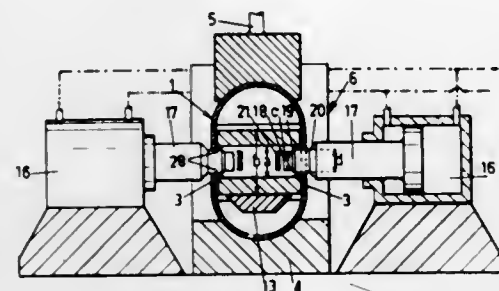
Claims priority, application Netherlands, Feb. 3, 1969, 6901675

Int. Cl. B23p 19/00; B21k 19/00

U.S. Cl. 29—200 B 4 Claims

Apparatus for forming a support assembly for tines or the like comprises a retaining member which is inserted within a

hollow support member to hold a series of brushes between the opposite walls of the support member and properly to orient them with respect to aligned pairs of facing deforming



tools. The tools are actuated to cut apertures in the walls concentrically of the bushes and then to deform the edges of the walls around these apertures inwardly within the bushes so that the bushes are retained between the walls.

3,657,786

LAYING OF SUBAQUEOUS PIPE

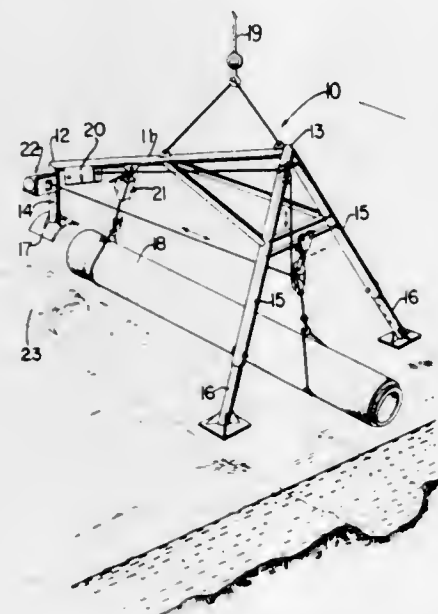
George C. Wiswell, Jr., 1014 Pequot Road, Southport, Conn.

Filed Mar. 11, 1970, Ser. No. 18,478

Int. Cl. B23p 19/00, 19/04

U.S. Cl. 29—200 P

2 Claims



An elongated member has a short depending leg at one end and a pair of longer legs diverging from the other end. The pipe to be laid is suspended from the elongated member between the diverging legs. Adjusting structure is disposed on the frame to move the suspended pipe axially. Also, the structure will individually adjust vertically the ends of the pipe when the frame has been lowered to rest upon the bottom of the body of water where the pipe is to be laid.

3,657,787

ARRANGEMENTS FOR POSITIONING SPINDLES

Walter Leslie Rand, Gerrards, and John Ernest Simmons, Ruislip, both of England, assignors to Electric & Musical Industries Limited, Hayes, Middlesex, England

Filed Mar. 27, 1970, Ser. No. 23,429

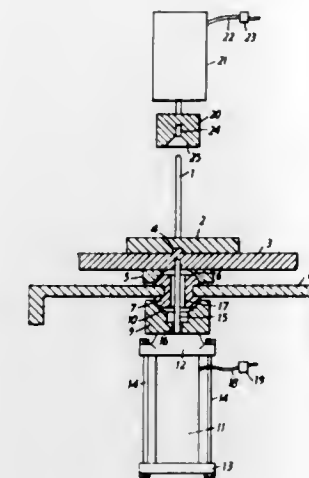
Int. Cl. B23p 19/00

U.S. Cl. 29—200 P

8 Claims

An arrangement is disclosed for positioning a spindle protruding from a base member. The base is located on a support member which can tilt about lockable spherical bearing means. In operation, the bearing means is unlocked and

the spindle adjusted to its desired position and then the bearing means is locked to hold the spindle in its adjusted position.



Also disclosed is the application of this arrangement to the stacking of gramophone records.

3,657,788

INTEGRATED CIRCUIT INSERTING MACHINE

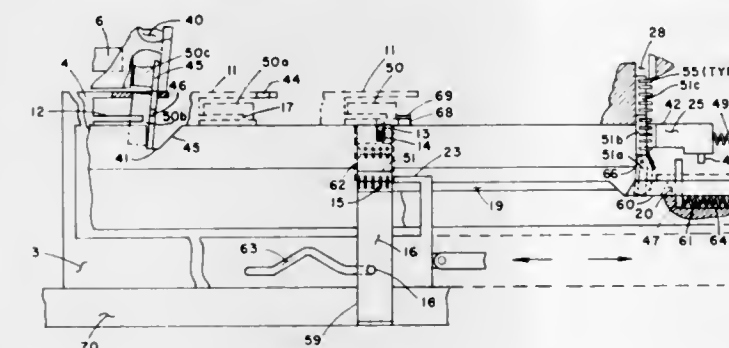
Ray A. Page, Walnut Creek, Calif., assignor to SCM Corporation

Filed June 15, 1970, Ser. No. 46,348

Int. Cl. H05k 13/00

U.S. Cl. 29—203 R

22 Claims



A machine is disclosed for inserting integrated circuit packages or IC's into reusable plastic carriers for protection and for facilitation of further handling by automatic equipment in product fabrication. The machine operates by a shuttle action in which a plastic carrier is picked up at one end of an oscillation cycle and transferred to an insertion station in one motion, while an IC is picked up at the other end of the oscillation for transfer to a position beneath the insertion station, with the IC being inserted during the return portion of the cycle in which it has been moved to the position under the plastic carrier. The machine also includes an IC remover so that carriers containing IC's which have been tested and rejected can be mixed with empty carriers in the supply line and stripped of the defective IC just prior to insertion of a new IC.

3,657,789

APPARATUS FOR PREPARING A MICROELEMENT FOR SOLDERING

Francis Anglade, Levallois-Perret, France

Continuation of application Ser. No. 760,146, Sept. 17, 1968, now abandoned. This application June 16, 1970, Ser. No. 48,901

Claims priority, application France, Mar. 29, 1968, 146510;

146511

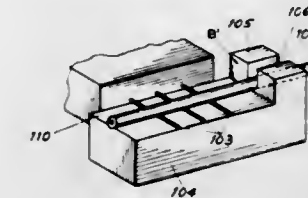
Int. Cl. H01r 43/04

U.S. Cl. 29—203 D

10 Claims

Apparatus for preparing the conductors projecting from a flat-pack for soldering comprises an anvil supporting the con-

ductors and a soldering wire transversely of the conductors, a reciprocable plunger mounted above the anvil for exerting a predetermined pressure against a soldering wire placed trans-



versely over the conductors, and cooperating side walls of the plunger and the anvil forming a scissors for severing the soldering wire upon downward movement of the plunger.

3,657,790

APPARATUS FOR HANDLING AND BONDING FLIP-CHIPS TO PRINTED CIRCUIT SUBSTRATES

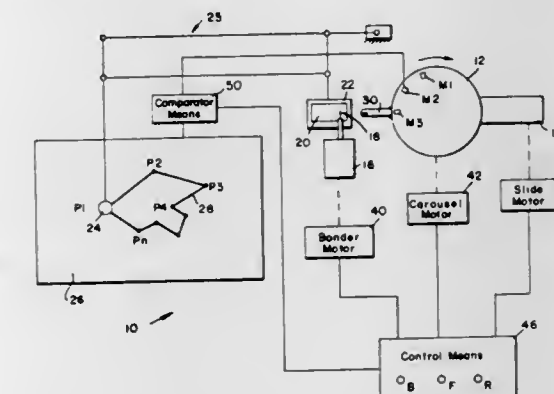
John E. Larrison, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 2, 1969, Ser. No. 812,701

Int. Cl. H01r

U.S. Cl. 29—203

11 Claims



Apparatus and method for mechanically handling flip-chips in the course of bonding a plurality of flip-chips to a common substrate. The apparatus system includes an indexible carousel having carrier magazines associated with slide transport and bonding mechanisms. The method includes mechanical handling of successive flip-chip loaded carriers in a manner that preserves an initial preorientation of the flip-chips in the course of transferring respective loaded carriers from selected magazines, separating the flip-chips from the associated carriers, transporting the flip-chips, and subsequently bonding the electrodes of the flip-chips to complementary contact areas on a printed circuit substrate.

3,657,791

SEPARATING DICED PLATE MATERIAL

Kenneth Hobbs, Bassett, England, assignor to U.S. Philips Corporation

Filed Nov. 26, 1969, Ser. No. 880,172

Claims priority, application Great Britain, Nov. 29, 1968,

32,166/68

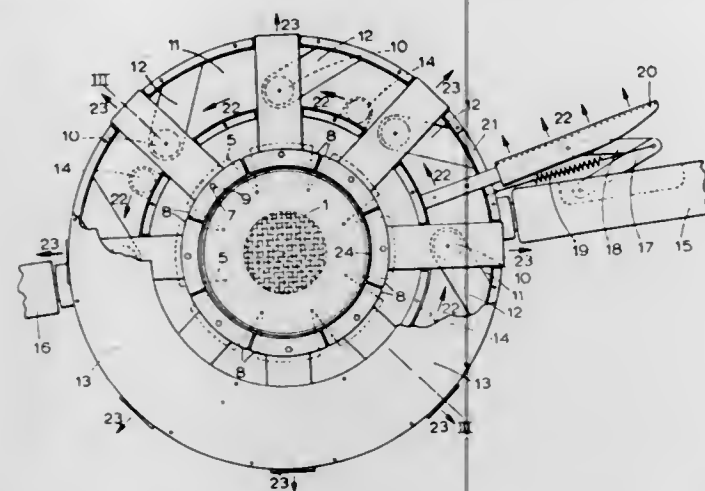
Int. Cl. B25b 27/00

U.S. Cl. 29—239

7 Claims

A device for use in extending a foil having a diced semiconductor wafer provided thereon. The device is provided with an annular scroll plate arranged for rotatable movement within a casing. A plurality of jaws are arranged about said scroll plate and are provided with means for attachment to a peripheral part of the foil. The jaws are provided with a ball bearing which cooperates with grooves in the scroll plate angularly oriented with respect to a radial line

so that when the scroll is caused to rotate, the jaws will be advanced or withdrawn in a radial direction, thus causing ex-



tension of the foil and separation of the diced semiconductor.

3,657,792

SCANNING MIRROR ALIGNMENT TECHNIQUES

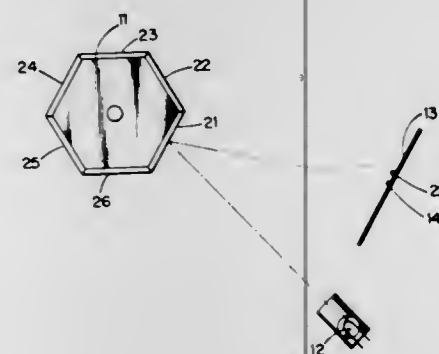
Hans A. Hug, Weston, and Paul W. Jones, Franklin, both of Mass., assignors to Identicon Corporation, Waltham, Mass.

Filed Nov. 13, 1970, Ser. No. 89,250

Int. Cl. B23q 17/00; G01b 11/26

U.S. Cl. 29-407

1 Claim



In a multifaceted mirror scanner, a mirror attached to a carrier that is precisely positioned receives energy from a collimated beam of light and reflects this energy toward a predetermined target point. The carrier is then deformed, such as by making a dimple near an edge where the mirror should be raised slightly, to deflect the beam so that the reflected image is precisely oriented on the target point.

3,657,793

METHOD AND DEVICE FOR REDUCING THE SPACING BETWEEN THE JACKET TUBE OF NUCLEAR REACTOR FUEL RODS AND THE CHARGE OF FUEL RECEIVED THEREIN

Hans Scharf, Nurnberg; Gerhard Boplat, Nurnberg, and Eckhard Steinberg, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Nov. 21, 1968, Ser. No. 777,681

Claims priority, application Germany, Nov. 22, 1967, P 16 14 756.9

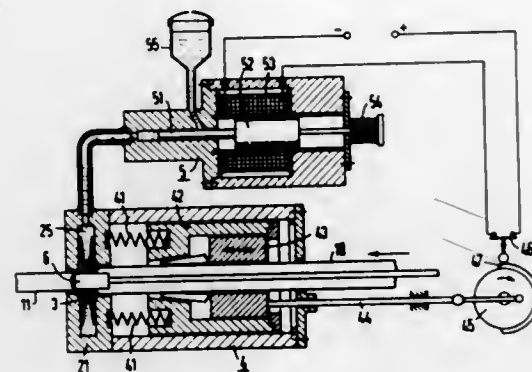
Int. Cl. B23p 17/00

U.S. Cl. 29-421

11 Claims

Method of reducing the spacing between the jacket tube of nuclear reactor fuel rods and the charge of fuel received therein includes pressing and permanently deforming by means of a ring-shaped hydraulic pressure cushion a respective ring-shaped zone of the jacket tube onto a body disposed in the tube and having substantially the cross-sectional

dimension of the charge of fuel to be received in the tube, and simultaneously advancing the jacket tube and the body



stepwise through the pressure cushion, the length of each advancing step being adjusted to the width of the ring-shaped zone.

3,657,794

METHOD AND APPARATUS FOR POSITIONING PARTS

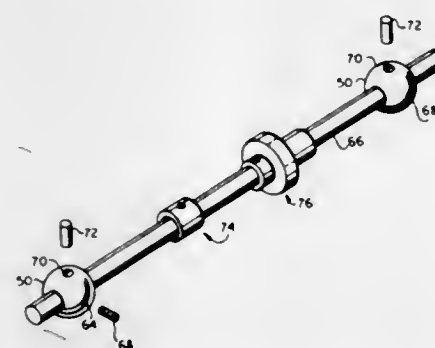
Donald R. Palumbo, Chula Vista; John V. Platt, Imperial Beach; Leon Noeggerath, National City; Laurence Johnston, Jr., Spring Valley, and Robert G. Aleckna, San Diego, all of Calif., assignors to Rohr Corporation, Chula Vista, Calif.

Filed Mar. 9, 1970, Ser. No. 17,512

Int. Cl. B23p 19/00, 17/00

U.S. Cl. 29-429

11 Claims



Apertured members are fixedly positioned on a rod and respectively attached to stands supported on a flat surface to thereby place the rod in predetermined spatial relation with the latter. Rings are fixedly positioned on the rod, and parts such as weld jigs are engaged with the rings to thereby align said parts relative to said surface.

3,657,795

APPARATUS FOR REMOVING SECTION OF COVERING FROM PLASTICS-COVERED WIRE

Ronald George Mackay, Liverpool, England, assignor to Plessey Handel und Investments A.G., Zug, Switzerland

Filed Dec. 4, 1970, Ser. No. 95,169

Claims priority, application Great Britain, Dec. 24, 1969, 62,826/69

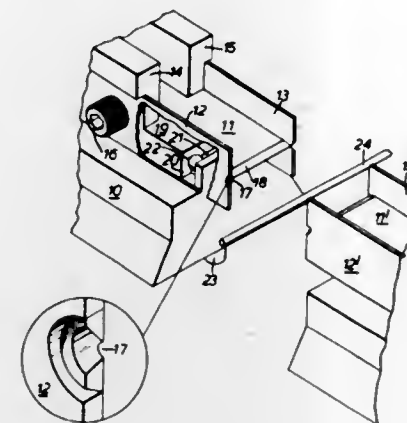
Int. Cl. B23p 19/02; H02g 1/12

U.S. Cl. 29-427

6 Claims

A mechanism for removal of sections of covering from intermediate regions along a wire covered with pliable plastics material comprising two heads each involving an H-like array of members of which each outer member is a cutting blade, the blades being so arranged that when the heads are brought into operative relationship with the covered wire the blades partially pierce the covering at two axially spaced locations and the heads are provided with blade deflecting means

which when actuated deflect the blades of each head laterally away from each other to complete the severance from the



body of the wire covering of that section of the covering located between the blades.

3,657,796

METHOD OF MOUNTING CANVAS ON ARTIST'S FRAME

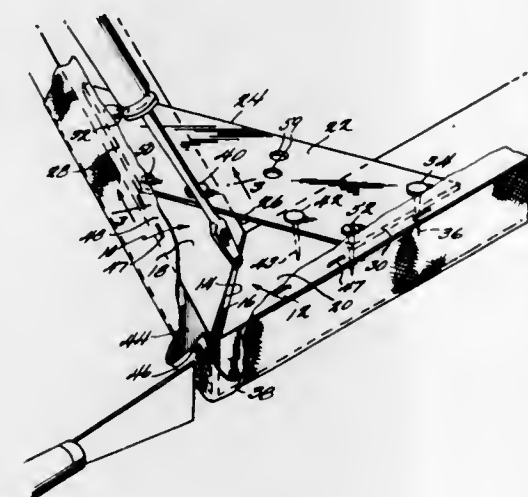
Marshall Gochbauer, 1711 N. H. Avenue, N. W., Washington, D.C.

Filed June 26, 1970, Ser. No. 50,191

Int. Cl. B23p 11/00

U.S. Cl. 29-432

6 Claims



A frame assembly for mounting artist's canvas and method of making same wherein the frame assembly includes a plurality of frame members having mitred ends which are held together at a plurality of mitred joints by corner plates. Each of the corner plates has a plurality of apertures therein and a plurality of nails extend through each of the corner plates and into respective ones of the frame members in predetermined directions to permit the corners of the artist's canvas to be inserted between the mitred joints to provide smooth, neat-appearing corners for the canvas.

3,657,797

CORE ASSEMBLY METHOD

Walter B. Robinson, Natick, Mass., assignor to New England Pressed Steel Company, Natick, Mass.

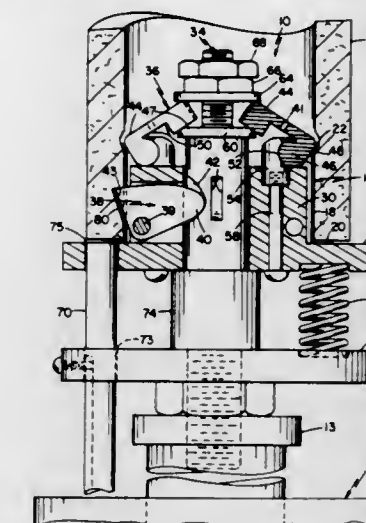
Original application June 16, 1967, Ser. No. 646,599, now abandoned. Divided and this application Jan. 9, 1970, Ser. No. 1,825

Int. Cl. B23p 11/00

U.S. Cl. 29-432

10 Claims

Assembling within tubular cores tubular core tips of the type having a cylindrical wall and, at one axial end thereof, a radially-inwardly extending entrance flange by introducing



wardly into the core and shearing portions of the tip wall and forcing the sheared portions outwardly into the core.

3,657,798

METHOD OF WINDING WIRE ABOUT PRESTRESSED CONTAINERS

Antonio Brandestini, Zurich, Switzerland, and Walter Thorpe, New Mills near Stockport, England, assignors to Simon-Carves Limited, Stockport, England

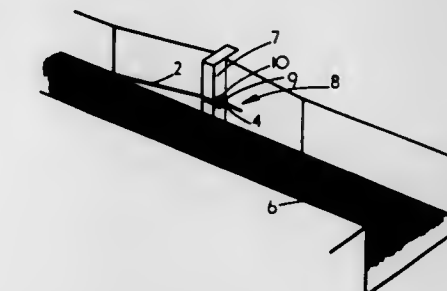
Filed Nov. 28, 1969, Ser. No. 880,689

Claims priority, application Great Britain, Dec. 5, 1968, 57,876/68

Int. Cl. B21d 39/00

U.S. Cl. 29-452

9 Claims



A method of anchoring an end of a tensioned wire wrapped by a winding unit, including the step of upsetting the portions of the wire destined to become the initial and/or terminal ends of the wire constituting a winding to form an attachment button or buttons adapted to transmit tension to an anchorage or anchorages in which the end or ends of the wire can be received.

3,657,799

METHOD OF MAKING AN ELECTRODE HAVING A REFRACTORY METAL ARCING PORTION

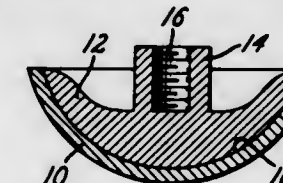
Carl C. Popadick, West Chester, and Joseph L. Talento, Media, both of Pa., assignors to General Electric Company

Filed Dec. 18, 1969, Ser. No. 886,143

Int. Cl. B22d 21/02, 23/06, 27/20

U.S. Cl. 29-25.17

10 Claims



Discloses a method of making an electrode that involves providing a cup-shaped shell of sintered refractory particles,

placing within the shell non-refractory backing metal, heating in a reducing atmosphere to melt the backing metal and cause it to infiltrate the shell, replacing the reducing atmosphere with an inert environment, holding the assembly in the inert environment for a sufficient period to remove a substantial quantity of dissolved gases from the molten backing metal, and then cooling within said inert environment to solidify said backing metal and remove additional dissolved gases.

3,657,800

FRICTION WELDED GRAPHITIC VALVE LIFTERS

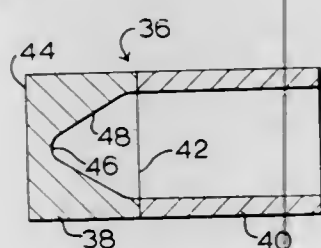
Richard E. Hautala, and Roy F. Kern, both of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 29, 1969, Ser. No. 888,449

Int. Cl. B23k 27/00

U.S. Cl. 29—470.3

4 Claims



A method and article are provided in the form of a valve lifter assembly wherein the wear plate of graphitic alloy steel is friction welded, by means of an inertia welder, to alloy/carbon steel tube to make up the lifter assembly.

3,657,801

METHOD OF JOINING CERTAIN METALS

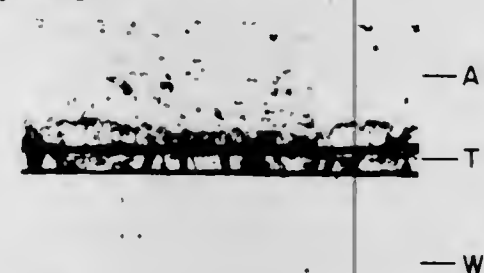
Lawrence H. Hershenson, Palos Verdes Peninsula, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 22, 1970, Ser. No. 30,714

Int. Cl. B23k 31/02

U.S. Cl. 29—471.7

2 Claims



Method of forming strong and thermally durable bonds between aluminum and titanium, tungsten or SiGe alloys and between titanium and either tungsten or SiGe alloys for use in thermoelectric generators.

3,657,802

METHOD AND APPARATUS FOR SECURING METAL MOUNTING ELEMENTS ON A GLASS SURFACE

Jean-Raymond Delmas, Vanves, France, assignor to Societe Des Lunetiers, Paris, France

Filed May 12, 1969, Ser. No. 823,814

Int. Cl. B23k 31/02

U.S. Cl. 29—472.9

5 Claims

A method of securing metal fasteners to the surface of a glass object, particularly a spectacle lens, which comprises the steps of applying against said surface, with a predetermined and adjustable pressure, a fastener made of a metal adapted to be easily welded to the glass object and consisting

of a piece of extruded section shaped as consistent with the manner in which the fastener is to be accomadating subsequently, the glass-engaging base of said fastener accom-



dating the contour of said glass surface, and the step of vibrating each fastener at a supersonic frequency during a few seconds.

3,657,803

METHOD OF MAKING BERYLLIUM-ALUMINUM-MAGNESIUM-SILICON WROUGHT MATERIAL

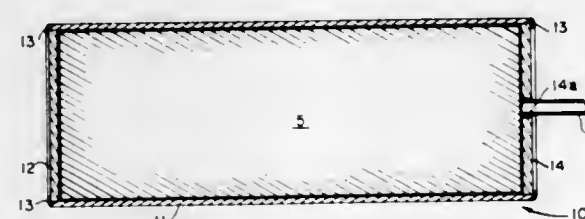
Richard H. Krock, Weston, and William J. Richmond, Reading, both of Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed July 17, 1970, Ser. No. 55,898

Int. Cl. B23k 19/00

U.S. Cl. 29—527.7

22 Claims



A method of producing wrought material containing beryllium, aluminum, magnesium and silicon comprising: forming a casting of said material in a mold having high thermal conductivity material; applying a protective metallic coating to said casting; heating the coated casting at a temperature of 700° to 1,050° F. for a period of 5 to 100 hours; extruding the heated casting at a rate of about 13 to 60 inches per minute; removing the jacket from the extruded casting; heating the extrusion at a temperature of 900° to 1,050° F. for a period of time of 12 hours to 1 week; and rolling the heated extrusion at a total reduction of 10 to 98 percent.

3,657,804

METHOD OF MAKING BERYLLIUM-ALUMINUM WROUGHT MATERIAL

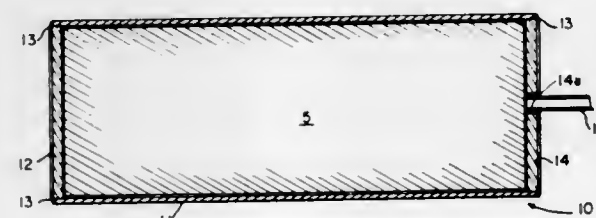
Richard H. Krock, Weston, and William J. Richmond, Reading, both of Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind.

Filed July 17, 1970, Ser. No. 55,687

Int. Cl. B23k 19/00

U.S. Cl. 29—527.7

22 Claims



A method of producing wrought material containing beryllium and aluminum comprising: forming a casting of said material in a mold having high thermal conductivity material;

applying a protective coating to said casting; heating the coated casting at a temperature of 700° to 1,100° F for a period of 5 to 100 hours; extruding the heated casting at a rate of about 13 to 60 inches per minute; removing the jacket from the extruded casting; heating the extrusion at a temperature of 900° to 1,150° F for a period of time of 12 hours to 1 week; and rolling the heated extrusion at a total reduction of 10 to 98%.

3,657,805

METHOD OF HOUSING SEMICONDUCTORS

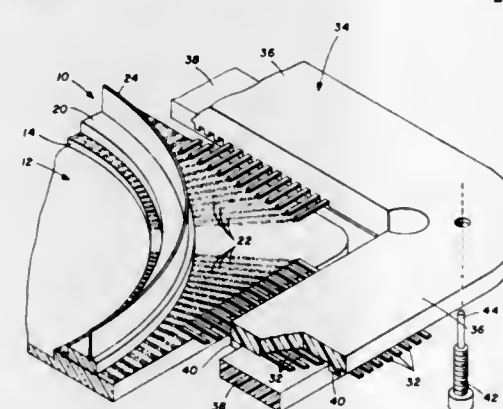
Clair Allen Johnson, Sherman, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 2, 1970, Ser. No. 67

Int. Cl. B01j 17/00

U.S. Cl. 29—589

12 Claims



In a method of housing semiconductors, a sealing collar formed from a nickel-cobalt-iron alloy is mounted on a ceramic boat. An LSI slice is then mounted on the boat within the collar. Finally, a lid formed from the material of the collar is welded to the distal end of the collar. In a second embodiment of the method, the boat is formed from a ceramic ring, a nickel-cobalt-iron alloy plate and a molybdenum plate. In a third embodiment, an LSI slice and at least one conventional integrated circuit are mounted on the boat within the collar.

3,657,806

METHOD FOR MANUFACTURING A THIN-FILM MAGNETIC HEAD ASSEMBLY

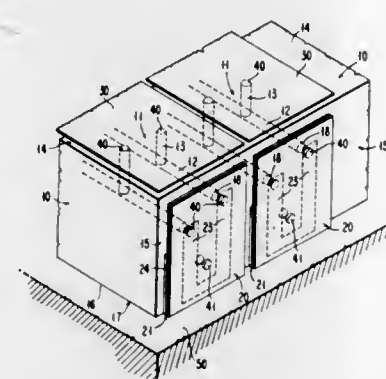
Paul Simon, Palo Alto, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 28, 1970, Ser. No. 101,561

Int. Cl. G11b 5/42; H01f 7/06

U.S. Cl. 29—603

6 Claims



This application discloses a method of manufacturing a thin-film magnetic head assembly. The steps comprise preparing a ceramic substrate to have internal electrical conductors between the top surface and one of the side faces of the substrate, lapping the side face to expose the electrical conductors, first bonding a thin-film head to the side face, connecting conducting portions of the thin-film head to the exposed conductors, second bonding a circuit chip to the top surface of the ceramic substrate, and connecting the electri-

cal conductors on the top surface of the ceramic substrate to the integrated circuit chip for providing electrical continuity from the integrated circuit chip to the thin-film head.

3,657,807

PROCESS FOR FORMING INTERSTITIAL CONDUCTORS BETWEEN PLATED MEMORY WIRES

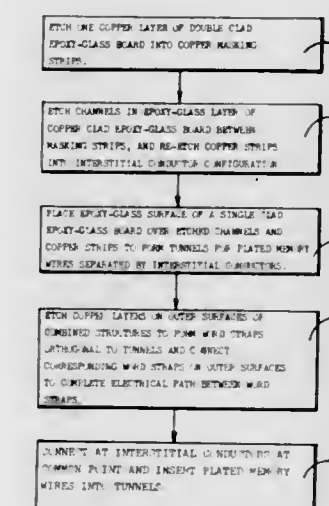
Joseph M. Shaheen, La Habra, and John Simone, Garden Grove, both of Calif., assignors to North American Rockwell Corporation

Filed June 12, 1970, Ser. No. 45,737

Int. Cl. H01f 7/06

U.S. Cl. 29—604

5 Claims



A copper layer of a double metal clad dielectric board is etched into strips. The strips are used as masks for etching channels in the dielectric board. The strips are re-etched into a preferred interstitial conductor width. A single copper clad dielectric board is placed over the channels to form tunnels for plated memory wires. The tunnels are filled with plated memory wires and the outer metal layers of the structure are etched into conducting strips orthogonal to the tunnels to form word straps for the plated wire memory. The copper strips comprising the interstitial conductors between the tunnels are connected together at a common point.

3,657,808

METHODS OF CONSTRUCTING ELECTRICAL COILS

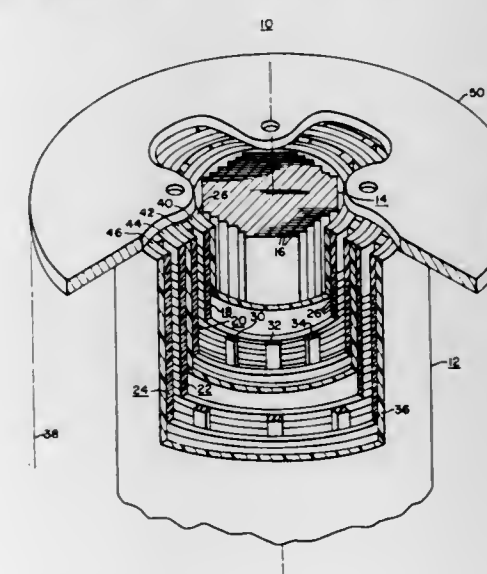
Frank R. Zickar, Frank W. Benke, and James L. Rotruck, all of Sharon, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 21, 1970, Ser. No. 65,983

Int. Cl. H01f 7/06

U.S. Cl. 29—605

9 Claims



A method of constructing electrical coils of the cylindrical type for high temperature dry type transformers, wherein the

coil collars are formed of a plurality of first and second plies of insulating materials stacked in a predetermined sequence to a predetermined build dimension. At least the first plies are impregnated with a thermosettable resin which has been advanced to an intermediate state, still fusible but dry to the touch, and which is subsequently cured to a solid infusible state to consolidate the collars into unitary laminated assemblies.

3,657,809

PROCESS FOR MAKING THIN METAL TUBING
Gunter Lehnert, Hannover-Bothfeld, Germany, assignor to Kabel-und Metallwerke Gutehoffnungshütte Aktiengesellschaft, Hannover, Germany

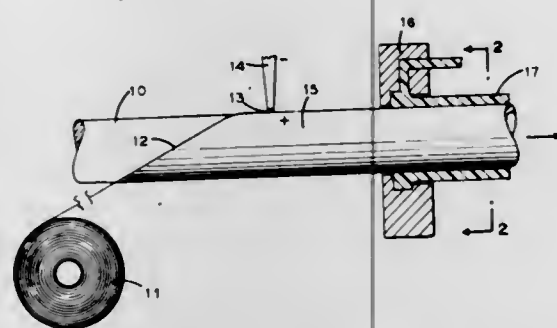
Filed Sept. 13, 1968, Ser. No. 759,617

Claims priority, application Germany, Sept. 14, 1967, K 63,355

Int. Cl. B23p 3/00, 19/04

U.S. Cl. 29—624

8 Claims



A process for making thin metal tubing as a sheath for electrical cable or as a conduit, wherein very thin metal foil is continuously converted into tubular sheathing as over an electrical cable core, the longitudinal edges of the foil being overlapped and welded, with the immediate application thereafter of a thermoplastic copolymer coating which is tightly adherent to the metal surface of the sheathing, the composite metal foil-plastic tubing having substantially increased mechanical strength.

3,657,810
RAZOR

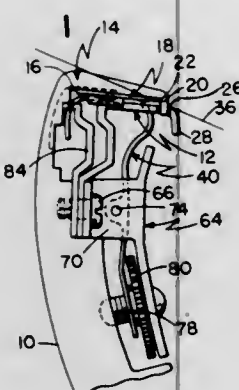
Warren I. Nissen, Topsfield, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Oct. 9, 1968, Ser. No. 766,210

Int. Cl. B26b 2/14

U.S. Cl. 30—63

11 Claims



A safety razor includes spaced cap and guard support members. A 0.008 inch thick beryllium copper biasing spring has a horizontal blade support strip between the cap and guard support members out of which is bent an upwardly projecting finger and a depending foot. The spring is secured to a bracket which carries an adjusting shaft. The spring urges a blade forwardly into a region of maximum blade edge exposure from which it retracts when increased resistance is encountered during a shaving operation sufficient to overcome the biasing force of the spring.

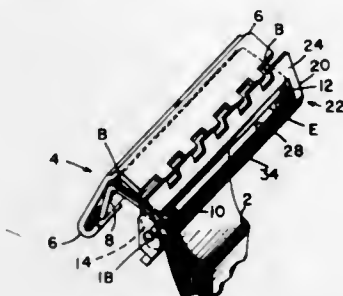
3,657,811
RAZOR WITH PIVOTALLY MOUNTED SAFETY GUARD
Warren I. Nissen, Topsfield, and Roger L. Perry, Lynnfield Center, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed July 1, 1970, Ser. No. 51,502

Int. Cl. B26b 21/16

U.S. Cl. 30—77

6 Claims



A safety razor including a handle portion and a head portion mounted on one end of the handle portion. The head portion includes blade support means, and a pivotally mounted safety guard member.

3,657,812

RETRACTIBLE TOOL HOLDER

Dennis D. Lee, Oskaloosa, Iowa, assignor to G & L Industries, Inc., Oskaloosa, Iowa

Filed Sept. 28, 1970, Ser. No. 76,153

Int. Cl. B26b 1/08

U.S. Cl. 30—162

7 Claims



The tool holder is of a pencil type and includes a barrel or outer member in which is slidably carried a support or inner member that is connected in an end to end relation with a tool member for movement of the tool member to extended and retracted positions relative to one end of the barrel member. A linearly extendible and retractible latch means positioned transversely of and through the tool holder coacts with portions of the barrel member and the support member to define the retracted and extended positions of the tool member.

3,657,813

POWERED TREE PRUNING SAW

Erwin C. Knight, Watertown, Wis., assignor to McGraw-Edison Company, Elgin, Ill.

Filed Nov. 29, 1968, Ser. No. 779,803

Int. Cl. B26b 27/00

U.S. Cl. 30—166

9 Claims



A portable powered pruning saw including a power housing having a powered rotatable output shaft; a saw housing having a motion converting mechanism with a rotatable input shaft and a reciprocating output element, and a saw blade reciprocated by the output element; one or more pole extension elements interconnecting the power and saw housings and each including a rotatable shaft, and coupling means to

rotatably key all shafts together; a guide on the saw housing including spaced arms that transversely straddle the saw blade with blade guide means thereon engaging opposite sides of the saw blade and with a limb engaging edge adjacent the cutting edge of the saw blade; and handle means including a hand grip on the pole extension element adjacent the power housing, and a shoulder strap from the hand grip adapted to be draped over the head and shoulder of the user.

Home ownership and leisure time, both being on the increase, provide ample opportunity for outdoor gardening enterprises. Power garden tools are generally available to permit an individual to maintain such things as lawn and hedges neatly trimmed with a minimum of physical effort. However, heretofore no suitable powered portable tree pruning saw has been available, particularly one economical and safe enough to permit an amateur to buy, assemble, use and disassemble.

3,657,814

TOOL TO CLEAN GRASS AND DIRT FROM AROUND SPRINKLER HEADS

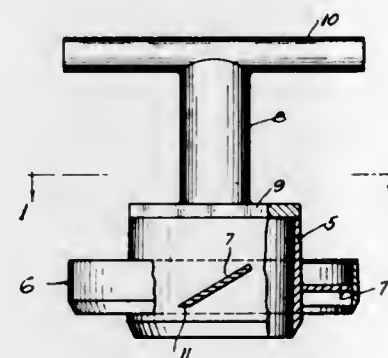
Ivan C. Bohlman, 208 North 2nd Avenue, Walla Walla, Wash.

Filed June 8, 1970, Ser. No. 44,422

Int. Cl. B26b 3/04

U.S. Cl. 30—302

3 Claims



The tool comprises a smaller inner tubular member and a larger outer tubular member coaxially positioned to provide an annular space between them and rigidly secured together by inclined or pitched blades. The inner tubular member is of a diameter which adapts it to fit rotatively over a sprinkler head of the type commonly used at about ground level in automatic lawn sprinkler systems. The tool has a handle to be used in applying it to a sprinkler head and in rotatively moving it to clear obstructions which would interfere with spray from the head from a small circular space around the head.

3,657,815
DENTURES

Douglas W. Powell, 9 Chapman Place, Irvin, N.J.

Filed Apr. 22, 1971, Ser. No. 136,357

Int. Cl. A61c 13/00

U.S. Cl. 32—2

4 Claims



Bimetallic strip material is embedded in a somewhat flexible denture to cause the denture to better hug the gums of the wearer under the action of body heat.

3,657,816

DENTAL RESTORATION APPLIANCE

Harry C. Hagman, 3801 West Broadway, Minneapolis, Minn.

Filed Dec. 28, 1970, Ser. No. 102,003

Int. Cl. A61c 5/08

U.S. Cl. 32—13

11 Claims



A dental appliance for holding an artificial porcelain tooth facing while the top portion of the tooth is formed or built up upon. The device includes a matrix, i.e., shank or stem, and a top platform with a porcelain confining ridge or wall. It has means for holding the tooth in stable position during working and is made from a heat destructible material destroyed during fusion of the porcelain.

3,657,817

HOLDER FOR AN ORTHODONTIC BRACKET

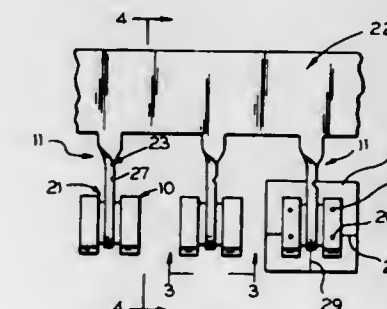
Peter C. Kesling, Green Acres, La Porte, Ind.

Filed May 18, 1970, Ser. No. 38,044

Int. Cl. A61c 7/00

U.S. Cl. 32—14 A

6 Claims



A holder for an orthodontic bracket including a bifurcated blade having a pair of legs, which straddle a portion of the bracket to facilitate mounting of the bracket. A handle extends from the blade for facilitating manipulation of a bracket held by the blade.

3,657,818

STERILIZABLE HANDPIECE OF THE SLIP-SLEEVE TYPE

Marcel Garnier, Besancon, France, assignor to Micro Mega S.A., Besancon, France

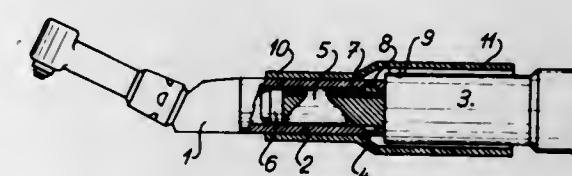
Filed July 28, 1969, Ser. No. 845,342

Claims priority, application France, Oct. 29, 1968, 171850

Int. Cl. A61c 1/10

U.S. Cl. 32—27

2 Claims



An electrically operated handpiece for use in surgical and dental work adapted to be assembled to a micromotor by a

slip-sleeve is described. The assembly is provided with a tubular body, fitting around the slip-sleeve. Fastening means are provided for releasably securing the handpiece to the micromotor. A resilient protective sleeve extends over the tubular body as well as at least part of the motor to prevent contact between the micromotor and the hands of an operator.

3,657,819

DENTAL SOAKING FOR SOAKING WATER, BLOOD, SALIVA, AND THE LIKE, FROM THE MOUTH OF PATIENTS

Karl Gustav Soderqvist, Hagersten, Sweden, assignor to Dentalakttelbolaget, Stockholm, Sweden

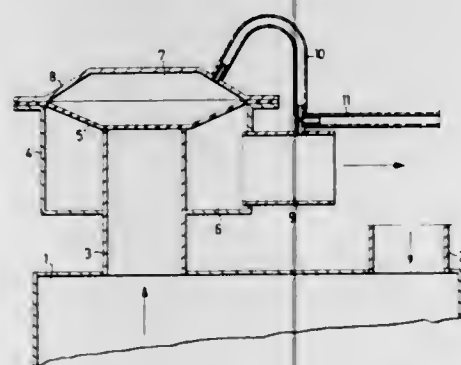
Filed Jan. 23, 1970, Ser. No. 5,290

Claims priority, application Sweden, Feb. 14, 1969, 2093/69

Int. Cl. A61c 17/04

U.S. Cl. 32—33

3 Claims



The invention relates to a dentist's soaking apparatus, comprising a separation tank for separating suction air and blood, water, etc., a valve means being provided in a suction conduit and switchable between two positions by means of a control conduit.

3,657,820

DEVICE FOR PREPARING PERSPECTIVE VIEWS FROM ORTHOGONAL VIEWS

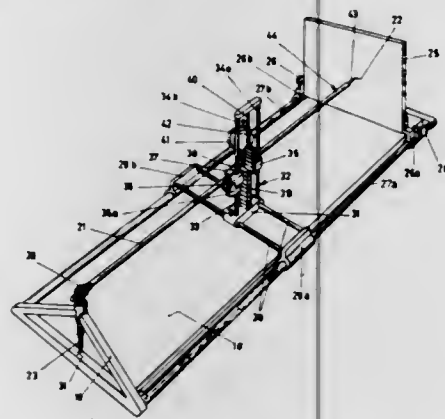
Dirk Vermeulen, Pluierloan 8, Eindhoven, Netherlands

Filed Apr. 1, 1970, Ser. No. 24,498

Int. Cl. B43I 13/00

U.S. Cl. 33—18 C

4 Claims



The device comprises a flat base plate, a drawing board at substantially right angles to the base plate, a guide rod having one end universally pivotally connected to a mounting in a tracing instrument carrying a tracing index located adjacent to the base plate, the mounting being adjustable in the tracing instrument in a direction perpendicular to the base plate, a shaft rotatable on a fixed axis extending parallel to the base plate, a universal joint on one end of the shaft in which the guide rod is slidably mounted, and a universal joint connecting the other end of the shaft to a rod extending parallel to the guide rod and having an end provided with a stylus for marking on the drawing board, the two rods being pivoted to the two ends of a coupling rod extending parallel to the shaft.

3,657,821

VEHICLE ORIENTING DEVICE AND METHOD

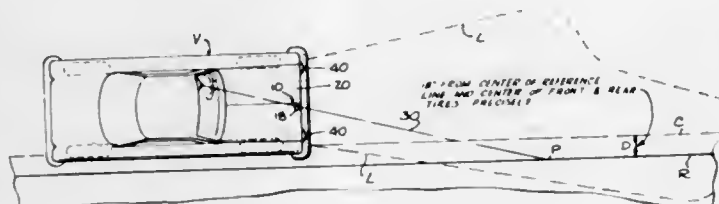
Peter A. De Nure, 21 Upper Loudon Road, Loudonville, N.Y.

Continuation-in-part of application Ser. No. 621,913, Mar. 9, 1967, now abandoned. This application Dec. 31, 1969, Ser. No. 889,638

Int. Cl. G01c 5/00

U.S. Cl. 33—46 AS

2 Claims



An orienting device for enabling the operator of a moving vehicle to maintain the vehicle a predetermined distance from a reference line at the right side of a lane on a road or the edge of the road. The device comprises a sighting member positioned on the front portion of the top of the hood of the vehicle along that line of sight of the operator which, with the operator in his normal driving position and the vehicle disposed parallel to and at the predetermined distance from the reference line, both is tangent to the right front portion of the hood of the vehicle and intersects the reference line on the road.

3,657,822

DRAWING HEAD FOR USE IN DRAWING DEVICES

Evgeny Mikhailovich Perminov, ulitsa Angarskaya, 26, korpus 1, kv. 10, Minsk, U.S.S.R.

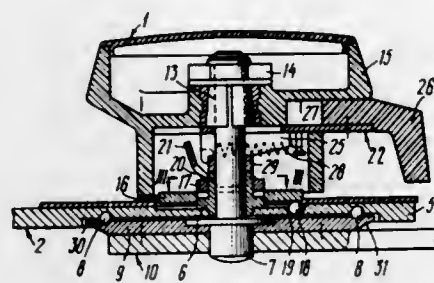
Filed July 22, 1970, Ser. No. 57,132

Claims priority, application U.S.S.R., Aug. 14, 1969, 1358215

Int. Cl. B43I 13/02

U.S. Cl. 33—79 R

2 Claims



A drawing head for use in drawing devices, in which a first flat member is, along with spherical bodies, integral with a bracket which connects the member with an arrangement used to move the head in the plane of a drafting board, and is rigidly fixed to a hub accommodating an axle. A second flat member is rigidly fixed to the axle and has cavities corresponding to the spherical bodies. The arrangement used to turn one flat member relative to the other member includes two washers mounted on the hub one above the other. With the first washer resting upon tappets disposed in openings in the first flat member, and resting upon the surface of the second flat member, and the second washer is mounted stationarily in the axial direction.

Arranged between the washers is a lever which acts upon the first washer in the course of its interaction with a spring-loaded clamp disposed in the casing of the head.

3,657,823

WEB MONITORING DEVICE

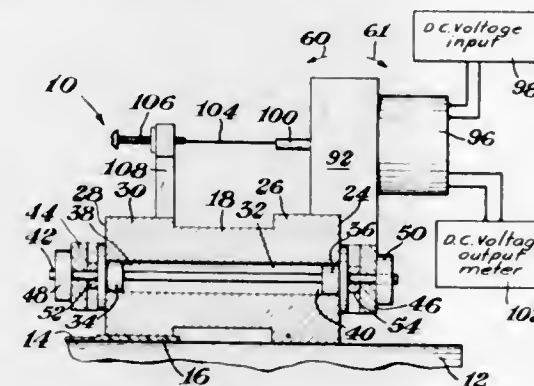
Harold L. Hearn, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 1, 1969, Ser. No. 881,009

Int. Cl. G01b 5/00

U.S. Cl. 33—172 F

2 Claims



A device for monitoring film or web changes from the "ideal" thickness while the film is moving, and particularly at strategic locations such as film edge regions. Such a device can comprise a sensing roll or roll means freely rotatably in a yoke member, and, in addition, reversibly "tiltable" about an axis aligned with the direction of film movement. One edge of the roll means engages the moving film against back-up means, and thus "tilts" or moves upwardly responsive to increased film thickness, and downwardly responsive to diminished thickness. Movement of the roll means, in turn, operates an electrical recording means whereby such film thickness deviations are automatically and continuously recorded.

3,657,824

TEMPLATE FOR USE IN MARKING FIREBRICK PREPARATORY TO CUTTING FOR FIREBOXES OF FIREPLACES AND SIMILAR STRUCTURES

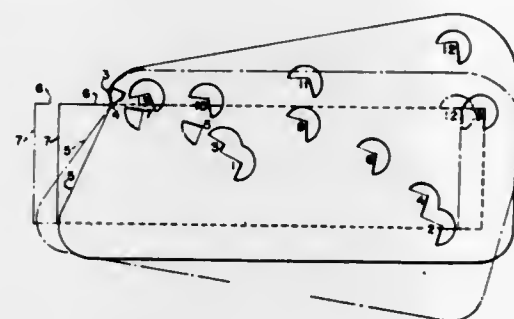
Gerald M. Kwast, 1690 Cleveland, Corvallis, Oreg.

Continuation-in-part of application Ser. No. 821,886, May 5, 1969, now abandoned. This application Oct. 5, 1970, Ser. No. 77,901

Int. Cl. B43I 13/20

U.S. Cl. 33—174 G

4 Claims



A reversible template for use in marking firebrick such as those used in constructing the right and left hand sidewalls of fireboxes and similar structures. The template comprises a flat plate having a straight edge on one side thereof and a fulcrum point at the top of that edge for alignment with the top surface of a brick to be marked. The plate has a plurality of index points visible therethrough and spaced at selected predetermined distance the fulcrum point. Rotating the plate about the fulcrum point when such is aligned with the top surface of the brick and aligning a top corner of the brick with a selected index point positions the straight edge of the plate for marking the side surface of the brick at the opposite end thereof on an angle and to a length determined by the index point so selected.

3,657,825

METHOD AND APPARATUS FOR CONTROLLING THE HEAT INTENSITY OF AN ENVELOPE MACHINE DRIER

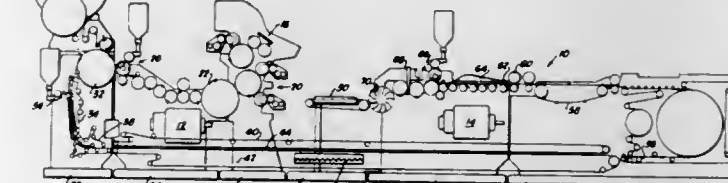
Herbert W. Helm, Hollidaysburg, and Edgar V. Weir, Butler, both of Pa., assignors to F. L. Smith Machine Company Inc., Duncansville, Pa.

Filed July 2, 1967, Ser. No. 51,754

Int. Cl. F26b 3/32

U.S. Cl. 34—41

10 Claims



Envelope blanks with a wet adhesive applied to the seal flap portion are conveyed through a drier by an endless chain conveyor. The conveyor is driven at the same speed as the other machine components to serially convey the blanks as they are supplied to the conveyor from the seal gum applicator and collator section of the machine. A wound rotor motor is provided to drive the machine components and the drier conveyor. The rotor voltage of the wound rotor motor varies inversely with the speed of the motor, the maximum voltage being generated when the motor speed is at a minimum. A drier circuit is provided that includes a separate source of current with the drier resistors and silicon controlled rectifier in series. The source of current for the drier circuit is also connected to the output coils of a magnetic amplifier in a heater control circuit. The magnetic amplifier is connected to a pulse transformer and the output coils of the pulse transformer provide a signal to control the gates of the silicon controlled rectifiers. With this arrangement the magnetic amplifier controls the firing angle of the SCRs and the current flowing through the heater resistors. The heater control circuit is arranged so that the magnetic amplifier without a substantial feed-back voltage from the rotor is full on and supplies heat to the drier at the maximum intensity. This condition is approached when the machine is running at maximum design speed where a minimum voltage feed-back is generated. As the speed of the machine and of the wound rotor motor is reduced, the rotor voltage increases and a feed-back of this rotor voltage through the input coil of the magnetic amplifier serves as a negative control on the magnetic amplifier to reduce the current flow through the output coils and in turn reduce the current flow through the SCRs to the heater resistors. As the speed of the motor and the machine is reduced further, the rotor feed-back voltage increases and thereby increases the voltage in the magnetic amplifier input coil to apply an increased negative control and further reduce the current flow through the SCRs to the heater elements. The rotor voltage supplied to the heater control circuit as a feed-back from the wound rotor motor, increases or decreases the heat intensity of the drier. As the motor speed increases, the rotor voltage decreases and the drier heat intensity increases. Conversely, when the motor speed decreases, the rotor voltage increases and as a negative control, decreases the drier heat intensity proportionately.

3,657,826

SEMICONDUCTOR LASER MARKSMANSHIP TRAINING DEVICE

Albert H. Marshall, Maitland, and George A. Siragusa, Winter Park, both of Fla., assignors to The United States of America as represented by the Secretary of the Navy

Filed May 25, 1970, Ser. No. 40,072

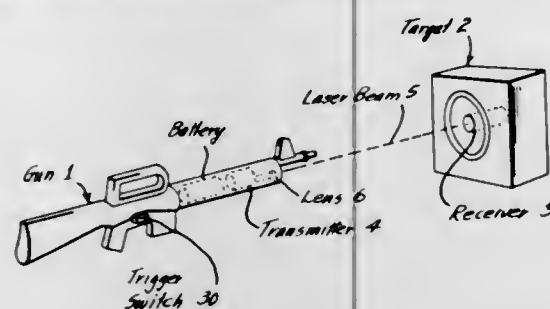
Int. Cl. F41g 3/26

U.S. Cl. 35—25

7 Claims

A marksmanship training device using low-power low-cost semiconductor laser diodes in a simulated weapon for safe

marksmanship training. The laser beam intensities developed are such that there is no possibility of eye injury to users. The rate of fire and firing periods as well as the beam area of the



simulated weapon can be adjusted to simulate the characteristics of any weapon. Lightweight solid state circuitry is used. A laser beam responsive indicating target is provided.

3,657,827

PRESSURE DISTRIBUTION ELEMENT FOR BOOTS

Justus Rieker, Panoramastrasse 130, Tuttingen/Württemberg, Germany

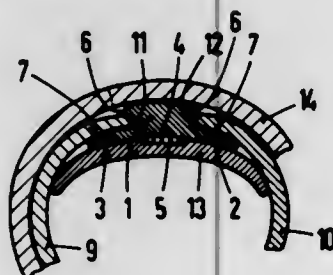
Filed May 18, 1970, Ser. No. 38,235

Claims priority, application Germany, May 21, 1969, P 19 25 793.3

Int. Cl. A43b 23/00

U.S. Cl. 36—50

8 Claims



A pressure distribution element for use with a ski boot, comprising first and second webs arranged to define grooves for receiving opposite edges of the leg openings of the boot. The pressure distribution element may be made of molded plastics material, and may be used with boots which are closed by strap and lever fastenings.

3,657,828

SCRAPER SNOWPLOW WITH PIVOTAL DOZER BLADE

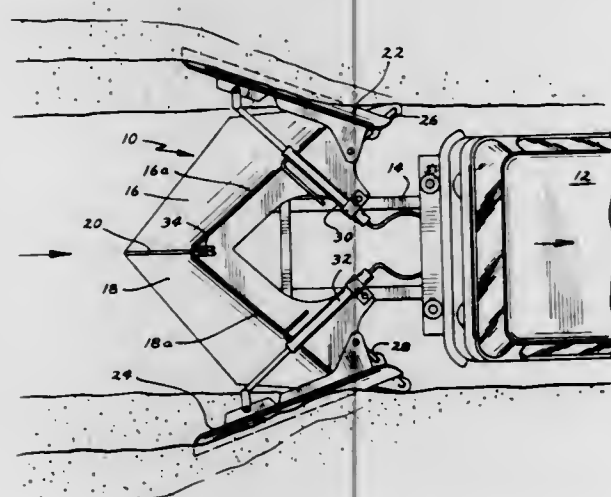
Percy D. Anderson, 605 Thomas Avenue, Marshall, Minn.

Filed Oct. 23, 1970, Ser. No. 83,317

Int. Cl. E01h 5/00

U.S. Cl. 37—46

10 Claims



A dozer blade is positioned along the upper edge of an angularly positioned scraper snowplow blade and pivotally

mounted adjacent the trailing edge thereof to receive accumulated compacted snow when the snow reaches a depth too great to be thrown away from the path of travel by the scraper blade. When the scraper blade is stopped by the accumulation of compacted snow, the outer free end of the dozer blade is pivoted outwardly removing a portion of the accumulated snow from in front of the scraper blade. The plow is then moved rearwardly with the dozer blade extended outwardly from the path of travel so that the snow at the sides of the scraper blade is pushed upwardly and outwardly beyond the trailing edge of the scraper blade to provide a wider path of clearance traveling in the rearward direction than in the forward direction so that during the next forward movement of the plow the scraper blade may move accumulated snow to the cleared side.

3,657,829

DRAGHEAD WITH CONCENTRIC HOLLOW CYLINDERS HAVING ALIGNABLE PORTS

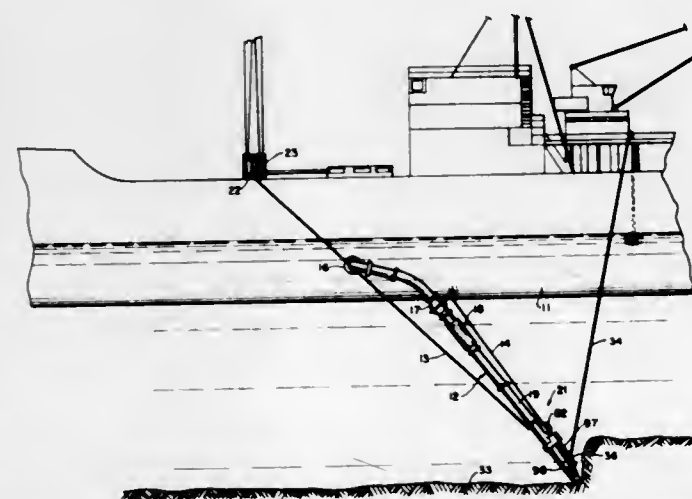
Richard S. Lovelace, Cos Cob, Conn., assignor to National Bulk Carriers Inc., New York, N.Y.

Continuation of application Ser. No. 514,025, Dec. 15, 1965, now abandoned. This application July 11, 1969, Ser. No. 845,932

Int. Cl. E02f 3/92

U.S. Cl. 37—63

17 Claims



A drag and draghead in which the draghead comprises concentric hollow cylinders having alignable ports, one of which being rotatable with respect to the other to change the alignment between the ports to vary the overall intake area to improve start-up characteristics and limit cavitation. A water jet arrangement is provided adjacent the intake ports to loosen the spoil and improve the intake of the drag. The drag pipe includes flexible joints and control lines to sweep it about the area to be dredged.

3,657,830

BOWL LIFT JACK MOUNTING FOR EARTHMOVING SCRAPER

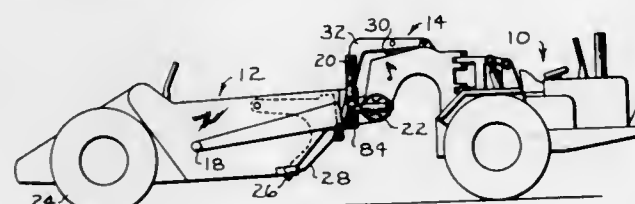
Thomas R. Hamilton, Crest Hill, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 9, 1970, Ser. No. 9,604

Int. Cl. E02f 3/62

U.S. Cl. 37—129

2 Claims



A connection between the upper end of a bowl lift jack and tubular spreader of a bowl draft frame which connection

is in the form of a gimbal having a spindle which extends through and is supported for rocking motion in one direction in the tubular spreader and has a bifurcated end or yoke outside of the spreader with journals thereon for supporting the jack for rocking motion in a direction normal to the first direction.

3,657,831

OFFSETTING CABLE PLOW

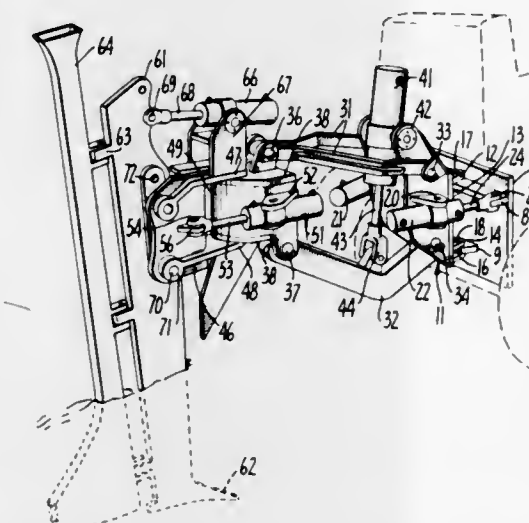
Alvin W. Kant, San Leandro, Calif., assignor to American Tractor Equipment Corporation

Filed May 11, 1970, Ser. No. 36,085

Int. Cl. E02f 5/18

U.S. Cl. 37—193

7 Claims



A cable plow is provided which is mounted at the rear of a suitable dirigible vehicle such as a crawler-type tractor. The cable plow is supported on a mounting plate at the rear of the vehicle for movement transversely of the vehicle by means of a vertical pin which is supported immediately adjacent to the mounting plate on the vehicle. By using such a mounting, one secures a reduction in the overall overhang of the plow from the vehicle by as much as 2 or 3 feet.

3,657,832

METHOD OF AND APPARATUS FOR FEEDING LAUNDERED TEXTILE SHEETS TO A FEED BAND

Norman Stanley Valentine, Angmering, England, assignor to Polymark Limited

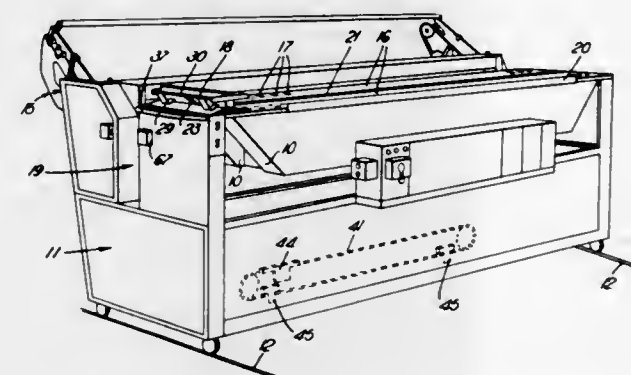
Filed Aug. 29, 1969, Ser. No. 854,107

Claims priority, application Great Britain, Sept. 3, 1968, 41,930/68

Int. Cl. D06f 67/04

U.S. Cl. 38—143

30 Claims



Sheets and like flat work are prepared for feeding to ironing or calendering machines by conveying an edge portion of each sheet on to a table surface on which said portion is held by suction, and said portion is then transferred towards feed

tapes of the machine by means of a plurality of transverse members at least one of which moves relatively to the sheet to form a fold which is passed towards the machine and the edge is laid on and gripped by the feed tapes, and the sheet is drawn in a sinuous path over the transverse members to smooth out the sheet as it passes towards the machine. A suction box may act initially on the leading edge of the sheet and the remainder of the sheet is later drawn in the form of a loop into the suction box. The equipment may include a clear bar to retain a hanging part of the sheet during the movement of a first transfer bar to form a loop and a second transfer bar to form a further loop and to transfer it on to the feed tapes.

3,657,833

MULTIPLE-DISPLAY SIGN DEVICE

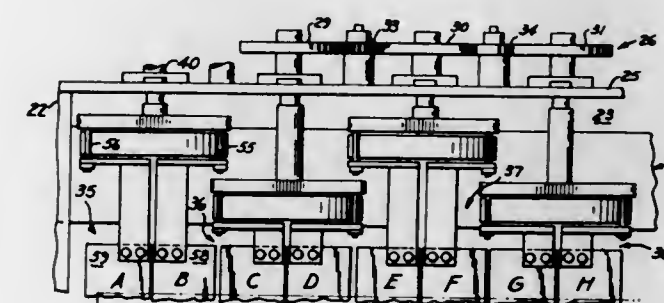
Richard H. Vetter, Pacific Palisades, Calif., assignor to United Artists Theatre Circuit, Inc., San Francisco, Calif.

Filed Oct. 16, 1968, Ser. No. 768,105

Int. Cl. G09f 11/6

U.S. Cl. 40—35

13 Claims



A multiple-display sign device which is capable of displaying a plurality of individual presentations on an alignment to a viewer and, in its preferred embodiment, to do so on a plurality of alignments. In the preferred embodiment, a support provides for a plurality of sign front alignments which can be brought to face a given direction by turning the support. A plurality of multiple-faced sign surface members is provided for each alignment, at least one of which is pivotally joined to the support so that at least two of the members about each other with faces aligned toward the given direction when the respective alignment faces that direction. Means is provided for periodically turning the pivotable sign surface members relative to the support so that different faces face toward the respective directions. According to a preferred but optional feature of the invention, the means for turning the sign surface members do so sequentially with respect to the alignments whereby the respective alignments present a different display after 360° of support rotation.

According to another preferred but optional feature of the invention, the sign surface members are pivotally mounted to apices of a polygonal array and turn as leaves around the respective apices.

3,657,834

CONVENTION BADGE HOLDERS AND PRINTING CARD INSERT

Gabriel G. Tauber, Washington, D.C., assignor to G. G. Tauber Company, Inc., Rockville, Md.

Filed Dec. 14, 1970, Ser. No. 97,761

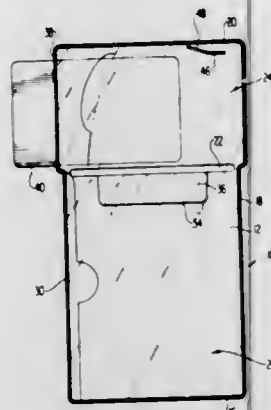
Int. Cl. A44c 3/00

U.S. Cl. 40—1.5

5 Claims

A convention badge holder of the pocket mounted type having two compartments containing a combined printing and identity card in one compartment, and a convention

schedule or the like in the other compartment. The printing/identity card is removed and replaced by means of a slot



having an entry portion, and is guided into position by a guide seal of particular configuration.

3,657,835

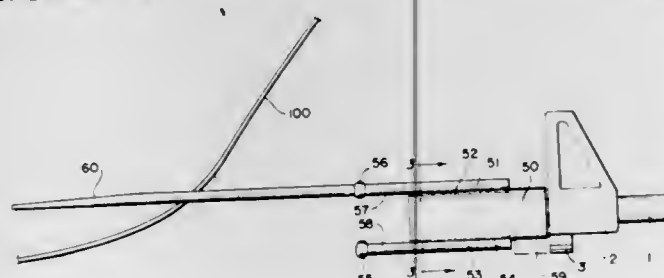
BALLISTIC CUTTING IMPLEMENT

Daniel D. Musgrave, 8201 Caraway Street, Cabin John, Md.
Filed Apr. 28, 1970, Ser. No. 32,523

Int. Cl. F41c 27/00

U.S. Cl. 42—90

3 Claims



An implement is mounted on the muzzle of a firearm to permit severing a strand of wire or other obstacle by discharging a bullet. The implement includes windlassing means to take up slack in the strand and thereby assure alignment of the strand with the bore of the firearm. The windlassing means is compatible with a variety of obstacle materials of different configurations and dimensions.

3,657,836

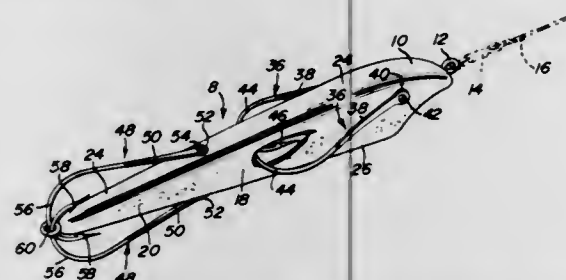
FISHING PLUG WITH PAIRED SNAGLESS HOOKS

Raymond Harris, 1030 Fourth Street, Saraland, Ala.
Filed Apr. 13, 1970, Ser. No. 27,547

Int. Cl. A01k 85/00

U.S. Cl. 43—42.41

7 Claims



A fishing plug provided on opposite forward sides with a first pair of spring-biased normally expanded but squeezable fishhooks and at its rearward tail end with a second pair of dorsal and ventral hooks. The barbed bends of the hooks at the headed forward end cross each other and are nested and cocked in recesses and spring out when the yieldable external shanks are sprung toward each other. The barbed bends of the second pair of hooks operate through an eye at the tail end and the barbs are cocked against diametrically opposite exterior surfaces of the plug. The use of paired forward and rearward hooks insures snagless fishing.

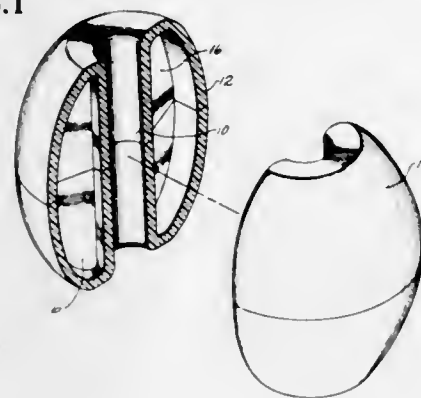
**3,657,837
FISHING FLOAT CONSTRUCTION**

Kenneth E. Price, El Monte, and Edwin E. Presby, West Covina, both of Calif., assignors to Rainbow Lifeguard Products Inc., El Monte, Calif.
Filed Jan. 22, 1970, Ser. No. 4,861

Int. Cl. A01k 93/00

U.S. Cl. 43—43.1

3 Claims



Foamed lower olefin polymers, particularly foamed low density polyethylene are used for the construction of extremely durable floats for commercial fishing nets, lobster pots and crab pots. A multi-chambered float in which a tubular inner wall is connected at its ends to a spaced surrounding outer wall and in which the inner wall is connected to the outer wall by radially extending spacing walls is used to provide a float of high buoyancy. The outer wall is convexly configured and the float manifests a substantially greater diameter at its midsection than at the ends. The float walls provide waxy surfaces of low moisture absorptivity.

3,657,838

BUILDING GAME SYSTEM

Robert Hanning, Lipperleihe; Kurt Meise; Willi Brinkmann, both of Paderborn, and Wilfried Laufer, Scharmede, all of Germany, assignors to Hanning-Kunststoffe, Robert Hanning, Paderborn-Moenkeloh, Germany

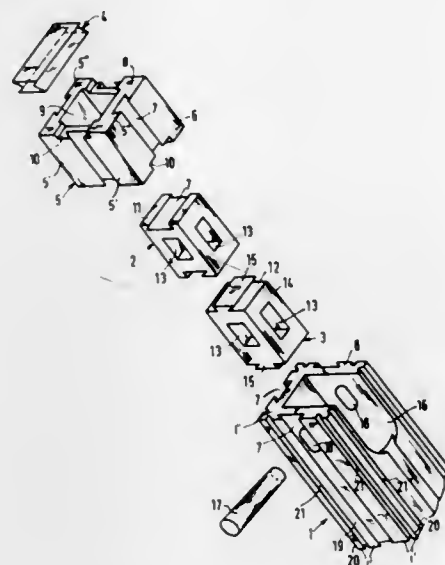
Filed Feb. 10, 1970, Ser. No. 10,139

Claims priority, application Germany, Feb. 7, 1969, P 19 06 151.9

Int. Cl. A63h 33/06

U.S. Cl. 46—19

15 Claims



A construction game system having cube-shaped corner pieces and construction rods of equal cross section, which comprises construction rods and corner pieces including side faces, the side faces of the construction rods and of the corner pieces has parallel disposed, dovetail shaped grooves, the corner pieces and the construction rods define a hollow space of substantially square cross section between the end faces. Further construction elements are provided as connect-

tion, fortification, and holding-members, the members are equipped with one of the same grooves and projections. At least one connecting member has such cross section that it is at least partly insertable into the hollow spaces of the corner pieces and of the construction rods and are lockable by means of holding members.

3,657,839

APPARATUS FOR POTTING OF PLANTS

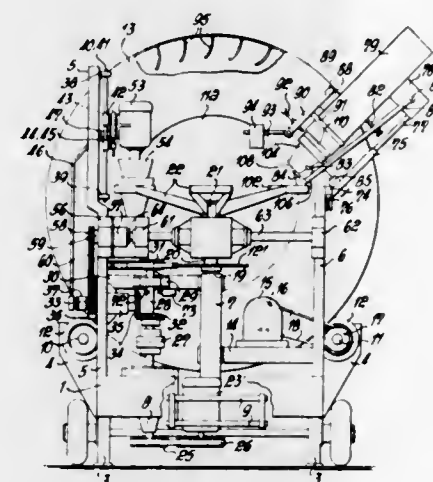
Bruno Krause, 6949 Gaden near Waldmichelbach, Germany
Filed Sept. 30, 1970, Ser. No. 76,949

Claims priority, application Germany, Oct. 8, 1969, P 19 50 661.7

Int. Cl. A01g 9/08

U.S. Cl. 47—1

36 Claims



A hollow drum is mounted for rotation about an at least substantially horizontal axis and in its opposite axial ends it is provided with respective center openings through one of which particulate potting material such as earth in flowable state is to be introduced. A feed introduces through the other of the openings sequentially upwardly open potting containers which are subsequently withdrawn from this other opening. Rotating means rotates the drum about its axis and entraining blades interiorly of the drum continuously entrain and lift the potting material upwardly of the potting containers so that it cascades over and into them, thereby filling them preparatory to their withdrawal from the other opening.

3,657,840

DISPLAY UNIT FOR PLANTS, PARTICULARLY FLOWERS

Yves Benoist, Ferme de Fresnay, Garancieres, France

Filed Dec. 22, 1969, Ser. No. 887,293

Claims priority, application France, Dec. 24, 1968, 180484

Int. Cl. A01g 5/00

U.S. Cl. 47—41

4 Claims



The invention concerns a display unit for flowers which also conserves and protects them during transportation.

897 O.G.—46

3,657,841

HORTICULTURAL PLANT GROWING FRAMES
Francis Jordan, Ribbleson, England, assignor to Auriol (Guildford) Limited, Farnham, England

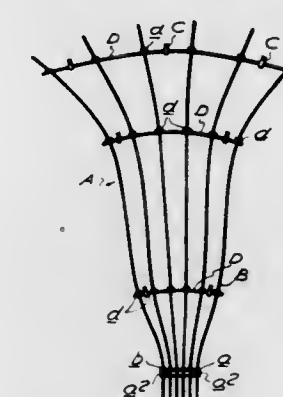
Filed Nov. 4, 1969, Ser. No. 873,917

Claims priority, application Great Britain, Nov. 23, 1968, 55,704/68

Int. Cl. A01g 17/06

U.S. Cl. 47—44

1 Claim



A plant or horticultural growing frame having a channel base member to receive the ends of vertical rods or wires spaced apart above the base by passing through eyelets in horizontal rods or wires to vary the inclination or contour of the upper ends of the frame.

3,657,842

VEHICLE OPENED GATE

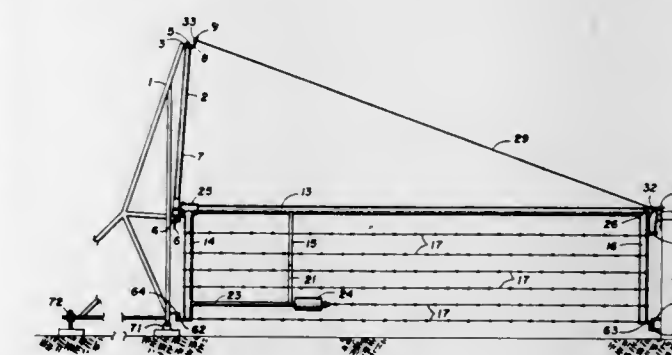
Felix B. Romberg, P.O. Box 218, Holland, Tex.

Filed Jan. 16, 1970, Ser. No. 3,318

Int. Cl. E05c 15/00

U.S. Cl. 49—364

15 Claims



A rectangular gate has a top frame member which carries a latch plate at one end and which houses an initially stressed torsion bar spring at the other end. When suitable vehicle thrust is applied to the gate, it yields along the bottom while the top frame member turns in place, thereby storing spring energy and upedging the latch plate until it releases the gate. Propelled by the spring stored energy, the released gate then swings about a vertical axis to its open position where it is automatically latched open for a time interval before returning to its closed position by gravity.

3,657,843

INTERNAL GRINDING MACHINE

Herbert R. Uhtenwoldt, Worcester; William H. Grotewold, Holden, and Edmund E. Wlodyka, Saxonville, all of Mass., assignors to The Heald Machine Company, Worcester, Mass.

Filed Oct. 15, 1969, Ser. No. 866,653

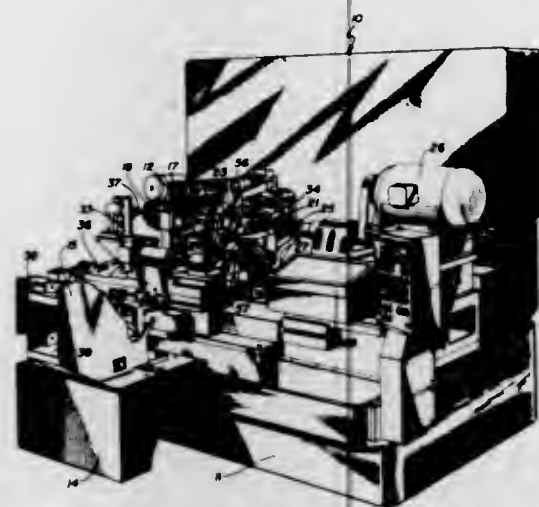
Int. Cl. B24b 5/18

U.S. Cl. 51—103 R

7 Claims

An internal grinding machine having a tool mounted only for transverse feeding movement with a workholder mounted

for movement toward and away from the tool to feed the work into and out of grinding position. The workpieces are incorporated in a resinous binder and are bonded thereby in the openings of the wheel. Diamond particles have a parti-



automatically loaded into the workholder in a retracted position from feed structure mounted on the base of the machine.

3,657,844

VIBRATION SANDER

Tadahisa Mogaki, Tokyo, Japan, assignor to Nitto Kohki Company Limited, Ohta-ku, Tokyo, Japan

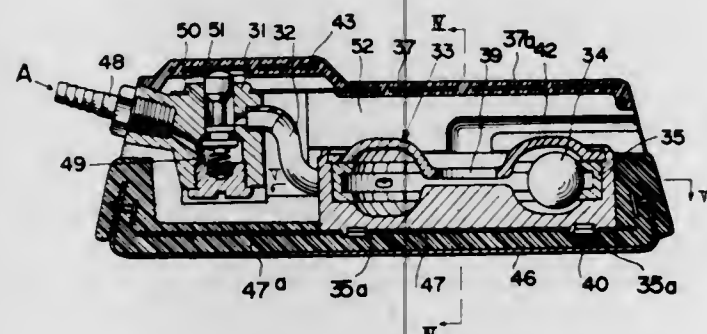
Filed May 7, 1970, Ser. No. 35,541

Claims priority, application Japan, May 14, 1969, 44/37193

Int. Cl. B24b 23/00

U.S. Cl. 51-170 MT

20 Claims



A sanding pad covered over its external surface with sand paper or cloth receives vibration from a driving means, which includes a rolling member circulating at high speed along a continuous path in a circulator under the pressure of compressed air, a continuous rotational vibration being generated by the centrifugal force of the circulating rolling member.

3,657,845

RESINOID POCKETED CUTOFF AND GRINDING WHEEL AND METHOD OF MAKING SAME

Shinji Sekiya, 8-19 3-Chome Takanagawa, Minato-ku, Tokyo, Japan

Filed May 18, 1970, Ser. No. 38,213

Claims priority, application Japan, June 14, 1969, 44/46504

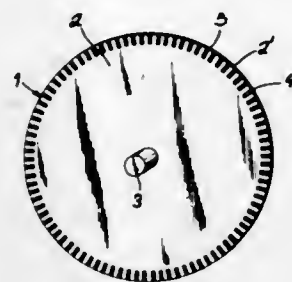
Int. Cl. B24d 5/06

U.S. Cl. 51-206 R

6 Claims

A cutoff or grinding wheel having a rotatable support, preferably in the form of a disk with a thickness of up to 1 mm, formed with a multiplicity of openings along the disk periphery. Diamond particles, with or without other abrasive,

are incorporated in a resinous binder and are bonded thereby in the openings of the wheel. Diamond particles have a parti-



cle size up to 40 microns and the binder is resinified by prolonged heating.

3,657,846

DISTORTION RESISTING AND ENERGY ABSORBING DEVICE

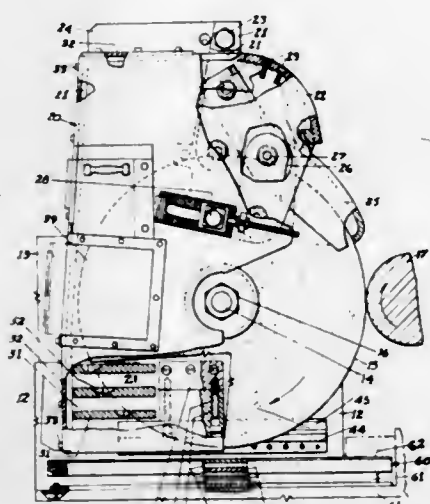
Milo P. Hullicka, Jr., Concord, Mass., assignor to Norton Company, Worcester, Mass.

Filed Sept. 21, 1970, Ser. No. 76,513

Int. Cl. B24b 55/04

U.S. Cl. 51-269

2 Claims



An arrangement for containing the grinding wheel fragments and the kinetic energy released therewith in the event of a grinding wheel failure in a high speed precision grinding machine, including a grinding wheel guard having a lower portion thereof of substantially constant U-shaped horizontal cross section open at its lower end and provided adjacent to its lower end with U-shaped sets of reinforcing ribs extending internally thereof toward the grinding wheel enclosed thereby, and including a distortion resisting and energy absorbing assembly fixedly mounted adjacent to and spanning the open lower end of the grinding wheel guard.

3,657,847

METHOD OF MAKING A TOWER PACKING ELEMENT

Nicholas T. Castellucci, Pittsburgh, Pa., assignor to Pittsburgh Corning Corporation, Pittsburgh, Pa.

Original application May 7, 1968, Ser. No. 727,242, Pat. No. 3,493,218. Divided and this application Sept. 8, 1969, Ser. No. 856,104

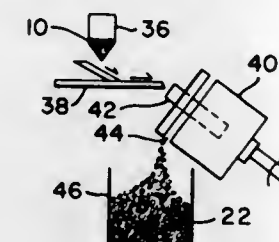
Int. Cl. B24b 1/00

U.S. Cl. 51-313

4 Claims

A cellular ceramic tower packing element. The tower packing element has an irregular, textured outer surface that provides a relatively large accessible surface area for the phase interaction of fluids. The tower packing elements are preferably spherical in shape and formed from cellular glass nodules that have a cellular core of a plurality of individual

completely closed cells and a thin, continuous outer skin. The surface of the nodule is abraded or milled to remove the thin, continuous outer skin and a portion of the layer of underlying closed cells to rupture or open the individual cells in the layer beneath the outer skin. The inner surface of the opened and exposed cells form the exterior surface of the tower packing element and provide an irregular textured exterior surface with each exposed cell cavity forming a recessed portion or a micro-cup in the tower packing ele-



ment exterior surface. The tower packing element, because of its cellular structure is relatively light in weight. The tower packing elements may be randomly packed in a tower to form a multiplicity of different types of passageways for the flow of fluids therethrough. The method of this invention contemplates treating cellular ceramic material by milling or abrading to expose the adjacent inner surfaces of the cell cavities to thereby enlarge or increase the accessible surface area of the tower packing element.

3,657,848

PORTABLE MANTLE ASSEMBLY

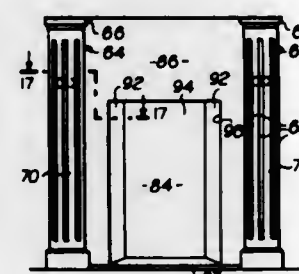
Louis Davidson, 581 Waterview Road, Oceanside, N.Y.

Continuation-in-part of application Ser. No. 884,268, Dec. 11, 1969, now Patent No. 3,580,192. This application May 21, 1971, Ser. No. 145,635

Int. Cl. A47g 29/02; E04f 19/08

U.S. Cl. 52-36

15 Claims



This invention is a composite mantle system for providing a room with a simple shelf mantle which can be supplied in a pre-assembled condition or in parts that can be added to from time to time to make a more elaborate mantle system, with or without provision for a simulated fireplace under the mantle as part of the mantle system. Parts are compatible with one another and constructed so that installations and additions can be made on a modular "do-it-yourself" basis, and parts are designed for construction from heavy kraft paper or corrugated paperboard, or plastic materials, or a combination of them, to provide an inexpensive form of the invention.

3,657,849

PREFABRICATED HOUSE OR BUILDING

Chester D. Garton, 603 West 6th Street, Chapman, Kans.

Filed May 25, 1970, Ser. No. 40,002

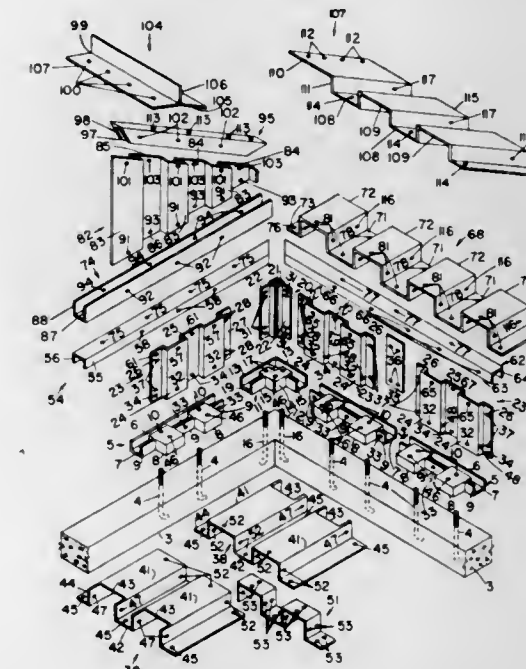
Int. Cl. E04c 2/32; E04d 3/30

U.S. Cl. 52-90

5 Claims

A foundation is provided. Sills are bolted to the foundation. The sills have sill backs, sill floors, sill box members and sill interconnecting members. A corner sill is also bolted to

the foundation and connects the sills at the corners. Corrugated wall panels are provided that have alternating wall ridges and wall depressions. The corrugated wall panels are mounted to the sills by mounting the wall panel ridges between the sill backs and sill interconnecting members and by mounting the wall panel depressions between the sill backs and sill box members. A corner post is mounted to the corner sill and connects the corrugated wall panels. A corrugated floor panel is mounted to the sills and corrugated wall



panel. A corrugated ceiling panel is mounted to a first and a second header mounted to the corrugated wall panel tops. A corrugated end panel having a sloping top is mounted to a third header mounted to the first header. A corrugated roof panel is mounted to a fourth header mounted to the corrugated end panel top. The roof panel ridges and roof panel depressions are so dimensioned that the roof panel ridges will fit in the ceiling panel ridges and the roof panel depressions will fit over the ceiling panel depressions.

3,657,850

STRIP FOR FIXING A WEB OF FLEXIBLE MATERIAL ONTO A SUPPORT

Jean Billarant, deceased, late of Nogent sur Marne, France (by Solange F. G. Soulard Widow Billarant, Administratrix), assignor to Velcro France, Paris, France

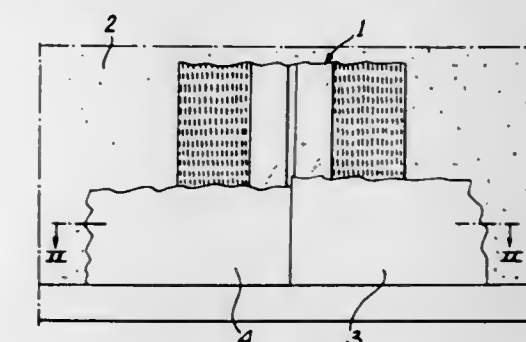
Filed May 19, 1970, Ser. No. 38,840

Claims priority, application Luxembourg, May 21, 1969, 58,699

Int. Cl. E04b 2/72

U.S. Cl. 52-222

8 Claims



The fixing strip is composed of a sole 7 intended to be fixed by its reverse, flat on the said support 2, whilst its front is provided, on the one hand, along one of its edge, over a fraction only of the width of the said sole, with a multitude of filiform elements for hooking with a corresponding part of the looped, fluffy, downy, springy, padded, cellular or similar

reverse of the material, and, on the other hand, over the other fraction of the width of the sole, along its other edge, with a continuous small tongue arranged in a plane parallel to that of the sole and whose free longitudinal edge is substantially facing the corresponding edge of the sole, the said small tongue leaving, between it and the front of the sole, a small gap into which the marginal portion of the web fixed on the said strip may be folded back.

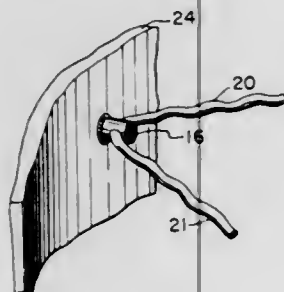
3,657,851

TWO-PIECE REFRACTORY ANCHOR FOR HEAVY DUTY CONSTRUCTION

Harry A. Chambers, Amherst, and Ronald Nehls, Lorain, both of Ohio, assignors to TRW Inc., Cleveland, Ohio
Filed June 24, 1970, Ser. No. 49,375
Int. Cl. E04b 1/16

U.S. Cl. 52-378

1 Claim

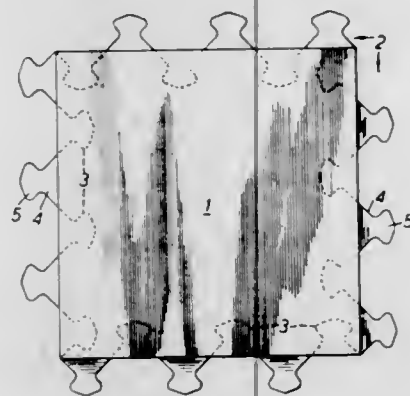


This is a two-piece refractory anchor which utilizes a jamb fit between a stud and the arms of the anchor to allow adjustment and movement of the arms of the anchor when the refractory moves in relation to its support.

3,657,852
FLOOR TILES

Walter J. Worthington, and Douglas R. Henson, both of 245 Walmby Road, Sulton Coldfield, England
Filed Sept. 15, 1969, Ser. No. 857,747
Int. Cl. E04f 13/18; E04c 1/30
U.S. Cl. 52-591

1 Claim

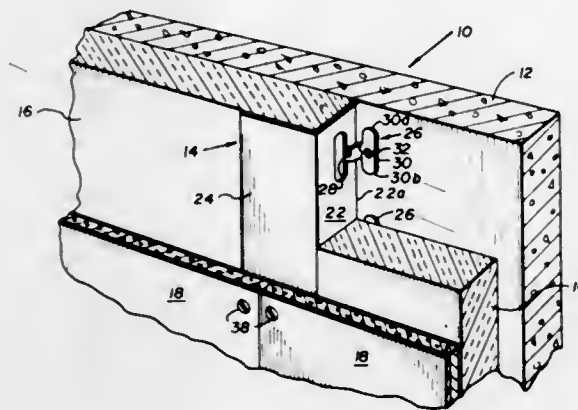


A floor or like tile consists either of a single piece composed of any one of a range of different materials or of a plurality of superimposed laminations each composed of any one of the said range of materials, and is formed with a plurality of identical, laterally projecting tongues and, in its underside, with an equal number of identical pockets which open to the periphery of the tile and alternate, around the periphery, with the tongues, the tongues and pockets being so shaped that any tongue of any one of the tiles is adapted to engage and fit within any pocket of any other of the tiles and when so engaged, is held against endwise withdrawal from the pocket so that, when the two tiles are located in a common plane, relative movement therebetween in the said plane, is prevented.

3,657,853
METHOD OF MOUNTING FURRING CHANNEL

John K. Wise, Glenview, Ill., assignor to United States Gypsum Company, Chicago, Ill.
Original application Oct. 11, 1968, Ser. No. 766,920, now Patent No. 3,561,180, dated Feb. 9, 1971. Divided and this application Sept. 21, 1970, Ser. No. 73,799
Int. Cl. E04b 1/38; E04g 21/12
U.S. Cl. 52-741

1 Claim

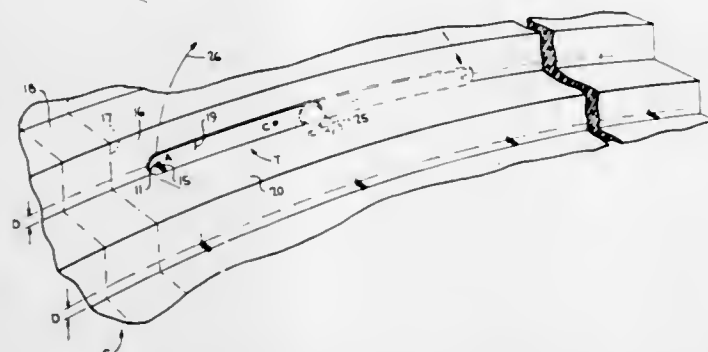


An elongated unitary L-shaped metal member has one flange provided with a series of strike-outs forming tabs which are integral with the flange along the distal edge portion of the flange and which are bendable to a position normal to such flange for securing the member to a wall. The resulting member serves as a furring member for retaining insulating panels and for supporting wallboard finishing panels on a masonry exterior wall.

3,657,854
MODULAR STADIUM SEATING AND METHOD OF INSTALLING SAME

Max E. Tipton, Easton, Pa., assignor to Seating Company of America Inc., Easton, Pa.
Filed Oct. 16, 1970, Ser. No. 81,282
Int. Cl. E04g 21/18; E04h 3/12
U.S. Cl. 52-741

25 Claims



Aspects of modular stadium seating installation are disclosed featuring the use of pre-engineered parts assembled in building-block fashion at the stadium site. Installation specialists are utilized to gain maximum labor efficiency; the first specialist performing the first step of the method by utilizing an elongated template laid on the stepped base so as to conform thereto for reference to guide apertures through which the studs are explosively driven into the concrete stepped base of the stadium. Each stud is in turn utilized to form a pivot point for turning the template end over end to locate the next stud. A riser support is mounted on each stud by a second specialist and plumbed, the second fastener is located by the predrilled hole in the riser support and a mounting hole is drilled. A cross bar of the framework is installed by a third specialist with adjustable fastener means and leveled for mounting of the longitudinal support rails by a fourth specialist; said rails being bowed by slight bending of the sections and slight gaps formed at interconnections at

each bracket to conform to the curvature of the stadium. Tread support of the seating is effected by similar steps with the juncture between the tread and the riser of the stepped base serving as a reference. Support brackets are equally spaced along the row for support of threeseat units therebetween; the last bracket in a row being spaced a multiple of L/3, where L equals the normal distance between brackets so that maximum seating spaces are provided. A cantilever support of L/6 or one-half of a seat unit is provided at the end of each row.

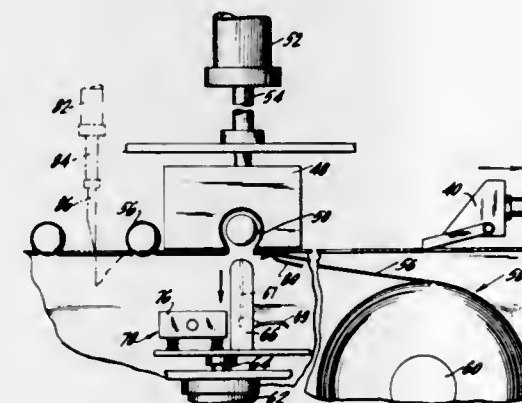
3,657,855

PROCESS AND APPARATUS FOR FORMING DISPLAY PACKAGES

Edwin W. Swezey, Hackensack, N.J., assignor to Union Camp Corporation, New York, N.Y.
Filed Aug. 25, 1969, Ser. No. 862,586
Int. Cl. B65b 15/02; B65d 73/00

U.S. Cl. 53-3

13 Claims



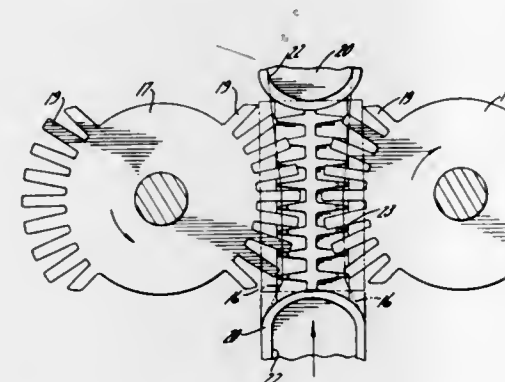
A display device wherein at least one article is firmly held in place on a sheet of a flexible material in an undersized aperture in the sheet by a loop of a transparent film extending through the aperture and affixed to the backside of the sheet, a process for the preparation of such a display device, and an automatic sequentially cycled apparatus for forming said display device.

3,657,856

METHOD AND APPARATUS FOR PLEATING AND SEALING TUBE WRAPPERS

Thomas H. Planner, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Filed Dec. 8, 1969, Ser. No. 882,868
Int. Cl. A61f 13/20; A61l 15/00; B65b 9/06
U.S. Cl. 53-28

4 Claims



An apparatus and method for simultaneously tuck-inpleating and heat sealing tube wrappers using rotatably driven tucking fingers and rotatably driven heat sealing elements which mesh with the tucking fingers.

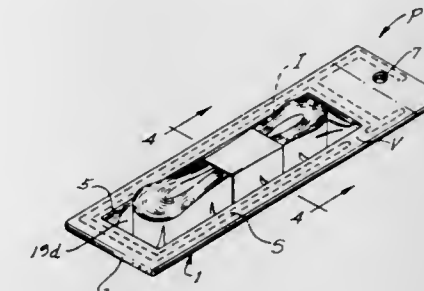
3,657,857
METHOD OF AND APPARATUS FOR FORMING PACKAGES

Irvin S. De Woskin, St. Louis, and Murgatroyd H. Jenkins, St. Clair, both of Mo., assignors to Beltz Corporation, St. Louis, Mo.

Filed Feb. 5, 1970, Ser. No. 8,862
Int. Cl. B65b 47/02

U.S. Cl. 53-30

15 Claims



Method of and apparatus for forming packages in which a packaged item is disposed between two layers of transparent plastic and surrounded by a frame constituted by a card folded in half on a center fold line and having two window openings, one on each side of the fold line. Such cards, placed on jigs, are fed intermittently to a station where a transparent plastic film is sealed to each card overlying the openings and the film is bulged down through the openings to form two pockets, then to a station where an item (or items) to be packaged is placed in one of the pockets and the card is folded over and then fed to a station where the two halves of the folded card are sealed together around the openings.

3,657,858

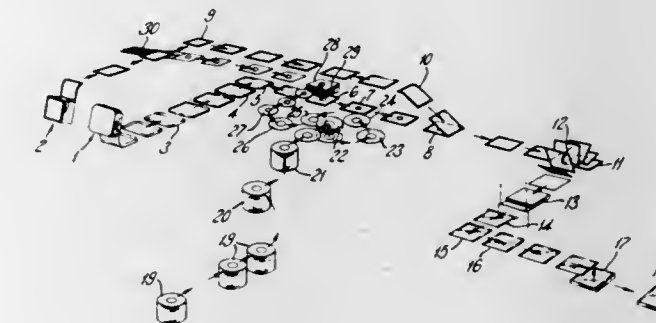
PACKING MACHINES

Walter H. Bossons; David George Parker, both of Bristol, and George D. Burcher, High Wycombe, all of England, assignors to Masson Scott Thrissell Engineering Ltd., London, England

Filed May 11, 1970, Ser. No. 36,261
Claims priority, application Great Britain, May 10, 1969, 23,891/69

U.S. Cl. 53-59 W

17 Claims



A machine for packing gramophone records in sleeves is arranged to feed two series of blanks, fold edge portions of the blanks of one series, deposit a record upon each of the latter blanks, and then unite the blanks of the two series in pairs to produce complete sleeves each enclosing a record. As described, the machine also includes means for presenting the records to inspection devices, for inserting each record in a bag before its deposit on a blank, and for check-weighing the completed sleeves.

3,657,859

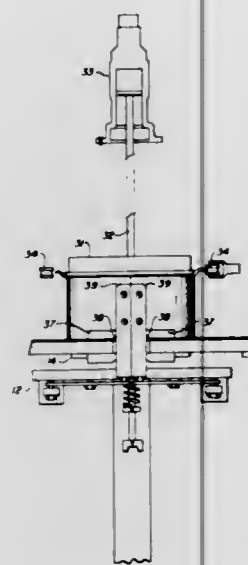
CONTAINER SUPPORT APPARATUS

James P. Smithers, Glen Ellyn, Ill., assignor to Armour and Company, Chicago, Ill.

Filed June 3, 1970, Ser. No. 43,151

Int. Cl. B65b 31/02

U.S. Cl. 53—86



An apparatus for supporting a flexible can, such as a plastic ham can, during the operation wherein the top of the can is seamed to the can body. The apparatus provides support structure integrally mounted in the can closing chamber. The support structure is pneumatically openable and closeable to receive and support a flexible can during seaming thereof.

3,657,860

APPARATUS FOR THE COLLATION AND PACKING OF ARTICLES

Kenneth Winston Franklin, Stratford-upon-Avon, England, assignor to Wentcroft Engineering Limited, Stratford-upon-Avon, England

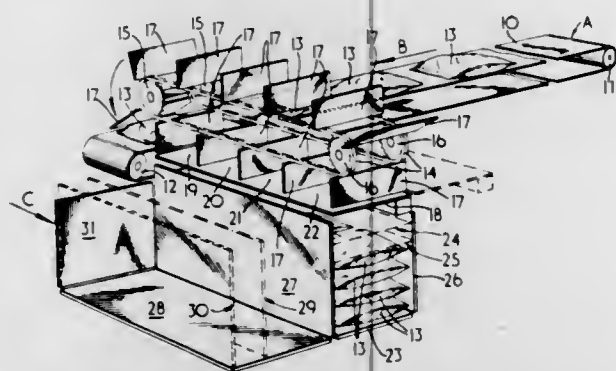
Filed Oct. 27, 1969, Ser. No. 869,467

Claims priority, application Great Britain, Nov. 6, 1968, 52,489/68

Int. Cl. B65b 35/50

U.S. Cl. 53—162

3 Claims



A machine for packing articles, particularly articles having a friable nature, includes a conveyor by which each article in turn is conveyed to a loading station. When each article arrives at the loading station it is conveyed to a collating position by a collating conveyor and each article passes through a series of collating positions until all the collated articles are transferred under gravity to a packing station. The articles are stacked at the packing station and then packed into a suitable container. Article detection means and a sequence controller causes the articles to automatically pass through the different stages.

3,657,861

SLEEVING APPARATUS

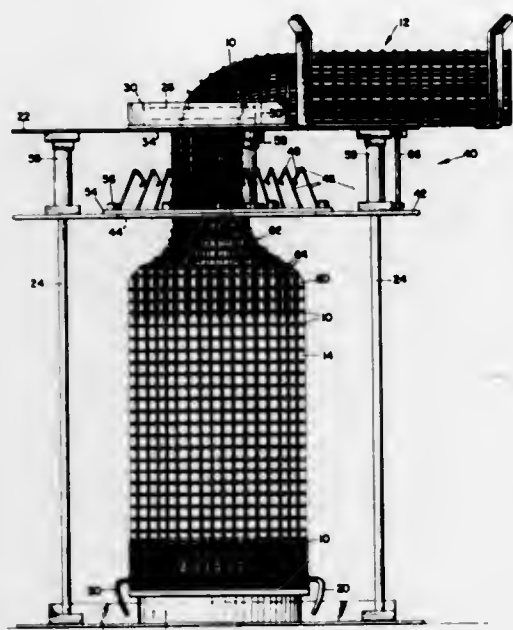
Arnold Soodalter, 134 Tanglewood Drive, Longmeadow, Mass.

Continuation-in-part of application Ser. No. 791,596, Jan. 16, 1969. This application May 27, 1970, Ser. No. 41,005

Int. Cl. B65b 63/00

U.S. Cl. 53—197

1 Claim



Apparatus for sleeving butcher's netting onto a magazine comprising, a sleeving device having an opening therein, a supply of netting extending through the opening to the magazine, resilient fingers surrounding the opening and extending thereinto and having offset free ends adapted for engagement with the netting on the magazine, whereby, upon movement of the sleeving device in one direction the offset free ends of the fingers engage the netting and load it onto the magazine, and upon movement of the sleeving device in an opposite direction, the offset free ends of the fingers slide freely relative to the netting preparatory for the next purchase.

3,657,862

APPARATUS FOR CAPPING CONTAINERS

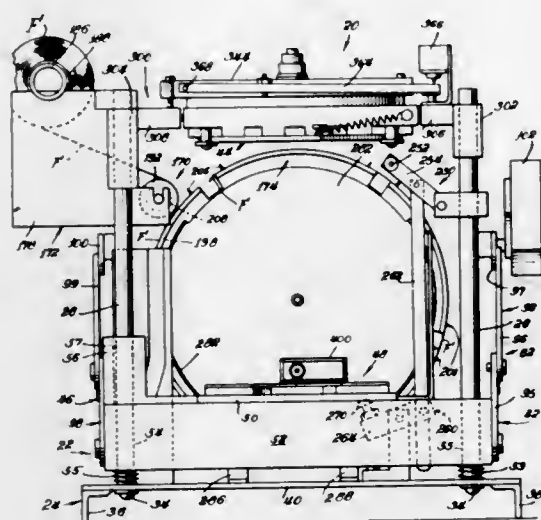
John S. Milne, 2682 Spyglass Drive, Shell Beach, Calif.

Filed June 4, 1970, Ser. No. 43,401

Int. Cl. B65b 7/28

U.S. Cl. 53—297

34 Claims



An apparatus for applying a liquid-tight cover to various sizes and types of containers by automatically feeding a strip

of biaxially oriented plastic film to a point directly below a sealing head unit, cutting a length of plastic film, raising the container to catch the plastic film strip and bring it into engagement with the sealing head unit, applying heat to the sealing head unit to heat shrink the film strip about the mouth of the container, and after a predetermined heating period lowering the container to an unload position.

3,657,863

BOSAL DEVICE

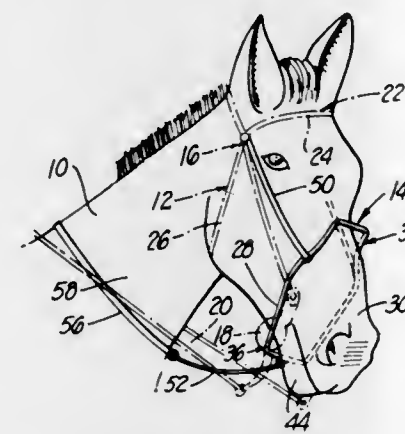
Raymond Blair, 529 West Grondahl, Covina, Calif.

Filed May 21, 1970, Ser. No. 39,452

Int. Cl. B68b 01/04

U.S. Cl. 54—6 R

10 Claims



A bosal device for restraining a horse against rearing his head and gapping. The device includes an elongated resilient bosal ring for encircling the horse's nose and having arcuate inwardly bowed upper side portions which bear on the regions of intersection of the upper lip levator muscles, cheek straps for attaching the sides of the ring to the brow band-throat latch loop of the bridle head stall, and a hold-down member for attaching the lower end of the ring to the saddle girth in a manner such that when the horse raises his head above normal riding position, the hold-down member pulls on the ring to press the arcuate ring portions against the muscle intersection regions. When the horse's head occupies normal riding position, the lower section of the ring swings to a forward position under the lower jaw such that when gapping, the lower jaw forces the ring downwardly, thereby again causing pressure of the arcuate ring portions against the muscle intersection regions. This pressure produces a slight discomfort which inhibits the head rearing and gapping without bruising.

3,657,864

SEPARATION SYSTEM FOR THE RESOLVING OF VOLATILE MIXTURES

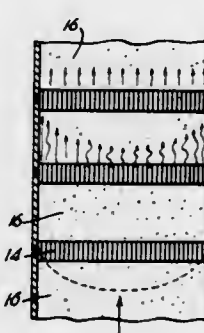
Flourian R. Davis, Jr., and Ernest A. Dewey, both of Richmond, Va., assignors to Texaco Inc., New York, N.Y.

Filed Apr. 3, 1970, Ser. No. 25,430

Int. Cl. B01d 15/08

U.S. Cl. 55—386

4 Claims



A system for the separation of volatile mixtures includes a packed sorbent bed in a column and has improved fluid flow

characteristics owing to the incorporation therein of a plurality of spaced columnar discs having multiwalled passageways across the face thereof which provide areas of reduced packing density acting as discrete sites for the collection and redistribution of fluids as they flow through the column. Such discs consist, for example, of short lengths of honeycomb material. Fluids having different partition coefficients are introduced through a splash plate device which covers the radial surface area of one extremity of the packed bed with feed material. Sealing means can also be provided between the discs and the walls of the column to prevent the fluids from channeling up the column walls. The system is useful in gas-liquid chromatography, as well as with various absorption, adsorption and catalytic beds.

3,657,865

RIDING LAWN MOWER AND LEAF SHREDDER

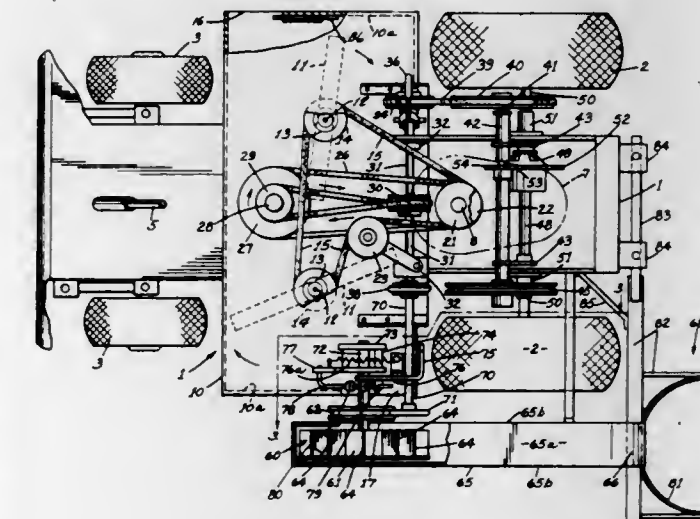
Howard C. Ober, 31070 Shaker Boulevard, Cleveland, Ohio

Filed Sept. 24, 1969, Ser. No. 860,550

Int. Cl. A01d 45/20

U.S. Cl. 56—13.3

8 Claims



A self-propelled riding type rotary lawn mower and shredder in which grass clippings and leaves are shredded within the rotary blade housing and discharged therefrom to a power driven rotary impeller which is driven by the engine of the mower. The impeller drives the shredded material into and along an overhanging chute which directs the material into an open top receptacle, such as a garbage receptacle, carried on the rear of the mower. Provision is made for directing, selectively, all or part only of the shredded material to the impeller, the remainder thereof being discharged onto the ground in the normal manner.

3,657,866

VEHICLE TOWED ROTARY MOWER

Jerome C. Burroughs, P.O. Box 776, Loris, S.C.

Filed Jan. 18, 1971, Ser. No. 107,282

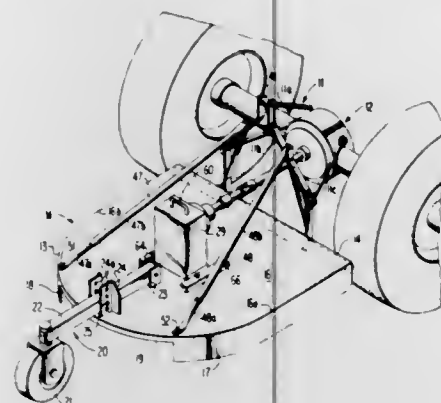
Int. Cl. A01d 35/26

U.S. Cl. 56—15.5

7 Claims

A rotary mower for attachment to a towing vehicle such as a tractor which includes a housing for rotatably supporting cutting means connected by means of a gear reduction unit and a drive shaft to the tractor power take-off means, a frame mounted on the housing for transverse sliding movement, pin means on the frame for connecting the frame to the tractor and adjustable bracing means connected to the frame and to the housing together with means for securing

the frame in a selected transverse position so as to connect the mower to the tractor in a selected position along a transverse path extending between laterally offset positions on opposite sides of the longitudinal axis of the tractor.

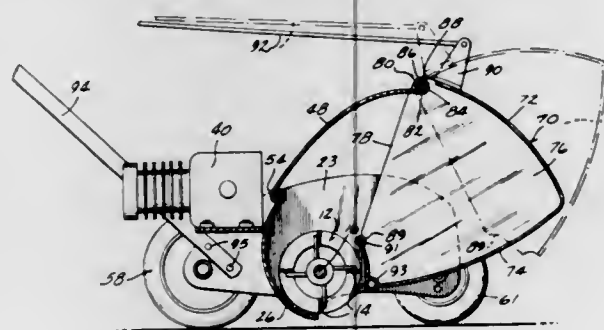


3,657,867
REEL LAWN MOWER WITH FORWARDLY LOCATED CLIPPING RECEPTACLE
James F. Efflandt, and Finn T. Ingens, both of Milwaukee, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Nov. 21, 1969, Ser. No. 878,838
Int. Cl. A01d 53/06

U.S. Cl. 56—17.2

13 Claims



A lawn mower which includes a reel housing and a cutting reel rotatably supported in the reel housing. The reel housing includes a forwardly concave reel housing wall portion located rearwardly of the cutting reel. A downwardly concave deflector or discharge chute is hinged at its rearward end to the upper edge of the reel housing wall portion and is usable in a first position to promote forward and downward discharge of clippings onto the ground in front of the cutting reel, and in a second position displaced upwardly from the first position and pivotally connected to the upper edge of a rearwardly open receptacle for discharge of clippings into the receptacle. A remote control also is provided for pivoting the receptacle about the pivotal connection with the deflector to dump the receptacle contents downwardly and forwardly of the reel housing.

In a four wheel embodiment of the mower, the side walls which rotatably support the cutting reels are outwardly offset between the wheels so that the cutting reel extends between the wheels to permit cutting close to walls, hedges, etc. Height adjustment of the four wheel mower is provided by selectively locating the front wheel axles in any one of a series of vertically aligned, spaced axle apertures in the side walls.

In a two wheel embodiment of the invention, the cutting reel is rotatably supported by the side walls of a casing which includes a motor mounting pad. The casing is pivotally mounted to a frame, handle and wheel assembly. The angular position of the casing with respect to the pivotal connection of the casing and the frame assembly, and thus the height of

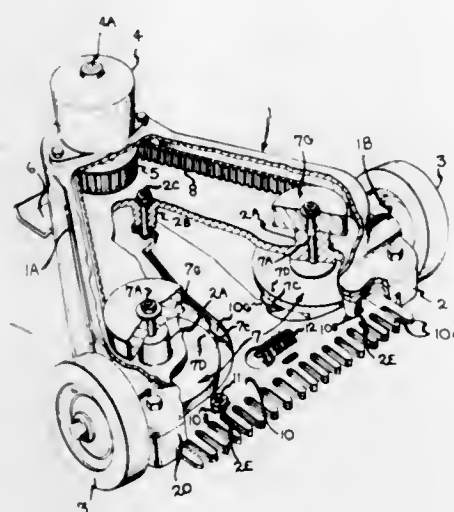
the cutting reel, is adjusted by a series of concentrically aligned spaced apertures in frame side plates, and a bolt.

3,657,868
IMPACT ACTUATED MOWING MACHINE
Walter Frank Cousino, Toledo, Ohio, assignor to Thermad, Inc., Toledo, Ohio

Filed Mar. 23, 1970, Ser. No. 21,808
Int. Cl. A01d 35/00

U.S. Cl. 56—13.6

7 Claims



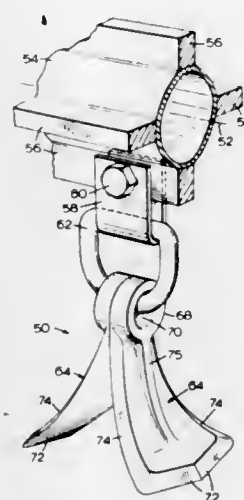
The invention relates to a driving system for a reciprocating blade type mower for farm or home usage wherein the linear motion of the reciprocating blades is imparted by rotary impact to provide substantially increased linear speed of the reciprocating blades to produce a cutting action by impact on grass or other vegetable matter as a desirable adjunct to the shearing action normally imparted by the cooperation of the cutting blades.

3,657,869
FLAIL
Roy O. Ayranto, Winnipeg, Manitoba, Canada, assignor to Anthes Imperial Limited, Toronto A.M.F., Ontario, Canada

Filed Dec. 1, 1969, Ser. No. 881,075
Int. Cl. A01d 55/20

U.S. Cl. 56—294

2 Claims



A cutter of the type which is rotatably mounted in a rotary mower stalk shredder or the like comprising at least one cutter blade element having a longitudinal axis. The blade element is formed to provide a pair of generally longitudinally extending side edges and at least one primary cutting edge. The primary cutting edge is located at one end of the blade and it is obliquely disposed relative to the longitudinal axis of the blade. Mounting means are provided at the other

end of the blade for mounting the cutter blade element for rotation about a rotational axis with the longitudinal axis extending substantially radially outwardly of the rotational axis such that the primary cutting edge may be obliquely disposed in the direction of rotation of the blades. By disposing the blade in this manner, the primary cutting edge will slide relative to the crop as it cuts through the crop.

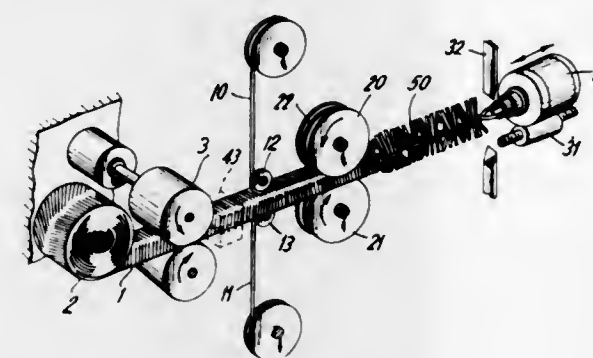
3,657,870
APPARATUS FOR MAKING ARTIFICIAL TREE HAVING EXPOSED BRANCH ENDS OF WEBLIKE MATERIAL
Theodore Marks, Hartsdale, N.Y., assignor to American Technical Industries, Inc., Mount Vernon, N.Y.

Filed Aug. 31, 1970, Ser. No. 68,320

Int. Cl. A47g 33/06; A41g 1/04; D01h 3/00

U.S. Cl. 57—24

4 Claims



An artificial tree is made using branches of twisted wire holding slitted weblike material therebetween, each branch having exposed ends of twisted wire to facilitate insertion of each branch in a pole. The apparatus employs means to control and stop the feed of weblike material independent of the wire feed.

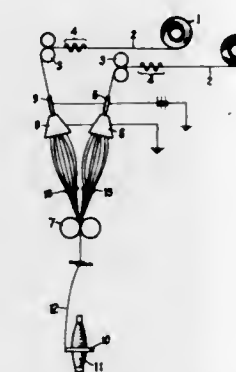
3,657,871
METHOD AND APPARATUS FOR SPREADING OR DIVIDING YARN, TOW OR THE LIKE
Sei Uchiyama; Eichi Kaku; Masahiro Kobayashi; Takamichi Zoda, all of Takatsuki, and Shunsaku Fujimoto, Shodo-gun, all of Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Filed Mar. 18, 1970, Ser. No. 20,603

Claims priority, application Japan, Mar. 29, 1969, 44/24092
Int. Cl. D01h 1/00

U.S. Cl. 57—34 R

4 Claims



A method of spreading or dividing into individual filaments a solid substantially non-twisted continuous multifilament textile material consisting of a plurality of the filaments. The material is continuously passed through and in contact with a narrow passage of a first electrode and then through a second electrode having a potential difference of at least 500 volts from the first electrode. The second electrode is spaced from and is in alignment with the first electrode and is also spaced from the narrow passage in such a manner that the individual

filaments divided or spread out of the multifilament material do not contact the second electrode.

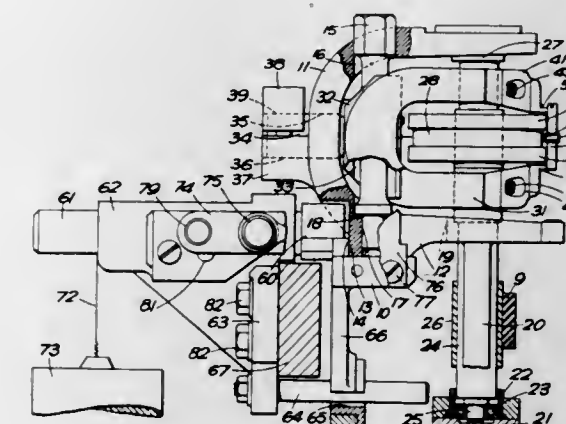
3,657,872
APPARATUS FOR FALSE TWISTING YARN
Denis Albert Edward Mattingly, Enfield, England, assignor to Ernest Scragg & Sons Limited, Macclesfield, Cheshire, England

Filed Apr. 3, 1970, Ser. No. 25,534

Int. Cl. D01h 7/92, 7/46

U.S. Cl. 57—77.45

6 Claims



A false twisting head having a rotatable drive shaft detachably secured to a support. The head is located at the required position on the support by engagement of a shoulder on the head with a step on the support.

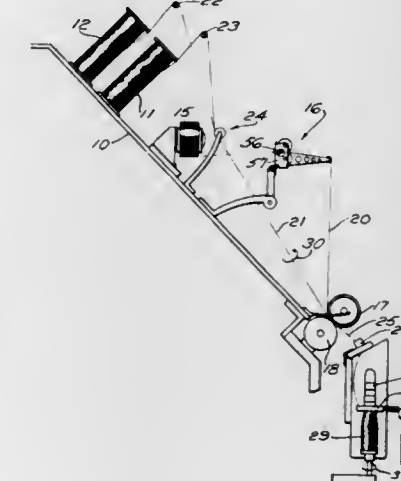
3,657,873
COMPOSITE ELASTIC CORE YARN
Kirkland H. Gibson, Pojac Point, North Kingstown, R.I., and Henry E. Protzmann, 941 Carrs Pond Road, East Greenwich, R.I.

Continuation-in-part of application Ser. No. 673,133, Oct. 5, 1967. This application Dec. 8, 1969, Ser. No. 883,162

Int. Cl. D02g 3/32

U.S. Cl. 57—152

6 Claims

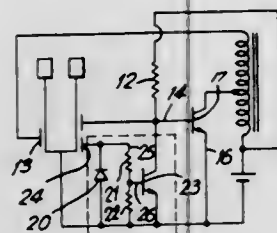


A composite yarn formed of an elastic yarn and a false twisted yarn, twisted together in dynamic balance with a controlled predetermined stretch.

3,657,874

ELECTRIC TIMEPIECE

Issei Imahashi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
 Filed Mar. 12, 1970, Ser. No. 18,988
 Int. Cl. G04c 3/00; H04r 17/00; H03b 3/02
 U.S. Cl. 58—23 6 Claims

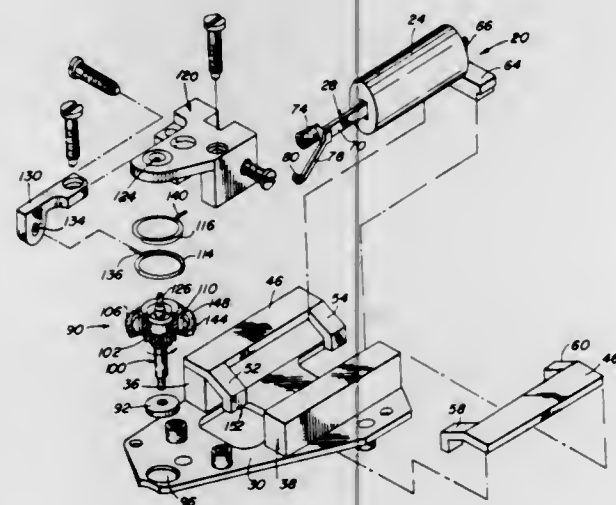


An electric timepiece having a vibrator, electrostrictive elements for energizing a vibrator and detecting the vibration thereof, and a driving circuit for energizing the vibrator the impedance of which is changed to keep the amplitude of vibrations constant when such vibrations exceed a desirable predetermined value.

3,657,875

ELECTRO-MECHANICAL DRIVE MECHANISM FOR WATCHES AND RELATED DEVICES

Joseph L. Radnik, Brookfield; Edward E. Hahn, Des Plaines, both of Ill.; Wayne F. Ridenour, deceased, late of Chicago, Ill., and Helen L. Ridenour, executrix, Arlington, Tex., assignors to Gruen Industries Inc., New York, N.Y., by said Radnik and said Hahn
 Filed Sept. 21, 1970, Ser. No. 73,770
 Int. Cl. G04c 3/00; G04b 15/14; G02k 33/02
 U.S. Cl. 58—23 D 24 Claims



In an electro-mechanical transducer for driving an escapement wheel of a timing device such as an electronic watch or the like, a miniature drive system comprising a clutch mechanism coupled to the shaft of the escapement wheel through an electro-magnetically actuated control arm mechanically to drive the escapement wheel stepwise, thereby to effect time-spaced incremental angular advancement of the escapement wheel.

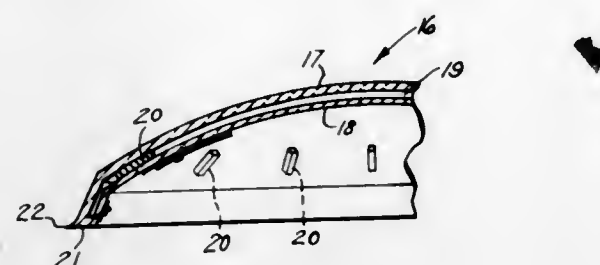
3,657,876

FOG PROOF WATCH CRYSTAL

Frank R. Hancock, Jr., 16 Broad Street, Asheville, N.C.
 Filed Jan. 16, 1970, Ser. No. 3,458
 Int. Cl. G04b 39/00 1 Claim

A one piece hollow watch crystal which prevents the condensation of water on the underside of the crystal of a watch.

This crystal is of such construction so that it may be used on



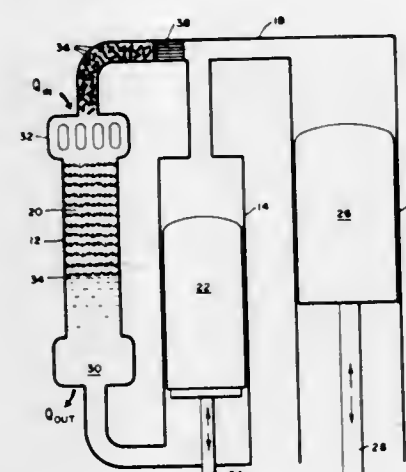
the common watch case bezels. The interior space of the device receives demisterized air or may be vacuumed out.

3,657,877

TIDAL REGENERATOR HEAT ENGINE

Fred N. Huffman, Sudbury, Mass., assignor to Thermo Electron Corporation, Waltham, Mass.
 Filed Feb. 1, 1971, Ser. No. 111,331
 Int. Cl. F03g 7/06 8 Claims

U.S. Cl. 60—25



A heat engine of modified Stirling cycle configuration utilizing condensable vapor as a working fluid in a variable liquid level regenerator. Condensation and evaporation of the working fluid take place in the variable liquid level regenerator continuously and in a controlled manner. In addition to the variable liquid level regenerator, which may be defined more aptly as a tidal regenerator, the basic components of the engine are a condenser, a vaporizer, a superheater, a power piston, a displacer piston and a control for the displacer piston.

3,657,878

EXHAUST CONVERSION SYSTEMS

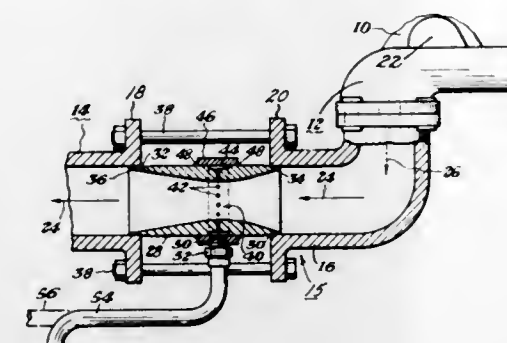
John Kaufmann, Jr., 3716 Woodrow Avenue, Pittsburgh, Pa.
 Original application Aug. 30, 1968, Ser. No. 767,602, now Patent No. 3,543,510. Divided and this application Apr. 14, 1970, Ser. No. 28,406
 Int. Cl. F01n 3/10 6 Claims

U.S. Cl. 60—319

I disclose a conversion system for an exhaust duct or the like through which partially reacted gases are circulated, said system comprising a venturi induction member mounted in the exhaust duct and having a circumferential array of radially extending apertures for inducting a reactant fluid into said duct upon passage of said gases therethrough said venturi member having inlet and outlet openings each having substantially the same cross-sectional area as that of the adjacent interior of said duct, said apertures being located in a thickened portion of said venturi member and having a length-to-diameter ratio capable of imposing a jetting action upon the reactant fluid passing therethrough so that thorough

mixing of said reactant fluid and said gases is attained within said venturi member. Also disclosed are unique venturi con-

fuel is varied as a function of a partial pressure ratio dependent on the ratio of delivery pressure to inlet pressure of the compressor.



3,657,881

GAS TURBINE CONTROL WITH PREWHIRL OF AIR ENTERING THE COMPRESSOR

Charles A. Amann, Bloomfield Hills, and Erik H. Rucins, Sterling Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
 Filed Sept. 2, 1969, Ser. No. 854,651
 Int. Cl. F02c 9/14 12 Claims

U.S. Cl. 60—39.29

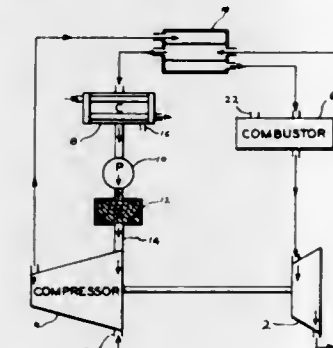
figurations involving a throat ridge and induction apertures adjacent thereto for improved induction and mixing.

3,657,879

GAS-STEAM ENGINE

Walter J. Ewbank, 1722 Pickard; Darrel G. Harden, 1509 Oklahoma, both of Norman, Okla., and Walter C. Bauer, 118 Pleasant Street, Santa Cruz, Calif.
 Filed Jan. 26, 1970, Ser. No. 5,533
 Int. Cl. F02c 1/00 3 Claims

U.S. Cl. 60—39.05



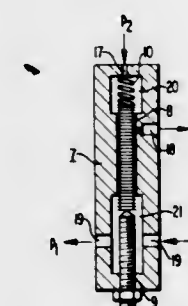
A gas-steam engine utilizing wet compression, in which the water requirement is provided by recovering water from the engine exhaust gases by means of a condenser which is an integral part of the system. Water from the exhaust gas is condensed and injected back into the engine at an appropriate location, eliminating the need for an external source of water.

3,657,880

CONTROL INSTALLATION FOR GAS TURBINE ENGINES

Christian Greune, Furstenfeldbruck, Germany, assignor to Motoren-und Turbinen-Union Munchen GmbH, Munchen, Germany
 Filed June 17, 1970, Ser. No. 47,081
 Claims priority, application Germany, June 19, 1969, P 19 31 045.3
 Int. Cl. F02c 9/08 31 Claims

U.S. Cl. 60—39.28



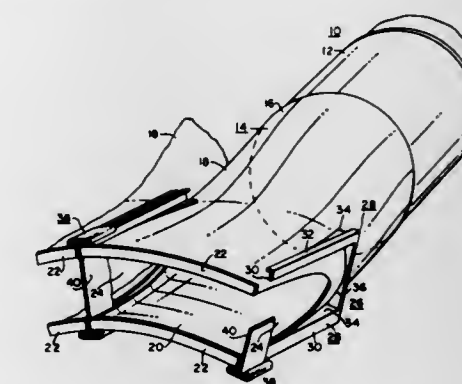
A control system for controlling the metered fuel fed to the combustion chamber of a turbine, in which the amount of

3,657,882

COMBUSTION APPARATUS

Birger O. Hugoson, Wallingford, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
 Filed Nov. 13, 1970, Ser. No. 89,396
 Int. Cl. F02c 3/00 10 Claims

U.S. Cl. 60—39.31



In a gas turbine, the transition pieces of the combustor baskets are retained in assembled relation, and the joint

between adjacent transition pieces sealed by means of seal frames, attached to the transition pieces, and seal members which slidably engage adjacent seal frames. The structure reduces the tendency of the side walls of the transition pieces to buckle and simplifies the assembling of the transition pieces.

3,657,883

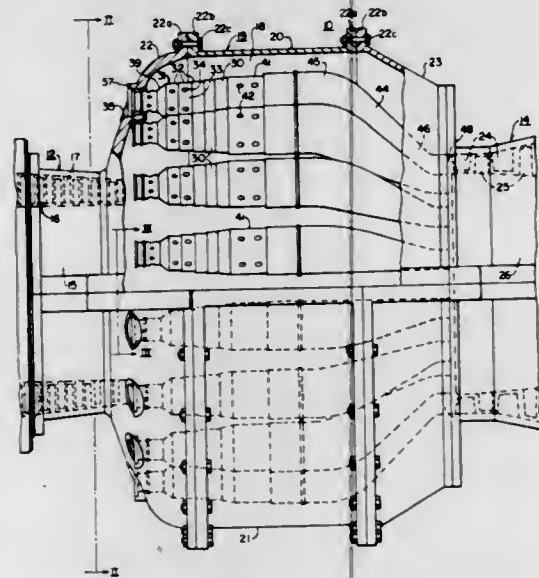
COMBUSTION CHAMBER CLUSTERING STRUCTURE
Serafino M. De Corso, Media, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 17, 1970, Ser. No. 55,821

Int. Cl. F02c 7/20

U.S. Cl. 60—39.37

12 Claims



A gas turbine power plant having a combustion section defined by a casing structure divided into upper and lower semi-cylindrical casing halves along a horizontal plane. The casing halves encompass an annular array of combustion chambers equally spaced from the central axis of the turbine. The end wall of the casing structure has an annular array of equally spaced openings, at least one of the openings having a smaller diameter than the maximum diameter of the associated combustion chamber. This enables a closer clustering of the combustion chambers and a corresponding decrease in the diameter of the casing structure.

3,657,884

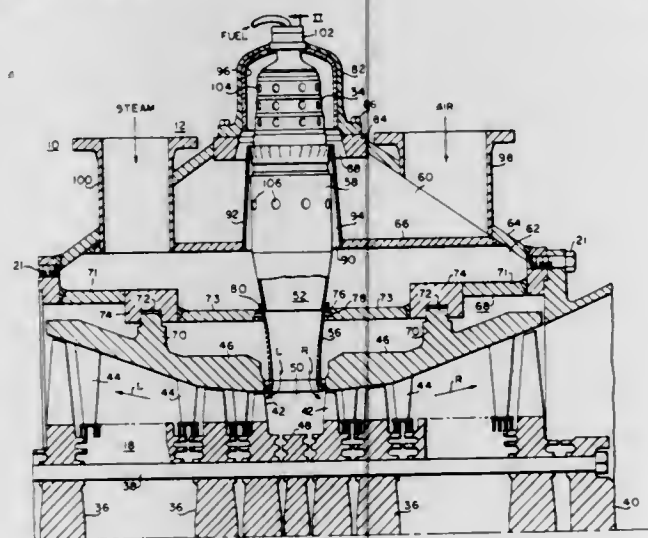
TRANS-NOZZLE STEAM INJECTION GAS TURBINE
Birger O. Hugoson, Wallingford, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 20, 1970, Ser. No. 91,301

Int. Cl. F02c 7/18

U.S. Cl. 60—39.55

12 Claims



In a double-opposed flow gas turbine the fuel combustion chambers are arranged generally radially in a plane normal to

the rotational axis of the turbine shaft. A generally annular turbine casing has an outer annular chamber of plenum distributing compressed air to the primary zones of the combustors and an inner annular chamber supplying steam to the secondary zones of the combustors which extend through the walls defining the air and steam chambers and supporting combined transition pieces and nozzles of the combustors as well as the turbine stator rings.

3,657,885

FUEL NOZZLE FOR GAS TURBINE ENGINES
Eberhard Bader, Munich, Germany, assignor to Motoren- und Turbinen-Union Munich GmbH

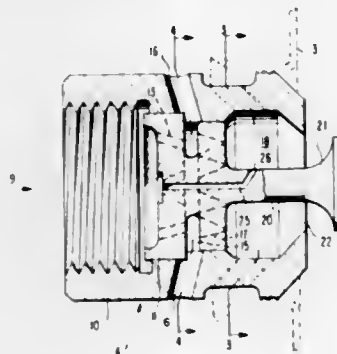
Filed June 30, 1970, Ser. No. 51,045

Claims priority, application Germany, July 9, 1969, P 19 34 700.3

Int. Cl. F02c 7/22; F23d 13/26

U.S. Cl. 60—39.74 R

20 Claims



A fuel nozzle for gas turbine engines, which is provided with fuel metering orifices for emitting fuel jets and in which compressor air to be admixed to the fuel, is drawn in by the fuel jets by way of apertures arranged in a cylindrical nozzle housing and located in front of an upstream flame tube wall of the flame tube associated with the combustion chamber.

3,657,886

GAS TURBINE ENGINE

Hemann Hagen, Munich-Pasing; Adolf Fehler, Puchheim, and Christian Greune, Schongesing, all of Germany, assignor to Motoren- und Turbinen-Union Munich GmbH, Munich, Germany

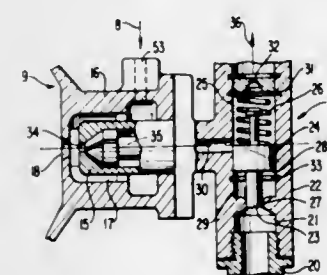
Filed Sept. 30, 1969, Ser. No. 862,329

Claims priority, application Germany, Oct. 8, 1968, P 18 01 795.3

Int. Cl. F02c 7/22

U.S. Cl. 60—39.74

10 Claims



A gas turbine engine in which the combustion air is normally heated in a heat exchanger by the exhaust gases, and in which the air used to blow out the fuel nozzle or nozzles, when the fuel supply is shut-off, has a temperature lower than the normal temperature of the combustion air.

3,657,887

POWER ASSISTED BRAKE

Fritz Ostwald, Buchschlag, Germany, assignor to International Telephone and Telegraph Corporation, New York, N.Y.

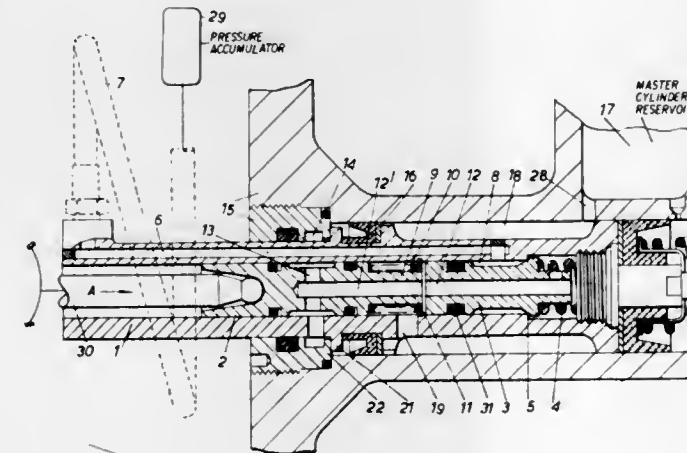
Filed Feb. 25, 1970, Ser. No. 14,048

Claims priority, application Germany, Mar. 1, 1969, P 19 10 600.4

Int. Cl. F15b 7/00

U.S. Cl. 60—54.6 P

1 Claim



A hydraulic brake system with a booster for assisting the brake actuating force, the booster control valve being a slide valve mounted in a central bore in the actuating piston and connecting a pressure accumulator to a pressure chamber behind the piston when a slide, which is also mounted in the bore in the piston, opens the valve upon actuation of the brakes.

3,657,888

HYDRAULIC POWER STEERING APPARATUS

Wilhelm Zirps, Hemmingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

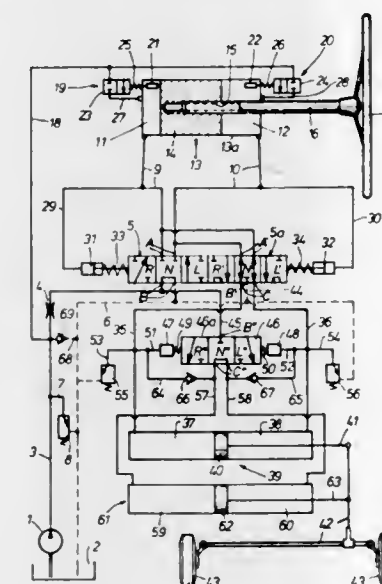
Filed Jan. 28, 1971, Ser. No. 110,414

Claims priority, application Germany, Feb. 6, 1970, P 20 05 404.0

Int. Cl. F15b 15/18

U.S. Cl. 60—52 S

10 Claims



A hydraulic power steering apparatus has a piston pump operated by a steering wheel and shifting at an increased resistance, a control valve for connecting a motor driven power pump to a steering motor acting on the wheels of a car. An auxiliary motor is also connected to the wheels, and participates in normal steering operations, but when the wheels

are jolted by the road surface, the increased pressure in the auxiliary motor effects shifting of a valve and thereby supply of pressure fluid from the power pump to the auxiliary motor for damping or compensating the jolt.

3,657,889

HYDRAULIC STEERING SYSTEM FOR BOATS

Robert R. Harrison, Elyria, Ohio, assignor to Nemo Corporation, Cleveland, Ohio

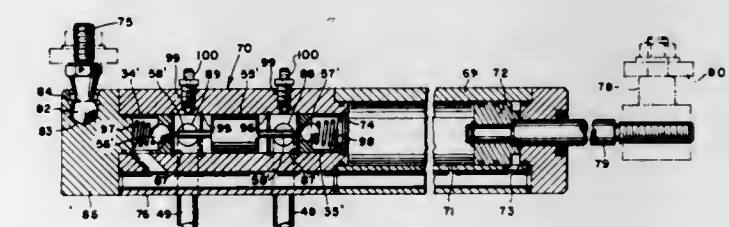
Continuation-in-part of application Ser. No. 820,222, Apr. 29, 1969, now Patent No. 3,566,746, dated Mar. 2, 1971.

This application Aug. 11, 1970, Ser. No. 62,790

Int. Cl. F15b 7/00

U.S. Cl. 60—54.5 R

9 Claims



Steering system includes a pump mechanism wholly contained within the master unit which is the steering wheel shaft mount in front of the dash panel, and has a porting plate protruding behind the dash panel to a slight extent sufficient to provide room for connection of fittings thereto and attachment of the master unit to the dash panel. The slave unit for the steering system is mounted in the stern of the boat and may contain the valving for controlling fluid flow between the pump mechanism and slave unit, thereby reducing the mounting space required if the valving were contained in the master unit. Locating the valving in the slave unit also provides the safety feature that if there is a loss of fluid pressure in the system due to line breakage between the master and slave units, the slave unit will be locked against movement preventing complete loss of control and wild gyrations of the boat.

3,657,890

POSITIVE SINKER CONTROL FOR MULTIFEED KNITTING MACHINES

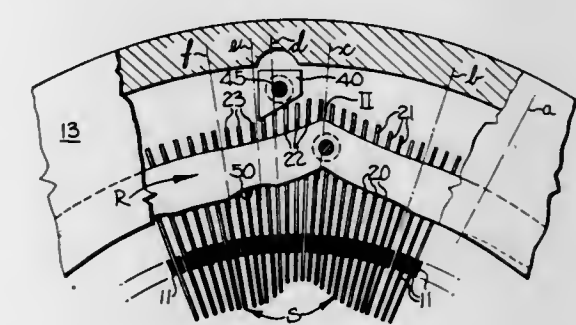
Clarence W. Minton, Nashville, Tenn., assignor to Americal Corporation, Henderson, N.C.

Filed Oct. 16, 1970, Ser. No. 81,196

Int. Cl. D04b 15/24

U.S. Cl. 66—108 R

13 Claims



This sinker control means provides positive inward and outward radial movement of the sinkers at each knitting station of a circular multifeed hosiery knitting machine to maintain the sinkers under accurate control at all times. This sinker control eliminates the use of a sinker spring band of the type which is normally utilized in the control of the operation of the sinkers. A more gradual inward and outward movement of the sinkers is provided by this sinker control so that the machine may be operated at a higher rate of speed

and the positive control of the sinkers produces a more uniform and clearer hosiery fabric.

3,657,891

HYDRAZINE DECOMPOSITION PROCESS USING MOLYBDENUM-COBALT CATALYST

Walter D. Lusk, Hawthorne, Calif., assignor to TRW Inc., Redondo Beach, Calif.

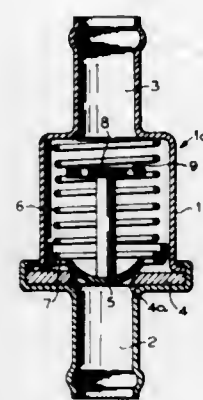
Original application Jan. 23, 1967, Ser. No. 611,174, now abandoned. Divided and this application Feb. 3, 1969, Ser. No. 796,188

Int. Cl. C06d 5/04

U.S. Cl. 60—219

8 Claims

This invention relates to a process for the spontaneous catalytic decomposition of rocket propellants containing hydrazine or mixtures of hydrazine and hydrazine nitrate. The catalyst used in this invention retains its activity after exposure to the propellant flame environment thereby permitting multiple starts of a rocket engine. The catalyst consists of molybdenum metal and cobalt metal coated on a high surface area support body such as alumina.



such as revolution speed, acceleration or deceleration, magnitude of load, etc.

3,657,894

SYSTEM FOR PRODUCING PILES MOULDED IN THE GROUND

Louis Albert Perez, 4, Place de Mexico, 75 Paris, France

Filed June 1, 1970, Ser. No. 42,191

Claims priority, application France, June 17, 1969, 6920064

Int. Cl. E02d 5/38; G01f 3/20

U.S. Cl. 61—53.64

3 Claims

3,657,892

EXHAUST GAS TREATMENT SYSTEM

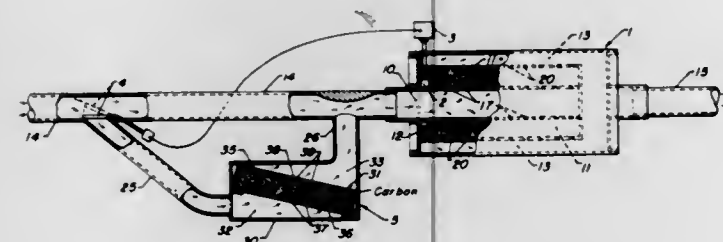
Martin W. Perga, Hoffman Estates, and Ted V. DePalma, Roselle, both of Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

Filed June 29, 1970, Ser. No. 50,590

Int. Cl. F01n 3/02, 3/14

U.S. Cl. 60—274

3 Claims



An exhaust gas treatment method and system for an internal combustion engine utilizing a catalytic converter, wherein carbon or charcoal is incorporated into the system so that the gases H_2 and CO can be produced by the dissociation of water, present in the exhaust gas, and the partial oxidation of the carbon to become a secondary fuel for a catalytic conversion zone of the converter. In a preferred embodiment at least a portion of the exhaust gases are caused to pass through a bed of carbon under predetermined conditions prior to their entry into the catalytic converter intermediate between engine startup and a predetermined high limit temperature.

3,657,893

EXHAUST GAS PURIFICATION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Tomoo Tadokoro, Kure; Motoyuki Hayashida, Kamo, and Shigetake Yoshimura, Hiroshima, all of Japan, assignors to Toyo Kogyo Company Limited, Hiroshima-ken, Japan

Filed Feb. 27, 1970, Ser. No. 14,970

Claims priority, application Japan, Mar. 4, 1969, 44/19336

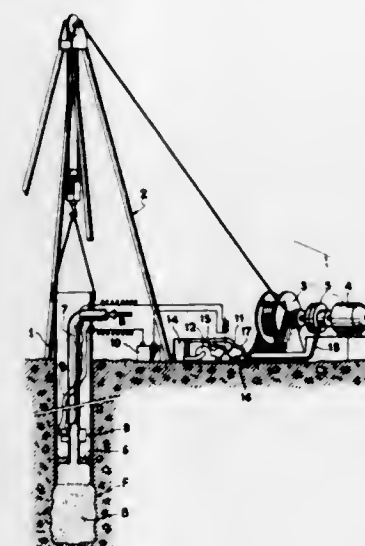
Int. Cl. F01n 3/10

U.S. Cl. 60—289

10 Claims

An exhaust gas purification system for an internal combustion engine comprises a control valve means which automatically controls the supply of the secondary air to an ex-

haust passage or a reactor connected to said passage of an engine according to the running conditions of the engine



3,657,895

OFFSHORE PLATFORM

Rex V. Phelps, Tulsa, Okla., assignor to Warren Petroleum Corporation, Tulsa, Okla.

Filed Feb. 12, 1971, Ser. No. 114,809

Int. Cl. E02b 17/00; C21b 15/02

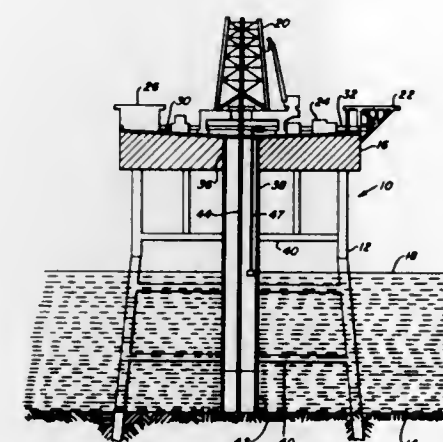
U.S. Cl. 61—46

8 Claims

A platform for offshore oil wells having a curbing around the periphery of the deck of the platform. The deck slopes downwardly from the curbing into a central opening to drain all oil spilled on the deck into the opening. A cylindrical sleeve open at its lower end to admission of water extends downwardly, preferably to the marine floor, from the opening. The diameter of the sleeve is at least as large, and preferably in the range of 20 to 50 feet, as the opening

whereby all oil or other liquids draining into the opening is confined within the sleeve. The platform can be entirely of

the collar bounded by the shield in a radially inward direction, and the shield can be driven forward by expansion



steel, steel framework mounted on a concrete substructure, or of concrete modules assembled at the well site.

3,657,896

METHOD OF CONSTRUCTING CONTINUOUS WALL BY USE OF PILES OR PILE SHEETS AND APPARATUS THEREFOR

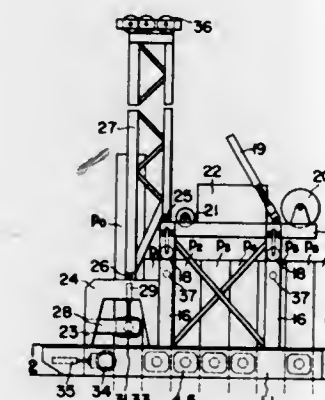
Yasushi Ishihara, and Shigeru Watanabe, both of Tokyo, Japan, assignors to Nippon Concrete Industries Company, Ltd., Tokyo, Japan

Filed July 9, 1970, Ser. No. 53,430

Int. Cl. E02d 5/10, 7/20

U.S. Cl. 61—53.5

7 Claims



This invention relates to a method of constructing a continuous wall by use of piles or pile sheets, which comprises fixing a construction apparatus on already installed piles or the like thereby to utilize their reaction force, and causing the construction apparatus to migrate on said installed piles or the like, and further connecting said reaction force device to a self-driving pile driver, and an apparatus therefor.

3,657,897

TUNNELLING SHIELD

Josef Krismmer, Jr., Uferstr. 1-10, 6500 Landeck/Tirol, Austria

Filed Feb. 16, 1971, Ser. No. 115,399

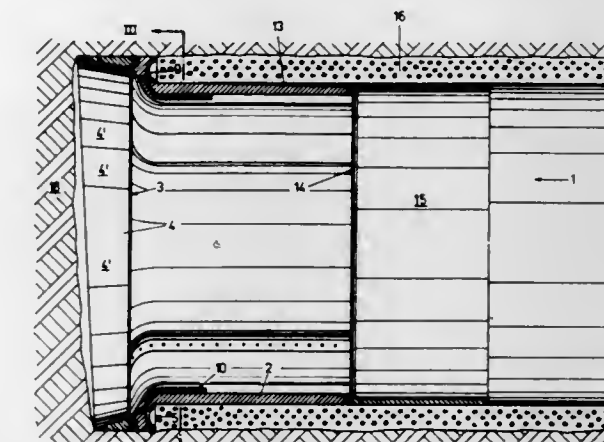
Claims priority, application Austria, Feb. 25, 1970, 1748

Int. Cl. E21d 1/10

U.S. Cl. 61—85

10 Claims

A tunnelling shield mainly consists of a heavy steel tube provided with cutting segments about its front rim and having an annular collar on its outer axial wall near the rim. Pouches of elastomeric material are distributed about the rear face of the collar and can be inflated by means of hydraulic fluid. Concrete injecting conduits terminate in orifices in the outer tube wall which are directed toward the rear face of the collar so that a tunnel lining can be poured in the space behind



of the pouches abutting against the last-cured concrete section.

3,657,898

METHOD AND APPARATUS FOR PRODUCING REFRIGERATION

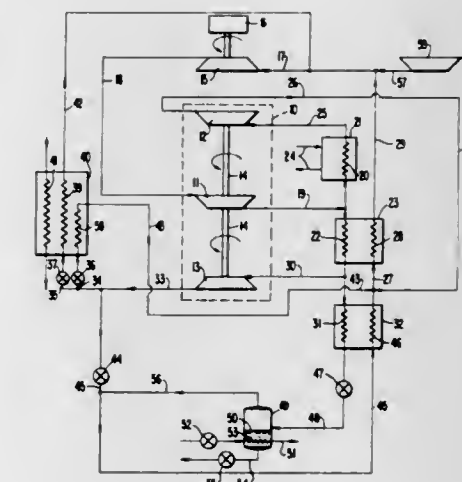
Leif A. Ness, Macungie, and Edmund P. Thomas, Bethlehem, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Aug. 15, 1968, Ser. No. 752,998

Int. Cl. F25j 1/00, 1/02

U.S. Cl. 62—38

6 Claims



Refrigeration system including a multi-stage compressor and two work expansion engines of the turbine type with the impellers of the expansion engines and the impeller of the final stage of the compressor being mounted on a common shaft. The work developed in the expansion engines provides the total power required for the final stage of the compressor and the final stage of the compressor provides the pressurized gas expanded in both expansion engines.

3,657,899

ICE MAKING MACHINE

Taisei Hosoda, Shimotsuga-gun; Hideo Uzuhashi, Shimotsuga-gun; Hiroichi Osiyama, Shimotsuga-gun, and Kazuo Ioka, Oyama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed June 12, 1970, Ser. No. 45,662

Claims priority, application Japan, June 13, 1969, 44/55084

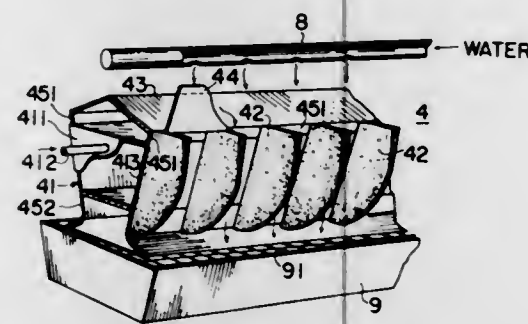
Int. Cl. F25c 1/14

U.S. Cl. 62—137

15 Claims

Ice making machine for producing pieces of ice being provided with a hollow evaporator supplied with a refrigerant

and a plurality of partitions secured onto the outer surface of the evaporator so as to be vertically extended from the top to the bottom thereof, thereby forming water channels therebetween. During the period of ice formation, water is



supplied to the channels and refrigerant is supplied to the evaporator so that portions of the water freeze to form pieces of ice. During the period of harvesting, the water supply is discontinued and heated refrigerant vapor is provided in the evaporator to remove the pieces of ice therefrom.

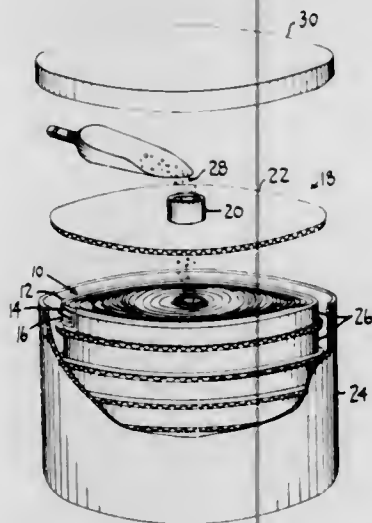
3,657,900

PACKAGING ARRANGEMENT FOR A MULTIPLE GLAZED UNIT SPACER ASSEMBLY

George H. Bowser, New Kensington; Vernon A. Shoop, Springdale, and Stanley J. Pyzewski, Tarentum, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 1, 1969, Ser. No. 846,848

Int. Cl. B65d 81/18; F25d 3/12; B65d 85/62, 85/67
U.S. Cl. 62—388 7 Claims



A method for packaging a composite element composed of an elongated strip of mastic sealant material having a flexible carrier tape adhered to one surface and a resilient spacer-dehydrator element adhered to the opposite surface is disclosed. The composite element, described above, is coiled with the side of the carrier tape that is free of mastic being disposed nearest the center of the coil. Thereafter, if the coil has been prepared for shipment or storage, the coil is maintained in a dry, inert and, where required, cooled atmosphere until subsequently used.

3,657,901

AIR CONDITIONING SYSTEM

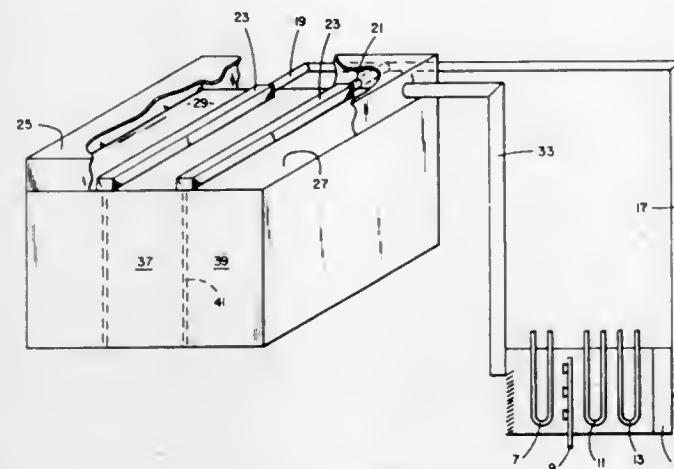
Carl C. Herb, Camillus, and Darwin G. Traver, Dewitt, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 20, 1971, Ser. No. 107,926

Int. Cl. F25d 17/06

U.S. Cl. 62—419 2 Claims
An air conditioning system to provide treated air from a central source to a plurality of areas in a common enclosure,

including at least one supply terminal. The system further includes a return air plenum. A return air unit provides simul-



3,657,902

SHAFT COUPLING

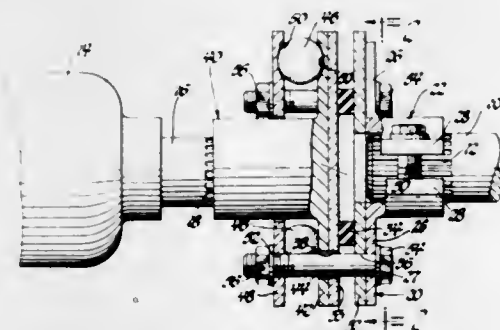
Roy S. Cataldo, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 7, 1970, Ser. No. 95,467

Int. Cl. F16d 3/12

U.S. Cl. 64—13

3 Claims



A shaft coupling between first and second shafts, the shaft coupling including a resilient member of low torsional spring rate connecting the shafts, a pair of surface elements rotatable as a unit with respective ones of the shafts, and a plurality of elastically deformable spheres disposed in substantial compression between the surface elements and generating resistance to rolling movement so as to retard relative angular movement between the surface elements, the resistance to rolling movement torsionally damping the resilient member to eliminate looseness or sponginess between the shafts.

3,657,903

AXIAL LIMIT MEANS FOR MALE AND FEMALE SPLINE TEETH IN AN ORBITAL CONNECTION

George V. Woodling, 22077 West Lake Road, Rocky River, Ohio

Filed Dec. 15, 1970, Ser. No. 98,396

Int. Cl. F16d 3/06

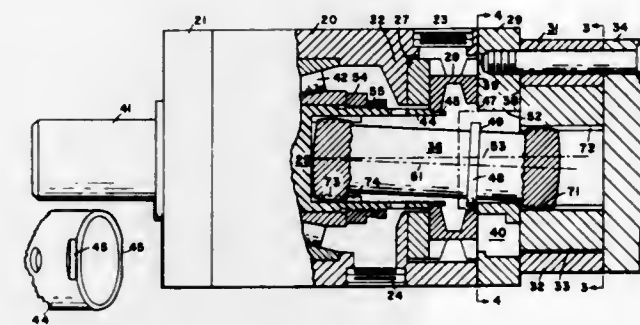
U.S. Cl. 64—23

10 Claims

Male and female spline teeth in an orbital connection between an orbital shaft and fluid pressure operating means are limited against relative axial movement by axial limit means comprising side member means held in facing relation to a side of said fluid pressure operating means. The side member means includes a shaft opening having a reference axis. The orbital shaft extends through said shaft opening and has a rotational movement about its own shaft axis and an or-

bital movement about said reference axis of said shaft opening. The side member means has stop wall means extending outwardly from said shaft opening. The orbital shaft has a

tion. Said spade devices are formed to cause selection of said loop transfer points to perform loop transfer functions to ef-



3,657,904

SLIDING CLASP FASTENER STRINGERS

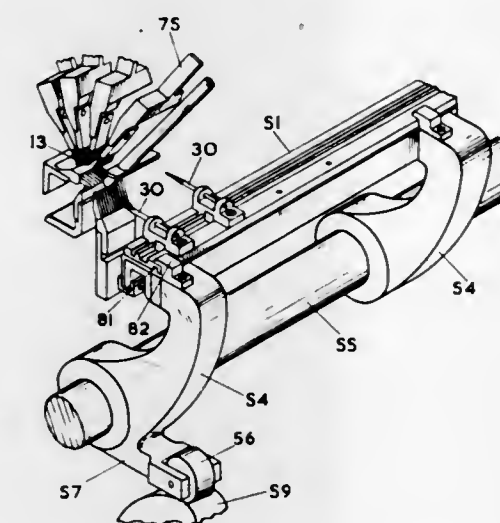
Christopher Frederic Austlin; Philip Simpson Crowther; David Warren, all of Sutton Coldfield, and David Howitt, Birmingham, all of England, assignors to Lightning Fasteners Limited, Birmingham, England

Filed July 6, 1970, Ser. No. 52,190

Int. Cl. D04b 23/00

U.S. Cl. 66—86

9 Claims



A slide fastener stringer comprising a knitted tape and a series of coupling elements secured thereto during knitting by an auxiliary sewing thread.

3,657,905

STRAIGHT BAR KNITTING MACHINES

Barry Frederick Swanwick, Melton Mowbray, England, assignor to S. A. Monk (Sutton in Ashfield) Limited, Ashfield, Nottinghamshire, England

Filed May 22, 1970, Ser. No. 39,822

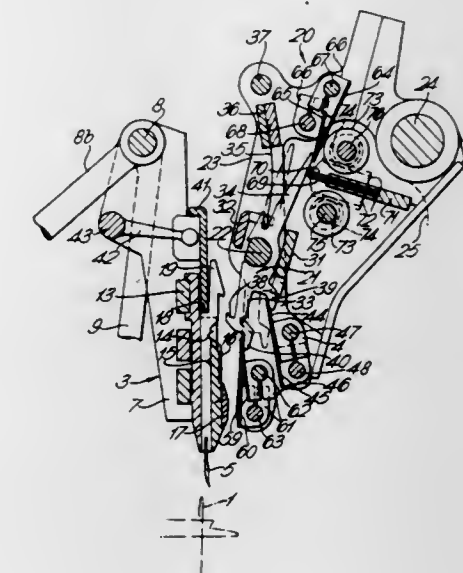
Claims priority, application Great Britain, Feb. 28, 1969, 26,934/69

Int. Cl. D04b 11/06

U.S. Cl. 66—89

12 Claims

Control means for selectively selecting the loop transfer points in a straight bar fully fashioned knitting machine, said means comprising a series of selector elements arranged to be operated by at least one of a plurality of spade devices, said selector elements serving to move said transfer points from a normal operative position into an inoperative posi-



fect garment shaping, vee neck, fancy lace, marking, doubling, pouching and cabling operations.

3,657,906

STRAIGHT BAR KNITTING MACHINES

Barry Frederick Swanwick, Melton Mowbray, England, assignor to S. A. Monk (Sutton in Ashfield) Limited, Ashfield, Nottinghamshire, England

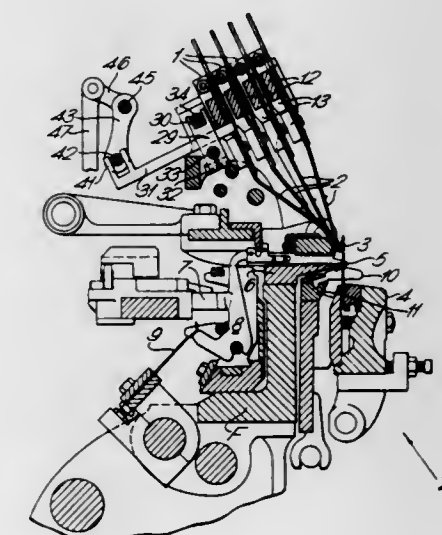
Filed June 1, 1970, Ser. No. 42,215

Claims priority, application Great Britain, June 4, 1969, 28,295/69

Int. Cl. D04b 15/64

U.S. Cl. 66—126 R

12 Claims

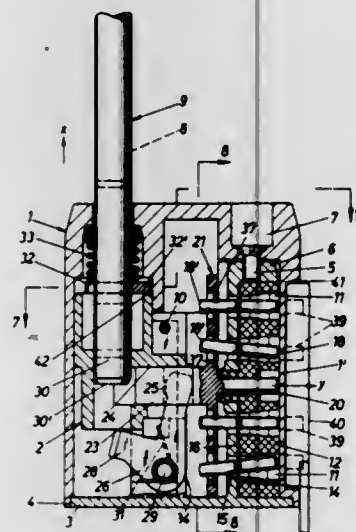


A yarn carrier system for fully fashioned straight bar knitting machines wherein each yarn carrier device comprises a carrier box slidable relative to its co-acting carrier rod, a drive bracket secured to said carrier rod, and centralizing spring means arranged between said carrier box and said drive bracket to permit of limited excess movement of said carrier rod and said drive bracket relative to said carrier box.

3,657,907

LOCK, IN PARTICULAR PADLOCK, WITH TUMBLERS CONTROLLED BY A MAGNETIC KEY

Egon Boving, Tonisheide, Germany, assignor to Firma Carl Sievers, Heiligenhaus/Rhineland, Germany
 Filed Mar. 6, 1970, Ser. No. 17,232
 Int. Cl. E05b 67/22, 47/00, 19/26
 U.S. Cl. 70—38 C 4 Claims

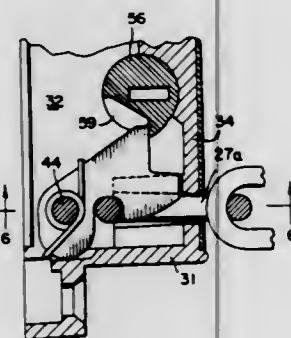


A lock, particularly a padlock, with tumbler pins controlled by magnets disposed on the key side and suspended on their middle section for a pendulum movement, which comprises a plurality of tumbler pins and a locking plate, whereby the tumbler pins are directed with one end towards the locking plate. The latter has an opening for entrance of the ends of the correspondingly aligned tumbler pins, and is mounted for parallel displacement perpendicularly to its plane and retained by a spring load in an abutment position in front of the ends of the tumbler pins.

3,657,908

CHAIN DOOR LOCK

Jerome Schwartz, and Ryszard Szatkowski, both of Philadelphia, Pa., assignors to Taylor Lock Company, Philadelphia, Pa.
 Filed June 2, 1970, Ser. No. 42,787
 Int. Cl. E05b 65/06; E05c 17/36
 U.S. Cl. 70—93 6 Claims



A door lock including a chain, means for detachably connecting one end of the chain to a door, and a housing for affixation to the door jamb having an opening for receiving a member on the other end of the chain and releasably securing the latter in the housing, the chain being releasable from the housing by key lock means accessible through the doorway.

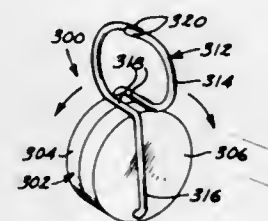
3,657,909

KEY HOLDER

George T. Boswell, 6710 Kenmont Place, Springfield, Va.
 Filed Feb. 27, 1970, Ser. No. 15,046
 Int. Cl. A44b 15/60 9 Claims

U.S. Cl. 70—457

9 Claims



A key holder comprising a deformable and resilient wire member in the form of two loops. The end portions of the wire member are overlapped in one of the loops and are adapted to be separated for the removal or addition of one or more keys therefrom or thereto by the manual torsional deformation of the wire member. This is accomplished by the pressing together of separated cross portions of the wire member joining the loops, which results in the torsional deformation of the wire member and the separation of the overlapped wire ends. When the cross portions of the wire member are released, the resiliency of the wire member causes the separated overlapped end portions to again engage each other to close the one loop. An article container adapted to contain coins or the like may be movably mounted on the other loop for movement between a first position wherein a portion thereof is disposed between the cross portions of the wire member to prevent torsional deformation thereof and a second position wherein the container is remote from the cross portions to enable the wire member to be torsionally deformed and the container to be opened.

3,657,910

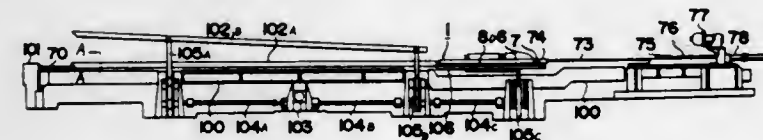
METHOD AND APPARATUS FOR COLD DRAWING METAL TUBES

Kenjiro Isobe, Kawasaki; Hltoshi Tsuji, Kawasaki; Shigeo Kawahata, Kawasaki; Elji Mori, and Katsuhiko Ito, both of Tokyo, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha

Filed Mar. 9, 1970, Ser. No. 17,732
 Claims priority, application Japan, Sept. 16, 1969, 44/72990
 Int. Cl. B21c 3/16 10 Claims

U.S. Cl. 72—8

10 Claims



A plurality of ultra-sonic transducers are fitted on one or more flanges, the transducers being at right angles to an elongated transmitting body which combines the vibrating energy of respective flanges and changes the direction of the vibrations by 90°. The longitudinal vibration of the transmitting body is applied to a plug of a tube drawing machine. The vibrating amplitude of the system is detected and deviations from a predetermined set value are corrected.

3,657,911

BENDING MACHINE

Kenneth W. Clarke, Arcadia; Donald L. Kinnsch, Los Alamitos, and Archibald R. McClay, Costa Mesa, all of Calif., assignors to Foster Wheeler Corporation, Livingston, N.J.

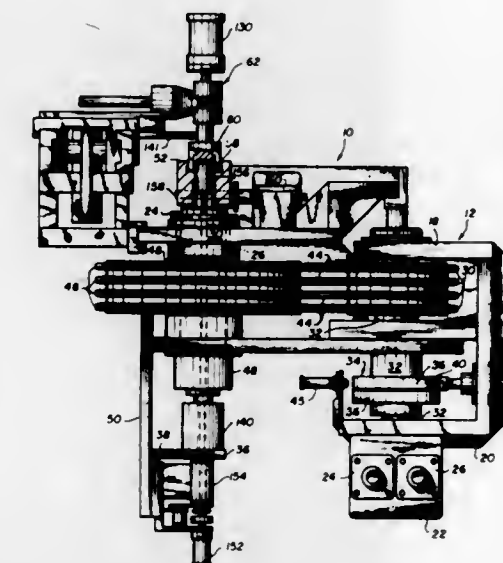
Filed Mar. 13, 1970, Ser. No. 19,172

Int. Cl. B21d 7/04

U.S. Cl. 72—157

7 Claims

U.S. Cl. 72—242



A bending machine which bends tubes in both directions and which can form bends of different radii. A bending die assembly has two bending hubs, each with an axis of rotation, so that when the tube is to be bent in one direction the die unit turns about one axis and when the tube is to be bent in the other direction the die head turns about the other axis, the assembly being replaceable by another having bending hubs of a different radius to form bends of a corresponding radius in a tube.

3,657,912

UNIVERSAL METHOD OF ROLLING RAILS AND A MILL TRAIN FOR THE SAME

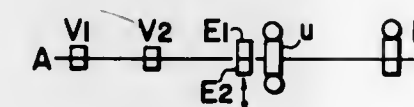
Yoshiyuki Ishibashi, and Kanichi Kishikawa, both of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Dec. 2, 1969, Ser. No. 881,379

Claims priority, application Japan, Dec. 9, 1968, 43/90391
 Int. Cl. B21b 13/08, 1/08 7 Claims

U.S. Cl. 72—234

7 Claims



A universal method of rolling rails and a mill train for the same comprises an edging rolling mill set anterior to or/and posterior to a universal rolling mill. The edging rolling mill consists of a first rail edging roll pass and a second edging roll pass containing a set of the pass designs so different as to have the radii to meet respective corners of the head and of the foot of the so-rolled rail made larger than those of the pass designs of the first edging roll pass. The second edging roll pass is operated in combination with the universal rolling mill so as to conduct rolling following the rolling operation of the universal rolling mill and the first edging roll pass.

3,657,913

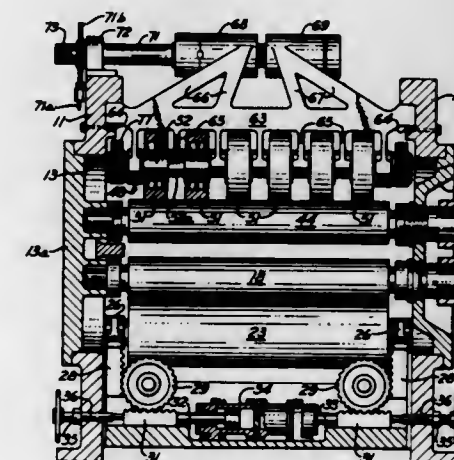
CROWN CONTROL

Howard Hubbell Talbot, Pittsburgh, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa.
 Filed Aug. 29, 1969, Ser. No. 854,055
 Claims priority, application Great Britain, Sept. 30, 1968, 46,238/68

Int. Cl. B21b 27/00, 29/00

U.S. Cl. 72—242

8 Claims



This disclosure provides a crown control apparatus for controlling the contour of the roll opening formed by the working rolls of a rolling mill. The upper roll is ultimately supported by one or more roller assemblies consisting of a plurality of axially aligned short-faced rollers. These rollers are rotatably supported on a shaft carried by a separator beam located between the mill housings. The beam includes two opposed projecting arms between which a threaded screw applies a force to deflect the beam relative to the pass line of the mill. This deflection produces a crown on the roller assemblies that is transmitted ultimately to the working rolls.

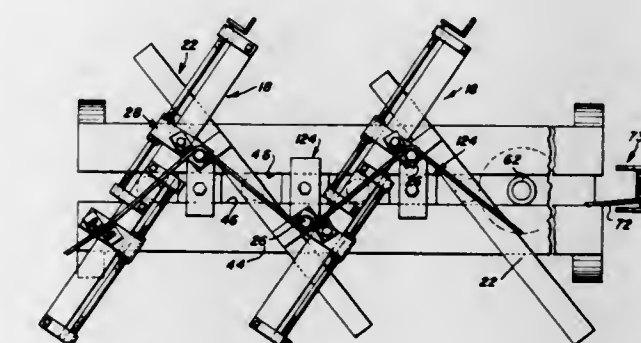
3,657,914

ROD BENDING APPARATUS

James A. Hart, 2210 DeWitt Street, Irving, Tex.
 Filed Dec. 8, 1969, Ser. No. 882,848
 Int. Cl. B21d 7/024 6 Claims

U.S. Cl. 72—383

6 Claims



A guideway formed in a frame retains a series of rollers which form respective central pivot points for a plurality of interlinked arms. Each arm includes an offset point which becomes pivotally linked with an adjacent arm so that rotational motion of the rollers causes simultaneous scissoring action of the linkage arms. A straight rod is secured to the interconnected linking arms and during the scissoring action the rod becomes bent into a sawtooth pattern.

3,657,915

AUTOMATIC REAR FEEDER FOR BLIND RIVETS

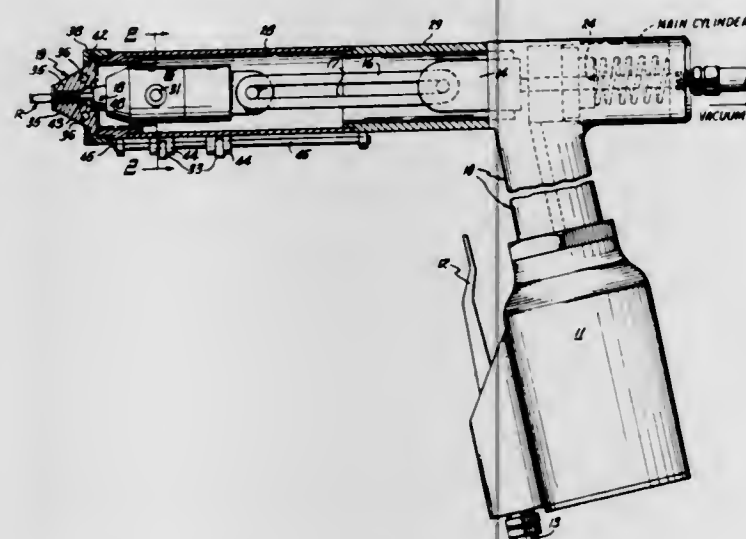
William H. Lee, Mount Vernon, N.Y., assignor to Josephson, Speiser & Ives, New York, N.Y.

Continuation-in-part of application Ser. No. 60,813, Aug. 4, 1970, now abandoned. This application May 21, 1971, Ser. No. 145,827

Int. Cl. B21j 15/06

U.S. Cl. 72-391

11 Claims



Blind rivets are automatically fed into a nosepiece of a blind rivet-setting tool by having the nosepiece split into sections which are pivoted so that the rivet can be carried by the pulling jaws and pushed through from the rear. The tool operates with two strokes. In the second stroke an auxiliary air cylinder pulls the jaws back and cams a sleeve to rotate it, to feed a fresh rivet into the space between the jaws and the nosepiece. The jaws pick up the rivet on the forward stroke and push it through the nosepiece sections, these sections closing behind the rivet flange. Vacuum is used to discharge the spent rivet mandrel and to draw the fresh rivet back against the nosepiece ready to be set.

3,657,916

FORGING MACHINE

Hans Jochim Pahnke, Dusseldorf-Nord, Germany, assignor to Maschinenfabrik Sack GmbH, Dusseldorf-Rath, Germany

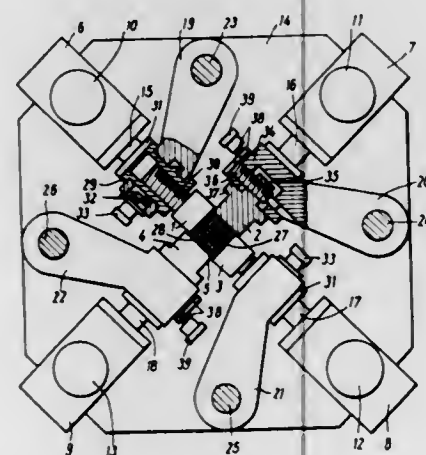
Filed Feb. 3, 1970, Ser. No. 8,242

Claims priority, application Germany, Feb. 20, 1969, P 19 08 362.6

Int. Cl. B21j 13/02

U.S. Cl. 72-399

3 Claims



A forging machine for reducing the cross section area of a workpiece which is positioned on the forging axis of the machine, i.e., the direction of travel of the workpiece through the machine. Four, forging saddles are arranged at

intervals around the forging axis, a driving mechanism for each forging saddle and arranged to impart a thrust through its forging saddle in a lateral direction with respect to the forging axis. A guiding arm is associated with each driving mechanism an forging saddle for guiding the thrust of the forging saddle, each guiding arm being inclined at an angle to the direction of thrust of its associated forging saddle and being pivotally mounted about an axle which is parallel to the forging axis. Each forging saddle is adjustably connected to its guiding arm so that its position relative to the guiding arm can be adjusted either parallel to or transversely of the direction of thrust of the forging saddle. This arrangement enables the cross-sectional area of forged bars produced in such a machine to be adjusted.

3,657,917

SYSTEMS FOR HIGH ENERGY IMPULSE WORKING OF MATERIALS, COMPACTION, EXTRUDING, FORGING AND THE LIKE

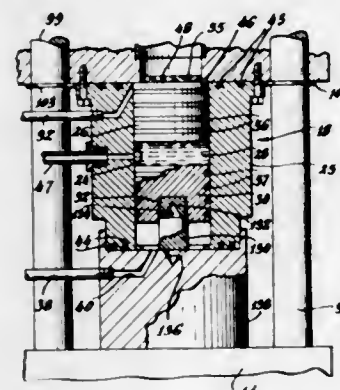
Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Filed Feb. 24, 1970, Ser. No. 13,709

Int. Cl. B21j 9/10; B21c 23/00; B29c 3/00

U.S. Cl. 72-453

5 Claims



Systems for high energy impulse working of materials, compaction, extruding, forging and the like are disclosed in which a piston mass is accelerated toward a dual-piston hammer assembly including a pair of pistons separated by a pressurized liquid to form an effectively rigidized assembly for transmitting the high energy impulses while applying a pre-compression to the material to be worked. To make a densely compacted high quality precision manufactured article from powdered material such as metallic particles or particles of the refractory type, the surfaces of the particles are chemically cleaned, and then the particles are maintained under a clean, chemically inert atmosphere, being introduced into the die cavity which is then evacuated of gas, and the particles are pre-pressurized by the dual-piston hammer assembly. The piston mass is impacted at high velocity to apply a high energy impulse through a ram die to strongly bond the particles together under a hard vacuum, making an article precisely conforming to the die configuration. Transfer molding of material is accomplished by pre-pressurizing the material by means of the dual-piston hammer assembly and thereafter impacting the piston mass to apply a high energy impulse through a ram die to drive and transfer mold the pre-pressurized material into the die cavity. Forging is similarly accomplished by using the dual-piston hammer assembly to pre-pressurize the material between the forging dies and thereafter impacting the piston mass to apply a high energy impulse to forge the material between the dies. A controlled amount of inert atmosphere or a vacuum is provided about the material to be worked which is hermetically sealed within the die chamber.

3,657,918

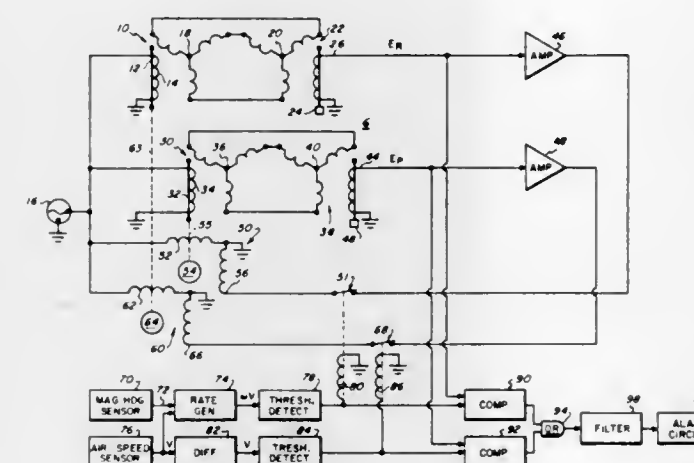
PERFORMANCE MONITOR FOR A VERTICAL GYRO
Charles E. Hurlbert, River Edge, N.J., assignor to The Bendix Corporation

Filed June 19, 1969, Ser. No. 834,722

Int. Cl. G01c 21/10

U.S. Cl. 73-1 D

9 Claims



Apparatus for monitoring a vertical gyro includes means for monitoring gyro vertically in the roll axis as a function of true air speed and rate of turn and monitoring vertically in the pitch axis as a function of air speed rate of change.

3,657,919

APPARATUS FOR CALIBRATING A VOLUMETRIC FLOW METERING DEVICE

Robert A. Brown, London, England, assignor to Eastman Kodak Company, Rochester, N.Y.

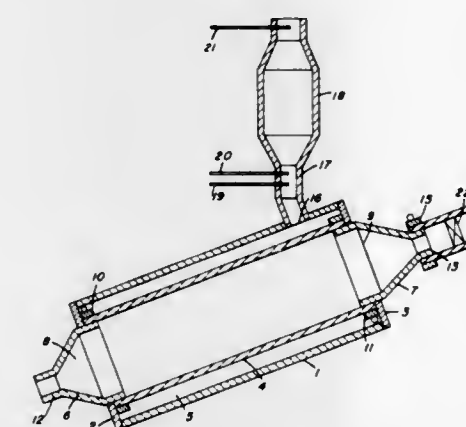
Filed Aug. 3, 1970, Ser. No. 60,451

Claims priority, application Great Britain, Apr. 17, 1970, 18,512/70

Int. Cl. G01f 25/00

U.S. Cl. 73-3

3 Claims



Apparatus for use in the calibration of volumetric flow metering devices, such as metering pumps, comprises a hollow receptacle divided into two separate chambers by a moveable wall member, one of the chambers being adapted to receive fluid from the flow metering device and the other being filled with a calibrating liquid and connected to a vessel for receiving the calibrating liquid and measuring the volumetric rate at which it is received. In calibrating a metering device, the outlet from the device is connected to the inlet of the fluid-receiving chamber and fluid flowing through the metering device discharges into this chamber and, after filling it, causes the moveable wall member to displace the calibrating liquid in the adjacent chamber at a rate commensurate with the flow rate through the metering device.

3,657,920

SEQUENTIAL SAMPLER

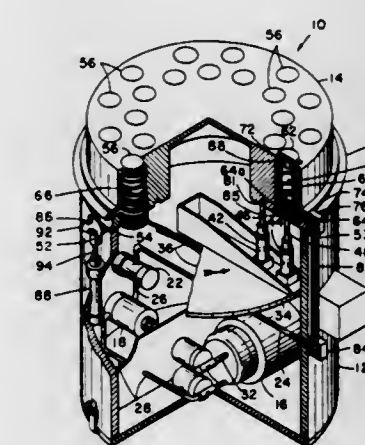
Dale M. Teel, and John H. Putnam, Jr., both of Idaho Falls, Idaho, assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed May 6, 1970, Ser. No. 35,098

Int. Cl. G01n 1/24

U.S. Cl. 73-28

4 Claims



A sampler for collecting a series of samples of aerosols from the atmosphere. The sampler utilizes a removable head having mounted therein a plurality of sampling units which are sequentially actuated to obtain samples at regular intervals over long periods of time. The head carrying the sampling units is readily replaceable and the whole device is designed for remote operation.

3,657,921

METHOD AND APPARATUS FOR TESTING THE HARDNESS OF MATERIALS

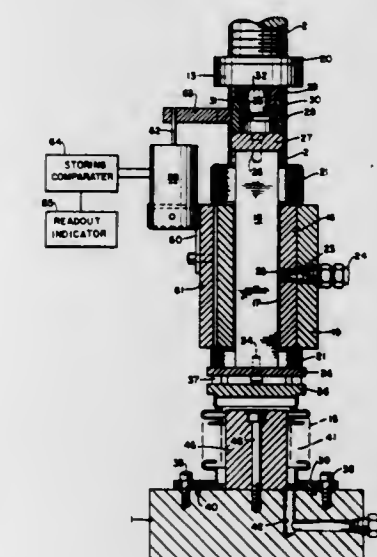
Elliot R. Lang, Hamden, Conn., assignor to American Chain & Cable Company, Inc., New York, N.Y.

Filed Dec. 31, 1969, Ser. No. 889,764

Int. Cl. G01n 3/44

U.S. Cl. 73-83

4 Claims



Method and apparatus for testing the hardness of materials comprising means for effecting contact between the test material and an indenter by moving the test material under a progressively changing force into contact with the indenter to apply a minor and major load thereby producing two indentations of differing depth in the test material. The permanent depth of the indentation produced by application of the major load is determined by measuring the difference between the position of the indenter with respect to the test material when the minor load is applied both before and after the major load is applied and removed.

3,657,922

METHOD FOR DETERMINATION OF PERFORMANCE OF A VEHICLE ENGINE

Jean Paul Sibeud, Lyon, France, assignor to Automobiles M. Berliet, Lyon, France

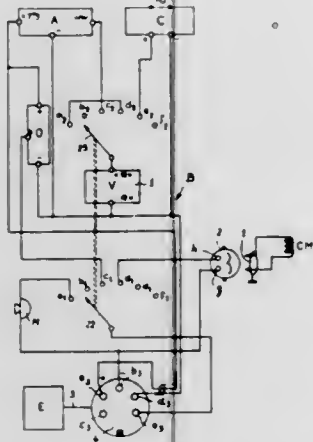
Filed Dec. 18, 1969, Ser. No. 886,215

Claims priority, application France, Dec. 19, 1968, 179204

Int. Cl. G01m 15/00

U.S. Cl. 73-117.3

2 Claims



The method consists of recording on a magnetic tape the electric signal from a detector placed in the vicinity of a rotating member of the engine, the frequency of this signal being proportional to the angular speed of the engine during an acceleration phase at full throttle and a deceleration phase with fuel cut-off and stopping of the engine. The same tape also records the signals from a frequency calibrating device and the whole of the information recorded is treated by a computer adapted to establish various comparative data concerning the angular speeds and the driving and resistive torques of the engine. The device comprises an electro-magnetic detector, an electronic casing with a calibrating oscillator and a tape recorder connected to the electronic casing.

3,657,923

ELECTRODYNAMOMETER

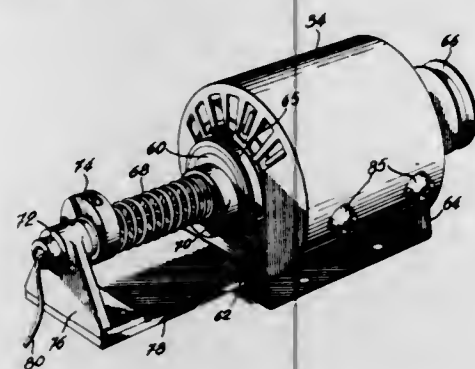
Theodore Wildi, Quebec, Canada, assignor to Lab-Volt (Quebec) Limited, Quebec, Province of Quebec, Canada

Filed July 6, 1970, Ser. No. 52,177

Int. Cl. G01l 3/22

U.S. Cl. 73-134

9 Claims



An electrodynamicometer for measuring the torque of a motor. The electrodynamicometer includes a supporting structure and a stator mounted for rotation on the structure and having a winding adapted for energization by a variable source of direct current to produce a predetermined number of magnetic poles. A squirrel-cage rotor is mounted for rotation within the stator and coupled to the motor the torque of which is to be measured. The rotation of the rotor of the electrodynamicometer develops a torque tending to rotate the stator. A spring is connected between the stator and the structure for absorbing the torque exerted on the stator by the rotor and the angle of rotation of the stator against the action of the spring is measured on a scale for providing an indication of the torque of the motor.

MARINE ELECTRICAL SPEEDOMETERS

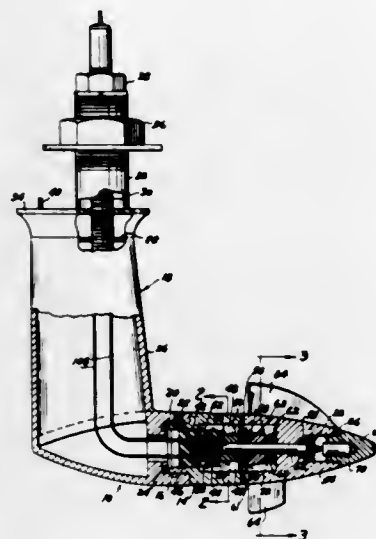
William H. Kirk, 1109 W. Selfridge, Clawson, Mich.

Continuation-in-part of application Ser. No. 433,323, Feb. 17, 1965, now abandoned. This application June 30, 1967, Ser. No. 650,269

Int. Cl. G01c 21/10

U.S. Cl. 73-187

17 Claims



Marine speedometers having a submerged electrical generating unit electrically connected to a remotely located indicating unit. The generating unit comprises an impeller driven rotating magnetic field inducing an alternating current in a stationary winding which is connected, through a current rectifying electrical circuit, to an electrical meter forming the indicating unit.

3,657,925

POSITIVE DISPLACEMENT FLOWMETER

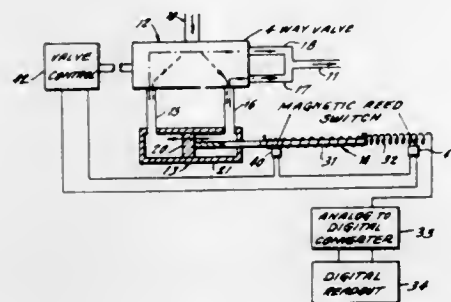
Frederick A. Gross, Los Angeles, Calif., assignor to International Rectifier Corporation, Los Angeles, Calif.

Filed June 1, 1970, Ser. No. 42,226

Int. Cl. G01f 1/04

U.S. Cl. 73-239

14 Claims



A flowmeter comprising a four-way valve which directs fluid against one side or the other of a piston, while the other side of the piston is connected to an outlet line. The piston is connected to a permanent magnet which moves through an elongated winding to generate an output voltage related to the piston velocity which, in turn, is related to volumetric flow rate. The four-way valve is cycled to automatically reverse piston movement before the piston reaches one end of its full motion by an auxiliary valve which is operated from magnetic reed switches disposed along the path of movement of the permanent magnet. A readout and control circuit is provided which can present the velocity measurement on a digital display, with the circuit also providing calibration capability.

3,657,926

METHOD AND APPARATUS FOR MEASURING PHYSICAL PHENOMENA

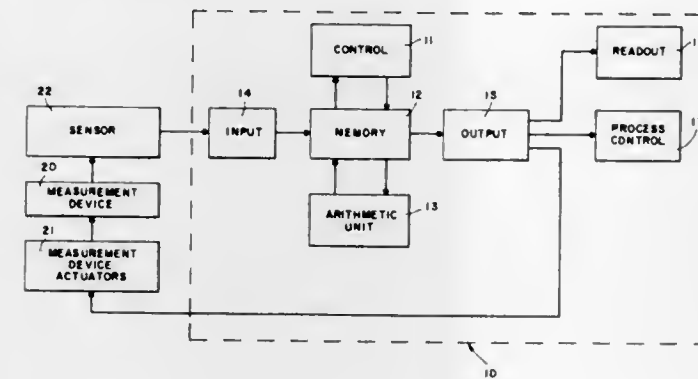
Robert V. Munson, and Richard E. Bensmiller, both of San Antonio, Tex., assignors to Thayer Corporation, San Antonio, Tex.

Continuation-in-part of application Ser. No. 868,838, Oct. 23, 1969, now abandoned. This application Apr. 2, 1970, Ser. No. 25,162

Int. Cl. G01l 7/22

U.S. Cl. 73-404

35 Claims



A closed loop measuring system includes a digital computer, a measurement device, actuator means associated with the measurement device, and controlled by the computer for establishing known and unknown conditions of a physical phenomena such as pressure, torque, or temperature in the measurement device, and the sensors associated with the measurement device responsive to the conditions established therein for producing relative data values which are stored in the computer memory. The computer controls the establishment of the known and unknown conditions in the measurement apparatus and the storing of the relative data values, and calculates the unknown conditions from the stored relative data values and the stored values for the known conditions. Measurement apparatus for use in such systems, includes a water manometer for measuring gas pressure, a mercury manometer for measuring gas pressure, a torque transducer for measuring torque loads, and a temperature transducer for measuring temperature.

3,657,927

SUPERCONDUCTING QUANTUM RATE GYRO DEVICE FOR DETECTING ROTATION

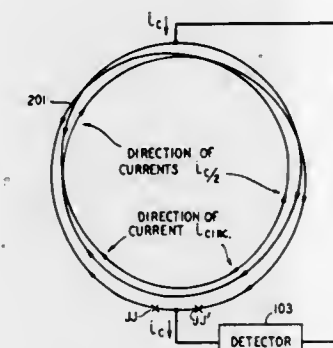
John Anthony Tyson, Bernardsville, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 25, 1970, Ser. No. 13,905

Int. Cl. G01p 3/44

U.S. Cl. 73-505

11 Claims



A superconducting quantum rate gyro device for detecting rotation comprises a plurality of contiguous superconducting

loops, superconducting electrons flowing in each of two opposite directions in the loops and means to measure quantum phase differences between electrons flowing in opposite directions. The loops are imbedded in a superconducting shield material to reduce electromagnetic self-inductance and improve detection of lower rotation rates.

3,657,928

ANGULAR VELOCITY AND ACCELERATION MEASURING APPARATUS

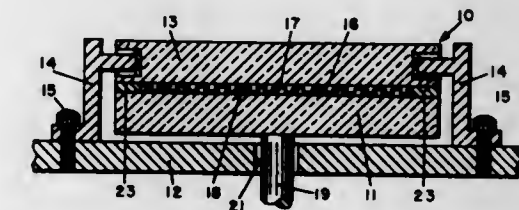
Louis Melamed, Hingham, Mass., assignor to The United States of America as represented by the National Aeronautics and Space Administration

Filed June 11, 1970, Ser. No. 45,519

Int. Cl. G01p 3/26, 3/36

U.S. Cl. 73-515

9 Claims



Disclosed is a combined angular velocimeter and accelerometer formed by a film of cholesteric phase liquid crystalline material retained between rotary and stationary discs. Shear-stress exerted on the liquid crystalline film by movement of the rotary disc changes the initial uniform coloration into either differently colored bands or colorless bands that are observed through the transparent stationary disc. The radii of the colored or colorless rings are proportional to the rotation rate while the radial velocity of the band of rings is proportional to the angular acceleration.

3,657,929

ACCELEROMETERS

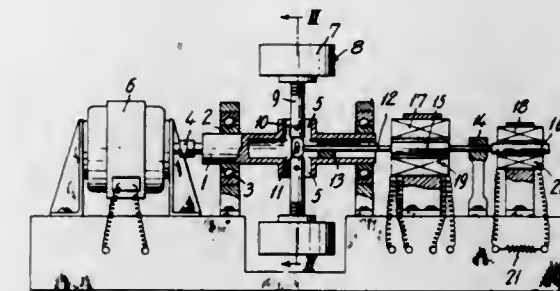
Hiroshi Nakane, Sagami-hara, Japan, assignor to Kabushiki Kaisha Doboku Sokki Senta, Tokyo, Japan

Filed Feb. 10, 1970, Ser. No. 10,151

Int. Cl. G01p 15/08

U.S. Cl. 73-517

8 Claims



An accelerator comprises a pendulum mounted on a hollow rotating shaft for pivotable movement about an axis transverse of the shaft and offset from the axis of rotation thereof. A detecting rod is coupled to the inner end of the pendulum to be displaced thereby when the pendulum is subjected to acceleration variation in the longitudinal direction of the shaft, the rod undergoing displacement in an amount proportional to the change in acceleration.

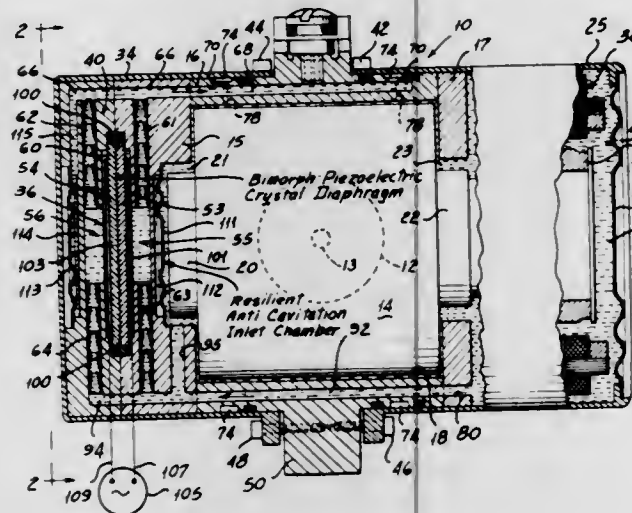
3,657,930

PIEZOELECTRIC CRYSTAL OPERATED PUMP TO SUPPLY FLUID PRESSURE TO HYDROSTATICALLY SUPPORT INNER BEARINGS OF A GYROSCOPE
Oscar D. Jacobson, New York, N.Y., assignor to The Bendix Corporation

Filed June 24, 1969, Ser. No. 836,056
Int. Cl. G01c 19/20

U.S. Cl. 74-5

18 Claims



A piezoelectric crystal operated pump including a bimorph (bender type) piezoelectric crystal diaphragm, volumetrically expanding piezoelectric crystal stack, or such a crystal stack operated diaphragm pump arranged to flex in a pump cavity to supply a fluid pressure medium to hydrostatically supported inner bearings of gyroscope.

3,657,931

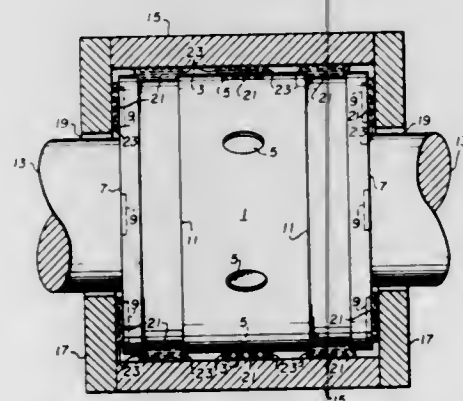
NEUTRALLY FLOATED GYRO WITH MENISCUS CENTERING

Oscar D. Jacobson, New York City, N.Y., assignor to The Bendix Corporation

Filed Feb. 24, 1970, Ser. No. 13,545
Int. Cl. G01c 19/16

U.S. Cl. 74-5

2 Claims



A gyro rotor having continuous circumferential grooves and a plurality of pockets formed in the surface thereof is contained within a housing having an inner surface juxtaposed with the rotor surface. The grooves, pockets and the spaces adjacent thereto are filled with a heavy liquid having a high surface tension to form liquid rings and pads. The liquid is captivated in the rings and pads by menisci formed between the juxtaposed surfaces. The rings neutrally float the rotor and the menisci around the pads center the rotor within the housing.

3,657,932

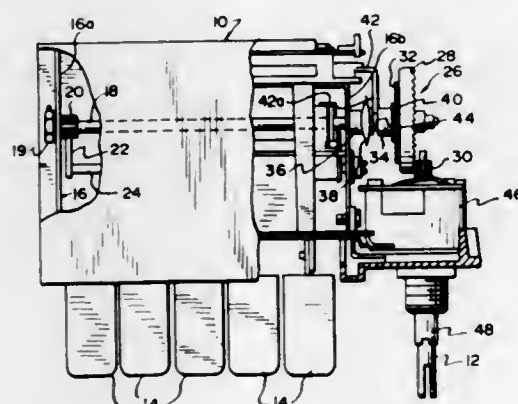
FLEXIBLE CLEVIS CLUTCH CONNECTOR FOR PUSHBUTTON TUNER

Raymond I. Walsh, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed Aug. 7, 1970, Ser. No. 61,993
Int. Cl. F16h 35/18

U.S. Cl. 74-10.33

4 Claims



A flexible clevis is utilized in a clutch mechanism of a pushbutton radio. The flexible clevis is formed of two pieces of resilient, spring-like metal parts connected together in a bow shape arrangement so that a pressure plate of the clutch mechanism connected thereto can move axially on the shaft so that the pressure plate will shift between engaged and disengaged positions, depending upon whether a manual control is used or whether a pushbutton control is used.

3,657,933

TRANSMISSION FOR DIAPHRAGM PUMP

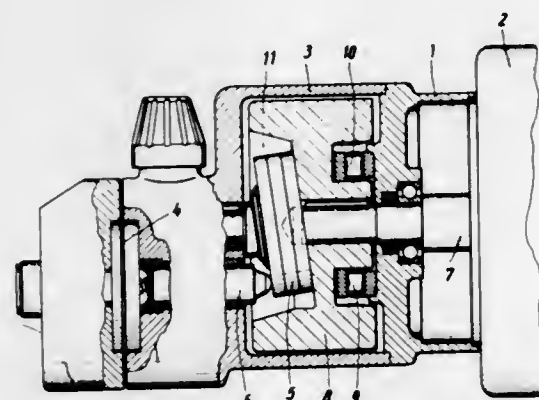
Josef Wagner, 7991 Friedrichshafen-Fischbach, Germany

Filed Feb. 3, 1970, Ser. No. 8,166
Claims priority, application Germany, Feb. 6, 1969, P 19 05 838.9

Int. Cl. F16h 25/08

U.S. Cl. 74-55

3 Claims



An electric motive means operates through a transmission to drive a conventional diaphragm pump. The transmission includes a flywheel as a mass to assist through a cam the function of driving the diaphragm pump.

3,657,934

SYSTEM FOR CONTROLLING THE SHIFT POINT OF FLUID CONTROLLED AUTOMATIC TRANSMISSION FOR VEHICLES

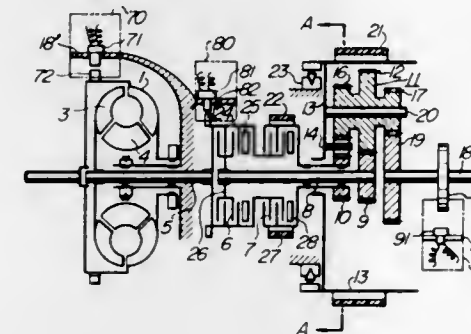
Shin Ito; Seltoku Kubo, and Takakazu Mori, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed May 18, 1970, Ser. No. 38,288

Claims priority, application Japan, July 26, 1969, 44/59106
Int. Cl. B60k 21/00

U.S. Cl. 74-861

5 Claims



A system for controlling the shift point of a fluid controlled automatic transmission in which means are provided so that a shift from one gear position to another takes place at a lower slip ratio of the torque converter when the throttle valve opening is less than a predetermined setting and at a higher slip ratio of the torque converter when the throttle valve opening is more than the predetermined setting.

3,657,935

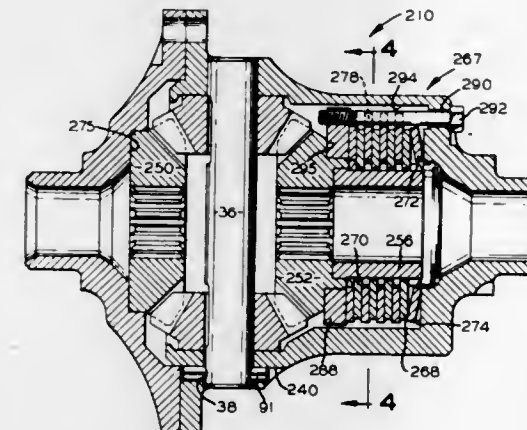
DIFFERENTIAL TRANSMISSION

Loren J. O'Brien, R. R. #1, Grabill, Ind.
Continuation-in-part of application Ser. No. 71,331, Nov. 23, 1960, now abandoned. This application Feb. 14, 1962, Ser. No. 173,284

Int. Cl. F16h 1/44

U.S. Cl. 74-711

9 Claims



A limited slip differential or semi-locking differential comprising a pair of pinion gears mesh with a pair of side gears having spring actuated clutch means wherein the compensating action of the gearing is retarded.

3,657,936

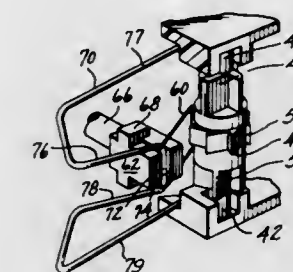
DIMMER POTENTIOMETER SWITCH

Edwin B. Judd, East Greenwich, R.I., assignor to General Electric Company

Filed Apr. 24, 1970, Ser. No. 31,626
Int. Cl. F16h 27/02

U.S. Cl. 74-128

6 Claims



An improved indexing mechanism for rotation of a cam bearing rotor through predetermined pattern of motions is provided to respond to a plunger actuation. The indexing and plunger motions are related by springs which act in tension and compression to advance the rotor in response to each push and return of the plunger.

3,657,937

COMBINATION BRAKE AND BREAK-OVER MECHANISM FOR VARIABLE SPEED CONTROL MECHANISM

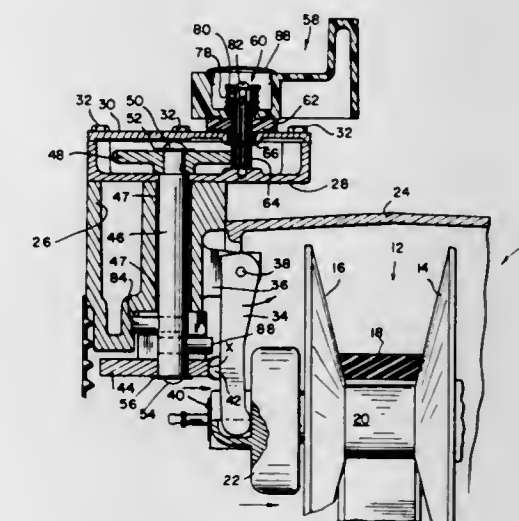
George M. Lambert, Columbus, Ind., assignor to Reliance Electric Company, Cleveland, Ohio

Filed July 10, 1970, Ser. No. 53,841

Int. Cl. F16h 55/52

U.S. Cl. 74-230.17

11 Claims



A variable speed system of the type including a V-pulley having an axially shiftable pulley disc wherein the improvement comprises first rotary means, such as a cam, journaled in the system, first means, such as a cam follower, for drivingly connecting the first rotary means to the shiftable pulley disc axially to move the disc when the first rotary means is driven, second rotary means, such as a manually adjustable knob, and second means for drivingly connecting the second rotary means to the first rotary means. This second means includes a rotary member positively drivingly connected to the first rotary means, and spring means for providing a torque-limited, yieldable driving connection between the said member and the second rotary means. The second means also includes a friction plate disposed axially between the said member and a relatively stationary portion of the

system, the spring means being effective yieldably to urge the member and the friction plate against the stationary portion to provide a friction brake resisting rotation of said member.

3,657,938

POWER TRANSMISSION BELT AND APPARATUS FOR AND METHOD OF MAKING SAME

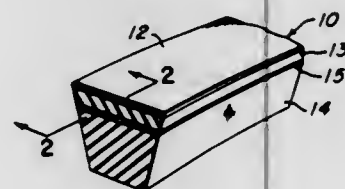
David G. Fisher, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Nov. 9, 1970, Ser. No. 88,040

Int. Cl. F16g 5/16; B29h 7/22

U.S. Cl. 74-233

16 Claims



A power transmission belt and an apparatus for and method of making such a belt are provided wherein the belt is adapted to be moved in an endless path and has a load-carrying section which is made of a plastic-like material having elongated particles made of a reinforcing material embedded therein and each of the particles has a longitudinal axis which is arranged substantially in alignment with the endless path.

3,657,939

UNIVERSAL ATTACHMENT DRIVE UNIT FOR AUTOMATIC SCREW MACHINE

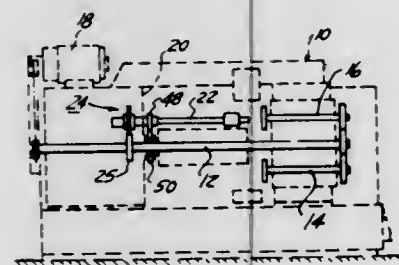
Josef Eichenhofer, 120 Oakdale Road, Downsview 479, Brampton, Ontario, Canada

Filed Aug. 5, 1970, Ser. No. 61,261

Int. Cl. F16h 3/08

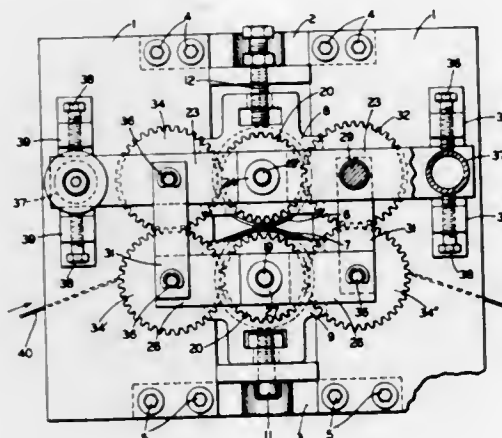
U.S. Cl. 74-325

21 Claims



An auxiliary drive unit which consists of a cylindrical housing which has an extension arm attached thereto for the support of an idler shaft; the cylindrical housing is mounted in a bore of a wall of the gear box of the automatic screw machine and the extension arm is disposed within the housing; a shaft extends through the housing and into the gear box and has a gear mounted adjacent the extension arm to mesh with a gear on the idler shaft which is supported in the extension arm of the housing; a further gear is mounted on the idler shaft within the gear box housing which is adapted to mesh with a gear supported and driven by the main spindle drive shaft of the automatic screw machine. The gears on both the housing shaft and idler shaft can be easily interchanged to obtain different auxiliary drive arrangements and drive ratios for different purposes. Conversely, the driving connection from the idler shaft of the auxiliary drive unit to the housing shaft of the drive unit can be provided for by a chain drive.

3,657,940
ADJUSTABLE ROLL DRIVE
William S. Wagner, 4945 Navarre Road, S.W., Canton, Ohio
Filed Nov. 19, 1970, Ser. No. 91,069
Int. Cl. F16h 35/06, 55/18; B65h 17/22
U.S. Cl. 74-397 10 Claims



An adjustable drive for a pair of rolls which allows for adjustment of the rolls relative to each other and for backlash take-up in the train of gears driving the rolls. A shaft extension on each roll has a roll gear fixed thereon. The shaft extensions of the rolls turn in bushings. The bushings of one shaft extension are fitted in the overlapped ends of adjusting forks and the bushings of the other shaft extension are fitted in the overlapped ends of horizontal links. Three alignment idler gears and a drive gear mesh with the roll gears. The drive gear and the adjacent alignment gear mesh with each other, and each pair of said gears is connected with vertical links. The drive gear and one of the alignment gears are carried by said forks and the other two alignment gears are carried by said horizontal links. The upper roll is adjustable relative to the lower roll and the outer ends of the forks are adjustable vertically by fork adjusting screws.

3,657,941
COUPLING UNIT

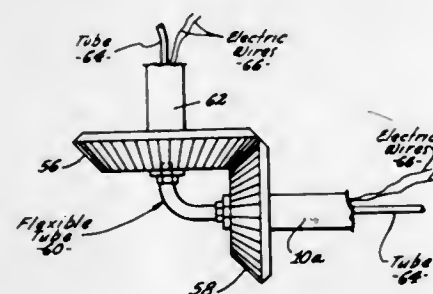
William P. Engler, 11520 San Vicente Boulevard, Los Angeles, Calif.

Filed Sept. 2, 1970, Ser. No. 69,005

Int. Cl. F16h 1/14; B29h 5/00; F16c 1/02

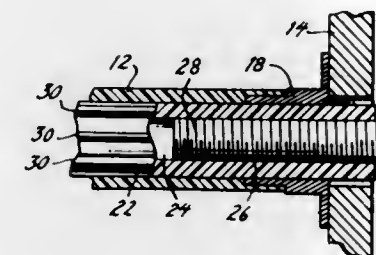
U.S. Cl. 74-417

3 Claims



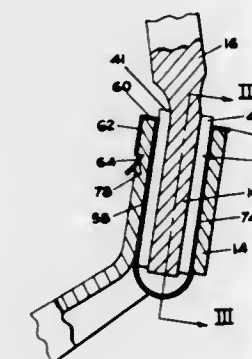
A coupling unit is provided for the transmission of electricity, gas, liquids, vacuum pressure, or other media around a rotating bend in complex machinery. The unit has particular utility in conjunction with rotational molding apparatus and shall be described in such an environment. However, it will become evident as the description proceeds that the unit and concept of the invention has general utility whenever it is desired to exert certain control effects on moving components in complex rotating machinery, or to monitor the condition of such components.

3,657,942
CONTROL CABLE
Matthew A. Sullivan, c/o Sullivan Products Inc., 535 Davisville Road, Willow Grove, Pa.
Filed June 9, 1970, Ser. No. 44,826
Int. Cl. F16c 1/10
U.S. Cl. 74-501 5 Claims



A control cable of the Bowden type comprised of plastic components that are provided with friction reducing means on their interface to reduce friction between the components of the cable and to eliminate jamming of the cable by oil and dust.

3,657,943
GEAR SHIFT COUPLING MECHANISM
Max R. C. Bruhn, Jr., Spring Lake, and James Vander Jagt, Jr., Muskegon, both of Mich., assignors to Grand Haven Stamped Products, Grand Haven, Mich.
Filed Apr. 1, 1970, Ser. No. 24,702
Int. Cl. G05g 1/04
U.S. Cl. 74-524 10 Claims

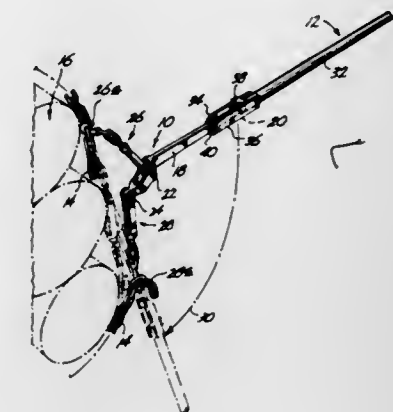


A sound insulating coupling between a shift stick and a shifting mechanism constructed so that the shift stick can be coupled to the shifting mechanism in a single, quick step after installation of the shifting mechanism into an automobile. The coupling comprises an insulating lining engaging the bottom of the shift stick and a metal jacket surrounding the resilient lining and engaging the socket on the shifting mechanism selector.

3,657,944
DETACHABLE HANDLE EXTENSION FOR CHAIN TIGHTENER
Jesse D. Able, Star Route Box 114, Oakridge, Oreg.
Filed July 20, 1970, Ser. No. 56,418
Int. Cl. G05g 1/04 7 Claims

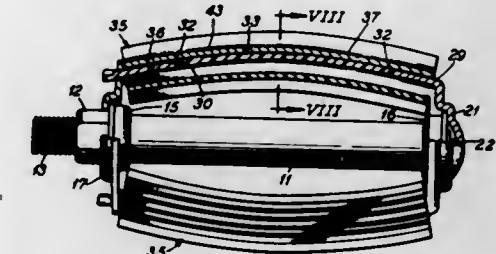
An extension adapted to be mounted removably on the handle of a chain tightener or the like, where the handle includes a lateral projection disposed outwardly from its inner end. The extension includes an elongated lever, a pair of bearings rigidly joined to the lever adapted to engage op-

posite sides of the handle at points spaced along its length, and a catch rigidly joined to the lever adapted releasably to



engage the projection on the inner side thereof to prevent axial separation of the extension and handle.

3,657,945
REFLECTOR BICYCLE PEDAL
Gerald Golden, Highland Park, and Charles V. Wrobel, Lake Forest, both of Ill., assignors to Excel Incorporated, Franklin Park, Ill.
Filed Nov. 14, 1969, Ser. No. 876,910
Int. Cl. G05g 1/14
U.S. Cl. 74-594.4 6 Claims

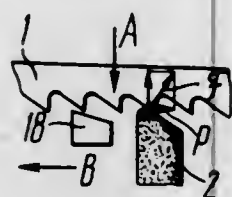


Bicycle pedal including a hub journaled on a pedal shaft extending from the crank arm of a bicycle sprocket and having crossbars at opposite ends of the hub, and tread supports connecting the crossbars together. The tread supports are uniformly bowed in plan and are generally channel shaped in cross section and have hollow treads rectangular in cross section slid along the supports from the inner ends of the supports. The inner ends of the tread supports are crimped to the inner crossbar. Each pedal tread has an outwardly opening channel extending along its outer side having a reflector visible along the channel. In one form of the invention the reflector is slipped along a channel before the pedal tread is slipped along its tread support and is retained in position by the bow of the pedal tread and tread support as slipped along the channel. In other forms of the invention the reflectors are directly carried by the tread supports and retained in position by the treads. The base of the channel is transparent.

3,657,946
METHOD OF SHARPENING SAWS AND MACHINE FOR CARRYING SAME INTO EFFECT
Vladimir Viktorovich Idel, ulitsa Graftio, 15, kv. 6, and Jury Vasilievich Tishin, ulitsa Michurina, 26, kv. 12, both of Zavolzhie Gorkovskoi Oblasti, U.S.S.R.
Filed Feb. 18, 1970, Ser. No. 12,163
Int. Cl. B23d 63/00 10 Claims

The present invention relates to methods of sharpening saws. The herein-contemplated method envisages saw feed to the abrasive disk, its pitch feed with respect to the abrasive disk, and besides, the saw is so set that it can move to a cer-

tain extent with respect to the abrasive disk in the direction opposite to that of the pitch feed under the effect of the cutting force. Also contemplated is a machine for carrying



said method into effect. The machine is characterized by the fact that it makes use of an additional elastic clamping means to hold the saw by its back surface and the support elements which the apexes of the saw teeth rest against.

3,657,947

PLIER-LIKE TOOLS

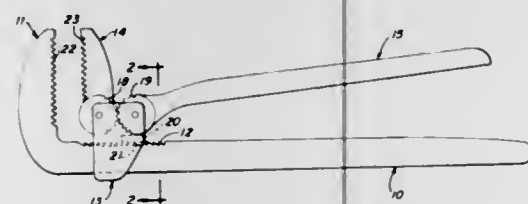
Herman A. Myers, Lake Lynn, Pa., assignor to Insta-Snap, Inc., Monongahela, Pa.

Filed Mar. 20, 1970, Ser. No. 21,427

Int. Cl. B25b 13/14, 7/04

U.S. Cl. 81-134

6 Claims



A plier-like tool comprising a stationary handle having teeth along a section thereof and a rigid jaw extending normal to the handle at the end thereof. An adjustment housing having an opening therethrough is slidably mounted on the stationary handle. The housing has teeth for locking engagement with the teeth of the stationary handle. A tilting jaw is pivotally mounted to the adjustment housing as is a movable handle. The movable handle terminates in a second contacting means which is positioned to contact a first contacting means on the tilting jaw to pivotally tilt the tilting jaw relative to the rigid jaw. By using a cammed surface as the second contacting means, the jaws can be locked in gripping position and by putting cutting surfaces on the jaws and a feeder pawl assembly in engagement with the teeth of the stationary handle, the tool can be transformed into a progressive cutter.

3,657,948

LOCKING PLIER

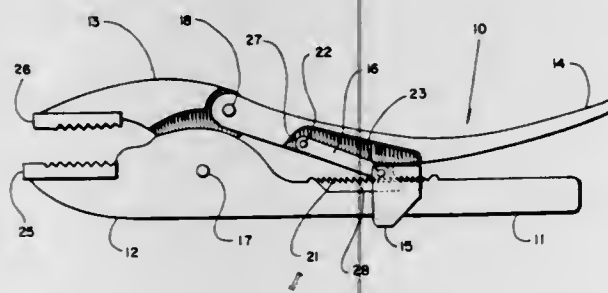
Herman A. Myers, Lake Lynn, Pa., assignor to Insta-Snap, Inc., Monongahela, Pa.

Filed Mar. 25, 1970, Ser. No. 22,607

Int. Cl. B25b 7/12

U.S. Cl. 81-367

4 Claims



A locking plier employing the over-center locking principle. A movable jaw is pivotally connected to a rigid handle

which terminates in a rigid jaw and a movable handle is pivotally connected to the movable jaw. A sliding adjuster having an opening therethrough is positioned over the rigid handle and teeth along the opening mate is locking engagement with teeth along the rigid handle. A link pivotally connects the sliding adjuster and the movable handle to permit the over-center locking position when the teeth are in locking engagement.

3,657,949

ADJUSTABLE LOCKING WRENCH

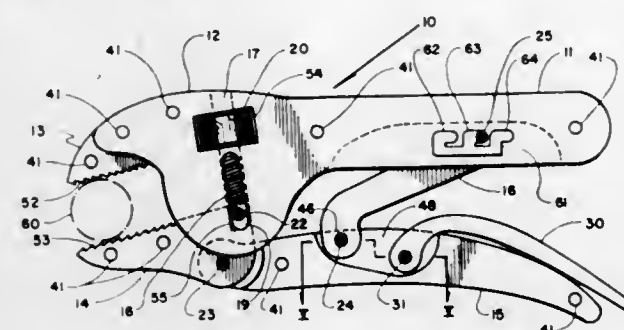
Herman A. Myers, Lake Lynn, Pa.

Filed Jan. 11, 1971, Ser. No. 105,578

Int. Cl. B25b 7/12

U.S. Cl. 81-370

8 Claims



The adjustable locking wrench or gripping plier has a rigid jaw and a movable jaw which is generally maintained in substantially parallel relationship when locked. The movable jaw is connected to the body of the wrench through a threaded shaft which is operable by a wheel-like turning means. The locking mechanism is achieved by a link which connects between a movable handle and the stationary handle and which is movable into an overcenter position. Two separate adjustments permit use over a wide range of workpiece sizes. The components of the locking wrench can be made up of metal laminates and plastic filler materials.

3,657,950

WORKPIECE DRIVE MEANS FOR TURNING LATHES

Thomas E. Dugle, Cincinnati, Ohio, assignor to Planet Products Corporation, Cincinnati, Ohio

Original application Mar. 4, 1968, Ser. No. 710,187, now

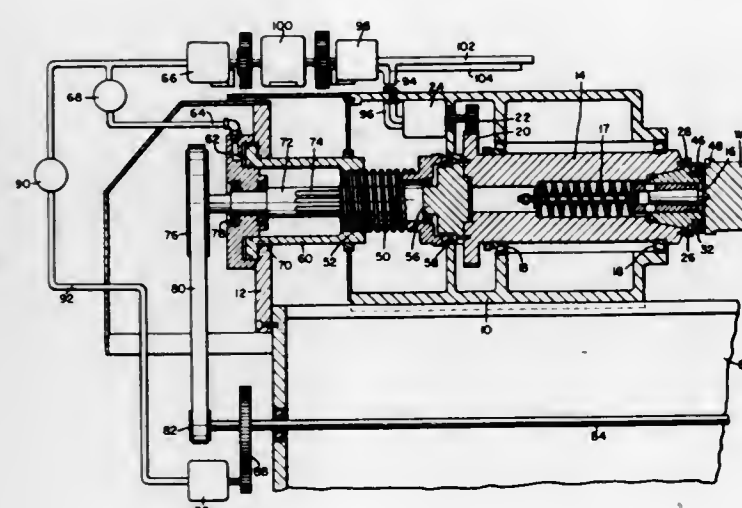
Patent No. 3,605,533. Divided and this application May 27,

1970, Ser. No. 51,413

Int. Cl. B23b 5/28

U.S. Cl. 82-8

12 Claims



The lathe includes opposed bodily shiftable headstocks each having a rotational spindle for engaging opposite ends of a workpiece as the headstocks are shifted toward one another. The spindles are rotated by means of two identical

hydraulic pump-motors connected in a pressurized fluid piping system wherein fluid is kept in circulation by a third identical hydraulic pump-motor driven by a constant speed electric motor. By including the spindle-driving pump-motors in a common fluid system, said pump-motors are obliged to share equally the work of driving opposite ends of an elongate workpiece supported between centers on the spindles. The drive means between each spindle and one end face of the work piece, is a purely frictional drive means the effectiveness of which is aided by a high-pressure auxiliary means to elevate and maintain the force of frictional contact between the workpiece end and a unique friction-ring assembly on the spindle involving hard and soft polyurethane transmission members. The pump-motors, two of which operate as spindle drivers, while one operates as a pump delivering operating fluid to the others, are all identical and interchangeable with one another in the interests of economical maintenance and speedy replacements.

3,657,951

TUBULAR PRODUCTS CUT-OFF AND METHOD

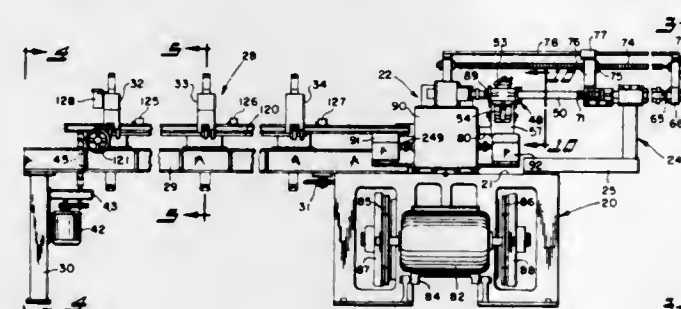
Harry S. Clark, Route 3, Delaware, Ohio

Filed Aug. 15, 1969, Ser. No. 850,495

Int. Cl. B23d 21/04

U.S. Cl. 83-54

45 Claims



A tubular products cut-off and method which includes an automatic infeed and outfeed with a pair of non-rotating dies, one or both of which may be driven for slight offsetting movement by an eccentric, such dies cooperating with internal dies on a mandrel to sever tubing while at the same time imparting a superior finish to the severed ends.

3,657,952

APPARATUS FOR SELECTIVELY CUTTING AND CONVEYING SHEET MATERIAL

Peter A. Brockbank, 50 Lakeside Avenue, Bolton, Lancashire;

Keith B. Spencer, 48 Fairfield Gardens, Stockton Heath,

Cheshire, and Reginald Ian Greaves, 95 Briony Avenue,

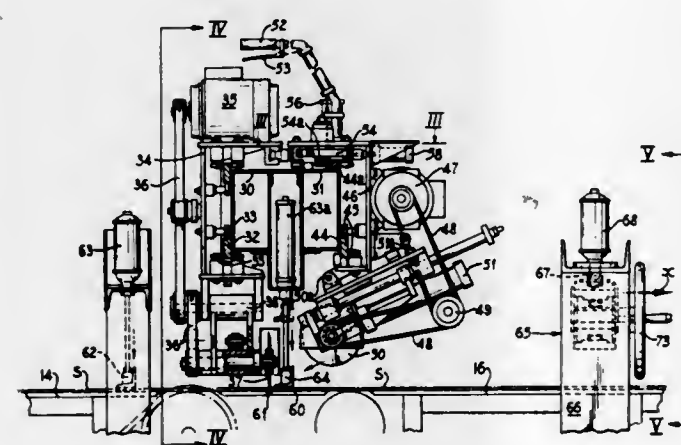
Hale, Cheshire, all of England

Filed Feb. 20, 1970, Ser. No. 13,152

Int. Cl. B65h 35/04

U.S. Cl. 83-102

5 Claims



Apparatus for cutting rectangular areas of any predetermined size and width from a larger piece of sheet material in-

cluding a transverse cutting head, a plurality of longitudinal cutting heads, each cutting head being selectively movable into and out of cutting position, drive means for traversing the transverse cutting means across the width of the sheet material, a latching mechanism for positively locating the transverse cutting means at one of a plurality of predetermined locations across the material width, and an interlock cooperating between the transverse and longitudinal cutting means to rest the movement of the transverse cutting means at at least one selected position relative to the longitudinal cutting means.

3,657,953

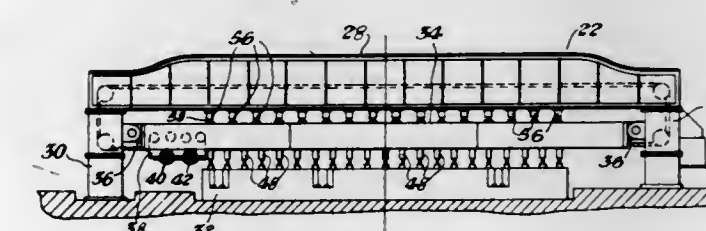
EDGING AND SLITTING APPARATUS AND METHOD
John J. Sutyak, Pittsburgh, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa.

Filed July 24, 1968, Ser. No. 747,219

Int. Cl. B23d 19/02

U.S. Cl. 83-8

17 Claims



Cutting apparatus comprising elongated cutting means, means for mounting said cutting means for substantially contingent engagement by material to be cut by said apparatus, first and second cutting means, means for tandemly mounting said first and said second cutting means in juxtaposition to said elongated cutting means for cutting engagement with said material when disposed therebetween, means for urging said first cutting means into scoring engagement with said material, means for urging said second cutting means into shearing or parting engagement with said material along the scoring produced by said first cutting means, and means for moving said first and said second cutting means relative to elongated cutting means. Similar cutting apparatus is disclosed wherein each of said first and said second cutting means are provided with a pair of knife edges, and said elongated cutting means include a pair of elongated generally parallel knife edges, said knife edges of each of said first and said second cutting means being juxtaposed respectively to said parallel knife edges for material slitting operations. A method of cutting thick plate material is also disclosed, said method comprising the steps of supporting said material on a knife edge co-extending with an intended cut and aligned therewith, scoring said plate along said cut, and parting said plate along said scoring.

3,657,954

DIE CUTTER ASSEMBLY AND MOUNTING MEANS FOR PUNCH THEREOF

John F. Wilkins, Bloomfield, N.J., assignor to Alco Machine & Tool, Inc., Bloomfield, N.J.

Filed June 15, 1970, Ser. No. 46,086

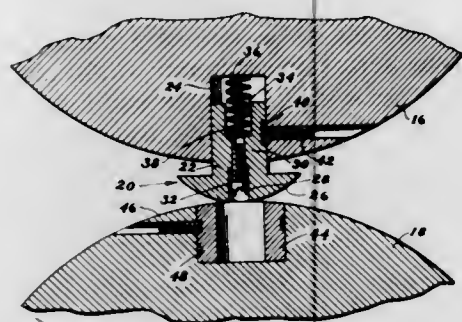
Int. Cl. B26f 1/10

U.S. Cl. 83-345

10 Claims

A punch member is resiliently mounted in one of two opposed rollers and is captured by structure that permits some radial movement of the punch relative to the roller. One or more dies are secured on the surface of the other of the two cooperating rollers and co-act with the punch to provide a shear cutting operation on a web that is moving between the

two rollers. Both the punch and the die are readily removable from their respective roller. Means are also provided for ad-



justing the magnitude of the resilient force that acts radially on the punch.

3,657,955

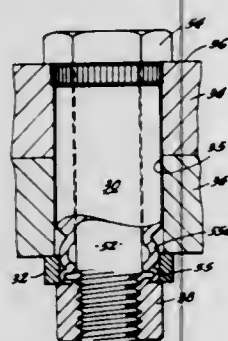
BLIND FASTENER WITH EXPANDABLE COLLAR

Thomas L. McKay, 11555 Bellagio Road, Los Angeles, Calif.
Filed May 14, 1970, Ser. No. 37,126

Int. Cl. F16b 13/06

U.S. Cl. 85-70

38 Claims



The sleeve of a fastener is inserted into a bore of a workpiece and a core bolt inside the sleeve is tightened to contract the sleeve longitudinally. The longitudinal contraction causes a thin-walled neck portion of the sleeve to collapse into circumferential folds which bulge outwardly to expand a surrounding expandable collar into abutment against the far side of the workpiece.

3,657,956

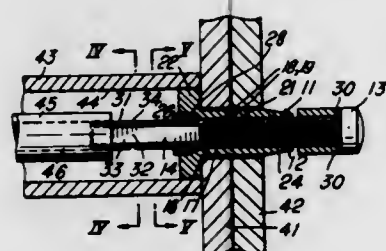
BLIND FASTENER

William David Bradley, Welwyn Garden City, and Frederick Arthur Summerlin, Harpenden, both of England, assignors to Aerpat A.G., Zug, Switzerland
Filed Mar. 18, 1970, Ser. No. 20,631

Int. Cl. F16b 31/02

U.S. Cl. 85-72

5 Claims



A blind fastener comprises a bolt having an externally threaded shank, a head at one end of the shank, a pair of op-

posed flat wrenching surfaces at the other end of the shank, an annular breaker groove in the shank intermediate the head and the wrenching surfaces, and four swaging grooves in the shank intermediate the said breaker groove and the bolt head. A tubular nut is in threaded engagement with the shank of the bolt, the nut having an enlarged hexagonal head at the end thereof remote from the head of the bolt. The fastener also comprises an expandable tubular member on the shank of the bolt between the head of the bolt and the nut. A locking ring is positioned around the bolt shank at a position thereon on the side of the nut head remote from the bolt head, the locking member being swageable, after the nut and bolt have been screwed towards each other thereby to expand the expandable member to form a blind head, into at least one of the swaging grooves in the shank, thereby to lock the nut and bolt together.

3,657,957

RIVET

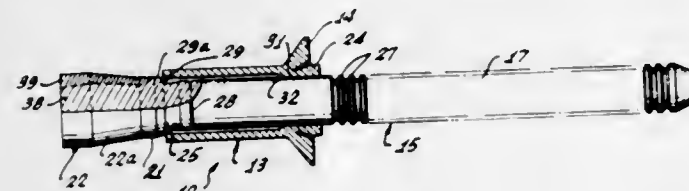
George Siebol, Orange, Calif., assignor to Olympic Screw & Rivet Corporation, Downey, Calif.

Filed Nov. 24, 1969, Ser. No. 879,201

Int. Cl. F16b 13/06

U.S. Cl. 85-77

17 Claims



A blind rivet comprising a headed sleeve telescoped onto a setting pin having a pulling section projecting beyond the headed end of the sleeve and an expansion section projecting beyond the other end of the sleeve with an expanding and locking head on the end of the expansion section. The expanding and locking head of the pin has a core of high tensile strength and a relatively soft and ductile peripheral layer of lower tensile strength. After the rivet is set in two side-by-side workpieces from one side of the latter, the expanding and locking head is drawn into the sleeve to form an expanded, bulb-shaped head on the sleeve. The soft peripheral layer of the pin yields to bulge the sleeve into bearing contact with the adjacent workpiece with a controlled force avoiding tearing or splitting of the work despite variations in total thickness thereof. A first alternative expanding and locking head has a central cut-out forming a weakening recess, and a second alternative has a similar cut-out with an intumed flange partially closing the recess.

A method of making the foregoing rivet including the steps of forming a hardened head on the setting pin by cold working the head, peripherally heating the head while confining the heat substantially to the peripheral layer, and rapidly cooling the head before the heat penetrates the hardened core thereof. A tapered shoulder on the expansion section is hardened by cold working after the treatment of the head is completed.

3,657,958

SAFE-ARMED EXPLOSIVE INITIATION DEVICE

John L. Wells, Vacaville, Calif., assignor to Explosive Technology, Inc., Fairfield, Calif.

Filed Oct. 13, 1969, Ser. No. 865,702

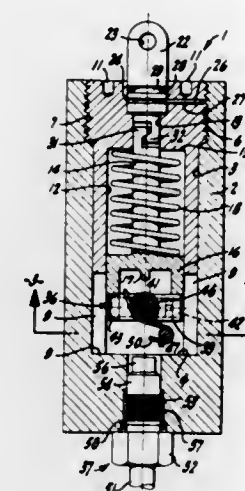
Int. Cl. F42b 3/10

U.S. Cl. 89-1 B

9 Claims

A safe-armed explosive initiation device carried in a housing and defined by a firing mechanism, a donor charge pivotally mounted within the housing and normally held out of alignment with the firing mechanism, spring means for

moving the donor charge into alignment with the firing mechanism upon actuation of the firing mechanism, and an



acceptor charge positioned in line with the donor charge when the latter is pivoted to the armed firing position.

3,657,959

AUTOMATIC PISTOL AND SUB-CALIBER CONVERSION THEREFOR

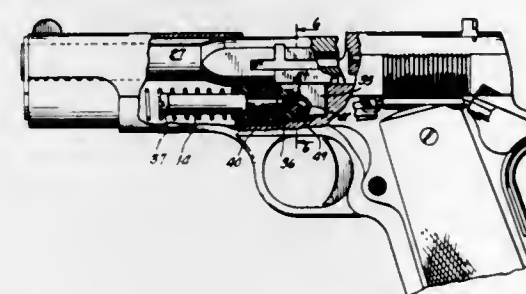
Frederick H. Kart, R.D. 2, Box 929, Riverhead, N.Y.

Filed Aug. 14, 1969, Ser. No. 849,977

Int. Cl. F41d 11/06

U.S. Cl. 89-128

5 Claims



The invention provides a conversion means for converting a large caliber automatic pistol to an accurate sub-caliber automatic pistol without making any exterior changes in the large caliber pistol. In the prior art the well-known Colt automatic pistol, caliber .45, Government model, can be converted to a sub-caliber automatic pistol by means of a conversion kit which includes a different slide, a different barrel, a different recoil spring, a different slide-stop, and a series of spacers to surround the recoil spring guide to shorten the recoil movement. To improve the accuracy of such converter large caliber automatic pistol the present invention makes the following changes in certain of the conversion parts.

The smaller caliber barrel is provided at its rearward end with aligned cheeks for engagement with the upper surface of the receiver; a flattened surface is provided on one lateral face of such smaller caliber barrel including one of said cheeks to facilitate insertion of such barrel within the pistol slide; an elongated hole inclined upwardly at an angle of 45° is provided in the barrel extension member which receives the slide-stop pin; a screw-threaded hole is provided in the front face of the barrel extension member for receiving a barrel locking screw which extends through the recoil spring guide; the barrel locking screw engages the front end of the recoil spring guide and upon tightening of said screw brings the barrel cheeks and upper surface of the receiver into firm engagement; and the slide stop is provided with a relatively movable bar and pin.

3,657,960

SELF ALIGNING GAS SYSTEM FOR FIREARM

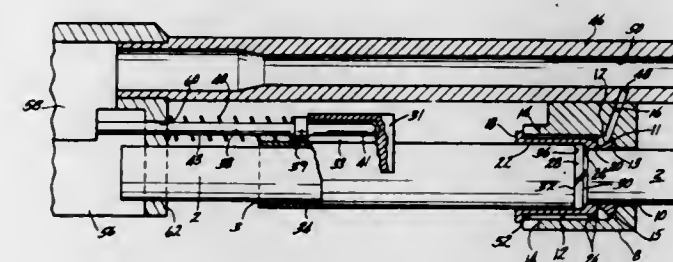
Joseph A. Badali, Branford, Conn., assignor to Olin Corporation

Continuation-in-part of application Ser. No. 763,566, Sept. 30, 1968, now Patent No. 3,568,564. This application June 12, 1970, Ser. No. 45,822

Int. Cl. F41d 5/10

U.S. Cl. 89-191

6 Claims



A bolt-actuating gas system for a firearm comprising an annular gas chamber, an annular piston, and an annular piston sleeve loosely mounted on a tubular magazine wherein the piston sleeve includes a push rod loosely mounted on the sleeve for contacting the bolt assembly. The push rod contacts the bolt assembly but is not connected thereto so that when the piston is moved through its work stroke, the push rod drives against the bolt assembly to propel the latter toward its retired position. Furthermore, the bolt assembly can be manually retracted to its retired position without causing concurrent movement of the piston, sleeve and rod.

3,657,961

FOUR-AXIS MILLING MACHINE FOR PRODUCING EQUAL OR SYMMETRICAL PIECES, SUCH AS MOLDS

Donato Pasquale, Milan, Italy, assignor to Industrie Pirelli S.p.A.

Filed Sept. 15, 1969, Ser. No. 857,942

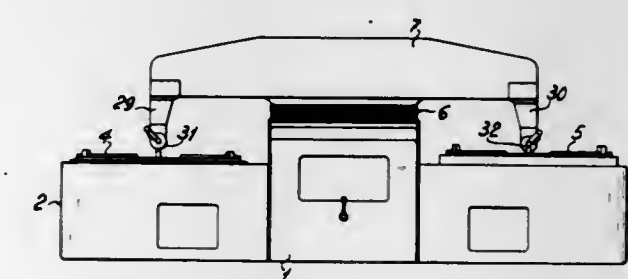
Claims priority, application Italy, Sept. 25, 1968, 21,634

A/68

Int. Cl. B23c 3/04

U.S. Cl. 90-11 R

8 Claims



This invention relates to a milling machine for working on the inner surfaces of work pieces such as molds, chills, patterns and the like which has one or more platforms adapted to carry the piece and which is rotatable about an axis or slidable in a plane. The platform is carried by a frame which in turn carries a vertically movable slide. The latter supports another slide which is horizontally movable. Horizontal axis supports are mounted on the second slide and a ledger is mounted on the supports. Tools are so mounted on the ends of the ledger that their respective tips are aligned with the horizontal swinging axis of the ledger. The machine is adapted to carry out four movements in different directions.

3,657,962

DEVICE FOR REMOVING BURR FORMED DURING RESISTANCE BUTT WELDING OF CASING PIPES

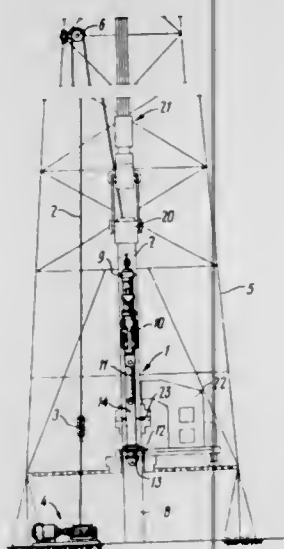
Jury Valentinovich Skulsky, bulvar Likhacheva, 3, kv. 71, Kiev; Vasily Grigorievich Boretsky, ulitsa Pushkina, 65, kv. 34, Ivano-Frankovsk; Vasily Alexeevich Sakharov, bulvar Likhacheva, 3, kv. 64, Kiev; Vladimir Antonovich Kushnir, ulitsa Pushkina, 63, kv. 19; Grigory Grigorievich Semak, ulitsa Karla Marxa, 22, kv. 72, both of Ivano-Frankovsk; Vladimir Ivanovich Tishura, ulitsa Nikolaya Gaitana, 6, kv. 7, Kiev; Petr Stepanovich Tjupin, ulitsa Karla Marxa, 22, kv. 7; Ivan Vasilievich Diyak, ulitsa Sovetskaya, 97, kv. 5, both of Ivano-Frankovsk; Boris Afanasievich Galian, ulitsa Rozy Ljuxemburg, 15, kv. 9, Kiev; Pavel Ivanovich Schukin, ulitsa Karla Marxa, 22, kv. 50; Ivan Petrovich Daniliv, ulitsa Galitskaya, 53, kv. 28, both of Ivano-Frankovsk; Vladimir Filippovich Zelensky, ulitsa Bastionnaya, 5, kv. 96, Kiev; Viktor Stepanovich Cherevaty, ulitsa Gagarini, 1, kv. 1, Ivano-Frankovsk; Vladimir Markelovitch Ditchuk, ulitsa Kommuny, 8, kv. 7, Dolina, Ivano-Frankovskoi oblasti; Stanislav Adgamovich Mansurov, ulitsa Gorkogo, 62, kv. 6, Kiev, and Vasily Andreevich Sokirko, ulitsa Vatutina, 8, kv. 33, Dolina, Ivano-Frankovskoi oblasti, all of U.S.S.R.

Filed June 20, 1969, Ser. No. 835,182

Int. Cl. B23d 3/00

U.S. Cl. 90—24 C

8 Claims



A burr formed between two pipe sections when they are welded together is removed by displacement of a cutting tool inside the welded pipe sections and a second cutting tool outside the welded sections. A burr catcher is coupled to the inner cutting tool to catch the portion of the burr which is removed from the welded joint to enable its subsequent removal. The cutting tool may be free falling or it may be coupled to a free falling weight system, so as to move upwardly in the pipe sections or it may be driven externally by a hydraulic cylinder.

3,657,963

ROTARY TILTING TABLE

Richard K. Miller, 735 Washington, Grosse Pointe, Mich.
Filed Jan. 12, 1970, Ser. No. 2,338

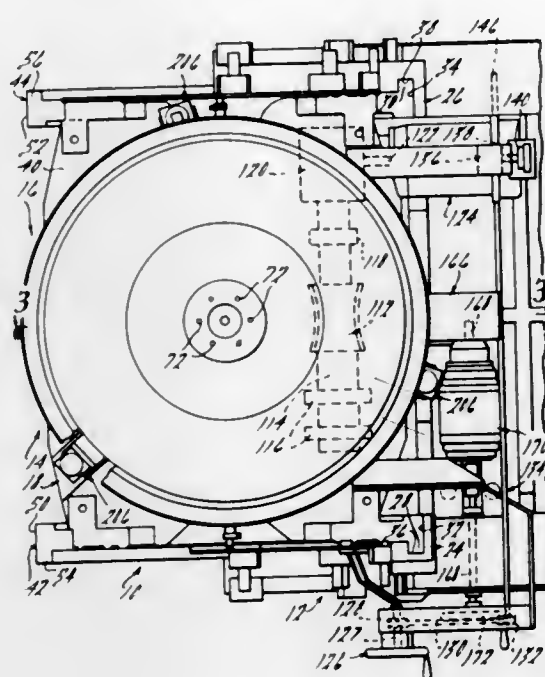
Int. Cl. B23d 7/08

U.S. Cl. 90—58 C

14 Claims

In combination in a rotatable tilting workpiece support apparatus, a table assembly comprising a relatively tiltable table carriage and a workpiece support table mounted on the carriage and adapted for rotational movement relative thereto, a support assembly, and means supporting the table assembly for tilting movement on the support assembly, the last mentioned means including a pair of spaced apart, cradle-like support elements on one of the assemblies and means on the other of the assemblies nestingly engageable with the ele-

ments, whereby the table and the workpiece carried thereon are rotatable relative to the carriage and the support as-



sembly, and the carriage, table and the workpiece carried thereon are tiltable relative to the support assembly.

3,657,964

CONTROL SYSTEM FOR NUTSETTER

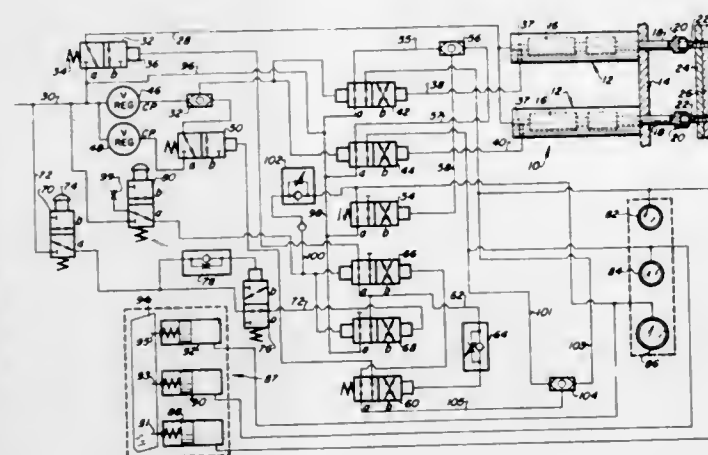
William Workman, Jr.; James H. Boeger, both of Spring Lake, and Robert E. Bishop, Grand Haven, all of Mich., assignors to Gardner-Denver Company, Quincy, Ill.

Filed July 14, 1969, Ser. No. 841,354

Int. Cl. F01b 31/12

U.S. Cl. 91—1

3 Claims



A control system for a pneumatic multiple nutsetter which includes control valves operable to sense motive air pressure at each tool motor inlet port. In response to a predetermined motor inlet pressure the control valves operate to turn on visual indicators and to actuate pneumatic card perforating a recording apparatus for registering the completion of a fastener torquing operation. The control system includes pneumatic circuitry operable to shut off the motive air supply to deenergize the nutsetter after all individual motor units have completed their fastener torquing operations. The system also includes circuitry operable to fail to deenergize the nutsetter of a motor does not reach the predetermined inlet pressure and to deenergize the nutsetter if any one motor reaches the predetermined inlet pressure prematurely.

3,657,965

METHOD AND CONTROL CIRCUIT FOR EFFECTING THE SEQUENTIAL OPERATION OF MACHINE ELEMENTS

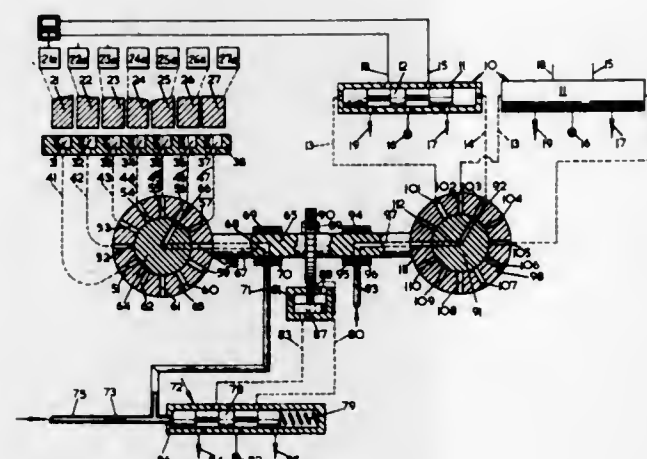
Colin John Kirk, and Reginald John Bailey, both of Twickenham, Middlesex, England, assignors to Martonair Limited, Twickenham, England

Filed July 11, 1969, Ser. No. 841,080

Int. Cl. F01l 33/00; F15b 13/07

U.S. Cl. 91—189

12 Claims



For the control of machine elements, for example, in the operation of machine tools, a control circuit is provided to obtain sequential operation of the elements. The control circuit is preferably pneumatic and controls pneumatically operable elements. The circuit includes means for sensing the operative state of the machine, and two selectors indexable to a variety of positions to select energisation of the sensing means and to select machine elements for operation in the required sequence. An indexing means is arranged to index the selector means sequentially through their indexed positions.

3,657,966

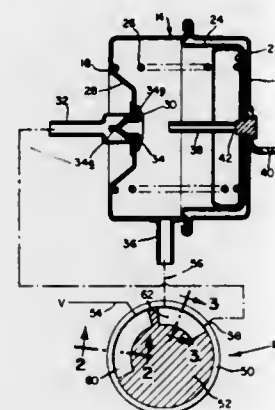
MULTI-POSITION VACUUM MOTOR

Lawrence Frank Campbell, Springfield, Ohio, assignor to Scovill Manufacturing Company, Waterbury, Conn.
Continuation-in-part of application Ser. No. 784,761, Dec. 18, 1968, now abandoned. This application June 1, 1970, Ser. No. 42,195

Int. Cl. F15b 9/02; F16j 3/00

U.S. Cl. 91—357

11 Claims



A multi-position vacuum motor has extending from its diaphragm an actuating element of selected length which holds open a check valve to vent the chamber and permits the diaphragm to move from the extreme position to intermediate position in a dependable way irrespective of the amount of time a remote vent valve is held open.

897 O.G.—47

3,657,967

POWER STEERING APPARATUS

Akira Suzuki, Kariya, Japan, assignor to Toyoda Koki Kabushiki Kaisha trading as Toyoda Machine Works, Ltd., Kariya, Aichi, Prefecture, Japan

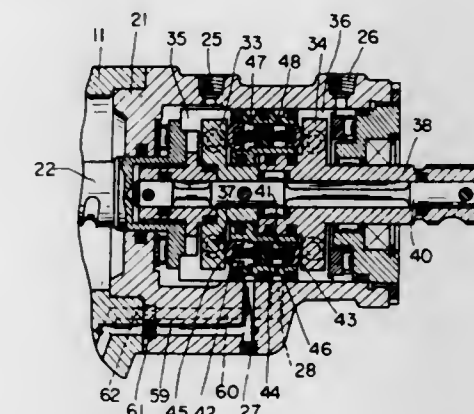
Filed Sept. 16, 1969, Ser. No. 858,380

Claims priority, application Japan, Sept. 17, 1968, 43/67056

Int. Cl. F15b 9/10; F01b 9/00

U.S. Cl. 91—372

6 Claims



A power steering apparatus in which relative rotation between two steering shaft members connected by a resilient coupling member actuates a flap valve mechanism, the action of which controls the hydraulic pressure of a hydraulic motor to boost the power applied by manual steering, said apparatus comprising pistons which exert pressure against flap valves so as to damp the vibration of said valves, and a surge pressure absorbing apparatus in the hydraulic pressure circuit which absorbs the surge pressure generated in said circuit.

3,657,968

PNEUMATIC STAPLING DEVICE

Wilfried Lange, 1 Brockhold, 3101, Altenhagen, Germany

Filed Feb. 12, 1970, Ser. No. 10,929

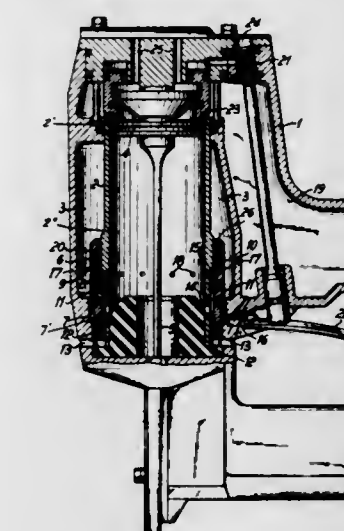
Claims priority, application Germany, Feb. 13, 1969, P 19 07

069.0

Int. Cl. F15b 15/22, 13/042

U.S. Cl. 91—398

5 Claims



A pneumatic stapler of the type having a working cylinder communicating with a surrounding air chamber by means of ports in the cylinder wall is provided with an annular valve means movable on the external surface of the cylinder wall. During the driving stroke of the piston said valve means closes the ports in the cylinder wall and opens an outlet passage for venting the air from the cylinder displaced by the piston and from the air chamber to the atmosphere. When the piston reaches the end of its driving stroke, said valve means opens the ports in the cylinder wall and connects the

air chamber with a space beneath the piston and closes the outlet passage, whereby the piston is exposed to air pressure from the chamber for returning the piston to its initial position.

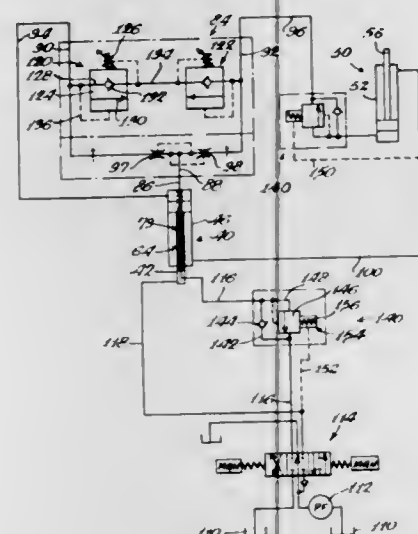
3,657,969 HYDRAULIC CONTROL SYSTEM FOR EXTENSIBLE CRANE

Joseph P. Wirkus, Schofield, Wis., assignor to J. I. Case Company

Filed July 10, 1970, Ser. No. 53,848
Int. Cl. F15b 11/16

U.S. Cl. 91—412

6 Claims



A hydraulic control system for producing synchronized extension and retraction of at least three crane sections which includes a first cylinder and piston rod assembly with the cylinder being attached to an intermediate section of the crane and the piston rod connected to a first or fixed crane section. A second cylinder is connected to the intermediate section and its piston rod is attached to a third section with a fluid divider supported on the second section and having first and second outlet ports, respectively, connected to one end of each of the cylinders and an inlet port. A first flow passage means extends through the first cylinder and piston rod assembly and is connected to the inlet port of the flow divider with a second flow passage means extending through the first piston rod and communicating with the opposite end of the first and second cylinders so that a pressured fluid source connected to one flow passage and a reservoir connected to the other flow passage means will extend the assemblies and the crane sections with the flow divider means producing synchronized movement of the crane sections. The control circuit further includes means for blocking flow from one end of each of the cylinders when the pressured fluid in the first fluid passage means is below a predetermined level. In addition, the flow divider means includes pressure responsive check valves providing unidirectional flow in opposite directions between the two outlet ports so as to interconnect the two ports when the pressure in either of the outlet ports exceeds a predetermined level.

3,657,970 HYDRAULIC PUMP OR MOTOR HAVING A ROTARY CYLINDER BARREL

Akira Kobayashi, Nagoya, and Miyao Takayuki, Toyota, both of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya-shi, Aichi-ken, Japan

Filed June 5, 1970, Ser. No. 43,712

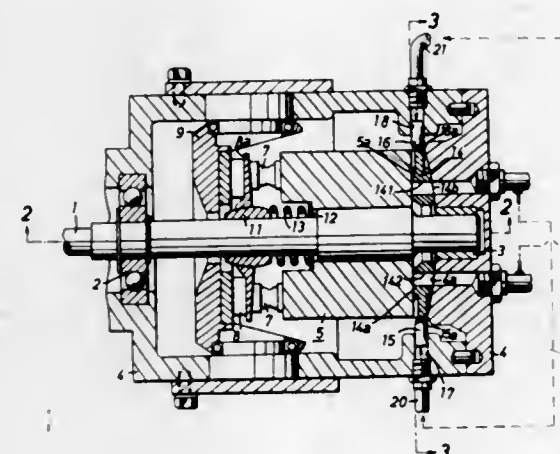
Claims priority, application Japan, June 9, 1969, 44/45309
Int. Cl. F01b 13/04

U.S. Cl. 91—485

14 Claims

A hydraulic pump or motor having a rotary cylinder barrel for axially reciprocating pistons for use with externally supplied

fluids comprising a housing, a rotating cylinder barrel mounted slidably only in the axial direction on a drive shaft secured within said housing, an inclined swash plate at one end of said housing for regulating the reciprocating of pistons disposed within the pumping chambers of said barrel, a valve plate interposed between the other end of said barrel and the internal forward portion of said housing in slidable contact therewith, said valve plate having slots for the passage of low pressure and high pressure fluids therethrough and oscillating



at the co-acting surfaces of the cylinder barrel and the valve plate itself. The valve plate is further provided with means compensating the tilting moment acting on said valve plate, said compensating means including at least one balancing piston movably positioned to a radius direction of said valve plate and being operated by pressure fluid delivered from said slot positioned at the high pressure side of said valve plate during rotation of said barrel, and thereby assuring the fluid sealing between said co-acting surfaces.

3,657,971 RADIAL PISTON PUMPS OR MOTORS

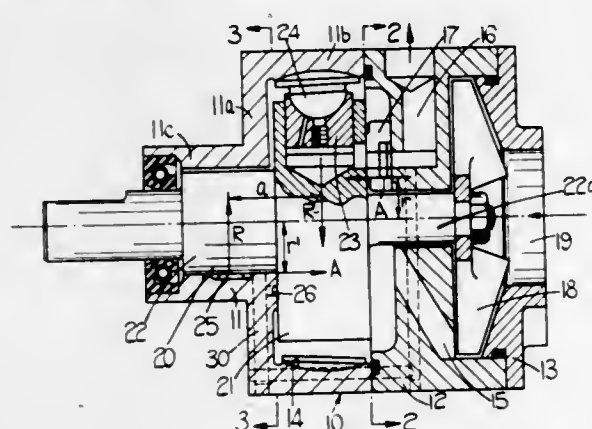
Frank George Freeman, Solihull, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Apr. 21, 1970, Ser. No. 30,442

Int. Cl. F01b 1/06

U.S. Cl. 91—487

1 Claim



A radial piston pump includes two recesses connected to the high pressure port with one recess arranged in proximity to the rotor face, to provide an axial force to counterbalance the axial force on the rotor from the high pressure port, and the other recess in proximity to the rotor shaft to provide a radial force to counterbalance the radial force from high pressure liquid in the bores in the rotor. The axial force and the radial force form two couples which have equal and opposite moments.

3,657,972 CROSSHEAD ARRANGEMENT FOR THE DRIVE MECHANISM OF HIGH-PRESSURE COMPRESSORS AND PUMPS

Albert Strebel, Binningen, and Oskar Habegger, Therwil, both of Switzerland, assignors to Maschinenfabrik Burghardt AG, Basle, Switzerland

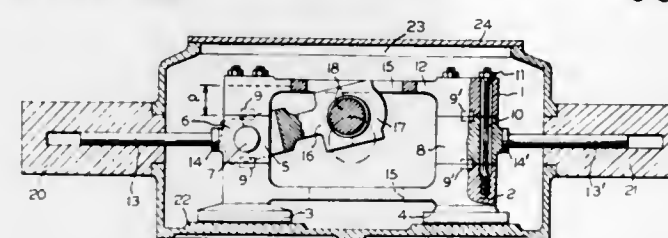
Filed July 2, 1970, Ser. No. 51,989

Claims priority, application Switzerland, July 4, 1969, 6846/69

Int. Cl. F01b 29/00, 7/04

U.S. Cl. 92—128

6 Claims



A crosshead arrangement for a high-pressure compressor or pump having opposed cylinders consisting of two principal parts, of which one carries a main and a secondary crosshead shoe and a crosshead pin member, to which the piston rod of one of the cylinders is releasably connected, is disposed as a middle part between the two principal parts in the region of the main crosshead shoe. A second member, without crosshead pin may be disposed between the two principal parts in the region of the secondary shoe and be releasably connected to the piston rod of the other cylinder.

3,657,973 HIGH-PRESSURE COMPRESSORS AND PUMPS

Hans Jorg Wahrenberger, Binningen, Switzerland, assignor to Maschinenfabrik Burckhardt A.G., Basle, Switzerland

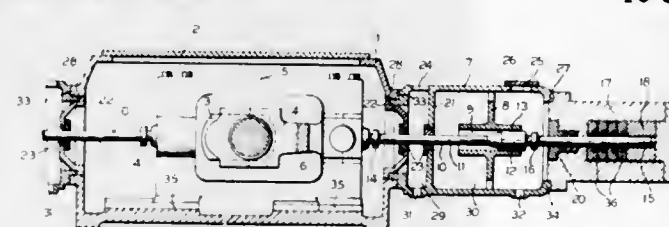
Filed June 29, 1970, Ser. No. 50,395

Claims priority, application Switzerland, June 30, 1969, 9977/69

Int. Cl. F16j 15/18

U.S. Cl. 92—166

10 Claims



The invention has as its subject an arrangement for the axial longitudinal guiding of the piston of a high-pressure compressor machine within its working cylinder which allows the piston to be guided independently of the usual cross-head guide, and this is achieved by means of a lantern member connected to the frame of the crank drive and having a guide bore, coaxial with the bore of the working cylinder. The outer end of the piston is received in the lantern member and is connected to a cross-head within the crank-drive frame by a resilient connecting rod which is guided in the guide bore of the lantern member.

3,657,974 FLATTENING AND TAKE-AWAY DEVICE FOR BLOWN TUBING

Winfried Hedrich, Natrup-Hagen, and Hartmut Upmeyer, Tecklenburg, both of Germany, assignors to Windmoller & Holscher, Westphalia, Germany

Filed May 28, 1970, Ser. No. 41,388

Claims priority, application Germany, June 3, 1969, P 19 28 188.0

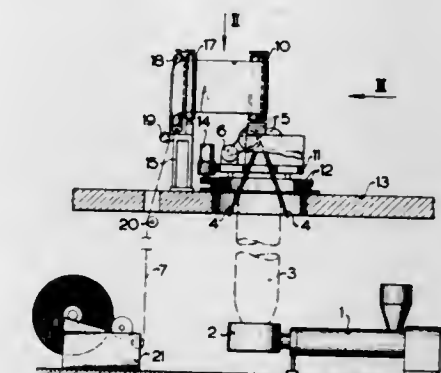
Int. Cl. B31d

U.S. Cl. 93—1 R

4 Claims

The device serves for flattening and taking away blown tubing, which has been made from plastics material with the

aid of a stationary blow head for tubing. The flattening plates and the take-away rolls perform a rotational oscillation about the axis of the incoming tubing. The take-away rolls are succeeded by a pair of deflecting rolls, which have axes of rotation that are parallel to the axis of rotation of the take-away device. The flattened tubing is fed from the take-away rolls to the pair of deflecting rolls around a deflecting rod, which



rotates with the take-away rolls about the axis of rotation of the take-away device and which extends at an angle of 45° to the axis of the tubing. Stationary guide elements for the tubing succeed the pair of deflecting rolls. The deflecting rod is disposed directly over the take-away rolls. The pair of deflecting rolls are mounted on the oscillating take-away device and disposed laterally beside the deflecting rod.

3,657,975 MANUFACTURE OF BAGS WHICH HAVE A RELATIVELY WIDE BASE INCORPORATING A FILLING VALVE

Richard Feldkamper, Lengerich, Westphalia, and Willy Niemeyer, Natrup-Hagen, both of Germany, assignors to Windmoller & Halscher, Lengerich of Westphalia, Germany

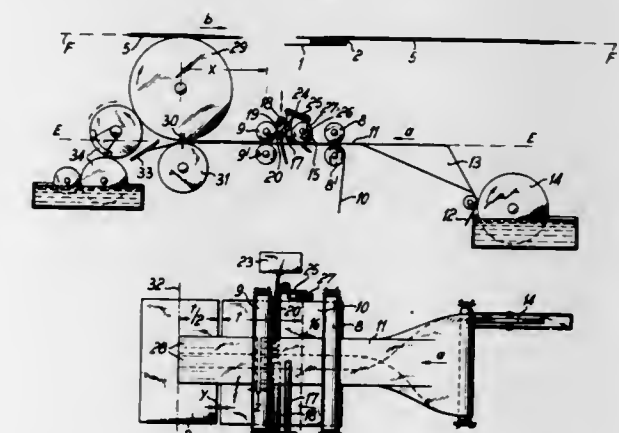
Filed Feb. 11, 1970, Ser. No. 10,487

Claims priority, application Germany, Feb. 14, 1969, P 19 07 575.3

Int. Cl. B31b 1/84, 1/26, 1/62

U.S. Cl. 93—8 VB

4 Claims



A method and apparatus of forming a hinge valve comprising a valve tube and a leaf hinge and incorporating it in a folded end closure of a bag. The method of attaching the tube to the hinge and adhering the preformed valve to a corner tuck of the end closure before the latter is finally folded utilizes apparatus comprising two pairs of feed rollers rotatable at equal speeds for simultaneously feeding, in superimposed relationship, a first web of material for forming a plurality of leaf hinges and a second web of material for forming a plurality of valve tubes, one pair of the feed rollers being spaced downstream of the other pair with rotary perforating means being disposed upstream of the one pair of feed rollers and extending across the webs for perforating both webs along transverse lines at a spacing equal to the desired length of each valve tube. Direction changing rollers

for the second web are disposed between the other pair of feed rollers and the perforating means for laying the second web in a loop of a length such that the second web becomes offset in an upstream direction relative to the first web by a distance substantially equal to half the desired length of each valve tube. An adhesive applicator is positioned within the loop for applying adhesive to the second web beginning at each perforating line therein and extending for a distance substantially equal to half the spacing between adjacent perforating lines, the other pair of feed rollers being effective to bring the webs together and adhesively connect each valve tube length to an underlying length of leaf hinge. Means are provided for feeding bags in which hinge valves are to be incorporated at a predetermined speed, and a folding cylinder downstream of the other pair of feed rollers rotatable at a peripheral speed which is equal to the predetermined bag speed and greater than the peripheral speed of the web feed rollers, for tearing off successive adhesively interconnected valve tube and a leaf hinge lengths, folding each leaf hinge length double, finally forming each hinge valve and feeding successive hinge valves to successive bags, means being provided for applying adhesive to each folded-over leaf hinge portion before the hinge valves are applied to the bags.

3,657,976

APPLYING SHEET MATERIAL TO A BOX

Ian Anthony Fish, 8, Handel Close, Canons Drive, Edgware, England

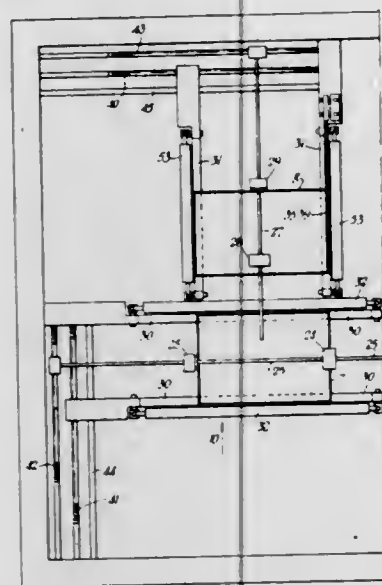
Filed June 8, 1970, Ser. No. 44,147

Claims priority, application Great Britain, June 6, 1969, 28,869/69

Int. Cl. B31b 15/00

U.S. Cl. 93—54 R

17 Claims



A piece of sheet material with adhesive on one face is brought into contact with one side of a box, the adhesive facing the box, and spring-loaded presser members are moved simultaneously towards the box. Some of them enter the box and press the side of the box against the sheet material. Others have their advance halted by guard means which prevent them touching the tips of other sides of the box. If the piece of sheet material projects beyond the first-mentioned side of the box, the presser members are prevented by the guard means from touching the projecting parts of the sheet material and these are preferably stuck to the other sides of the box at two further locations.

3,657,977

APPARATUS FOR PLACING CONTINUOUS REINFORCING IN CONCRETE PAVING

Michael I. Hudis, Brookfield, Wis., assignor to Rex Chainbelt Inc., Milwaukee, Wis.

Filed Feb. 3, 1970, Ser. No. 8,222

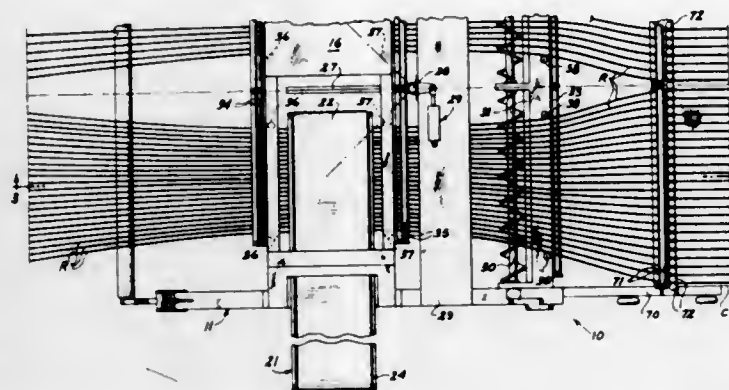
Int. Cl. E01c 19/00

U.S. Cl. 94—39

8 Claims

Spacing and depressing continuous reinforcing rods in concrete paving allows this reinforcing to be continuously

positioned. Continuous reinforcing rods are positioned on the grade to be paved and are lifted over a first machine which receives and spreads the concrete. While supported by the first machine, the rods are separated laterally into two groups which define a center opening through which the concrete is delivered by a conveyor positioned above the rods. Rearwardly of the conveyor, the rods are guided inwardly to close



the center opening and are maintained in a predetermined parallel relationship. Tie-bars or full-width cross-bars are then placed on top of the concrete in such a manner as to be beneath the continuous reinforcing rods. The rods are then guided and depressed below the surface of the concrete by a second concrete finishing machine and in turn depress the tie-bars or cross-bars to their proper position immediately therebeneath.

3,657,978

METHOD AND APPARATUS FOR OPTICAL PRINTING

Zdzislaw Zakrzewski, 6520 Gladys Ave., El Cerrito, Calif.

Substitute for application Ser. No. 484,576, Sept. 2, 1965,

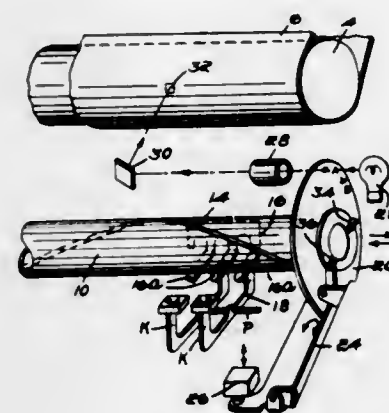
now abandoned. This application Oct. 6, 1969, Ser. No.

871,395

Int. Cl. B41b 41/08

U.S. Cl. 95—4.5

2 Claims



A typewriter frame and keyboard of conventional type includes a rotating drum of dielectric material carrying a conductive helical strip with which any one of the keys may be selectively engaged to actuate a light emanating apparatus. A character aperture disc is mounted in axially spaced relation to the drum to transmit light along an angular path of travel to a light sensitive material supported on the drum when one of the keys is actuated.

3,657,979

AUTOMATIC EXPOSURE CONTROLS FOR CAMERAS

Tsukumo Nobusawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed June 30, 1970, Ser. No. 51,165

Claims priority, application Japan, July 5, 1969, 44/52968

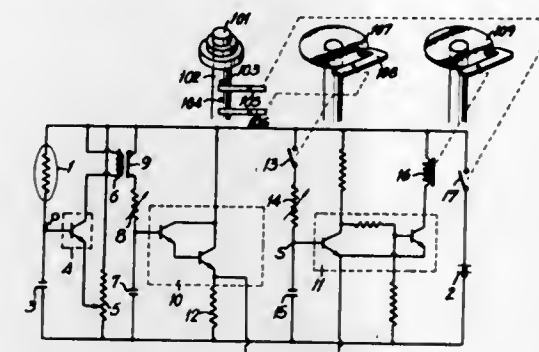
Int. Cl. G01j 1/46

U.S. Cl. 95—10 CT

10 Claims

A camera capable of having the exposure of film therein determined automatically. A shutter actuator is provided for

first opening the shutter to start an exposure and for then closing the shutter to terminate the exposure, and a shutter circuit coacts with the shutter actuator to start measuring of an exposure time interval when the shutter is opened and to operate the shutter actuator to close the shutter after elapse of an exposure time which will provide a proper exposure. The shutter circuit is transistorized and includes a triggering capacitor for triggering the shutter circuit to bring about clo-



sure of the shutter. A storage circuit is provided for storing information which includes the factor of the intensity of the light received from the object which is photographed, and this storage circuit includes a storage capacitor the charge of which is indicative of the light intensity. A control circuit is connected electrically both with the storage circuit and with the shutter circuit for triggering the latter through the triggering capacitor, to bring about closing of the shutter, in accordance with the charge at the storage capacitor.

3,657,980

FLASHLAMP ROTATING AND FIRING APPARATUS

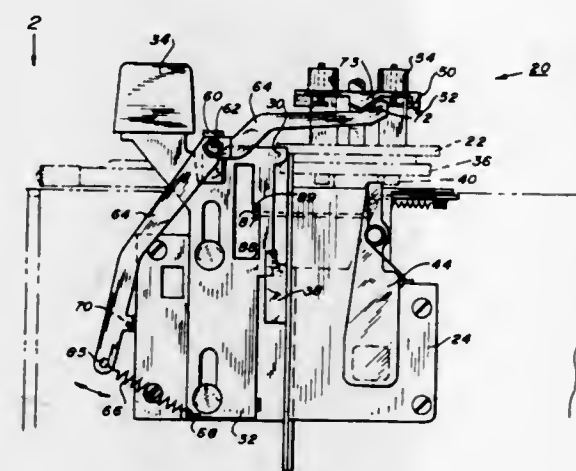
Israel Nesson, Fair Lawn; Robert G. Palmer, Wayne, and Sam Zausner, Mahwah, all of N.J., assignors to Keystone Division of Berkey Photo, Paramus, N.J.

Filed Sept. 2, 1970, Ser. No. 68,869

Int. Cl. G03b 15/04

U.S. Cl. 95—11.5 R

16 Claims



A photographic camera mechanism includes a rotatable socket adapted to receive and removably retain a percussive multiflashlamp unit identified as a four lamp flashcube. The mechanism, to cause an exposure to be made, first causes the socket to be rotated between established limits and during this rotation the percussive primer mechanism of one lamp of the flashcube is caused to be positioned so that one end of a firing lever as it is moved by the shutter actuating mechanism strikes the primer to ignite the flashlamp. The firing lever causes the primer to be fired with the resulting ignition of the flashlamp being made in synchronism providing light for the scene in front of the camera as the shutter is swung to an exposure position. Detent or engaging means is provided by the socket and camera mechanism to insure that the flashlamp is not accidentally rotated to cause an igniting of a flashlamp except and during the time the camera mechanism is actuated for the taking of a picture.

3,657,981

DIRECT ORTHOSCOPIC STEREO PANORAMAGRAM CAMERA

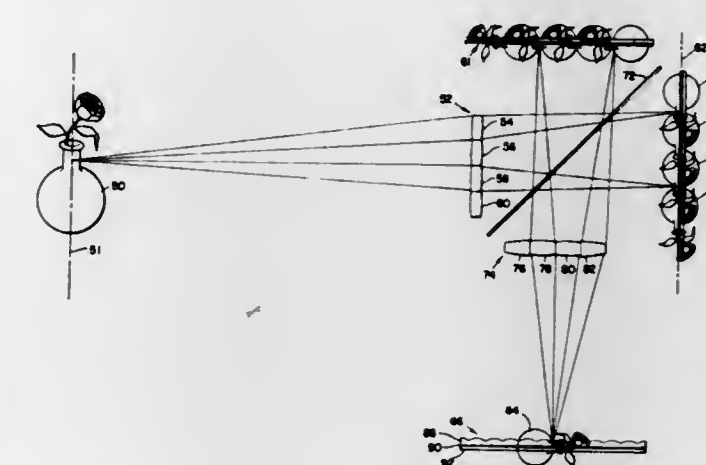
Stephen A. Benton, Cambridge, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 9, 1970, Ser. No. 26,909

Int. Cl. G03b 35/08

U.S. Cl. 95—18 P

19 Claims



A camera for making orthoscopic stereo panoramagrams is disclosed. Recorded stereo images can be viewed directly without having to be corrected for pseudoscopy in a subsequent operation. A segmented composite lens is used in the optical imaging system to obtain a wide aperture while avoiding difficulties associated with wide aperture moderate focal length lenses. In addition, a second retroreflecting screen is used to double the photo efficiency of the camera.

3,657,982

EXPOSURE TIME CONTROLS FOR CAMERAS

Naoyuki Uno, Oi-Machi, and Koichi Watanabe, Tokyo, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

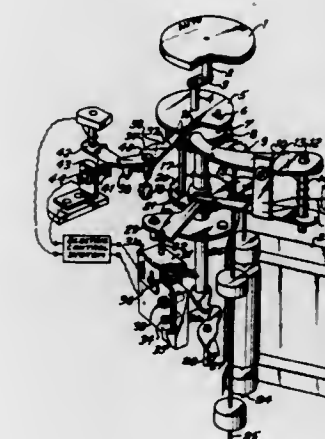
Filed June 1, 1970, Ser. No. 42,386

Claims priority, application Japan, June 7, 1969, 44/44904

Int. Cl. G03b 9/62

U.S. Cl. 95—53 E

4 Claims



An exposure time control to be used in cameras for determining the extent of exposure time. An electrical structure is provided for determining the exposure time, and this electrical structure includes an electromagnet which initiates the shutter-closing operations, so as to terminate the exposure. The electromagnet has an armature and a core toward which the armature is attracted when the electromagnet is energized. An adjusting means is provided for adjusting the armature with respect to the core in such a way as to achieve an efficient operation of the mechanical components even with respect to extremely short exposure times.

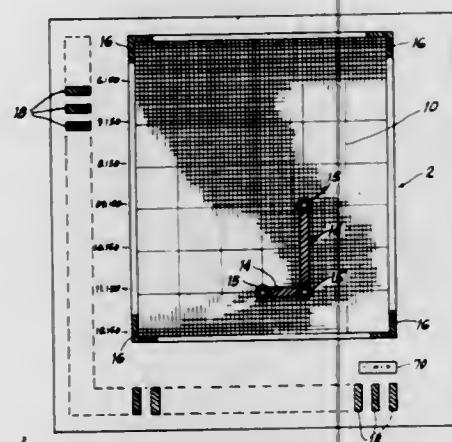
3,657,983

GRAPHIC AID AND METHODS RELATED THERETO
Elton N. Baker, Elgin, Ill., assignor to Fotel Inc., Villa Park, Ill.

Filed May 13, 1970, Ser. No. 36,979
Int. Cl. G03b 15/00

U.S. Cl. 95-85

11 Claims



A master grid layout sheet and methods of manufacture associated therewith are disclosed for use in graphic art work such as the layout and reproduction of printed circuits and the like. In typical printed circuit work precision art work and subsequent photographic reproduction thereof are normal intermediate processing steps. The master sheet includes a pattern, usually of orthogonal reference lines, printed thereon in a predetermined critical gray or neutral monotone. The monotone has a visual density such that the reference line pattern is visible to a draftsman but the light transmission density or opacity thereof is insufficient to cause the pattern to be reproduced in a controlled photographic reproduction of the master sheet.

A processing control method for forming the master grid sheet is also disclosed. The process utilizes a visual process control guide which provides a standard of comparison for obtaining the critical transmission density of the gray monotone pattern. Thus the development process by which the master grid sheet is formed may be consistently controlled to produce the critical transmission density for the reference pattern thereon. The subsequent processing of reproductions of the art work may be controlled in correlation with the critical density of the monotone pattern to cause the pattern to disappear in the final product.

3,657,984

PHOTOGRAPHIC APPARATUS WITH ELECTRONIC EXPOSURE CONTROL

Dieter Engelsmann, Unterhaching; Dieter Maas, and Kurt Zattler, both of Munich, all of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed June 12, 1970, Ser. No. 45,823

Claims priority, application Germany, June 27, 1969, G 69 25 545.4

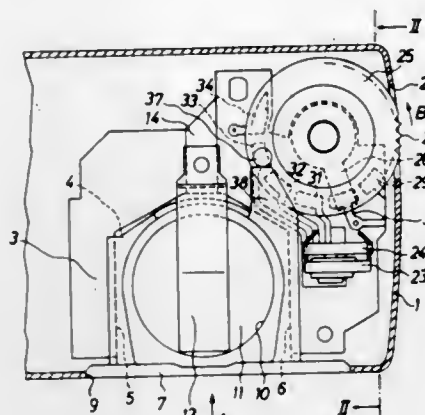
Int. Cl. G03b 19/04

U.S. Cl. 95-11 R

10 Claims

The top portion of the housing in a still camera has an opening for insertion and withdrawal of a drawer-shaped insert which contains one or more removable batteries and is received in a socket of an insulating plate which is mounted in the housing and supports one or more potentiometers, transistors or other components of the electronic exposure control. Such components are accessible by way of the opening upon removal of the insert. A wheel on the insulating plate can be rotated by hand and serves to adjust the exposure control in accordance with the guide number of a flash unit and/or in accordance with the speed of film. The wheel

also serves to partially expel the insert from the socket. Leaf springs are employed to clamp the insert in the socket and to



connect the poles of the battery into the circuit of the exposure control.

3,657,985

SINGLE LENS REFLEX CAMERA

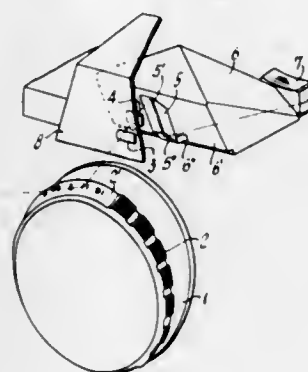
Naoyuki Uno, Oi-Machi, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

Filed Dec. 3, 1969, Ser. No. 881,808

Int. Cl. G03b 19/12

U.S. Cl. 95-42

7 Claims



A system for observing through the viewfinder, indicia located on the lens barrel of a single lens reflex camera, comprises a window on the pentaprism housing front wall and a second prism positioned along the pentaprism front face and including a first reflector surface proximate the top of said front face and aligned with the indicia and window, and a second reflector surface proximate the bottom of said front face. Light from the indicia incident on the first reflector surface is directed by the second prism through the pentaprism along a path proximate the pentaprism bottom face to the bottom of the viewfinder eyepiece field of view. A lens registers with the window and is followed by a polarizer filter for blocking horizontally polarized light.

3,657,986

ELECTRIC POWER SOURCE SWITCHING DEVICE OF ELECTRIC SHUTTER

Kiyoshi Kitai, Tokyo, Japan, assignor to Kabushiki Kaisha Hattori Tokiten, Tokyo, Japan

Filed July 28, 1969, Ser. No. 845,388

Claims priority, application Japan, July 29, 1968, 43/53083

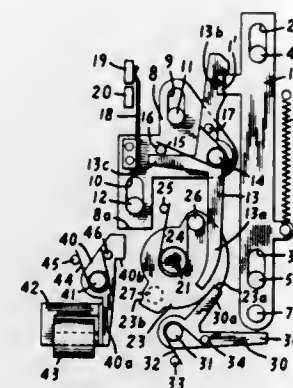
Int. Cl. G03b 9/62

U.S. Cl. 95-53 EB

5 Claims

A camera is equipped with a switching mechanism which connects an electric delay circuit with an electric power source prior to the actuation of a shutter actuating mechanism. The switching mechanism is manually actuated

by a trigger lever which is then operatively disconnected from the switching mechanism and the switching mechanism



is returned to its initial position in response to closing of the shutter by means of the shutter actuating mechanism.

3,657,987

SELF-BALANCING APPARATUS FOR PHOTOGRAPHIC CAMERAS

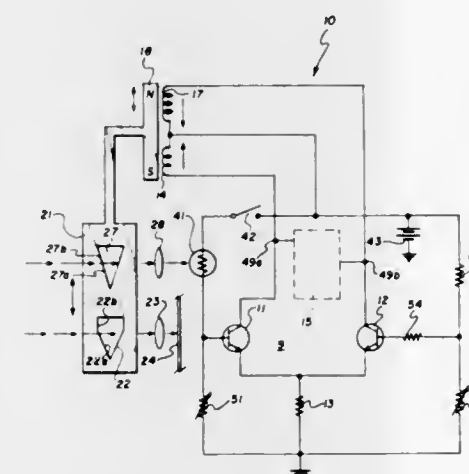
David L. Babcock, and David B. Lederer, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 27, 1970, Ser. No. 84,389

Int. Cl. G03b 7/08, 9/04

U.S. Cl. 95-64 D

13 Claims



A self-balancing exposure control apparatus is disclosed which includes a diaphragm defining a first aperture disposed in a cooperative relation with a camera lens and a second aperture disposed in a cooperative relation with a photosensitive device having a parameter which varies as a function of incident illumination. The apparatus includes a control circuit which responds to variations in the parameter to move the diaphragm to adjust the effective size of the respective apertures to return the level of illumination incident on the photosensitive device to a predetermined level wherein the circuit is balanced and pass sufficient light to the camera lens for suitable film exposure. With decreasing scene brightness, the control circuit causes the diaphragm to increase the effective size of both apertures until the camera lens aperture reaches a size which corresponds to the maximum light transmitting capability of the camera lens. If the scene brightness continues to decrease, the size of the camera lens aperture will be maintained at the maximum size while the photosensitive device aperture will continue to increase in size to return the illumination incident on the photosensitive device to the predetermined illumination level.

3,657,988

ADAPTERS FOR AUTOMATIC LENS SYSTEM USABLE WITH DIFFERENT REFLEX CAMERAS

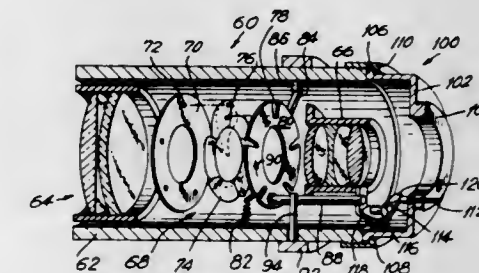
Hiroshi Mito, Tokyo, Japan, assignor to Kabushiki Kaisha Tamron, Omiya-shi, Japan

Original application Mar. 28, 1967, Ser. No. 626,526, now Patent No. 3,500,735, dated Mar. 17, 1970. Divided and this application Apr. 16, 1969, Ser. No. 855,788. The portion of the term of the patent subsequent to Mar. 17, 1987, has been disclaimed. Claims priority, application Japan, Apr. 9, 1966, 41/024817

Int. Cl. G03b 9/02

U.S. Cl. 95-64 R

6 Claims



An objective and adapter assembly for use with single lens reflex cameras according to which an objective of one construction, which includes the diaphragm, can be used with any type of a single lens reflex camera by having a suitable one of a plurality of adapters of the invention connected to the objective and to a camera for which the adapter is designed. Different reflex cameras will have different types of diaphragm-actuating elements and the several adapters are respectively designed for the different types of diaphragm-actuating elements so that by using a suitable adapter which is designed for a given camera the same objective can be used with all types of cameras.

3,657,989

STOP DEVICE FOR A SHIFTABLE OBJECTIVE LENS
Takeshi Muryol, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

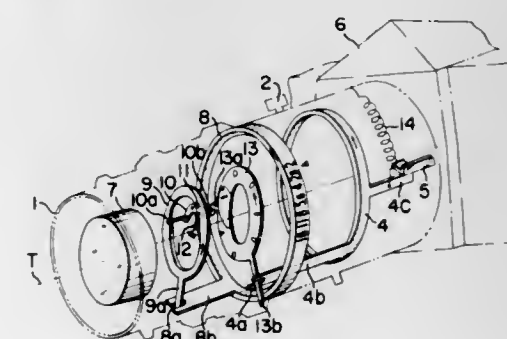
Filed Dec. 16, 1969, Ser. No. 885,509

Claims priority, application Japan, Dec. 28, 1968, 43/94480

Int. Cl. G03b 9/02

U.S. Cl. 95-64 R

3 Claims



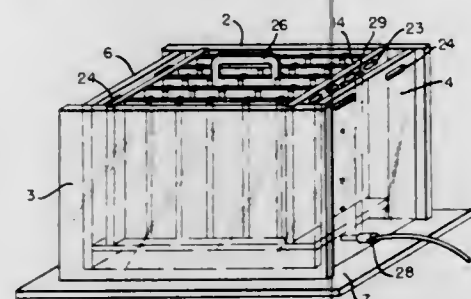
A stop device for an objective lens capable of automatically stopping even when the diaphragm blades are shifted along with the shifting operation of the objective lens. When the normal photography is made, the shifting operation knob is set at the position of zero shift so as to rotate the stop ring to set it at a desired stop value. Upon release of the shutter button, the diaphragm blades are set to the desired stop value through the aid of the aperture control ring. When the shift photography is made, the knob is rotated to shift the objective lens and the aperture control ring, etc. in the predetermined shifting direction. The stop-down ring and the aperture control ring is interconnected so as to set the stop ring at a desired stop value for enabling the release of the shutter button.

3,657,990

WASHER FOR SHEETS OF PHOTOGRAPHIC MATERIAL

Henry G. Wilhelm, 1408 East Street, Grinnel, Iowa
 Filed Oct. 24, 1969, Ser. No. 869,240
 Int. Cl. G03d 3/02

U.S. Cl. 95-98



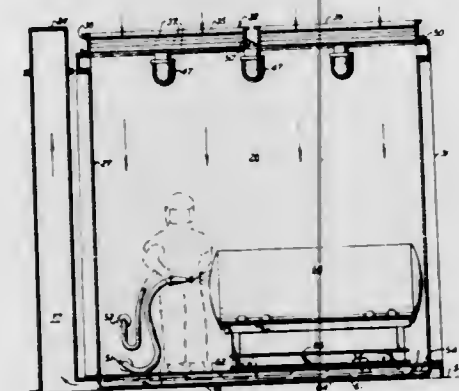
A washer for photographic sheet material, such as prints or films, in the form of a tank having a fluid inlet near the bottom including an aerator for introducing a mixture of fine bubbles and water into a horizontal distribution manifold at the bottom of the tank, the top of said manifold being a horizontal septum perforated throughout its area with small perforations and the aerator having a vertical air inlet tube extending from the fluid inlet to above the overflow level of the tank. In addition, the print washer form of the device has a number of parallel compartments for holding individual sheets and so arranged that there can be no fluid contamination between compartments.

3,657,991

FLOOR FOR BLAST ROOM WITH UNIFORM DOWN-DRAFT VENTILATION

Nathan B. Oberg, Washington, Mo., assignor to Zero Manufacturing Company, Washington, Mo.
 Original application May 1, 1968, Ser. No. 725,869, which is a division of application Ser. No. 634,586, Apr. 28, 1967, now Patent No. 3,407,719. Divided and this application May 18, 1970, Ser. No. 38,004
 Int. Cl. F24f 13/00

U.S. Cl. 98-32



A blast room which has air drawn through a pervious top downwardly through a perforated floor and means for separating and exhausting the air and collecting the blasting material. The top is louvered by three tiers of angle beams resting on supports and alternately disposed so that an upwardly directed air blast sufficient to lift a beam moves same to block the space between two adjacent beams in the tier above. The floor includes a perforated grating lying on detached and readily removable beams of "M" cross section having apertures in the central lower apex, there being two inclined longitudinally extending plates within the beam on either side of said apex. In one embodiment the plates extend normally from the vertical legs of the beam. In another they are vertical. In a further embodiment an inclined angle beam is inverted above the apex of the M-beam with slots disposed along the edges of the angle beam.

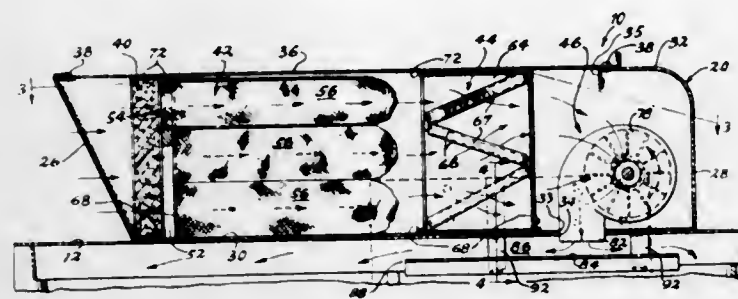
3,657,992

VEHICLE CAB VENTILATOR

Donald F. Minnick, Jr., Hamburg, N.Y., assignor to Thermal Components, Inc., Buffalo, N.Y.
 Filed Sept. 2, 1970, Ser. No. 68,970
 Int. Cl. B60h 1/24

8 Claims U.S. Cl. 98-2.11

6 Claims



A ventilator unit to be affixed to the roof of a vehicle cab characterized as having a flat prefilter, a bag filter, an activated charcoal filter and filtered air discharge fans serially arranged within a horizontally elongated casing; the fans discharging downwardly through openings in the cab roof onto a distribution plate. The distribution plate cooperates with the roof to define a clean air plenum chamber from which air is distributed about the side walls of the cab.

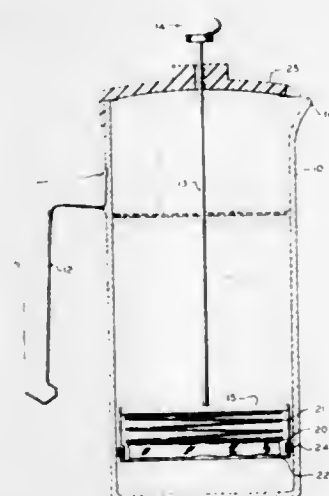
3,657,993

COFFEE BREWER

Edward S. Close, 175 East Street, Oneonta, N.Y.
 Filed Oct. 15, 1970, Ser. No. 81,021
 Int. Cl. A47j 31/00

U.S. Cl. 99-297

6 Claims



An improved plunger-type coffee brewer in which the piston-plunger incorporates spring means for packing the coffee in the plunger with a predetermined density irrespective of the amount of coffee loaded in the plunger, and in which an improved plunger seal is provided.

3,657,994

COMBINATION CONTAINER AND DISPENSER

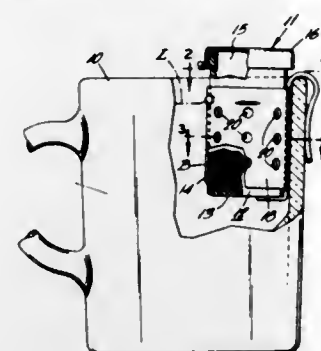
Norman W. Post, P.O. Box 230, Fire Road, Pleasantville, N.J.
 Filed May 10, 1971, Ser. No. 141,715
 Int. Cl. A47j 31/00

U.S. Cl. 99-323

7 Claims

Apparatus is provided for containing beverages such as coffee, tea or chocolate in granulated form and for dispensing the same into a water-filled receptacle. The apparatus comprises a hollow cylindrical container having a removable cap and having a series of apertures in its sidewall which are adapted to register with a like series of ports in a closure member when the container is rotated relative thereto. the closure member has a hook portion for engaging thereto. Stops are provided on the over the rim of the receptacle. Stops are provided on the

container and the closure member to limit relative rotation of the container relative to the closure from a position covering



the apertures to a position in which the apertures and ports register with one another for dispensing the beverage.

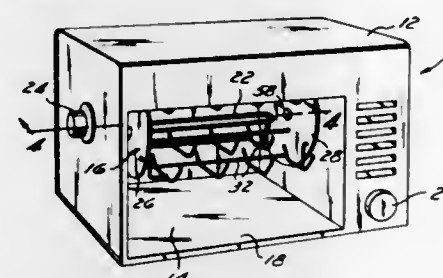
3,657,995

ROTATING WIENER GRILL

James S. Adamitis, 7955 Royal Ridge Drive, Parma, Ohio
 Filed Dec. 21, 1970, Ser. No. 100,064
 Int. Cl. A47j 37/04

U.S. Cl. 99-443 R

7 Claims



A reel of a wiener grill, driven via a slip clutch, supports an annular array of removable hangers which circle a stationary heating element located at the core of the reel. A pair of wieners held by any one of the hangers is exposed on all sides to the heating element, or a single wiener held by a hanger is similarly exposed and locates itself toward the front side of the hanger. The ends of the reel are tied together by open-structured tying means located radially between the central heating element and the hangers, and the hangers are open on their front side so that fingers or tongs can be moved into or through that side to readily remove wieners. The stationary heating element can be shifted and the reel lifted off its associated driving and stationary bearing elements for removal for cleaning, and for further disassembly of the individual hangers from the reel if desired.

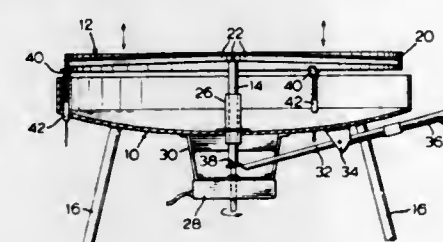
3,657,996

BARBECUE

Orla Denley Thompson, 40 Owen Boulevard, Willowdale, Ontario, Canada
 Continuation-in-part of application Ser. No. 841,020, July 11, 1969. This application Jan. 29, 1970, Ser. No. 6,731
 Int. Cl. A47j 37/04

U.S. Cl. 99-443 R

2 Claims



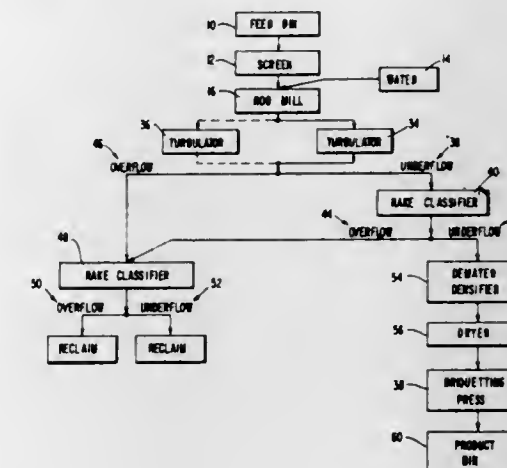
This invention relates to a barbecue that has a rotatably mounted grill for holding the foods in which a device is provided for preventing the travel of liquid fat beyond the outer peripheral edge of the barbecue as the grill is rotated.

3,657,997

RECOVERING METAL VALUES

Vincent A. Vellella, Cleveland, Ohio, assignor to Pittsburgh Pacific Processing Co.
 Filed Feb. 18, 1969, Ser. No. 800,108
 Int. Cl. B30b 13/00; B02c 17/04, 21/00
 U.S. Cl. 100-39

26 Claims



Materials containing metal values and contaminants are subjected to a grinding operation to selectively pulverize the contaminants while minimizing grinding action on the metal values. Selective grinding is effected by controlling power input to the grinding operation. The material is ground as a pulp, and pulp density is controlled for continuous operation of the grinding mill. Pulverized contaminants are hydraulically separated from metal values in turbulators operated in parallel-flow arrangement to permit continuous discharge from the grinding mill. Underflow from turbulators passes into a rake classifier. Underflow from the classifier is dried in a hot gas blast, where separation of piggyback slimes is effected. Dried concentrate is briquetted. In a preferred embodiment, residues from grinding stainless steels are subjected to selective grinding to break away grinding wheel components bonded to the metal particles and to pulverize grinding wheel components and other contaminants while minimizing work hardening of the metal particles to avoid impairment of the ability of the metal particles to be briquetted.

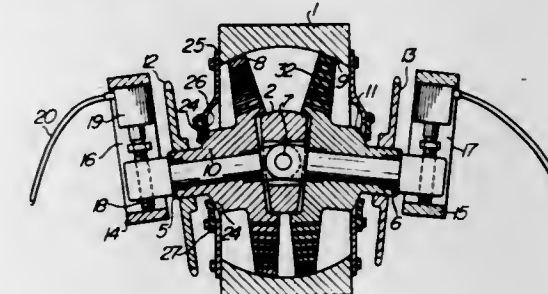
3,657,998

CONTINUOUS DISC TYPE DEHYDRATING PRESS

Ryutaro Yoritomi, 17-12 Koishikawa-5-chome, Bunkyo-ku, Tokyo, Japan
 Filed Dec. 29, 1969, Ser. No. 888,480
 Claims priority, application Japan, Dec. 30, 1968, 43/96589
 Int. Cl. B30b 3/04

U.S. Cl. 100-158 C

7 Claims



A continuous disc type dehydrating press of the type wherein a material is pressed between a pair of rotating pressing disc each rotatably mounted on a pivotable supporting shaft slightly inclined with respect to each other, said discs being disposed opposite to each other to define an annular groove of a V-shaped cross section between the confronting surfaces thereof. The press is provided with means

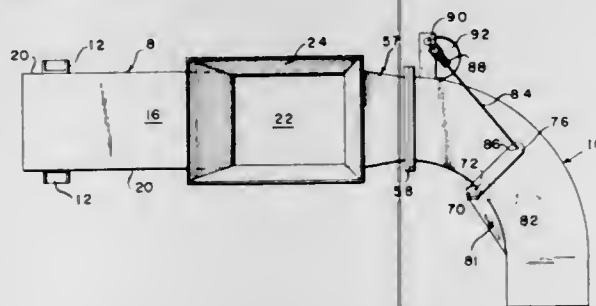
for sealing the dehydrating zone against the outside air, which consists of an annular shoulder formed on a hub of each disc and defining a seal receiving surface, and a seal fixedly mounted on a seal mounting member with the peripheral edge of a central opening the seal in pressure engagement with the seal receiving surface, said seal mounting member being sealingly connected to each face of an annular casing defining the dehydration zone with the pressing discs accommodated therein.

3,657,999

APPARATUS FOR COMPACTING TRASH
Lewis P. White, 3436 Brookwood Road, Birmingham, Ala.
Filed July 17, 1970, Ser. No. 55,706
Int. Cl. B30b 1/08

U.S. Cl. 100-192

6 Claims



This invention is a trash compacting process and apparatus wherein trash is placed in an elongated chamber having a rectilinear portion and a curvilinear portion. A packer forces the trash through the rectilinear portion and, upon movement through the curvilinear portion, frictional resistance to movement of the trash is increased, thereby causing compression of the trash. The amount of compression is controlled by an arm within the curvilinear portion which prevents longitudinal movement of the trash until a predetermined force is exerted thereon, at which time the arm automatically moves out of the path of movement of the compressed trash. The compressed trash is then pushed out of the chamber into a suitable container.

3,658,000

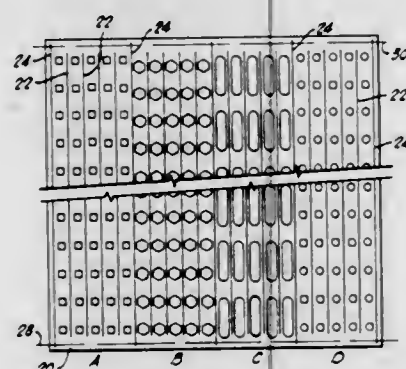
METHOD OF FORMING A PACKAGE OF FLEXIBLE MOLDING STRIPS

Stancll I. Ramsey, 4009 Harvey Parkway, Oklahoma City, Okla.

Filed May 4, 1970, Ser. No. 34,188
Int. Cl. B41m 3/00; B41l 1/22

U.S. Cl. 101-129

4 Claims



A method of preparing a package of flexible molding strips for display in an aesthetic manner, which includes the steps of reproducing by silk screening or similar process, a repeating pattern on a large sheet of flexible fibrous or plastic material carrying a pressure sensitive adhesive on one side thereof, with the pattern being repeated in elongated strips on the substrate; then severing the substrate along a plurality of relatively short lines by the use of die rule press knives

pressed against the substrate, and concurrently severing the substrate along a pair of relatively longer elongated lines lying to the outside of the relatively short lines of severance to provide a plurality of short lines of severance between a pair of relatively long lines of severance in the substrate; repeating the pattern of a plurality of short lines of severance located between long lines of severance over the entire areal extent of the substrate with all the lines of severance extending substantially parallel to each other, and with the lines of severance being formed between the lines of the decorated figures imprinted on the substrate by the silk screening process. A plurality of the superimposed substrate sheets are then severed along a pair of lines extending normal to the first mentioned lines of severance and positioned adjacent side edges of the substrate at a location such that the pairs or lines of severance adjacent the side edges of the superimposed substrate sheets intersect the relatively long lines of severance previously formed so as to free from each other, portions of the substrate which contain formed between side edges previously constituted by the relatively long lines of severance, a plurality of strips which are separated from each other by the relatively short lines of severance.

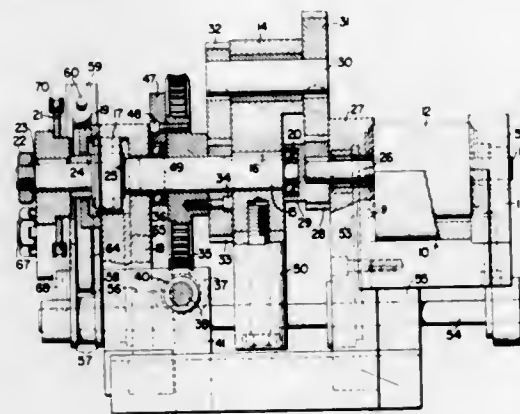
3,658,001

VARYING MOTION PLANETARY GEAR DRIVE
Frederick W. Seybold, 1979 Dogwood Drive, Scotch Plains, N.J.

Filed July 7, 1970, Ser. No. 52,962
Int. Cl. B41f 31/04; F16h 35/02

U.S. Cl. 101-350

6 Claims



This invention provides a simple mechanism for imparting a continuously Varying forward and reverse rotary motion to the ink fountain roller of a printing press. This roller is immersed in a wedge-shaped trough formed by an adjustable blade and the roller, and when filled with ink the flow of ink therefrom to a reciprocating ductor roller is regulated by the blade which is in close proximity with the fountain roller and the latter's angular velocity prevailing at the time the ductor roller is in contact therewith, and the ink collected by the ductor is then transferred to the distributing rollers of the printing press.

This mechanism is also distinguished by having "zero" acceleration at the beginning and "zero" deceleration at the termination of its cyclic motion.

3,658,002

CLAMPING DEVICE FOR CLAMPING A PRINTING PLATE UPON A CYLINDER OF A PRINTING PRESS

Friedrich Preuss, Neu-Isenburg, Germany, assignor to Roland Offsetmaschinenfabrik Faber & Schleicher AG, Offenbach am Main, Germany

Filed Apr. 15, 1970, Ser. No. 28,581

Claims priority, application Germany, May 3, 1969, P 19 22 749.7

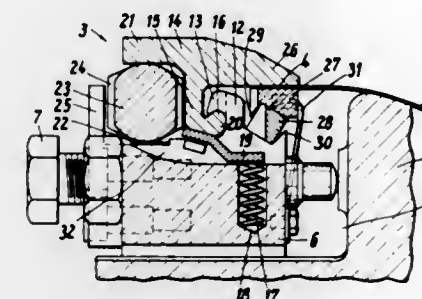
Int. Cl. B41f 27/06, 27/12

U.S. Cl. 101-415.1

6 Claims

A device for clamping a printing plate to a cylinder such as the form cylinder of a printing press or similar machine per-

mits convenient and rapid pivotal mounting of the clamping jaw to the tensioning bar of the device and an equally convenient and rapid release therefrom. For this purpose, the jaw and the tensioning bar are hinged to each other by a plurality of lengthwise spaced bearing elements and these elements engage each other in one axial position of the jaw and



the bar relative to each other while in another axial position the bearing elements on the jaw face the spaces between the bearing elements on the bar whereby the jaw can be released from the bar by lifting it in radial direction. Mounting of the clamping jaw on the bar is effected by reversing the described relative displacement of the jaw and the bar.

3,658,003

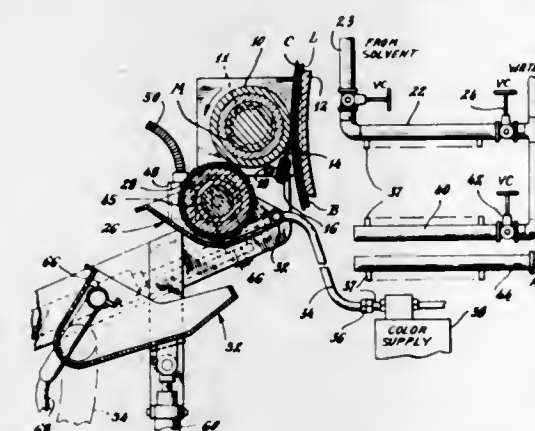
METHOD FOR WASHING ELEMENTS OF FABRIC PRINTING MACHINES

James Reid Johnson, Stonington, Conn., assignor to The Johnson Fast Print Machine Corporation, Brooklandville, Md.

Filed May 29, 1969, Ser. No. 829,055
Int. Cl. B41f 35/02, 35/04

U.S. Cl. 101-426

1 Claim



A print roll doctor blade in a cloth printing machine has a spray header selectively connectable to sources of wash water and solvent; a color box extending under the doctor blade has a spray header selectively connectable to sources of color, wash water and drying air; wash water draining from the doctor blade is collected in the color box and spilled from it, together with wash water introduced directly into the color box for preliminarily washing it and its associate color transfer brush and the print roll, into a washer-receptacle initially spaced below the color box and then raised to form with the inverted color box a closure within which washing of the color box and brush is completed.

3,658,004

BOMBLET

James E. Blair, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy

Filed June 1, 1970, Ser. No. 59,797

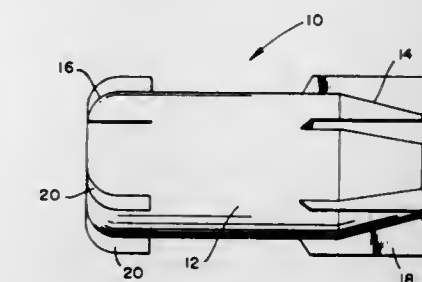
Int. Cl. F42b 25/16

U.S. Cl. 102-4

3 Claims

A bomblet is provided with forward air vanes having a pitch angle which imparts a spin and rearward fins which are

straight and serve only to maintain stability. The fins



protrude only slightly beyond the bomblet silhouette and do not extend past the hexagonal packaging envelope.

3,658,005

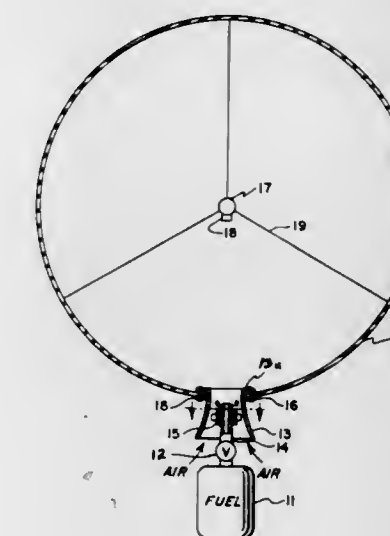
FUEL-AIR EXPLOSIVE DEVICE

Robert W. Byrne, Ballwin, Mo., assignor to Thiokol Chemical Corporation, Bristol, Pa.

Filed Apr. 8, 1970, Ser. No. 26,487
Int. Cl. F42b 25/14

U.S. Cl. 102-6

3 Claims



An explosive device is provided in the form of an inflated spherical bag or envelope which is filled with an explosive mixture of fuel and air. In this way, a maximum of explosive effect is attained with a minimum of weight and bulk. The device is useful in warfare where dense foliage is encountered since it can be inflated and laid or dropped upon the top of trees, bushes or the like where its explosive effect will have a wider range than if the explosion took place down inside the foliage.

3,658,006

EXPLOSIVELY ACTUATED EGRESS AND INGRESS DEVICE AND METHOD

Gordon A. Nistler, Vacaville, and Harold W. Hannagan, Napa, both of Calif., assignors to Explosive Technology, Inc., Fairfield, Calif.

Continuation-in-part of application Ser. No. 740,645, June 27, 1968, now abandoned. This application Feb. 5, 1969, Ser. No. 796,770

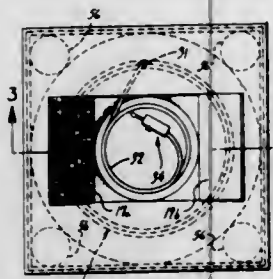
Int. Cl. F42b 3/08

U.S. Cl. 102-24 HC

30 Claims

Explosively actuated egress and ingress device having a case formed of relatively light-weight material with an outer surface and having a linear-shaped explosive positioned within the case adjacent to the outer surface and with a

resilient backing material in the case. A pliable gathering material may also be provided within the case to the rear of the linear-shaped explosive charge. The method includes the positioning of the devices for cutting large holes.



the linear-shaped explosive charge. The method includes the positioning of the devices for cutting large holes.

3,658,007

HOLLOW BURSTING CHARGE

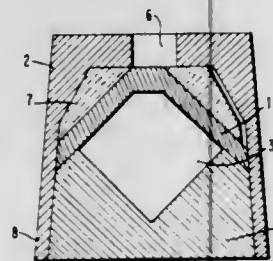
Ludwig Bucklisch, Rhondorf, Germany, assignor to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Filed Mar. 6, 1969, Ser. No. 804,852

Claims priority, application Germany, Mar. 8, 1968, P 16 96 660.2

Int. Cl. F42b 1/02

U.S. Cl. 102-24 HC

4 Claims



The primer ignites the adjacent conically shaped shell of ignition transmitting explosive, which in turn annularly ignites the main explosive charge, which main explosive charge has two axially extending conical recesses pointed towards each other, the rear of which receives therein the forward extending conical surface of an inert element that has a rearwardly extending conical surface received within the ignition transmitting shell. A conically shaped shell bottom piece may be provided around the ignition transmitting explosive with a complementary type fit and a transverse loose fit with the interior rear conical surface of the jacket, or the interior conical surface of the jacket may receive the complementary exterior surface of the ignition transmitting shell directly.

3,658,008

INTEGRATED ROUND WITH COMBUSTIBLE CARTRIDGE

Willard D. Larson, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

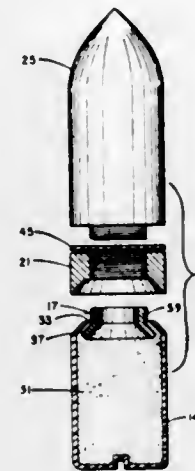
Filed Apr. 17, 1970, Ser. No. 29,572

Int. Cl. F42b 5/18, 9/16

U.S. Cl. 102-38

10 Claims

An integrated round comprising a projectile threaded at one end thereof, an integral combustible carriage and means



cartridge after the cartridge has been loaded with primers and propellants.

3,658,009

SAFE ARM INITIATOR

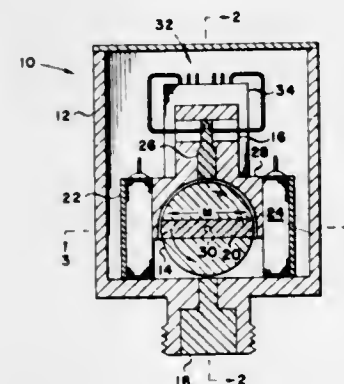
Richard L. Allen, Saratoga, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed May 8, 1969, Ser. No. 822,890

Int. Cl. F42b 5/08

U.S. Cl. 102-70.2

1 Claim



An initiator in which the igniter is separated from the output charge by a rotor of magnetic material. The rotor provides an ignition path between the igniter and the output charge only when the rotor is rotated into an armed position. The rotor is normally magnetically restrained in a safe position, and is rotated into its armed position by the application of an electrical arming signal to an electromagnetic coil acting upon the rotor.

3,658,010

TRACK FOR GROUND EFFECT MACHINES

Guy Charles Marie Joseph Du Merle, Paris, France, assignor to Societe de l' "Aerotrain", Paris, France

Filed Nov. 12, 1970, Ser. No. 88,639

Claims priority, application France, Nov. 15, 1969, 6939364

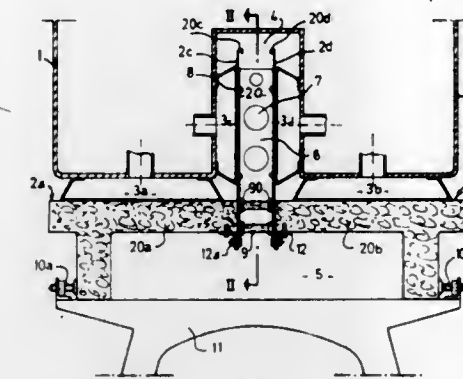
Int. Cl. B61b 13/08; E01b 25/08

U.S. Cl. 104-23 FS

5 Claims

A track for guided ground effect machines, the track having a machine-supporting portion and a guidance rib and including a passage arranged within the thickness of the said rib to cause the space covering the top of the said rib to be in communication through the said passage with a space

defined by the machine-supporting portion of the track and which communicates with the outside atmosphere, whereby



redundant lifting forces acting on the machine are substantially avoided.

3,658,011

COIL CAR

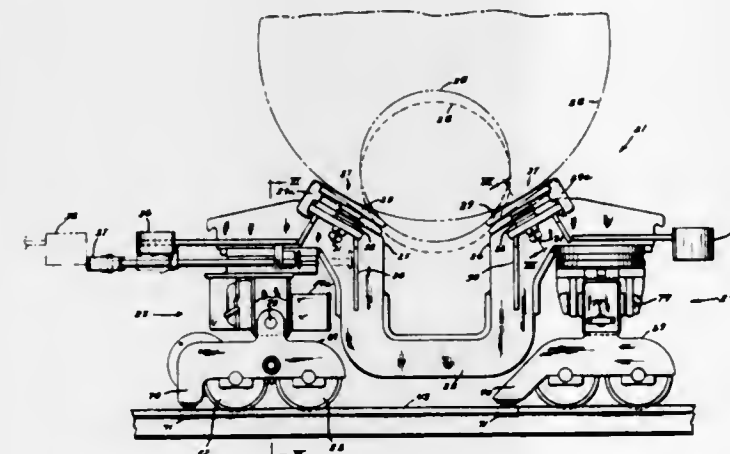
Curtis C. West, Lansing, Mich.; Louis D. Castello, Valencia, and Frederick William Allan Ward, Elwood City, both of Pa., assignors to Planet Corporation

Filed Nov. 6, 1969, Ser. No. 874,619

Int. Cl. B60p 3/00

U.S. Cl. 105-367

8 Claims



A rail type coil car for transporting and handling heavy coils of rolled material consisting of a substantially U-shaped coil support frame which is mounted on forward and rear bolsters and wheel trucks. Spaced-apart coil support shoulders are provided on the coil support frame which permit banding of the coils while they are in position upon the coil car. Spaced-apart self-adjusting resilient shock pads for supporting steel coils of different sizes are provided on each of the coil support shoulders of the coil support frame. A pin suspension system on the bolsters and wheel trucks provides full eight wheel contact on the rails at all times, regardless of track condition. Cam follower rollers are positioned ahead of the leading wheels of each wheel truck so as to lead the coil car through short radius turns with a minimum of wear upon the rails and wheels. Each forward set of wheels is driven by an individual motor drive. The armatures of the dual motor drives are series connected to provide an electrical differential action as the car moves around a turn. The coil car is electrically powered from an underground power rail system and is adapted to move on a surface track system between remote locations. A safety bumper bar is provided on the front of the rail car which automatically stops the coil car upon contact with any obstruction on the tracks or upon contact with the rear of another coil car.

3,658,012

IDLER FOR CHANNEL TIEDOWN TRACK

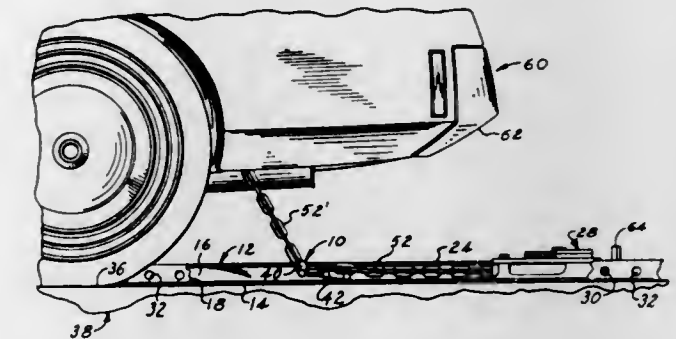
Remo N. Caringi, Milford, Mich., assignor to Portec, Inc., Chicago, Ill.

Filed Nov. 27, 1970, Ser. No. 93,283

Int. Cl. B60p 7/08; B65j 1/22

U.S. Cl. 105-368 T

10 Claims



An idler slidably guiding a hold-down chain or the like running from cargo to a tiedown secured in a channel-type anchorage beam. The idler preferably comprises a rod bent near its center to form two legs, one of which is curved upwardly centrally of the leg to form a raised guide portion for slidably guiding the tiedown chain thereunder. The other leg is curved outwardly concavely relatively to the first leg and is dimensioned relative to the channel track, and the tiedown anchorage holes in the side wall thereof and the one leg so that the idler can be pivoted approximately 85° from a locked to a free position in which it can be slid longitudinally of the track. In all positions of the idler it is captured by the flanges of the channel so that it cannot be lifted out of the track. To lock the idler it is pivoted while the free end of the one leg is being inserted into a selected anchorage hole in one of the channel side walls until the free end of the other leg butts against the one side wall in the space between a pair of adjacent holes, whereupon the bend abuts the opposite side wall of the channel. The forces exerted by the tiedown chain assist in maintaining the idler in locked position.

3,658,013

DOUGH-DIVIDING MACHINE

Hans Neumann, Stuttgarter Str. 5, and Walter Schnee, Hebelstrabe 3, both of Villigen, Black Forest, Germany

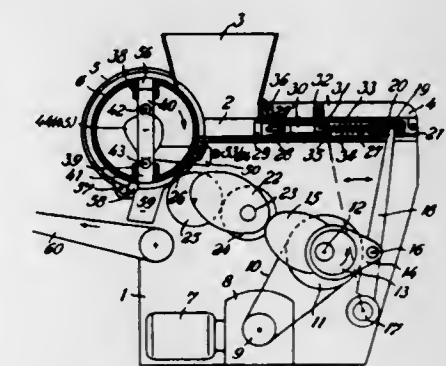
Filed Apr. 15, 1963, Ser. No. 273,122

Claims priority, application Germany, June 8, 1962, W 32396 111/2b. The portion of the term of the patent subsequent to Aug. 25, 1983, has been disclaimed.

Int. Cl. A21c 5/04

U.S. Cl. 425-238

4 Claims



A dough dividing machine for small products, such as bread rolls. A dough gauging cylinder and a lost motion dough feed mechanism are operated in timed relationship. The lost motion mechanism enables precise control of the dough. The gears are so dimensioned that they reduce the speed of rotation of the gauging cylinder during the charging of the gauging compartment and increase the speed throughout the rest of the cycle.

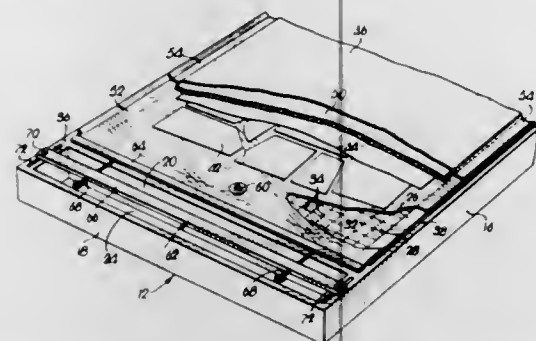
3,658,014

METHOD AND APPARATUS FOR HOLDING PATTERNS ON A SURFACE

Hugo E. Kranz, Overland Park, and Kenneth R. Kranz, Mission, both of Kans., assignors to Replica Associates, Inc.
Filed June 12, 1970, Ser. No. 45,873
Int. Cl. A47b 37/00

U.S. Cl. 108—23

2 Claims



Apparatus for holding patterns on a lay marker table so that the patterns will be held absolutely flat within an airtight envelope and therefore immobile with respect to the surface of the table so that the patterns may be accurately reproduced on a piece of sensitized copy material, the apparatus including a pair of opposed sheets of self-adhering material overlying the surface of the table, there being a porous spacer member disposed between the sheets and coextensive therewith with the exception of marginal stretches of the material which circumscribe the porous member whereby the sheets may be sealed together along the marginal stretches with the porous member permitting the withdrawal of air from between the sheets to thereby present an airtight enclosure and flatten the patterns between the sheets. The method of holding the article to be reproduced on the surface by use of said apparatus includes the steps of placing a first sheet of material on the surface; positioning the patterns on the first sheet of material; placing a second sheet of material and the porous spacer member over the patterns; sealing the edges of the sheets together by virtue of their self-adhering nature; and withdrawing air from between the sheets whereby to cause the same to flatten the patterns with respect to the surface and thereby immobilize the same against movement.

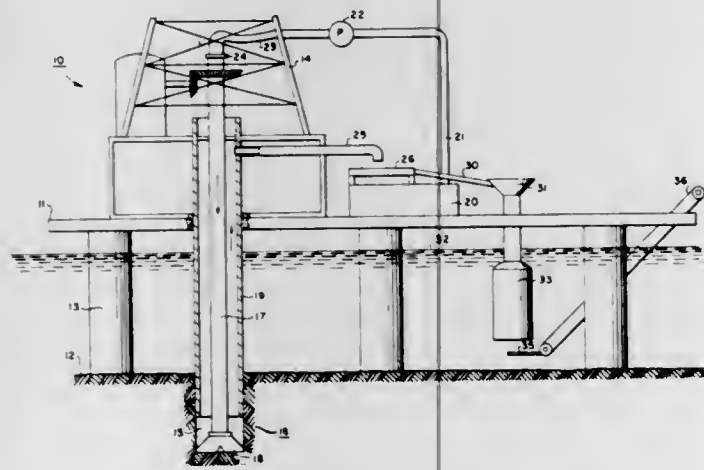
3,658,015

EXPLOSIVE-PROOF METHOD AND INCINERATOR FOR BURNING DRILL CUTTINGS

Phil Griffin, III, and Willard C. Phillips, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed Apr. 15, 1970, Ser. No. 28,818
Int. Cl. F23g 7/00

U.S. Cl. 110—7 R

16 Claims



An incinerator for removing hydrocarbon residues and other organic and inorganic components from oil and gas

well drill cuttings is submerged in water to make the assembly explosive-proof with respect to the drilling rig. One embodiment uses a basket with a removable bottom in the combustion chamber to retain the cuttings during the burning. An alternate embodiment uses a series of metal plates for such retention. After burning, the pollution-free cuttings are discharged from the combustion chamber beneath the surface of the water to eliminate sparks which might otherwise also cause an explosion. A belt-driven scoop located beneath the combustion chamber provides a means of testing the burned cuttings for unburned pollutants.

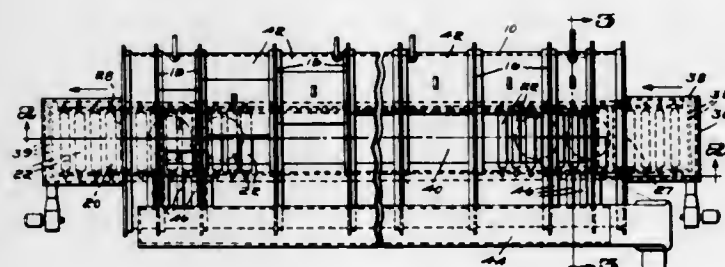
3,658,016

INCINERATOR

Paul W. Parker, Newburyport Turnpike, Rowley, Mass.
Filed Apr. 27, 1970, Ser. No. 31,921
Int. Cl. F23g 5/12

U.S. Cl. 110—8 C

12 Claims



This invention comprises a smokeless, highly efficient incinerator which is economical to manufacture and is particularly adapted for burning out steel barrels to clean the same for reuse.

An elongated, cylindrical steel chamber is supported horizontally and defines a passageway through which the empty steel barrels are passed. A conveyor which is driven in any suitable manner is provided for carrying the barrels through the chamber at a predetermined speed to enable them to completely burn out. Gas jets are provided for starting the fire within the chamber, and an alternating series of oil nozzles spray oil into the chamber to keep the fire burning.

Novel means in the form of an adjustable air nozzle array is arranged to direct the air partly into the chamber as required to provide a recirculating action of the flame pattern and a fire of relatively low temperature. The cylindrical chamber is provided with an open slot along the full length of its upper surface over and through which the air stream is directed by a plurality of nozzles spaced along the length of the cylinder. By adjusting the air streams partly into or out of the cylinder the flame may be kept clean and smoke-free. Sensors are provided to monitor combustion conditions and to actuate the various adjustable control devices hereinafter described and thus to stabilize and control combustion for smoke-free operation of the device.

Air curtains are provided at each end of the chamber so that the barrels may enter and leave the chamber with a minimum of smoke emission from these openings. An air lock could be provided with double doors at the entrance and exit openings to eliminate smoke emission and to minimize disturbance of the combustion process within the chamber.

3,658,017

INCINERATOR

Norman Richard Dibellus, Ballston Spa, N.Y., and William Lun Zabriskie, Shelbyville, Ind., assignors to General Electric Company

Filed Jan. 4, 1971, Ser. No. 103,536

Int. Cl. F23g 5/12

U.S. Cl. 110—8 R

42 Claims

An incinerator for burning waste material includes a combustion chamber having spaced end walls and a side wall

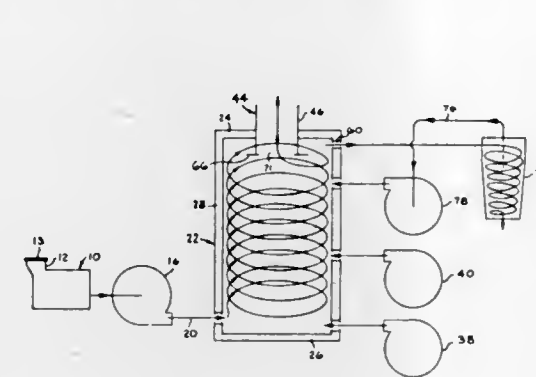
3,658,019

METHODS AND APPARATUS FOR PROCESSING WEB-LIKE MATERIALS

Jordan J. Levin, Nassau County; Edward F. Semlitz, Suffolk County, and Martin Zinamon, Nassau County, all of N.Y., assignors to Standwear Pleating Corporation
Continuation-in-part of application Ser. No. 711,131, Mar. 6, 1968, now Patent No. 3,520,260, dated July 14, 1970. This application May 25, 1970, Ser. No. 40,245
Int. Cl. D05c 3/02

U.S. Cl. 112—102

11 Claims



the outer region of the vortex. The discharged material is conveyed through a conduit to a separator which separates the discharged gases and solid material. The separated gases and any solid particles suspended therein are introduced back into the chamber. A baffle is mounted on the flue adjacent its open end for deflecting outwardly toward the side wall solid material which moves from adjacent the one end wall toward the open end of the flue. The ratio of the area of the open end of the discharge flue port to the area of a cross-section of the chamber taken perpendicular to its longitudinal axis is selected to be within the range of one-sixteenth to four twenty-fifth and is preferably one-ninth.

3,658,018

SELF CENTERING SEED SHOE FOR DOUBLE DISK FURROW OPENER

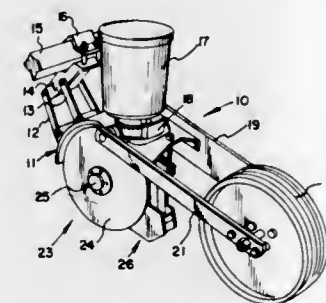
Donald E. Connor, Plainfield, Ill., assignor to International Harvester Company, Chicago, Ill.

Filed Mar. 23, 1970, Ser. No. 21,738

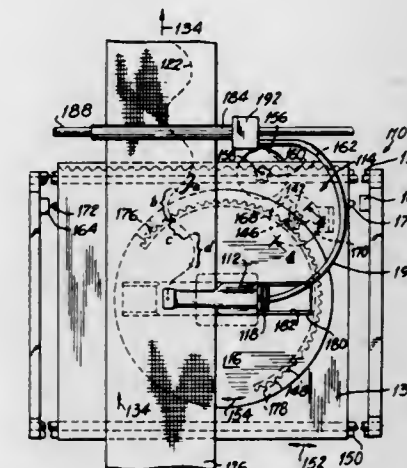
Int. Cl. A01c 5/00; A01b 49/02, 21/02

U.S. Cl. 111—88

12 Claims



A furrow opener assembly for a planter includes a pair of forwardly converging disks and a self-centering furrow forming runner mounted between the disks to smooth the dirt passing between the disks, and to form a furrow in which seed is deposited. The runner is mounted for lateral pivoting between the inner faces of the disks and is secured to the frame between the disks by means which is removable from the rear without disturbing the disks.



Method and apparatus for providing relative oscillatory rotation between a sewing head and a web-like material feeding therepast to enable stitching thereof along a generally wave-form like pattern.

3,658,020

SEWING MACHINE DEVICE ADAPTED FOR APPLYING CLOSED TUBULAR STRAPPING TO FABRIC EDGES

Nerino Mariorio, Milan, Italy, assignor to S.p.A. Virginio Rimoldi & C., Milan, Italy

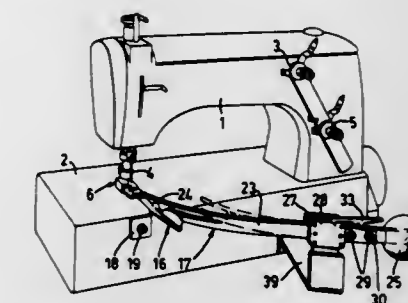
Filed Aug. 29, 1968, Ser. No. 756,247

Claims priority, application Italy, Sept. 7, 1967, 20222 A/67

Int. Cl. D05b 35/08

U.S. Cl. 112—147

9 Claims



Means applicable to a conventional sewing machine particularly adapted for guiding a fabric edge and a closed tubular strapping to the sewing needle in a manner whereby the fabric edge is overlapped on both sides thereof by double layers of the tubular strapping.

3,658,021

ARRANGEMENT FOR CUTTING THREADS ON DOUBLE STITCH SEWING MACHINES

Kristen Hedegaard, Gentofte, Denmark, and Anton Lessmeister, Hutschenhausen, Germany, assignors to Firma G. M. Pfaff A.G., Kaiserslautern am Pfalz, Germany

Filed Aug. 10, 1970, Ser. No. 62,574

Claims priority, application Germany, Aug. 16, 1969, P 19 41 681.0

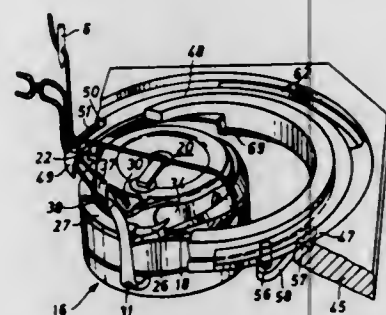
Int. Cl. D05b 65/02

U.S. Cl. 112—252

5 Claims

Thread cutting device for double stitch sewing machines having a looper turning in a horizontal plane, a bobbin hous-

ing secured against turning movements by means of a retaining finger resting against an abutment in the stitch plate, an outlet opening for the looper thread determining the course of the looper thread between stitch plate and bobbin housing and a thread catcher having a point cooperating with a cutter and movable in a horizontal plane where the outlet for the



looper thread is disposed below the plane of the surface of the bobbin housing at its wall facing the needle, preferably in the area of the retaining finger, and the point of the thread catcher is movable below the plane of the surface of the bobbin housing between the path of movement of the needle and the retaining finger of the bobbin housing.

3,658,022

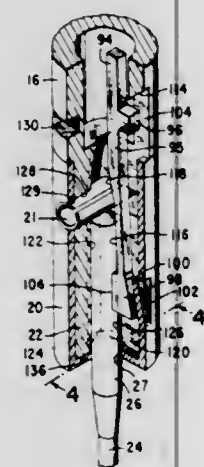
QUICK RELEASE NEEDLE CLAMP

J. Ross Roger, Roselle, N.J., assignor to The Singer Company, New York, N.Y.

Filed Nov. 19, 1970, Ser. No. 90,974
Int. Cl. D05b 55/02

U.S. Cl. 112-226

9 Claims



A quick release sewing needle clamp that insures proper indexing and easy insertion and removal of a needle is disclosed. The clamp utilizes a hollow needle-bar, a sleeve having a tapered indent, and a spring loaded plunger having a wedge shaped tip. The wedge shaped tip of the spring loaded plunger cooperates with the tapered indent of the sleeve providing a clamping action between the spring loaded plunger and a rear wall of a needle shank receiving slot cut in the needle-bar. The clamping action is released by pressure applied to the spring loaded plunger.

3,658,023

FABRIC AND METHOD FOR MAKING THE FABRIC

Alfred G. Ross, 322 35th Street, Union City, N.J.

Filed July 15, 1969, Ser. No. 841,903

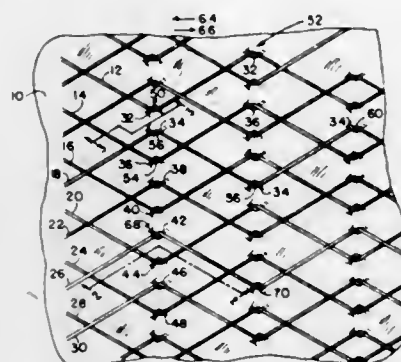
Int. Cl. B32b 7/08

U.S. Cl. 112-416

6 Claims

A fabric and method for making same are described. A destructible material capable of supporting closely spaced stitches is sewn with zigzag stitches of upper threads arranged in rows with overlapping zigzag corners between different

rows. Alternate rows of opposite zigzag upper thread stitches are placed on the destructible fabric and interlocked with under threads at the corners to effectively interlock the



upper threads. Thereupon, the fabric on which the upper threads were placed is destroyed without affecting the upper and under threads, to leave a loosely knit fabric suitable for garments and the like.

3,658,024

OSCILLATING ICE BREAKER

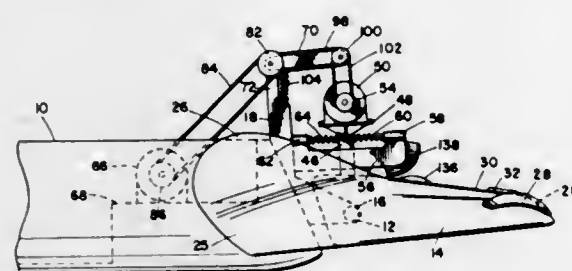
Olly O. Stoffel, San Diego, Calif., assignor to Stoffel Engineering Corporation, San Diego, Calif.

Filed Sept. 29, 1969, Ser. No. 861,952

Int. Cl. B63b 35/10

U.S. Cl. 114-40

17 Claims



An elongated tongue-like ice breaker mounted on the bow of a vessel and pivoted to swing with a short oscillating stroke in a vertical plane, to drive under and lift a layer of ice. The tongue is powered by an oscillator having its effective power stroke aligned with the plane of tongue motion and at a substantial lever arm for maximum efficiency. Deflection of the tongue and the oscillation of the entire tongue divert broken pieces of ice upward and outward, clear of the vessel, a minimum of propulsive power being needed even with thick ice. To minimize loads on the oscillator and the vessel, the tongue is primarily of buoyant construction.

3,658,025

JIB SAIL RAISING SYSTEM

Frederick E. Hood, Marblehead; Harry T. Davis, West Peabody, and Lee Van Gemert, Lynnfield, all of Mass., assignors to Hood Sailmakers, Inc., Marblehead, Mass.

Filed Nov. 19, 1970, Ser. No. 90,990

Int. Cl. B63h 9/04

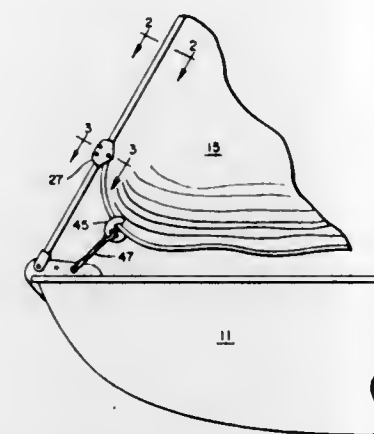
U.S. Cl. 114-105

8 Claims

For use with the sail raising system disclosed herein, the luff edge of a jib sail is provided with a bead, by means of which the luff may be retained. This bead is held within a jib-stay or headstay having at least one portion which is of generally C-shaped cross-section, the bead being held within the interior of the C with the sail extending through the mount of the C. Near the lower end of the stay a portion is provided where the mouth of the cross-section is relatively open for admitting the bead into the central portion of the stay during raising. A pair of rounded guide members are employed and means are provided for mounting the guide mem-

bers in spaced relation to each other and to the open mouthed portion of the stay, so that the bead approaches the

plied thereto, the valve controlling flow of hydraulic fluid from one end of the hydraulic cylinder to the other end of the cylinder so as to permit movement of the valve block itself with respect to a portion of a vehicle, such as a boat.



3,658,028

TUBULAR THRUST PROPELLER

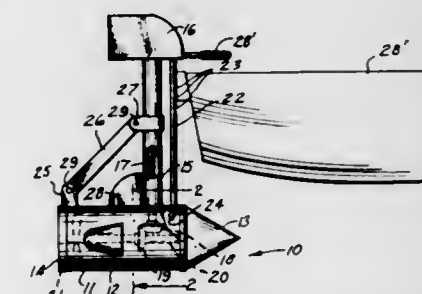
A. Eugene Koons, Proctor Star Route, Williamsport, Pa.

Filed Aug. 27, 1970, Ser. No. 67,428

Int. Cl. B63h 5/16

U.S. Cl. 115-42

5 Claims



open mouthed portion of the stay at a relatively shallow angle, thereby inhibiting binding of the bead in the mouth of the C-shaped cross-section during raising of the jib sail.

3,658,026

MARINE VEHICLE STEERING ASSEMBLY

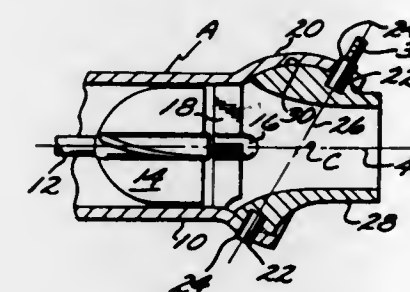
Clayton J. Jacobson, 5403 Seacrest Drive, Rolling Hills, Calif.

Filed Nov. 18, 1969, Ser. No. 877,785

Int. Cl. B63h 5/14, 25/46

U.S. Cl. 115-12

2 Claims



A drive and steering assembly by means of which a marine vehicle on which it is installed may be maneuvered to turn with a minimum loss of speed and with little or no tendency for the bow thereof to nose into the water, as occurs when previously available power units are used for propelling a high speed boat.

3,658,027

SINGLE CYLINDER HYDRAULIC STABILIZER FOR STEERING

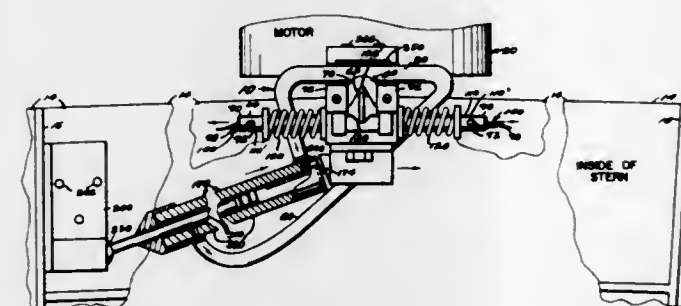
Hiram A. Sturges, 5803 Nicholas Street, Omaha, Nebr.

Filed Apr. 2, 1970, Ser. No. 25,111

Int. Cl. B63h 21/26

U.S. Cl. 115-18

2 Claims



A hydraulic stabilizer serving to lock a steering element in its position at any time valve-actuating rods of the device are not being caused to move as a result of steering forces ap-

A thrust producing device including a hollow tube carrying a shaft and a propeller, the tube having water scoops for the entrance of water into the tube and a gear driven propeller shaft is included in the tube so that the motor will rotate the propeller.

3,658,029

DEVICE FOR PERIODICALLY DELIVERING FLUID ONTO AN OBJECT

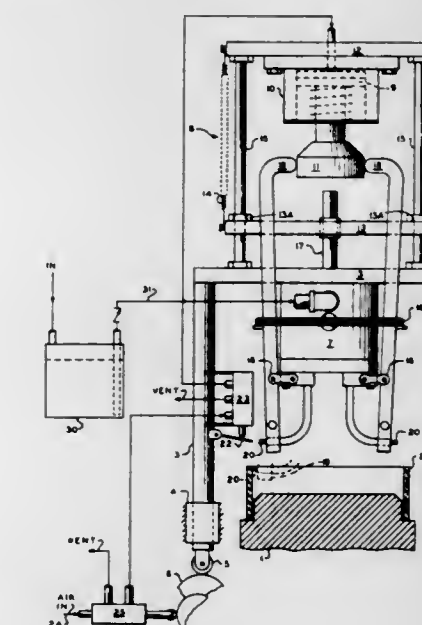
Guy L. Kelly, Kansas City, Kans., assignor to Phillips Petroleum Company

Filed June 8, 1970, Ser. No. 44,514

Int. Cl. B05c 5/02, 11/10

U.S. Cl. 118-7

7 Claims



A device suitable for delivering periodically a fluid to an object for example, glue to a paperboard ring, as in the production of containers made of, say, a paper ring and a disc portion to be encompassed within the ring, is composed of a fluid delivery section for delivering a measured amount of fluid periodically to fluid delivery tubes, a pneumatic pressure operated combination of fingers for periodically carrying said tubes to an object and for activating the fluid delivery section and correlated cam and air valve means for raising and lowering or otherwise moving the mechanism as a whole toward and away from said object, onto which fluid is to be delivered periodically, and for correspondingly operating periodically said fingers and said fluid delivery section.

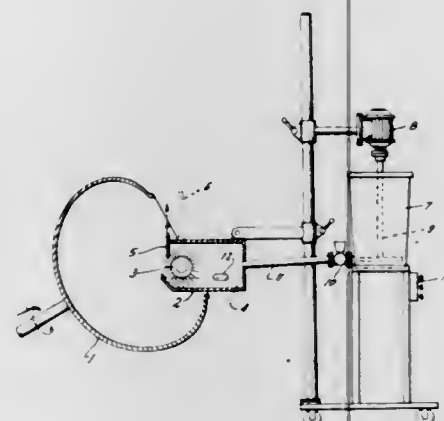
3,658,030

APPARATUS FOR COATING DISCRETE ARTICLES
Gunter Niediek, Salzgitler-Ringelheim, Germany, assignor to Schaper & Brummer K.G., Salzgitler-Ringelheim, Germany
Filed June 17, 1969, Ser. No. 833,999
Claims priority, application Germany, June 25, 1968, P 17 57 847.1

Int. Cl. B05c 5/00, 11/10

U.S. Cl. 118-7

4 Claims



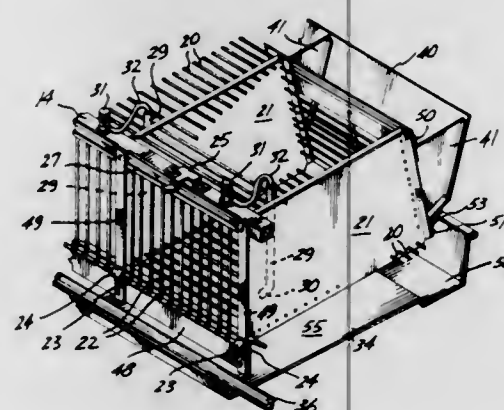
Discrete articles are contained in a vessel. A container accommodates a body of liquid coating and communicates with the interior of the vessel. Applicator means is provided in the container and operative for transferring quantities of liquid coating into the vessel for coating the discrete articles therein whereby the surface area of each such article increases as a result of the application of the coating. Control means associated with the container and the applicator means serves for increasing the quantity of liquid coating transferred into the vessel in response to increases in the surface areas of the articles.

3,658,031

HOUSING SYSTEM FOR ANIMALS
Sherman Michael Coe, Seattle, Wash., assignor to Environmental Sciences Corporation, Edmonds, Wash.
Filed Feb. 13, 1970, Ser. No. 11,115
Int. Cl. A01k 01/00, 07/00

U.S. Cl. 119-18

6 Claims



An animal housing system having a tier configuration is described. Each tier of the animal housing system is made up of a plurality of divider panels through which substantially parallel wires are threaded to form the bottom of the individual cubicles. The wires forming the bottom are free to rotate to aid in removal of debris from the wires. The back and top of each cubicle are panels which may be solid members or may be formed by parallel wires threaded through the divider panels. A hinged front panel is attached to each cubicle to close the front and provide access to each cubicle individually. An automated watering system provides water drop by drop to the cubicle, eliminating back contamination of the water supply and providing a continuous supply of

fresh water accessible to the animals housed in each cubicle. Droppings and debris fall through the bottom wires onto a flush pan, which may be flushed with water on a regular basis. Feed is supplied to the animals through the wires forming the back side of the individual cubicles from a removable feeding trough attached to the back of each tier of cubicles.

3,658,032

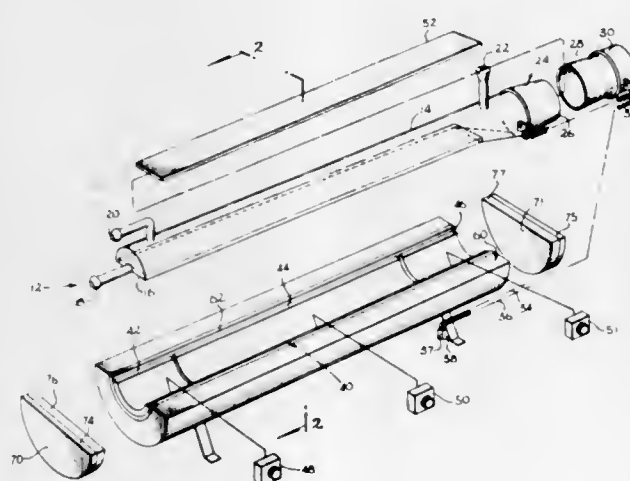
REACTOR FOR THE FORMATION OF MATERIAL ON A SUBSTRATE

Willem A. Kohler, Los Gatos, and Joseph A. Flood, Mountain View, both of Calif., assignors to Fairchild Camera and Instrument Corporation, Syosset, Long Island, N.Y.
Continuation of application Ser. No. 757,874, Sept. 6, 1968, now abandoned. This application Nov. 5, 1970, Ser. No. 87,315

Int. Cl. C23c 13/08

U.S. Cl. 118-48

4 Claims



A reactor for the formation of material on a substrate has a reactor tube with a bottom that is heated by a heating element that does not substantially increase the temperature of the remainder of the tube.

3,658,033

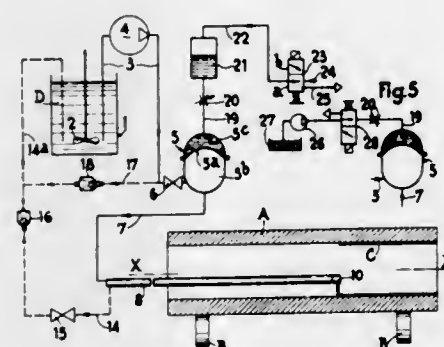
DEVICE FOR COATING FOUNDRY MOUNDS
Claude Fuminier, Pont-A-Mousson, France, assignor to Centre De Recherches De Pont-A-Mousson, Pont-A-Mousson, France

Filed Feb. 17, 1971, Ser. No. 116,127

Claims priority, application France, Feb. 20, 1970, 70 06 117
Int. Cl. B05b 13/06

U.S. Cl. 118-318

9 Claims



Device for applying liquid coating product to a foundry mould. A coating product projecting apparatus is connected to a product supply vessel through one chamber of a diaphragm pressure exchanger. The other chamber of the pressure exchanger on the other side of the diaphragm is

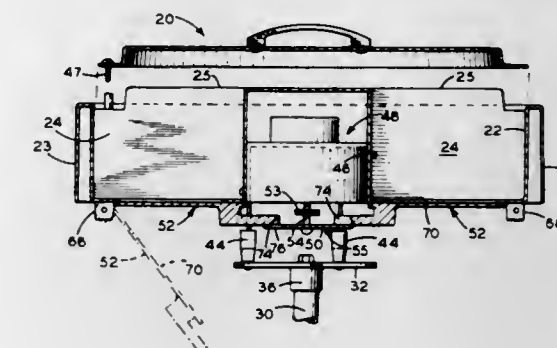
3,658,036

AUTOMATIC TIME-CONTROLLED FEEDING APPARATUS FOR ANIMALS

Michael Caracappa, 529 Ruby St., Brooklyn, N.Y.
Filed Mar. 18, 1970, Ser. No. 20,666
Int. Cl. A01k 5/02

U.S. Cl. 119-51.13

6 Claims



An automatic clock-controlled feeder for releasing food progressively from food compartments to a dish available to an animal to be fed.

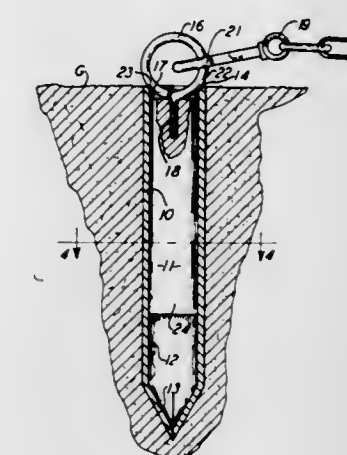
3,658,037

GROUND-STAKE ANIMAL TETHER

Brian C. Hunter, Crivitz, Wis.
Filed Sept. 28, 1970, Ser. No. 75,973
Int. Cl. A01k 3/00

U.S. Cl. 119-121

9 Claims



A sleeve having a cylindrical opening for snugly rotatably receiving a cylindrical shaped rod with a connector affixed to one end of the rod. The sleeve and rod are telescoped together and the connector extends from the rod and radially outwardly to the plane of the wall of the sleeve for abutting the sleeve and being rotatable over the abutted edge of the sleeve. An animal leash is attachable to the connector for restraining an animal connected to the leash. The sleeve is imbedded to at least the ground elevation, and the rod can be dropped into the sleeve or removed from the sleeve and placed into another sleeve at a different location.

3,658,038

TAPPET FOR OVERHEAD CAMSHAFT ENGINE

Paul F. Bergmann, North Muskegon, Mich., assignor to Johnson Products, Inc., Muskegon, Mich.
Filed Jan. 4, 1971, Ser. No. 103,475
Int. Cl. F01L 1/16, 1/24

U.S. Cl. 123-90.27

21 Claims

A hydraulic valve lifter assembly is interposed directly between a spring biased valve stem and cam, the valve lifter assembly comprising a plunger slidably mounted within a valve lifter body forming a pressurized chamber the body and

connected to a control fluid supply pipe in which the pressure of the control fluid can be cut off. A flow regulator is inserted in the control fluid pipe and a return pipe connects the projecting apparatus to the vessel.

3,658,034

GROWING TANK FOR CRUSTACEANS

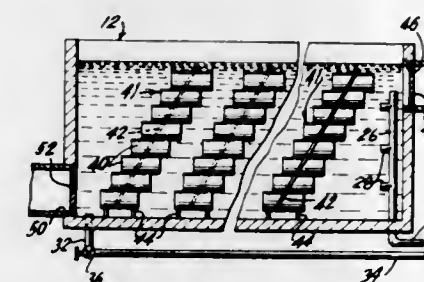
John J. Day, and Paul S. Hirschman, both of Fort Lauderdale, Fla., assignors to Ocean Protein Corporation, New York, N.Y.

Filed Dec. 24, 1969, Ser. No. 887,819

Int. Cl. A01k 61/00

U.S. Cl. 119-2

30 Claims



A tank apparatus and method for providing optimum conditions for the growth and maturation of crustaceans during the post-larval period. A series of interconnecting tanks is provided. Habitats are positioned in each growing tank to promote the growth of the post-larval crustaceans. The water environment in each tank is continuously changed to remove waste materials from the tank, thereby promoting growth of the crustaceans. The temperature of the water environment is also maintained at an optimum level to further such growth. A method for optimizing the growth of crustaceans during the post-larval stage to adult life.

3,658,035

COLLAPSIBLE AQUARIUM

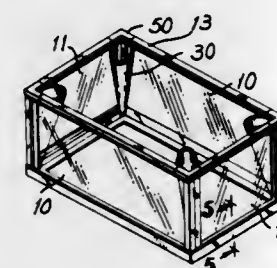
Jack Harris, Forest Hills, N.Y., assignor to Samuel Rosenberg, County of Kings, N.Y., a part interest

Filed Feb. 6, 1970, Ser. No. 9,146

Int. Cl. A01k 64/00

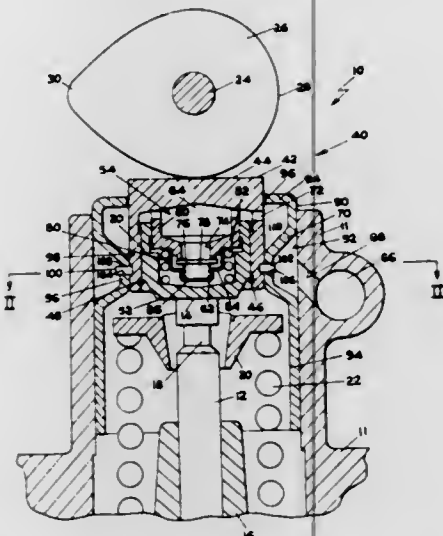
U.S. Cl. 119-5

16 Claims



An aquarium of the type having a base and four sides wherein each of the four sides is hingedly secured to the base, and in water-tight relation with the base, and further wherein each side is in water-tight relation with the two sides adjacent to it.

plunger movable axially within a cylinder head guide. A tubular shaped intermediate member is secured to the valve lifter body by a spring clip, the sides of the member being in



slidable engagement with the guide and fitting over the end portion of the valve stem and associated spring. A constricted portion of the tubular member engages the valve body and is detachably connected thereto by the spring clip.

3,658,039

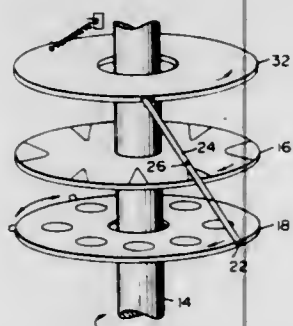
SPARK ADVANCE DEVICE

Joseph Rossel, 253 10th Avenue, New York, N.Y.
Filed Nov. 20, 1970, Ser. No. 91,400

Int. Cl. F02p 5/06

U.S. Cl. 123-117

7 Claims



A disc having a plurality of permanent magnets thereon is rotated in unison with a distributor shaft. A second disc is adjacent a side of the first disc and includes a plurality of electro magnets. The second disc does not rotate with the distributor shaft and means are provided for allowing it to rotate about an axis that is coincidental with the distributor shaft axis. A lever is pivotably attached to a fixed datum and includes two ends. A link extends from the second disc to one end of the lever and is positively connected thereto. A breaker point plate surrounds the distributor shaft but does not rotate therewith. A link is attached to the breaker point plate and is positively connected to the second end of the lever. In normal operation the distributor shaft rotates the first disc and the rotation of this disc results in an induced voltage in the electro magnets of the second disc. As a result thereof a rotational force is applied to the second disc proportional to the speed of rotation of the first disc. The second disc then rotates a distance that is a function of the rate of rotation of the distributor shaft. This causes the lever to rotate about its pivot point rotating the breaker point plate. The breaker point plate is rotated a distance proportional to the amount of rotation of the second disc and hence proportional to the speed of rotation of the distributor shaft. Since the position of the breaker point plate controls the timing it can be seen that a simple mechanical device is provided for controlling the timing in an internal combustion engine proportional to the speed of rotation of the distributor shaft.

3,658,040 DEVICE FOR REGULATING THE FUEL FLOW OF INTERNAL COMBUSTION ENGINES

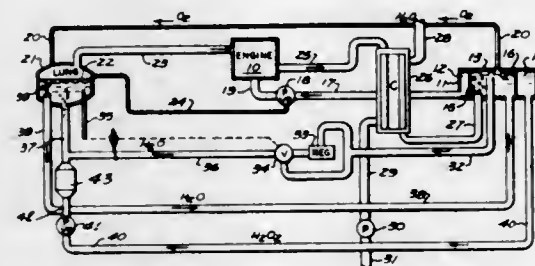
Andre Vuaille, Lyon, and Jean Pigeroulet, Villeurbanne, both of France, assignors to Societe Industrielle Generale De Mecanique Appliquee S.I.G.M.A., Paris, France

Filed Sept. 22, 1969, Ser. No. 859,669

Claims priority, application France, Sept. 20, 1968, 167083;
Mar. 25, 1969, 6908796

U.S. Cl. 123-140 J

13 Claims



The regulation device comprises a centrifugal regulator driven in rotation by the engine and provided with the a plate which can move along the axis of the regulator under the centrifugal effect of rotating balls. Return springs are provided for acting on the plate in the opposite sense to the action of the balls. The plate drives, in its axial movement, a rack for regulating the flow of the fuel pump, which rack is substantially parallel to the axis of the regulator. A lever articulated between the rack and the axis of the regulator is provided for co-operating with the rack and the plate, and for rotation, at least in one range of engine speeds, about its articulation, such that to an increase of engine speed corresponds an increase of the flow, whereas for all other speeds at which the regulation device intervenes an increase of the speed produces a decrease of the flow. One of the springs of the regulator acts more particularly against the plate in that range of speeds. In order that this spring has a well determined initial tension which does not depend on the tensions of the other springs, and in order that there is no reaction of this spring on the others, it is disposed such that one of its ends bears against a socket and its other end bears against a stop member which can slide on the socket and which is pushed by the spring against an abutment rigidly secured to the socket.

3,658,041

FUEL HEATING MEANS

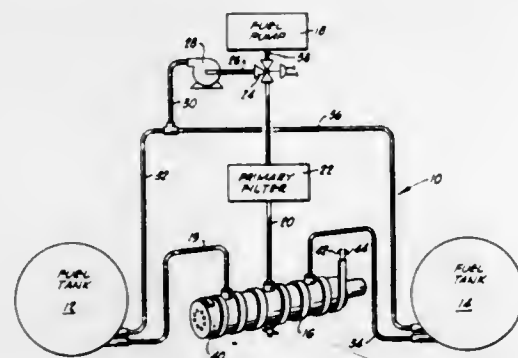
Wiley W. Lowrey, 1212 Classen Drive, Oklahoma City, Okla.

Filed Aug. 6, 1970, Ser. No. 61,751

Int. Cl. F02m 31/12, 31/14; F28f 27/02

U.S. Cl. 123-122 E

5 Claims



A fuel heating means for use in liquid fuel systems is provided which will maintain the fuel fluid in a low temperature environment when the vehicle is not in use. The heating means comprises a recycle means which is in fluid communication with the fuel in the fuel tank of the vehicle, and a heating means which cooperates with said recycle means so that fuel withdrawn from the fuel tank is returned thereto in a heated state.

3,658,042

GASOLINE EVAPORATIVE EMISSION CONTROL

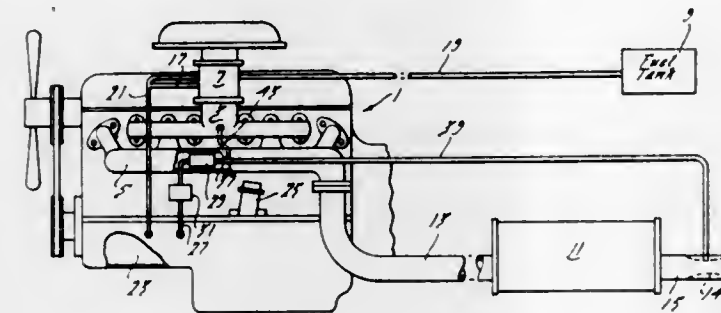
Robert N. Balluff, Rives Junction, Mich., assignor to Tenneco Inc., Houston, Tex.

Filed Feb. 10, 1969, Ser. No. 797,942

Int. Cl. F02b 75/10

U.S. Cl. 123-136

8 Claims



A catalytic converter is used in a hot portion of an internal combustion engine exhaust system to receive and burn unburned fuel vapors from the fuel tank or carburetor.

3,658,043

CLOSED CYCLE POWER SYSTEM

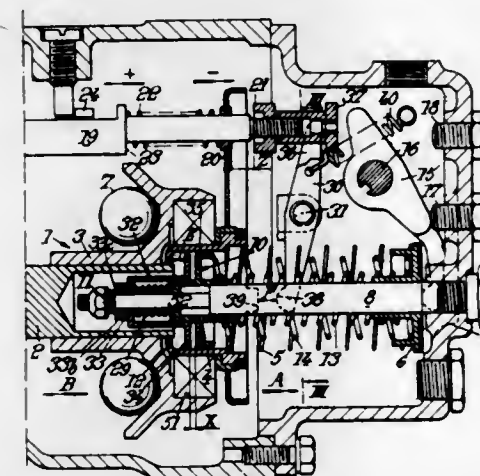
Lawrence C. Hoffman, Azusa, Calif., assignor to Aerojet-General Corporation, El Monte, Calif.

Filed Aug. 20, 1969, Ser. No. 851,586

Int. Cl. F02b 75/12; F02m 75/06

U.S. Cl. 123-119 A

13 Claims



Apparatus for supplying breathing fluid to an internal combustion engine or the like. A lung humidifies oxygen from a source of oxygen such as H₂O₂ and a catalyst pack or gaseous or liquid oxygen to a mixture of oxygen to the engine. Means, such as a container of caustic solution and water vapor is provided so that the exhaust products from the engine, which includes gaseous oxygen, water vapor and carbon dioxide, are separated. The CO₂ is absorbed in the caustic solution and the O₂ is recirculated to the lung after it is combined with additional O₂.

3,658,044

CAPACITOR DISCHARGE IGNITION SYSTEM

Alden L. Safstrom, 1120 North Melrose Ave., Glendale, Calif.

Filed Dec. 8, 1970, Ser. No. 96,004

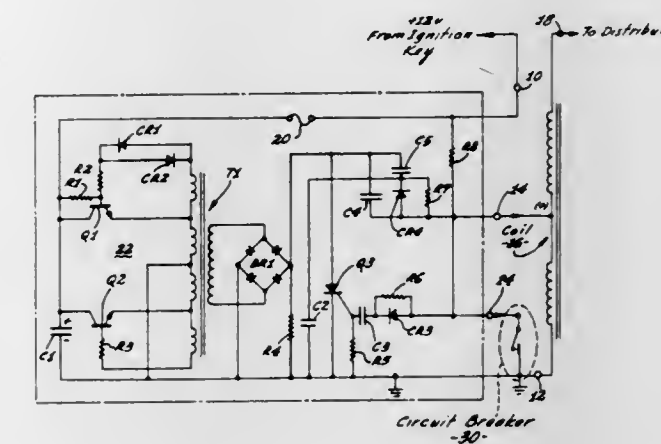
Int. Cl. F02p 3/06

U.S. Cl. 123-148 E

9 Claims

An improved ignition system is provided for an internal combustion engine which is of the capacitive discharge type, and which serves to maintain the engine in tune for long operational periods; and which also serves to improve combustion within the engine so as to prevent the emission of

smog-forming, unburned fuel components at all operational speeds of the vehicle in which the engine is installed. The ignition system of the present invention includes a resistance-capacitance discharge circuit which exhibits a relatively high



effective spark energy at low cranking speeds of the engine for cold weather starting, yet which exhibits a lower spark energy at higher engine speeds to prevent undue burning of the sparkplugs.

3,658,045

SPRING STARTER FOR OUTBOARD MOTOR

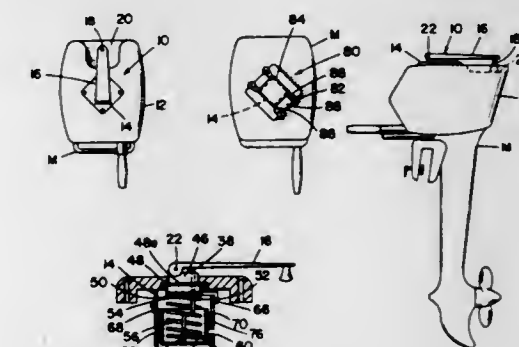
William H. Smolinski, 530 S. Kenwood Ave., Baltimore, Md.

Filed May 20, 1970, Ser. No. 39,083

Int. Cl. F02n 1/02, 1/00

U.S. Cl. 123-179 S

3 Claims



A ratchet-type stored-energy spring starting system for outboard motors, including in various embodiments adjustable-height adapter posts and gear, provisions for preventing the crankhandle from fouling lines or inadvertently being rotated, and provision for extra-long cranking handles as needed for starting very large outboard motors.

3,658,046

MIXTURE COMPRESSING INTERNAL COMBUSTION ENGINE WITH SWIRL INFLOW AND EXTERNAL IGNITION

Hermann Winkler, Oberesslingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed Oct. 20, 1969, Ser. No. 867,792

Claims priority, application Germany, Oct. 24, 1968, P 18 04 826.5

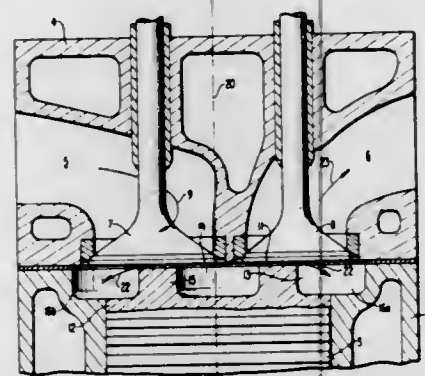
Int. Cl. F02b 9/10, 19/08

U.S. Cl. 123-32 ST

20 Claims

A mixture-compressing internal combustion engine which operates with a mixture swirl and externally applied ignition of the mixture, particularly such an internal combustion engine as is controlled by valves, in which the working piston is

offset along the outer circumference of its crown and within the area of its top land to form an annular combustion space



while the ignition source is arranged in the cylinder head at a radially outer location of the annular combustion space.

3,658,047

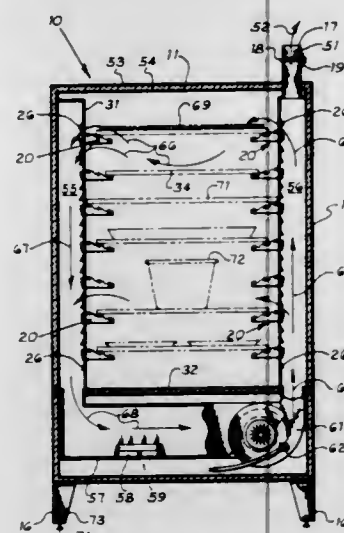
FOOD WARMING OVEN WITH REMOVABLE TRAY RACKS

Hermann E. Happel, Indianapolis, Ind., assignor to Norr's Food Service, Inc., Indianapolis, Ind.

Filed Nov. 5, 1970, Ser. No. 87,191

Int. Cl. F24c 15/16, 15/32

U.S. Cl. 126—21 A



A food warming oven having removable tray racks for receiving different sized and configured trays. A gas-fired, forced-air oven has a pair of inner parallel walls spaced apart from the outer oven walls thereby forming vertical air passages. The inner walls are louvered to allow the air flowing through the passages to pass through the inner walls and across trays positioned atop the tray racks removably mounted to the mutually facing sides of the inner walls. Each tray rack has a pair of flanges with ends inserted through slots in the inner wall. Three parallel rods are fixedly secured to the flanges and are arranged in stepped configuration. A vent is provided with a controllable butterfly valve to allow a portion of the warm air to escape from the oven.

3,658,048

FOOD-TREATMENT APPARATUS WITH TELESCOPING SEAL FOR AIR-CIRCULATING BLOWER

Werner Eckhardt, Im Gasschen, Germany, assignor to Burger Eisenwerke Aktiengesellschaft, Herborn, Dilkreis, Germany

Filed Nov. 27, 1970, Ser. No. 93,272

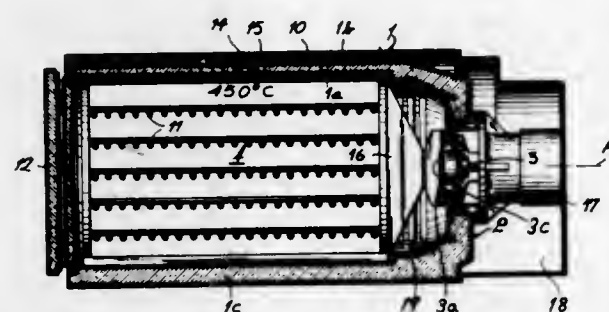
Claims priority, application Germany, Apr. 11, 1970, G 70 13 392.5

Int. Cl. F24c 15/32

U.S. Cl. 126—21 A

A food-treatment apparatus, e.g. an oven, has a muffle defining a closed chamber in which food is heated and a fan

in this chamber for circulating air therein during food treatment and pyrolytic self-cleaning thereafter. This fan is powered by a motor outside the muffle and extends through an opening in the muffle wall. A pair of nested telescoping



angle-profile or flanged rings, one attached to the inside face of that wall and the other to its outside face carrying the motor are separated by an insulating ring, e.g. of asbestos, and surround the fan in the opening to form a thermally yielding seal and motor support.

3,658,049

APPARATUS FOR ACCELERATING THE HEATING OF A COOKING VESSEL

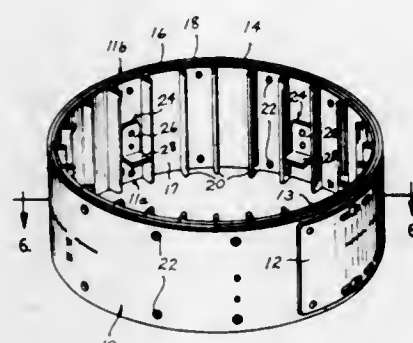
Curtis E. Gerber, 1115 Twiggs St., Tampa, Fla.

Filed Mar. 18, 1970, Ser. No. 20,656

Int. Cl. F24c 15/10

U.S. Cl. 126—215

11 Claims



Apparatus for accelerating the heating of a cooking vessel positioned over a heat source including a sleeve adapted to surround the side wall of the cooking vessel. The sleeve includes an inner face which is spaced from the vessel side wall and is interrupted by a plurality of inwardly directed projections. The projections are spaced about the circumference of the sleeve inner face and are adapted to terminate adjacent the vessel side wall and to define in conjunction therewith a plurality of passages through which heat from the heat source may pass in intimate contact with the vessel side wall.

3,658,050

ELECTRIC OVEN TOASTER DOOR OPERATING MECHANISM

Paul V. Snyder, Whitehall, Pa., assignor to General Electric Company

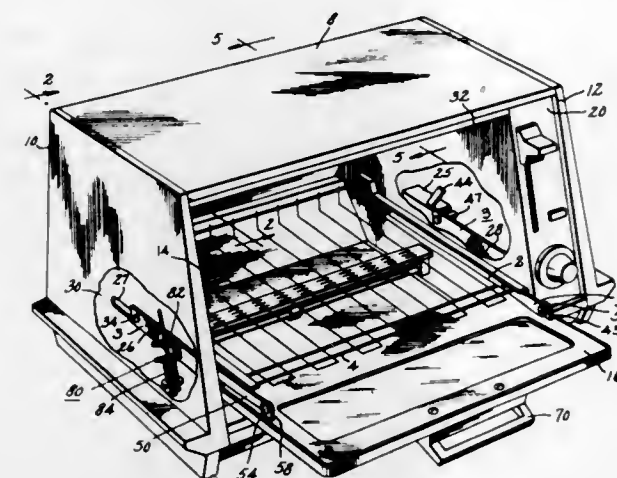
Filed Nov. 19, 1970, Ser. No. 90,903

Int. Cl. F24c 15/16

U.S. Cl. 126—340

An electric oven toaster construction wherein a spring loaded door stop mechanism is provided for permitting a

toaster oven door to be automatically partially opened at the end of a cooking cycle, and wherein the door stop



mechanism also permits full manual opening of the door against the force of a spring.

3,658,051

METHOD OF TREATING LIVING THINGS USING HIGH INTENSITY PULSED MAGNETIC FIELD

Kenneth Sheldon MacLean, 135 East 65th Street, New York, N.Y.

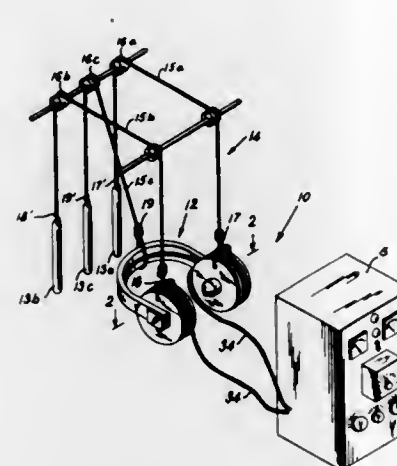
Continuation-in-part of application Ser. No. 547,125, Mar. 21, 1966, now abandoned, which is a continuation-in-part of application Ser. No. 301,108, Aug. 9, 1963, now abandoned, which is a continuation-in-part of application Ser. No. 794,492, Feb. 20, 1959, now abandoned. This application

Nov. 13, 1967, Ser. No. 682,110

Int. Cl. A61b 17/52

U.S. Cl. 128—1.5

4 Claims



A method of treatment including positioning the part of the patient or animal to be treated between the poles of an electromagnet. The part is then subjected to a pulsating magnetic field induced in the electromagnet by an intermittent direct current, the peak intensity of each pulse being at least 2,000 gauss. Preferably each pulse has a duration of at least 1/4 second, and about one pulse per 1/2 second is administered.

3,658,052

BREATHING ACTIVITY MONITORING AND ALARM DEVICE

Albert R. Alter, Cheltenham, Pa., assignor to American Electronic Laboratories, Inc., Colmar, Pa.

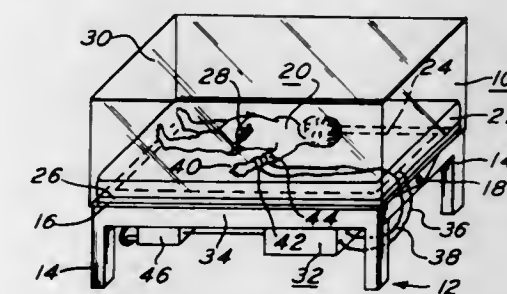
Filed June 16, 1970, Ser. No. 46,610

Int. Cl. A61b 5/05

U.S. Cl. 128—2

An activity detecting means for detecting the movement of an animate object which includes a permanent magnet at-

tached to the object. A pickup coil is provided around the area of movement of the object so that movements of the magnet induce a voltage in the coil. The output of the coil is delivered to circuit means which generates pulses when receiving the signal from the coil. An alarm means is



operated by the pulses to provide an alarm signal which flashes off and on with each pulse received, but remains on when no pulse is received. Thus, the alarm means indicates the movement of the object by the flashing signal and indicates no movement by a continuous signal.

3,658,053

CATHETER FOR USE IN DETECTING DISSOLVED GAS IN FLUIDS SUCH AS BLOOD

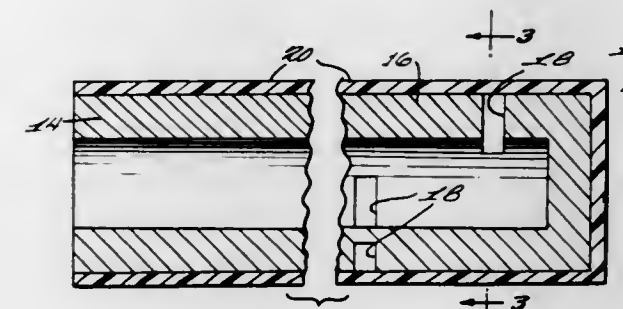
Gordon J. Fergusson, Lutherville, Md., and Austin L. Wahrhaftig, Salt Lake City, Utah, assignors to Scientific Research Instruments Corporation, Baltimore, Md.

Filed Aug. 28, 1969, Ser. No. 853,784

Int. Cl. A61b 05/00

U.S. Cl. 128—2 G

11 Claims



A blood catheter including a cannula covered with a thin layer of silicone rubber or other material permeable to one or more of the gases that are or might be found in blood and wherein the cannula preferably includes a helical arrangement of apertures for enabling the diffusion of gas through the membrane and into the center portion of the cannula. The helical pattern of apertures around the periphery of the cannula enables the catheter to contact the interior wall of a blood vessel without restricting blood flow past more than a small fraction of the total number of apertures. Other hole configurations can be used, for example, when a plurality of holes are located at spaced axial locations along the cannula and at spaced intervals around the circumference of the cannula at the various axial locations.

3,658,054

ADJUSTABLE HELMET FACE MASK

Arthur S. Iberall, Radnor, Pa., assignor to General Technical Services, Incorporated, Upper Darby, Pa.

Filed May 11, 1970, Ser. No. 36,281

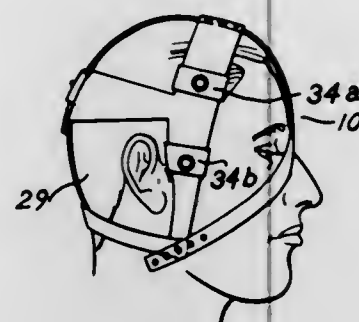
Int. Cl. A61b 5/02, 5/04

U.S. Cl. 128—2.05 R

An adjustable helmet for mounting physiological sensors employed to take physiological measurements of patient. The

1 Claim

adjustable helmet consists of a front portion of flexible plastic material having three flexible arms adapted to fit over the cheekbones and forehead of the wearer. The ends of each of the flexible arms are provided with a number of slots for adjusting the front portion to a particular person's head.



The rear portion of the adjustable helmet, also of flexible plastic, fits snugly over the back of the wearer's head and contains fasteners which snap into any of the slots in the flexible arms. Both the front and rear portions contain grommets for mounting physiological sensors in positions where the physiological measurement is to be made.

3,658,055

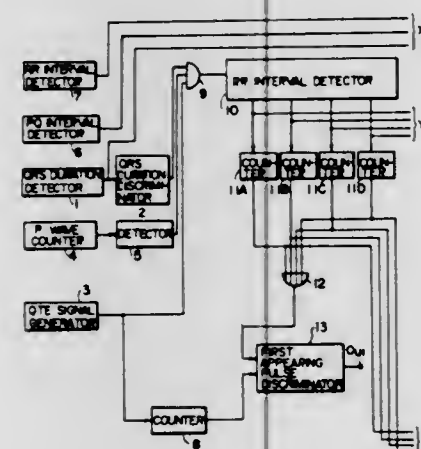
AUTOMATIC ARRHYTHMIA DIAGNOSING SYSTEM
Zenmon Abe; Takaji Suzuki; Masayuki Tsuneoka, all of Kokubunji-shi; Eiichi Kimura, Tokyo; Teizo Akazome, Tokyo; Kanji Obayashi, Tokyo, and Gengo Kasai, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 11, 1969, Ser. No. 815,291

Claims priority, application Japan, May 20, 1968, 43/33600

Int. Cl. A61b 5/04

U.S. Cl. 128—2.06 A

13 Claims



An automatic arrhythmia diagnosing system for diagnosing heart disease employs a plurality of detector elements for detecting both the components and the time interval between components of the portions of an electrocardiograph wave. The values of cardiac potentials which are detected during one cardiac cycle are compared with those of a later cardiac cycle when the frequency of the presence of the arrhythmia is high. The number of cardiac potentials of a cardiac cycle is averaged over a predetermined number during an earlier cardiac cycle when the frequency of the presence of arrhythmia is low. Digital logic circuitry is employed to be responsive to code signals representative of various portions of the electrocardiograph signal to produce signals indicative of different forms of heart disease.

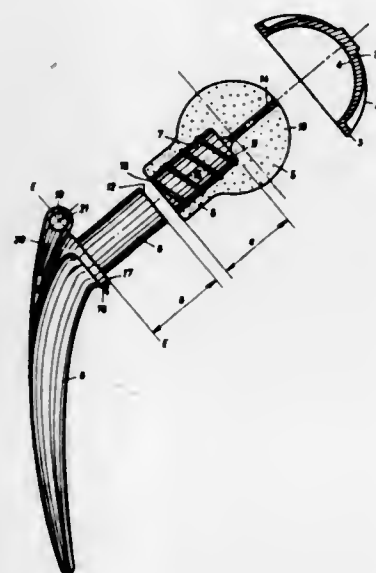
3,658,056
HIP JOINT PROSTHESIS
Arnold H. Huggler, Masanserstr. 168, 700 Chur, and Bernhard G. Weber, Gellertstr. 4, 9000 St. Gallen, both of Switzerland
Filed Apr. 21, 1969, Ser. No. 817,654

Claims priority, application Switzerland, Apr. 25, 1968, 6197/68

Int. Cl. A61f 1/24, 1/00

U.S. Cl. 128—92 CA

4 Claims



The shaft which is of metal is fitted with a spherical joint head of synthetic material while the socket is also of metal. The synthetic joint head is spaced slightly from a collar of the shaft to permit compressing of the joint head by the collar upon the occurrence of shock loadings. The joint head is lubricated through a channel at the upper end and through an internal spiral groove.

3,658,057

DIAPHRAGM

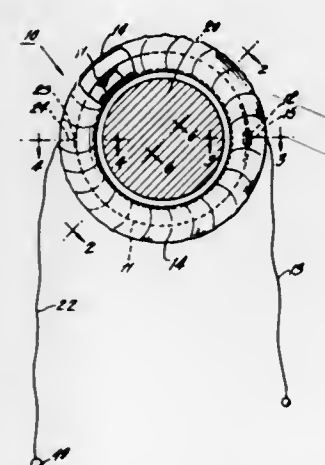
Hugo S. Cimber, 22 Seven Gables Road, Staten Island, N.Y.

Filed Nov. 4, 1969, Ser. No. 873,848

Int. Cl. A61f 5/46

U.S. Cl. 128—129

5 Claims



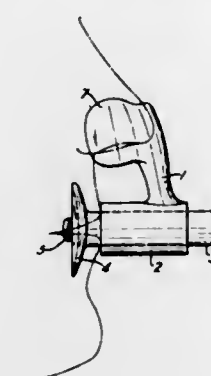
A self-inflating diaphragm having an inner tube containing air or gas under pressure and an outer flexible tube; a plug removable by a string from the inner tube permits the air or gas from the inner tube to expand the outer tube to occlude the passage; an occluding membrane may be used across the inner tube to facilitate retention of fluids and for contraception. With or without the membrane the device may constitute a supporting structure.

3,658,058
BREATHING APPARATUS NOSE-CLOSING DEVICE
John W. Neidhart, Monroeville, and Rutherford B. Snyder, Jr., Bradford Woods, both of Pa., assignors to Mine Safety Appliances Company
Filed Apr. 6, 1970, Ser. No. 25,645

Int. Cl. A62b 7/00

U.S. Cl. 128—147

1 Claim



A breathing tube, which is provided at one end with a bite piece for holding it in the mouth, is snugly surrounded by a supporting member close to the bite piece. This member extends upwardly and has nose-engaging means integral with its upper portion for closing the nostrils.

3,658,059

INHALER

Emeram Stell, Starnberg, Germany, assignor to Paul Ritzau

Parl-Werke KG, Starnberg am See, Germany

Filed Dec. 8, 1969, Ser. No. 883,058

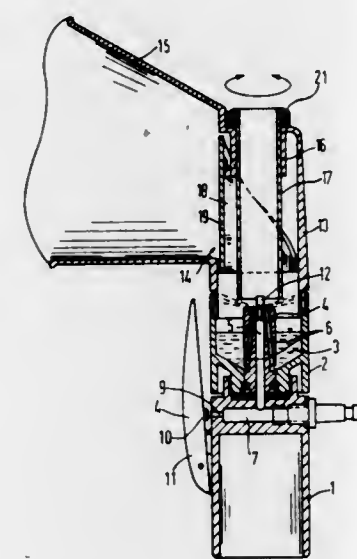
Claims priority, application Germany, Dec. 11, 1968, P 18 13

993.0

Int. Cl. A61m 11/02

U.S. Cl. 128—173 R

4 Claims



An inhaler is provided with a baffle for changing the effective size of the passage for passing the suspension to be inhaled in such a manner that the centre of the effective aperture left by the baffle moves towards the jet of the inhaler when the aperture is increased in size and moves away from it when the aperture is reduced in size.

3,658,060

AUDIBLE BLOOD PRESSURE MONITOR

Anders A. Eklof, Baltimore, Md., assignor to The Bendix Corporation

Filed Aug. 19, 1969, Ser. No. 855,072

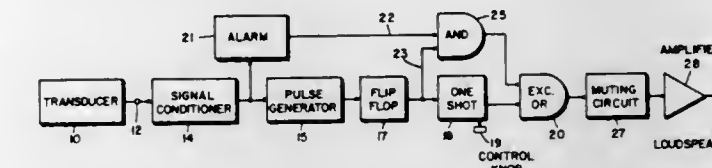
Int. Cl. A61b 5/02

U.S. Cl. 128—2.05 A

6 Claims

A first train of pulses whose pulse repetition frequency and pulsewidth are proportional to blood pressure is generated. A second pulse train of constant width pulses synchronized with the first train of pulses is also generated. The pulsewidth of

the pulses in each train are adjusted to be equal at some normal value of blood pressure. The two pulse trains are then subtracted, one from the other, and the resultant signal is used to drive a loudspeaker to produce an audio signal. The pitch of the audio signal is proportional to blood pressure



deviation from the normal and any rhythmic variation in pitch is proportional to heart beat rate.

An alarm circuit includes a capacitor which is charged by variations in blood pressure characteristic of heart beats. In heart beat ceases the capacitor is discharged and one of the pulse trains is blocked from the subtraction circuit so that the resultant audio signal is a loud monotone signal which decays as blood pressure drops.

3,658,061

NEEDLE GUARD

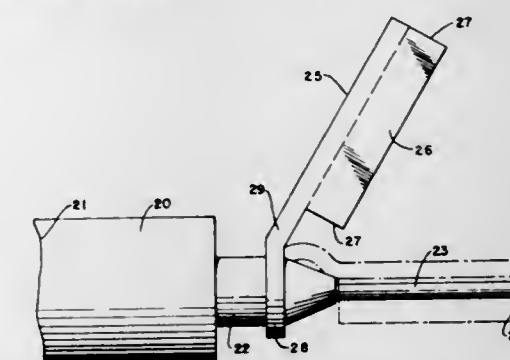
John P. Hall, Chicago, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Continuation-in-part of application Ser. No. 768,017, Oct. 16, 1968, now abandoned. This application Nov. 10, 1970, Ser. No. 88,438

Int. Cl. A61m 05/00

U.S. Cl. 128—214.4

4 Claims



A catheter needle guard unit having a hub with a cannula needle affixed therein to form a passageway through the hub and cannula, said needle being pointed at the distal end, and a needle guard means having a sleeve member with a longitudinal slot adapted to snap over the entire length of the needle in snug relationship therewith to form a protective closure over the point of the needle when in the closed position and swingably fastened to the hub through an intermediate flexible connecting section.

3,658,062

ABSORBENT PRODUCTS HAVING A BIODEGRADABLE MOISTURE BARRIER

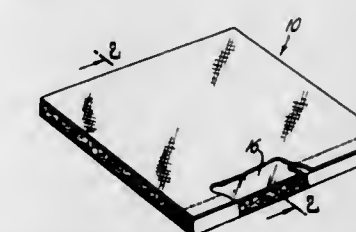
Chandra Kapur, East Brunswick, N.J., assignor to Personal Products Company, Milltown, N.J.

Filed Mar. 9, 1970, Ser. No. 17,401

Int. Cl. A61f 13/16

U.S. Cl. 128—287

13 Claims



Flushable absorbent products are provided with a fluid impervious barrier sheet of biodegradable collagenous film for the prevention of "strike-through" of body exudates absorbed thereby.

3,658,063

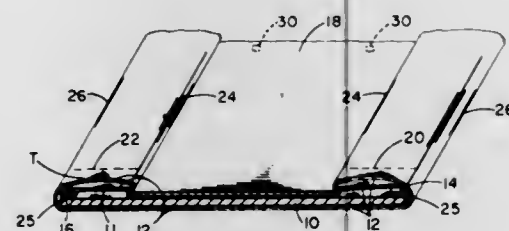
DISPOSABLE DIAPER

Charles H. Schaar, Lake Zurich, Ill., assignor to The Kendall Company, Boston, Mass.

Filed May 27, 1970, Ser. No. 40,904

Int. Cl. A61f 13/16

U.S. Cl. 128-287



A contoured disposable diaper comprising an absorbent pad having front and back waistline portions with a crotch portion therebetween and having a water pervious front surface and a water impervious back surface, and pair of restraining means each having a first portion adhered to the water pervious surface of the pad in the crotch portion at a location spaced inward of a lateral pad edge and a second portion arranged to restrain the respective lateral edge from fully opening to its unrestrained configuration, whereby a taper of the diaper is achieved in the crotch portion.

7 Claims U.S. Cl. 128-296

3,658,065

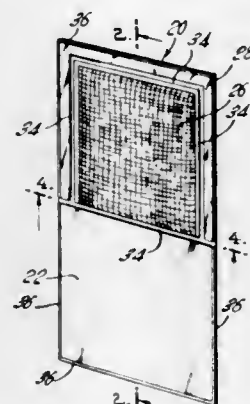
BANDAGE HAVING AN INTEGRAL RESERVOIR

Winfred S. Hirsch, Plainview, N.Y., assignor to Edward Weck & Company, Inc., Long Island City, N.Y.

Filed July 14, 1969, Ser. No. 841,225

Int. Cl. A61f 13/00

4 Claims



An absorbent bandage with an integral reservoir for the storage of fluids.

3,658,066

CRYOSURGICAL APPLIANCE

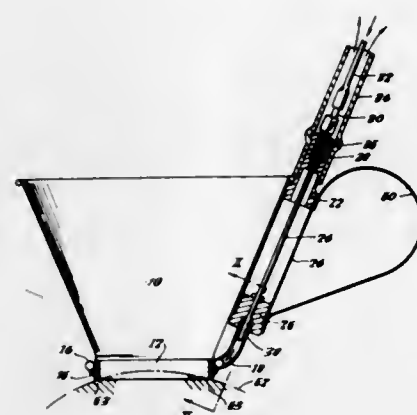
Farrokh Saldi, Shiraz, Iran, and Alan John Walker, Gillingham, England, assignors to Farrokh Saldi, Shiraz, Iran

Filed Mar. 9, 1970, Ser. No. 17,537

Int. Cl. A61b 17/36

U.S. Cl. 128-303.1

16 Claims



A cryosurgical appliance, particularly for use in the treatment of cysts or like fluid-containing formations. The appliance has a hollow body to contain fluid escaping from the formation, an opening in the body and a refrigeratory rim around the opening. The rim can be cooled and attached by gelation to the tissue to form a continuous seal around the point of penetration. On penetration of the tissue, any fluid escaping from the formation is contained within the hollow body of the appliance.

3,658,067

ELECTRO-SURGICAL APPARATUS

William T. Bross, Cincinnati, Ohio, assignor to Liebel-Flarsheim Company, division of Sybren Corporation, Rochester, N.Y.

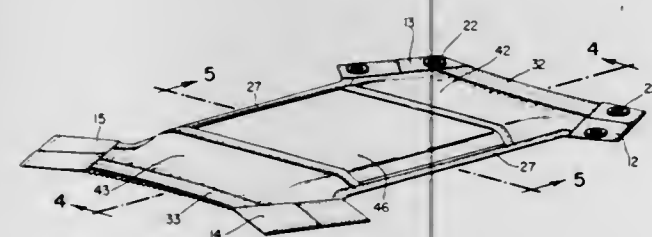
Filed May 19, 1969, Ser. No. 825,673

Int. Cl. A61b 17/36

U.S. Cl. 128-303.14

7 Claims

An electro-surgical apparatus including a transistorized source of high frequency pulses, a transistorized class B amplifier responsive to the output of the high frequency pulse source, and a conductive surgical instrument which is induc-



A baby diaper retaining garment and disposable flushable pads for use therewith, the pad having exposed at least the central portion of one face of the layer of absorbent material to render it readily flushable upon exposure to a liquid, and the garment having spaced pockets for retaining ends of such a pad therein and elasticized edge portions forming a water-proof pouch or channel for holding the pad adjacent the perineal region of a wearer.

17 Claims

3,658,064

DISPOSABLE DIAPERS AND SUPPORTING GARMENT THEREFOR

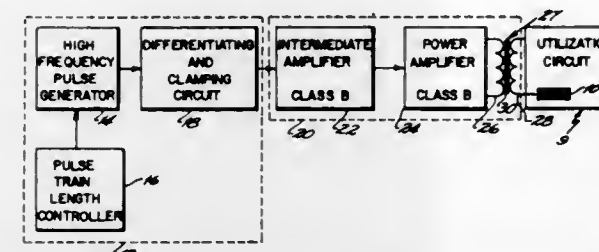
Alexander Poculuyko, Glen Mills, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Continuation of application Ser. No. 548,513, May 9, 1966, now abandoned. This application Jan. 21, 1971, Ser. No. 108,560

Int. Cl. A61f 13/16

U.S. Cl. 128-287

tively coupled to the output of the class B amplifier by a transformer with tightly coupled primary and secondary with diphenyl-p-phenylenediamine (DPPD) which may be mixed with flutathione, active charcoal or mixed with or im-



windings wound on a cup core having a permeability of approximately 2,000.

3,658,068

METHOD OF TREATING HYPERBILIRUBINEMIA

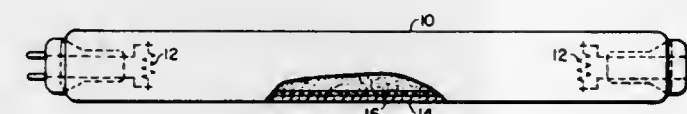
John W. McNall, West Orange, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 17, 1969, Ser. No. 885,812

Int. Cl. A61n 5/00

U.S. Cl. 128-395

4 Claims



An improved method of treating infantile hyperbilirubinemia by irradiating the subject with the radiation produced by a lamp combination comprising a mercury vapor discharge device having a phosphor coating of alkaline-earth metal halophosphate activated by divalent europium.

3,658,069

FILTER FOR REDUCING THE LEVEL OF CARBON MONOXIDE IN TOBACCO SMOKE

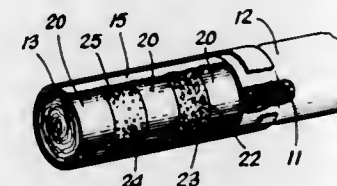
Henry Wise, Redwood City, and Larry L. Holbrook, San Jose, both of Calif., assignors to Stanford Research Institute, Menlo Park, Calif.

Filed Feb. 17, 1970, Ser. No. 12,028

Int. Cl. A24b 15/02; A24d 01/06

U.S. Cl. 131-10.7

7 Claims



A large proportion of the carbon monoxide present in tobacco smoke can be removed by use of a composite filter having an activated charcoal component and a molecular sieve component which is positioned downstream from the charcoal.

3,658,070

TOBACCO SMOKE FILTERS

Nicholas R. Diluzio, 732 Fairfield Avenue, Gretna, La.

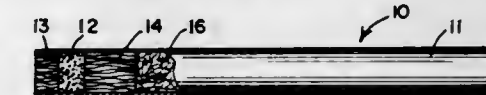
Filed Oct. 1, 1970, Ser. No. 77,247

Int. Cl. A24b 15/02; A24d 01/06

U.S. Cl. 131-267

6 Claims

A tobacco smoke filter filled with a smoke permeable composition capable of reducing the toxic effect of tobacco smoke on alveolar (lung) macrophages, comprising N,N'-



pregnated into known filter material such as cellulose acetate.

3,658,071

HAIR ROLLER WITH RANGE TEMPERATURE INDICATOR

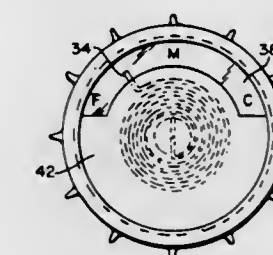
Robert A. Wise, Edison, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed July 28, 1970, Ser. No. 58,786

Int. Cl. A45d 2/12

U.S. Cl. 132-33

7 Claims



The invention provides a hair curler wherein a bimetallic element is utilized as a temperature indicating means in conjunction with a dial arrangement so as to provide a range of temperatures for user selection based on her personal hair and/or skin characteristics.

3,658,072

APPARATUS FOR TREATING FOODSTUFF

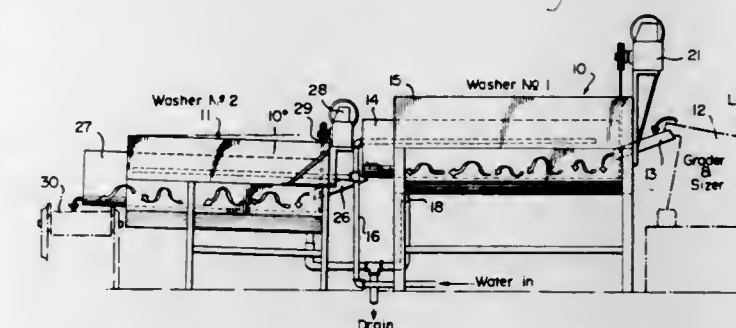
Vincent J. Santucci, Box 490 R.D. #1, West Grove, Pa.

Filed Nov. 28, 1969, Ser. No. 880,558

Int. Cl. B08b 3/02, 11/00

U.S. Cl. 134-65

7 Claims



Foodstuff is fed into one end of a washing zone at a rate faster than the rate the foodstuff passes through the washing zone to form a buildup within the washing zone. Jets of washing liquid are introduced directly onto the foodstuff within the washing zone. The buildup of foodstuff is constantly moved through the washing zone with a swaying and tumbling motion without causing damage to the foodstuff. The apparatus includes at least one rotatable drum which provides a washing zone. The drum has an inner structural configuration to cause the foodstuff to move from one end to the other thereof when the drum is rotated. Feed means are used to introduce the foodstuff into one end of the drum at a rate faster than the foodstuff passes through the drum to form a buildup of foodstuff. Nozzle means located within the drum are used to impinge washing liquid directly onto the foodstuff. Means are provided to rotate the drum causing the foodstuff to have a swaying and tumbling motion without producing damage to the foodstuff. The apparatus of this invention is used in a very specific way to wash and clean fresh mushrooms.

3,658,073

BOTTLE CLEANING MACHINE

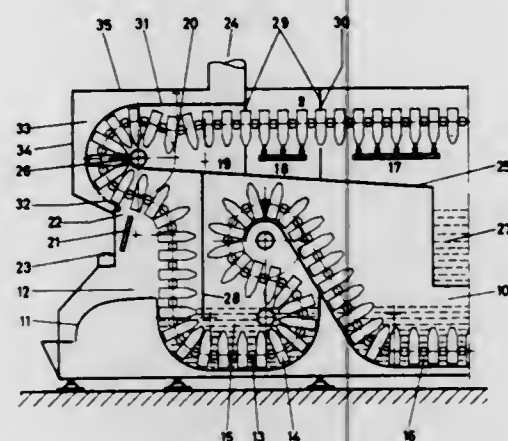
Thomas Friedhelm, Bad Munster-Ebernburg, Germany, assignor to Seltz-Werke G.m.b.H., Bad Kreuznach, Germany
Filed Aug. 24, 1970, Ser. No. 66,541

Claims priority, application Germany, Aug. 25, 1969, P 19 43 168.6

Int. Cl. B08b 3/02, 9/08, 15/00

U.S. Cl. 134—72

5 Claims



A bottle cleaning machine, in which within the machine housing which comprises a plurality of spraying stations, the last spraying station is followed by a drip-off station from which a cover extends to the discharge station for the cleaned bottles, while said cover forms with the adjacent housing wall a passage through which steam clouds collecting in said passage are discharged.

3,658,074

HEADLIGHT WASHER APPARATUS

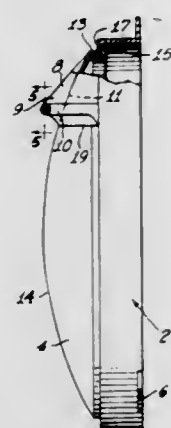
Thomas Charles Wright, Chicago, Ill., assignor to Wright Products, Inc., Chicago Ridge, Ill.

Filed July 16, 1969, Ser. No. 858,225

Int. Cl. B08b 3/00

U.S. Cl. 134—94

11 Claims



A headlight washer apparatus and system for use in conjunction with, in the preferred form, automobiles having windshield washer systems. The apparatus of the invention, in one embodiment, is intended to replace the headlight retaining ring assembly presently used in most automobiles and in another embodiment is adapted to be used in conjunction with the retaining ring assembly. Both types, through a simple expedient, tap into an existing fluid supply system, so that the headlights of the automobile, or for that matter other motor vehicles with which the apparatus and system is used, may be cleaned in order to remove dirt, grime and other accumulated foreign matter, when the system is actuated, from the surface of a headlight to thereby increase the intensity of light emitted.

3,658,075

DISHWASHER HAVING IMPROVED CONDENSATION MEANS

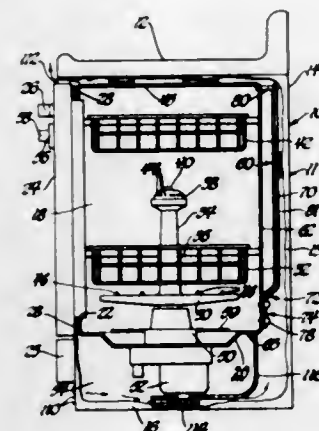
James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1970, Ser. No. 93,692

Int. Cl. B08b 3/02, 15/00

U.S. Cl. 134—107

4 Claims



A dishwasher having an improved water condensation arrangement for use therewith including a dishwasher chamber having fluid circulating means together with means for providing a washing, rinsing and drying function in the compartment. A volatile fluid plate-type heat exchanger including continuous interconnected flow passages therein having a lower evaporator section in heat exchange relation with a wall of the chamber and an upper condenser section located in a cooling air duct between the chamber and the outer casing so as to be in heat exchange with a source of circulating cooling air to effect removal of moisture from the vapor in the dishwashing chamber to facilitate the drying of dishes within the chamber.

3,658,076

COLLAPSIBLE UMBRELLA OF THE AUTOMATIC OPENING TYPE

Hiroyuki Yasuda, Tokyo, Japan, assignor to Ideal Shoji Kabushiki Kaisha, Tokyo, Japan

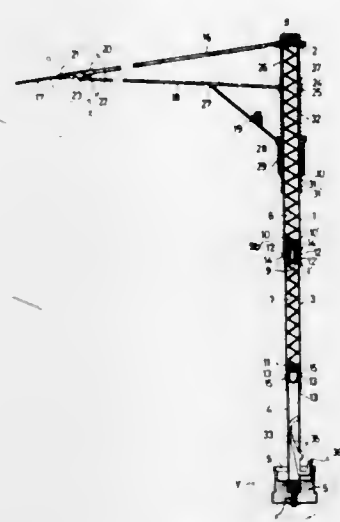
Filed May 28, 1970, Ser. No. 41,353

Claims priority, application Japan, June 30, 1969, 44/51925 July 7, 1969, 44/64186, July 8, 1969, 44/65019, July 19, 1969 44/68834

Int. Cl. A45b 25/14, 25/16

U.S. Cl. 135—22

5 Claims



A collapsible umbrella of the automatic opening type having a stick made up of three sections telescopically slidable into and out of one another by the biasing forces of springs actuated by depressing a button in handle means. The pushing of the button is also effective to cause terminal forward

rib portions to be pivotally brought into a position in which they are substantially aligned with respective main rib portions and cause holding ribs and supporting ribs to move to their open positions, so that the umbrella can be automatically opened in a single operation.

3,658,077

AUTOMATICALLY OPENABLE AND CLOSABLE UMBRELLA

Yoshio Sato, Nagareyama, Japan, assignor to Kabushiki Kaisha Ideal, Tokyo, Japan

Filed July 30, 1970, Ser. No. 59,389

Claims priority, application Japan, Aug. 6, 1969, 44/62113; 44/74615; 44/62114; Jan. 29, 1970, 45/7915

Int. Cl. A45b 25/16

U.S. Cl. 135—22

5 Claims



An easily and smoothly automatically openable and closable umbrella is obtained from the arrangement comprising a tubular shaft having an outer tubular shaft member slidably housing the rein an upper, an intermediate and a lower independent inner tubular shaft member, a first ring fixed to the upper shaft member for carrying ribs, an umbrella-opening compressible first spring means mounted on a core rod and provided between the intermediate and the lower shaft members in said shaft, an umbrella closing compressible spring means provided between said rib and said fixed ring at a spaced relation from the rib, a second ring fixed to the top of the outer shaft member and positioned below said first fixed ring and serving to support rib-supporting extensible rods, a third ring below said second ring to carry rods for supporting said extensible rods, a fourth ring for carrying spokes which support the ribs, an umbrella-opening compressible second spring means mounted on said shaft for urging the upper and intermediate members away, umbrella-opening latch means capable of engaging both the outer shaft member and the fourth ring, and umbrella-closing latch means provided in the lower shaft member.

3,658,078

SHORTENABLE UMBRELLA FRAME

Heinz Seitel, Solingen-Ohligs, Germany, assignor to Telesco Brophey Limited, Montreal, Quebec, Canada

Filed Feb. 11, 1970, Ser. No. 10,427

Claims priority, application Germany, Feb. 18, 1969, P 19 07 964.2

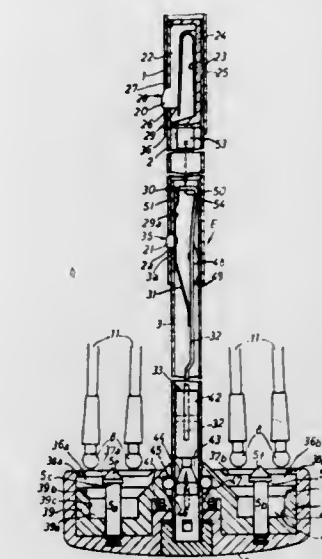
Int. Cl. A45b 19/06, 25/12

U.S. Cl. 135—26

6 Claims

Telescopic collapsible umbrella frame has a locking device mounted on a stick formed of telescoping portions and axially displaceable therealong for locking the free ends of the outermost portions of tripartite telescoping roof-supporting ribs within a space in a handle located at an end of the stick. The locking device, in locking position thereof, is form-

lockable by one of the stick portions to another of the stick portions at least until respective lock members lock the outermost and center rib portions of the roof-supporting ribs in extended condition thereof. The runners and crown are of flattened cross section with the dome ribs and struts hinged



thereto in two diametrically opposed groups. The handle is flat and is aligned with the runners and crown and has two diametrically opposed chambers in which is provided a locking member in each chamber for locking the tips of the respective groups of dome ribs.

3,658,079

FOLDING WALKER

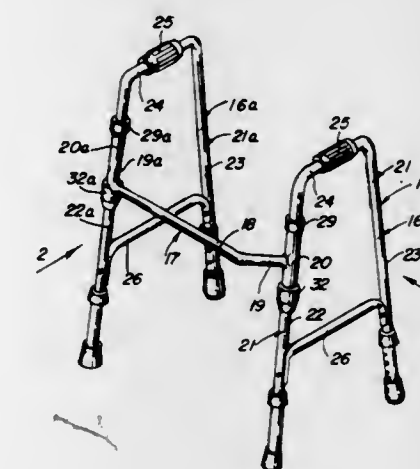
George P. Block, Park Ridge, Ill., assignor to Carstens Health Industries Inc., Norridge, Ill.

Filed Sept. 18, 1970, Ser. No. 73,539

Int. Cl. A61h 3/06

U.S. Cl. 135—45 A

1 Claim



A folding walker embodying a pair of side leg and handle frame units interconnected by brace means and which side leg and handle frame units may be manually moved into collapsed and generally parallel folded position in which they are latched by latching means embodied in one of the leg structures, and unlatched and returned to open walking position by applying manual pressure on the brace means to unlatch the side leg and handle frame units and then manually pivoting the said side leg and handle frame units inwardly toward each other and relative to the brace means and into inwardly folded or collapsed position, so that when both of the side leg and handle frame units are disposed in inwardly folded position they are latched in that position by latching means embodied in one of the leg structures. The folding walker may be readily carried by hand, transported in an au-

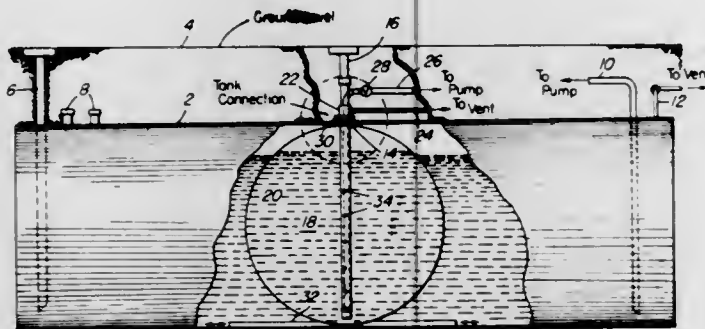
tomobile, or like vehicle, and stored in folded or collapsed condition when not in use, or used as a cane when folded into collapsed position. The new folding walker eliminates all parts, such as knobs, requiring pulling and twisting, and all push buttons, or similar parts, requiring hand manipulations which are difficult to operate and particularly for persons with arthritis in their hands or arms or persons suffering from strokes or similar disabilities.

3,658,080
CONFINEMENT OF DIFFERENT MISCIBLE LIQUIDS IN A SINGLE CONTAINER
John G. Mitchell, Larchmont, N.Y., assignor to Mobil Oil Corporation

Filed May 4, 1970, Ser. No. 34,221
Int. Cl. B65d 25/00

U.S. Cl. 137-1

3 Claims



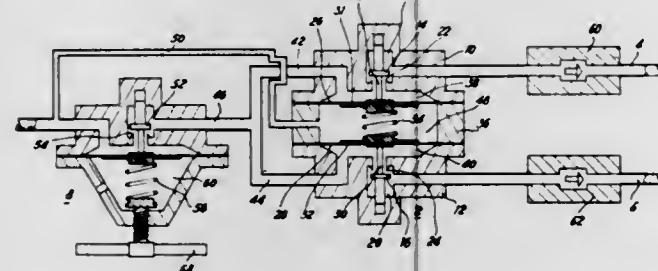
A method and arrangement of apparatus is described for adapting and modifying containers such as surface tanks and underground storage tanks to hold more than a single liquid material such as several different liquid materials which are miscible with one another by inserting into the container one or more assemblies comprising a flexible bag liquid storage container rigidly attached to liquid filling and withdrawal conduits arranged in a housing of limited dimensions and suitable for insertion through and attachment to an existing opening in the container.

3,658,081
AUTOMATIC CHANGE OVER SWITCHING DEVICE
Jacques Henri Renaudie, Boulogne-sur-Seine, France, assignor to L'Air Liquide, Societe Anonyme pour L'Etude et L'Exploitation des Procédés Georges Claude, Paris, France

Filed Apr. 27, 1970, Ser. No. 32,059
Int. Cl. G05d 7/01

U.S. Cl. 137-113

2 Claims



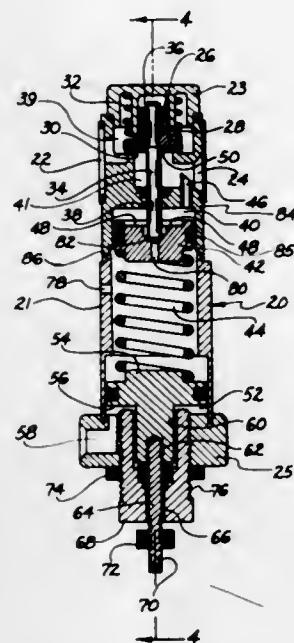
This Automatic change over switching device comprises two pressure regulators the valve head of which is on the inlet side of the valve seat and which regulate the pressure to different values when the device is in operation. The pressure regulator which is fed at the lowest pressure expands the gas at the highest pressure and lets the gas pass until its inlet pressure falls at a too low value. At this moment the other pressure regulator begins working.

3,658,082
DUAL PRESSURE REGULATOR
Domenic A. DiTirro, Silver Lake, Ohio, assignor to International Basic Economy Corporation, New York, N.Y.

Filed Mar. 23, 1970, Ser. No. 21,623
Int. Cl. G05d 11/00

U.S. Cl. 137-116.5

13 Claims



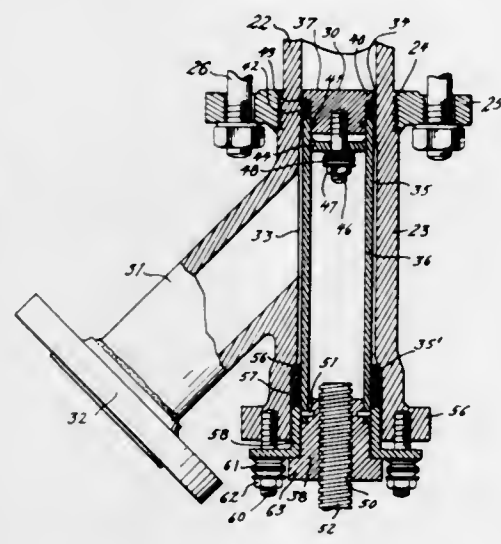
A pressure regulator for fluid systems that includes dual pressure ranges wherein a first pressure responsive controller controls pressure at a first preselected pressure value and wherein a second pressure responsive controller controls pressure at a second preselected pressure value responsive to a feedback signal to switch the pressure ranges.

3,658,083
FLUSH BOTTOM TANK VALVE
John S. Fetterolf, 750 Spruce Street, Royersford, Pa., and James W. Williams, III, 705 Whites Road, Lansdale, Pa.

Filed Jan. 6, 1971, Ser. No. 104,322
Int. Cl. F16k 29/00

U.S. Cl. 137-244

4 Claims



A flush tank valve having a plunger and two converging passages. One passage is vertical and the plunger operates in it and the other passage goes off to the side and handles the discharge. The plunger opens by withdrawal beyond the discharge passage. The plunger has a packing moving with the plunger and spring compressed so that in closed position it engages the wall of the body close to the upper end of the valve, but in opening position it engages the wall of the body

beyond the branching of the Y. There is gland a packing gland sealing the lower end of the plunger and compressed by spring means, acting between the plunger and an enlarged portion of the body and entirely independent in its operating parts from the packing at the upper end of the plunger. A scraper ring is preferably employed ahead of the packing on the plunger to remove material adhering to the inside wall of the body.

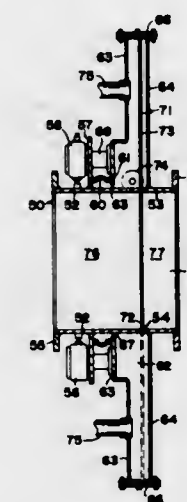
3,658,084
GATE VALVE HAVING RELATIVELY MOVABLE SEAT MEMBERS

Reeve R. Hastings, Chagrin Falls, and Arthur J. Stock, Lakewood, both of Ohio, assignors to Stock Equipment Company, Cleveland, Ohio

Original application Aug. 13, 1968, Ser. No. 752,312, now Patent No. 3,547,140. Divided and this application Feb. 16, 1970, Ser. No. 11,698

U.S. Cl. 137-246.22

4 Claims



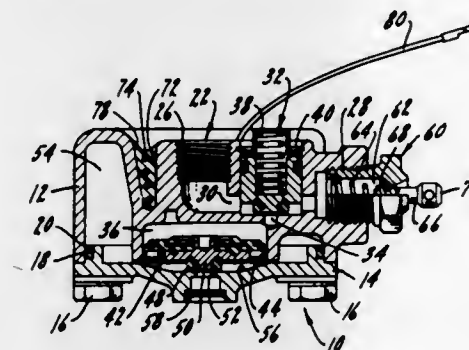
A valve for controlling flow of fluid under pressure having a single gate and a pair of valve seats. Air under pressure is directed against one side of each of the valve seats which are constructed to provide leakage at the valve seats thereby providing flow of air to both the upstream and downstream sides of the valve gate.

3,658,085
AUTOMATIC RESERVOIR DRAIN VALVE
Joseph L. Cannella, 155 North 21st Avenue, Melrose Park, Ill.

Filed Sept. 2, 1969, Ser. No. 854,592
Int. Cl. F16k 49/00

U.S. Cl. 137-341

1 Claim



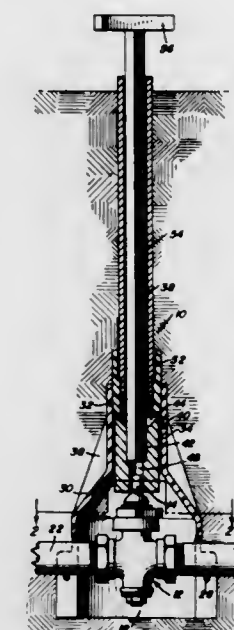
A drain valve for automatically discharging fluid from a reservoir, which operates when variation in the fluid pressure occurs. An internal valve operates to prohibit operation of the valve below a preset reservoir pressure. The drain valve has two inlets permitting variation of attachment to a reservoir. A modification of the valve includes an electric heating element for preventing malfunction due to extreme cold.

3,658,086
VALVE CONTROL SYSTEM
Forrest E. Hart, Box 871, Bridgeport, Wash.

Filed Mar. 13, 1970, Ser. No. 19,427
Int. Cl. F16l 5/00

U.S. Cl. 137-368

2 Claims



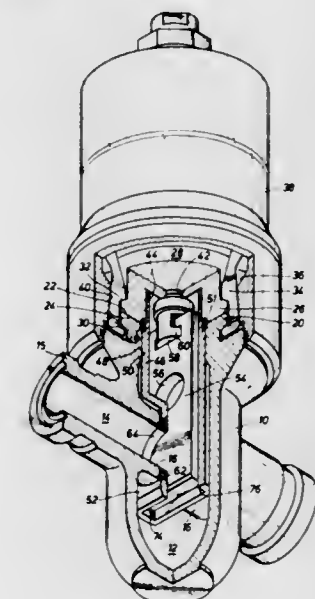
Valve control apparatus including a housing positionable over an underground valve and opening vertically in alignment with the valve control handle. A vertically elongated guide pipe is engaged with the housing through a reducer for the guided introduction of a removable elongated control rod. An adapter is mounted within the housing below the reducer and in engagement with the valve control handle. The adapter includes a polygonal socket which receives the lower end of the control rod, guided therein by an upwardly directed concave mouth on the adapter.

3,658,087
VALVE WITH INTEGRAL CLOSURE AND SEAT CARRIER UNIT
Norman A. Nelson, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Continuation of application Ser. No. 825,352, May 26, 1969, now abandoned. This application Feb. 8, 1971, Ser. No. 113,687

U.S. Cl. 137-454.6

11 Claims



A gate valve structure comprising a valve body defining a valve chamber and having inlet and outlet passageways

disposed in fluid communication with the valve chamber. Internal bosses surrounding the inlet and outlet passages, protrude into the valve chamber and are provided with substantially planar sealing surfaces. A bonnet, forming a closure for the valve body, includes a reciprocating stem means for opening and closing the valve and supports a seat carrier and gate guide member which depends into the valve chamber. A pair of seat members are supported by the carrier for sealing engagement with the sealing surfaces and are disposed in sealing engagement with a gate member which is movably disposed within the carrier and connected at the upper extremity thereof to the valve stem. Upon separation of the bonnet from the valve body, the gate, gate guide and seat members are simultaneously withdrawn from the valve body as a unit, thereby promoting simple and quick replacement of all of the moving parts of the valve.

3,658,088

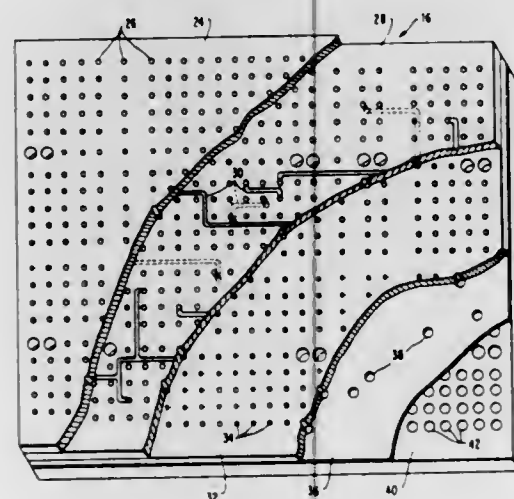
PACKAGING SYSTEM FOR PNEUMATIC LOGIC

Donald F. Jensen, Endicott; David H. Rickenbach, Chenango Forks, and Robert R. Schaffer, Endwell, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed June 17, 1970, Ser. No. 46,854
Int. Cl. F15c 5/00

U.S. Cl. 137—561

6 Claims



The basic device for connecting fluid logic circuits comprises a base plate, a sealing film, a back seal plate, a circuit plate, a front seal plate and a gasket adapted to have a plurality of logic modules mounted thereon. The front seal plate is perforated to provide for connection of every possible logic input and output to the circuit plate which is provided with perforations and interconnecting channels for the required hole-to-hole connections. The back seal plate seals the channels and is perforated to allow communication with input and output lines. The seal film is perforated only at selected locations and the base plate is completely perforated with holes adapted to accept terminals for the input and output tubing connections.

3,658,089

FUEL OIL SUPPLY SYSTEMS

Edward E. Wine, 8897 Grant Avenue, Manassas, Va.
Filed May 25, 1970, Ser. No. 39,998

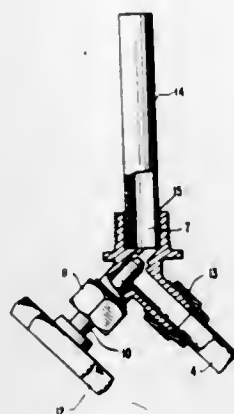
Int. Cl. F16t 1/00

U.S. Cl. 137—590

5 Claims

A fuel oil supply system comprising a fuel oil tank mounted on legs or other supporting means elevated sufficiently to provide a gravity flow of fuel to an oil burner, the tank having a threaded outlet at the bottom portion thereof, an outlet valve comprising a Y-shaped body portion having an externally threaded main body portion serving as an inlet and two angularly disposed leg portions, one serving as an

outlet for the fuel and the other as a housing for a valve stem. In the inlet of the fuel valve a short nipple is inserted so that when the modified valve unit is screwed into the outlet of the fuel tank, a sump is formed in which any water and other



foreign matter present in the fuel will be collected. Oil for the burner is withdrawn several inches above the bottom portion of the tank, is relatively free of condensed moisture and other foreign matter, so that a continuous flow of oil to the burner is assured even at temperatures below freezing.

3,658,090

HYDRAULIC LOCK VALVE WITH FLOW CONTROL

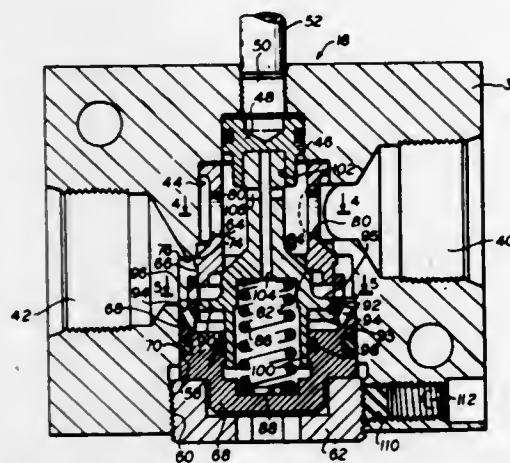
Slawomir Kowalski, Rockaway, and Donald A. Worden, Pompton Plains, both of N.J., assignors to Marotta Scientific Controls, Inc., Boonton, N.J.

Filed Apr. 27, 1970, Ser. No. 32,260

Int. Cl. F16k 11/10

U.S. Cl. 137—596

11 Claims



This hydraulic lock, for preventing escape of working fluid from a motor cylinder, is constructed so that working fluid flows freely to the cylinder for the working stroke of the cylinder, but reverse flow is prevented automatically unless a special flow control valve is operated. A valve assembly includes an actuator and two valve elements, one of which is a check valve that prevents outflow of working fluid from the cylinder; but the check valve permits free inflow to the cylinder. The other valve element has a reference orifice for flow control and a piston controlling the actuation. The second valve element maintains a flow control based on force applied to the actuator and on the pressure drop of working fluid flowing from the cylinder. In the preferred construction, the flow control valve closes against a seat carried by the check valve.

3,658,091

DEVICE FOR THE ADMIXTURE OF ADDITIVE FLUIDS MIXED WITH WATER USED IN WASHING MACHINES, DISHWASHERS AND THE LIKE

Gunther Buzzi, Schiltach Baden, Germany, assignor to Messrs. Hans Grohe K. G., Schiltach Baden, Germany

Filed Mar. 23, 1970, Ser. No. 21,683

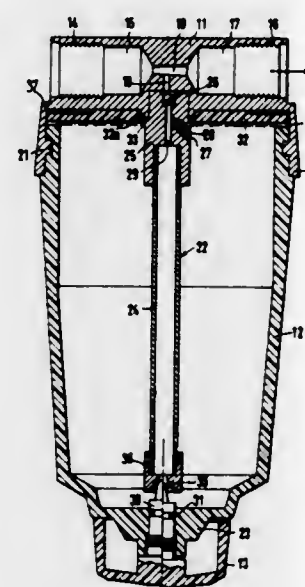
Claims priority, application Germany, Apr. 25, 1969, G 69

12 025

Int. Cl. F16k 19/00

U.S. Cl. 137—604

5 Claims



A device is provided for supplying a flow of an additive fluid to a primary fluid stream wherein the two fluids are admixed. A venturi type constriction may be formed in a conduit carrying the primary fluid stream and a suction conduit may connect an additive fluid container with the venturi constriction. A check valve may be disposed at a discharge end of the suction conduit and a manually operated regulating valve may be disposed at an intake end of the suction conduit. The conduit carrying the primary fluid may be formed in a head portion of the overall device and the container may be connected to the head portion by a bayonet latch. A secondary air inlet may be provided between the additive fluid container and the discharge end of the suction conduit upstream from the check valve. The manually operated regulating valve may be mounted at a bottom portion of the overall device.

3,658,092

ROTARY UNIONS

Gordon Richard Walker, 36 Benbury Road, Southam, and William Murray, 7 Vicarage Road, both of Leamington Spa, England

Original application May 15, 1967, Ser. No. 638,334, now Patent No. 3,570,536. Divided and this application Jan. 21, 1970, Ser. No. 8,110

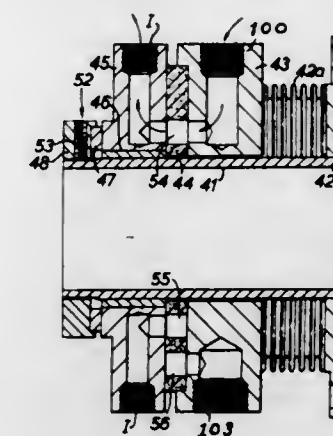
Int. Cl. F16k 11/02

U.S. Cl. 137—625.21

4 Claims

A distributor for permitting fluid to be sequentially distributed to a different regions, comprising co-axial relatively rotatable ported ring members, one of which is faced with a co-axial ported disc valve arranged in face-sealing relation with the other member and each member having fluid ports opening into its periphery. The members are constructed and arranged so that the direction of flow of fluid through the disc valve from one member to the other will be parallel to the common axis. The disc valve controls communication between the ports in one member and those in the other and

the said members are maintained in face sealing relation



3,658,093

VALVE HAVING EXPANDABLE SEALING MEANS

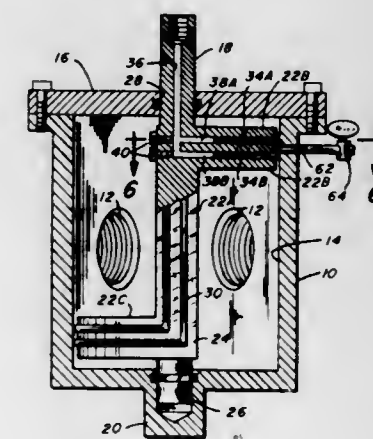
Creal E. Kirkwood, 1423 South 103rd East Avenue, Tulsa, Okla.

Filed Aug. 12, 1970, Ser. No. 63,236

Int. Cl. F16k 39/06

U.S. Cl. 137—625.43

11 Claims



A valve having a body with an internal sealing surface and spaced apart port openings, the body having a shaft opening therein, a gate member rotatably supported in the body dividing the interior of the valve body into separate flow chambers and having a continuous gate sealing surface therearound in close proximity to the body sealing surface, the gate member having a shaft portion extending externally of the body through the body shaft opening, the gate member having a passageway in the shaft portions communicating the continuous-groove with the exterior of the valve body, an elongated expandable gasket member positioned in the groove in the gate sealing surface and having communication with the passageway, and means externally of the body of applying pressure by way of the passageway to the gasket member to expand the gasket member into sealing engagement with the body sealing surface.

3,658,094

PUSH-BUTTON MIXING VALVE

Irlin Botnick, 3155 Kersdale Road, Pepper Pike, Ohio

Filed Dec. 9, 1968, Ser. No. 782,798

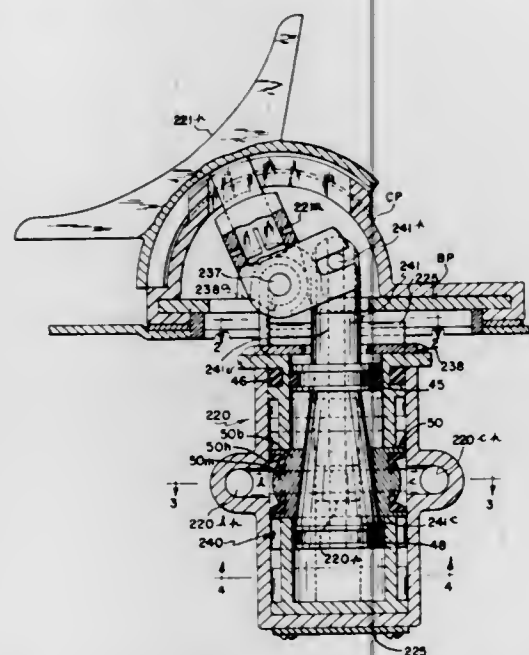
Int. Cl. F16k 11/10

U.S. Cl. 137—636.1

14 Claims

A push-button multi-temperature selection valve, having at least two parallel chambers bores and hot and cold water

supply connections communicating variously through radial ports with the chambers, has valve members for the respective ports radially slidable in support sleeve structures, each inserted end wise as a sub-assembly in a bore; and within



each bore at least one coaxially stemmed either rotary or sliding camming type valve operator. Two operators, selecting flow solely from respective inlets, and at least one selecting mixing flow from both inlets are actuated by respective push-button mechanisms.

3,658,095

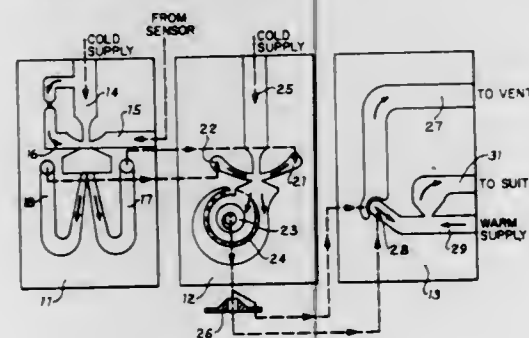
FLUIDIC CONTROLLER FOR LIQUID COOLED GARMENT

James B. Staar, St. Paul, Minn., assignor to The United States of America as represented by the Secretary of the Navy
Filed Jan. 21, 1971, Ser. No. 108,498

Int. Cl. F15c 1/14, 1/16, 1/20

U.S. Cl. 137-81.5

3 Claims



A fluidic control system for regulating the temperature of fluid for cooling a garment having a fluid signal amplifier, a vortex valve and an impact modulator. Cold fluid is throttled by the vortex valve and the output from the vortex valve is passed to one input port of the impact modulator. Warm water is fed to a second input port of the impact modulator and the stream of cold fluid impacts with the stream of warm fluid and the resulting mixture flows from the output port of the impact modulator to tubing in the garment.

3,658,096

INSULATING PLUG

Robert E. Higuera, Lafayette, Calif., assignor to San Roy Development Co., Inc., San Rafael, Calif.

Filed July 17, 1970, Ser. No. 55,718

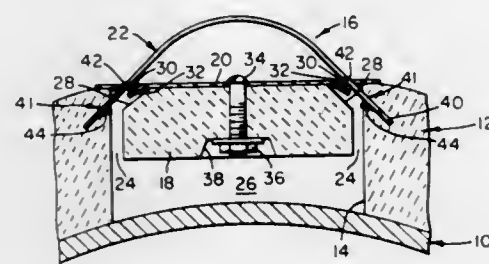
Int. Cl. F16l 55/10

U.S. Cl. 138-90

9 Claims

A demountable insulating plug formed of a "biscuit" of selected insulating material and desired shape, is secured at

one flat surface thereof to a cap of substantially larger peripheral dimensions, and formed of a preferably metallic material having good heat dissipating properties, such as aluminum. A handle, formed of a strip of resilient metal and pointed at either end, is extendably disposed with an arcuate configuration through diametrically opposed slots in the cap. Lock tabs are formed in the cap. Lock tabs are also formed in the extended portion of the handle which engage the lock tabs of the cap to prevent withdrawing the handle from the



cap. To install, the handle is pulled away from the cap to retract the end portions, and the plug is placed in position in the hole in the insulation of a preinsulated pipe which is to be plugged. Natural resiliency of the material and pressure applied against the handle tend to straighten the latter, which drives the pointed ends thereof radially outwardly into the surrounding insulating material. The resiliency of the handle tends to maintain the pointed ends into the insulation, whereby the plug is securely held in position.

3,658,097

CORRUGATED TUBING

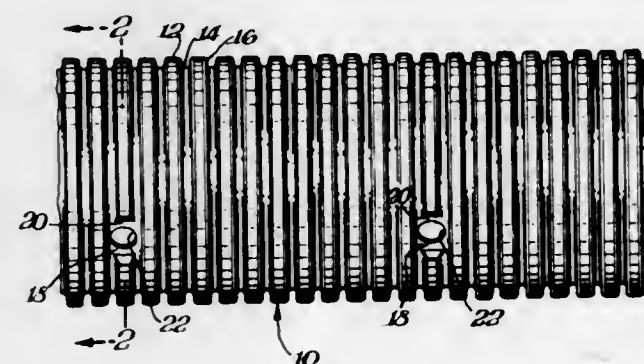
Ronald C. Martin, Waterville, Ohio, and Marty E. Sixt, Iowa City, Iowa, assignors to Advanced Drainage Systems, Inc., Waterville, Ohio

Filed Jan. 28, 1970, Ser. No. 6,413

Int. Cl. F16l 1/12

U.S. Cl. 138-121

7 Claims



Flexible corrugated tube has alternating flat annular peaks and flat annular valleys with walls interconnecting the peaks and valleys. Recesses are provided in selected peak portions and each recess has bottom contiguous with valleys on opposite sides of peak in which recess is located. Opening in recess provides communication between interior and exterior or flexible corrugated tube.

3,658,098

WEAVING MACHINE

Hubert Peter Van Mullekom, Voortseweg 11, Deurne, Netherlands

Filed Oct. 22, 1970, Ser. No. 83,176

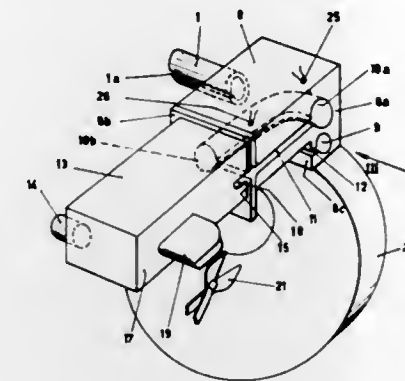
Int. Cl. D03d 47/28

U.S. Cl. 139-127 P

6 Claims

A weft end suction device for a jet-operated weaving machine having a weft-launching nozzle located at one side of the machine comprises a weft receiving and guiding block

which is located in front of the weft-launching nozzle. The block has a suction opening for receiving the end of a weft thread launched from the opposite side of the machine, and a launching passage extending through the block. The block is



reciprocable between a position in which such launching passage is aligned with the weft-launching nozzle, to transmit a weft thread launched from the nozzle, and another position in which the suction opening is aligned with the path of a weft thread launched from the opposite side of the machine.

3,658,099

WOVEN WIRE CLOTH

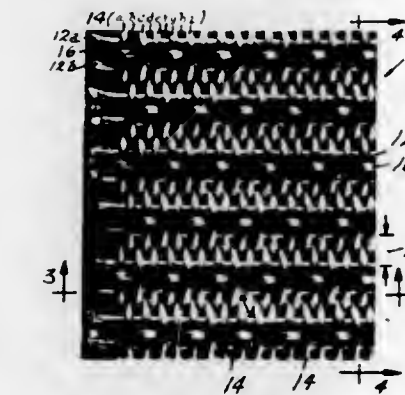
Ronald G. Daringer, Cambridge, Md., assignor to Cambridge Wire Cloth Company, Cambridge, Md.

Filed Sept. 29, 1970, Ser. No. 76,435

Int. Cl. D03d 15/02

U.S. Cl. 139-425

11 Claims



A woven wire cloth for use in filters and the like having a plurality of crimped fill wires passing alternately over and under one or more straight warp wires, and additionally including a crimped locking warp wire for engaging and abutting the fill wires to prevent lateral movement thereof.

3,658,100

BEARING MEANS FOR FILLING MACHINES AND THE LIKE

Paul R. Fechhelmer, Worcester, and John P. Gagliardo, Schremsbury, both of Mass., assignors to A-T-O Inc., Willoughby, Ohio

Filed Nov. 2, 1970, Ser. No. 85,949

Int. Cl. B65b 43/50; B67c 3/00

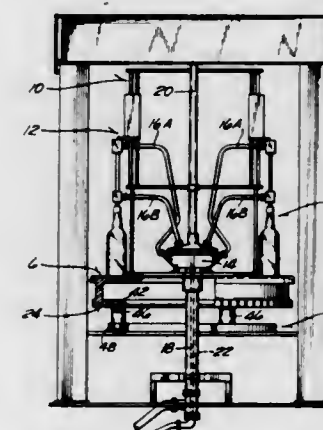
U.S. Cl. 141-152

13 Claims

A bearing for the rotatable filler head portion of a container filling machine, comprising a relatively large diameter ring-like member connected horizontally to the underside of the filler head and which is toothed along its outer periphery to coact with gear means in the base or other fixed supporting structure of the filler to power the head for rotational movement in the filler. The ring member surrounds a series of radial-type bearing devices which are supported in and around the outer of the filler base portion by means of verti-

cally extending columns or posts and is provided with an interior circumferentially extending V-shaped groove which coacts with a like shaped outer race portion of the bearing devices to provide the filler head a highly stabilized outboard support in the base portion of the filler.

The mounting posts for the bearing devices are preferably formed eccentrically in the portion thereof which carries the devices so as to permit the devices to be individually adjusted radially with respect to the groove of the ring member to pro-



3,658,101

JET STREAM REFUELING SYSTEM

Alton L. Waldron, Annapolis, Md., assignor to The United States of America as represented by the Secretary of the Navy

Filed May 29, 1968, Ser. No. 732,920

Int. Cl. B63b 27/24

U.S. Cl. 141-284

8 Claims



A system for refueling ships at sea or at dockside capable of delivering large quantities of oil at high speed by forcing the oil through a nozzle on a supply oiler in a coherent stream trajectory and receiving the oil in a receiver on a receiving ship at a distance of 60-200 feet. The nozzle on the sending ship may be trained and elevated to allow for the pitch and roll and relative position of the respective ships. An accordion bellows shroud is provided between the nozzle and the receiver to eliminate deleterious effects of wind and water on the trajectory stream.

3,658,102

PORTABLE BAND SAW

Joseph W. Joosten, 10642 Walnut, Los Alamitos, Calif.

Filed Aug. 11, 1969, Ser. No. 848,836

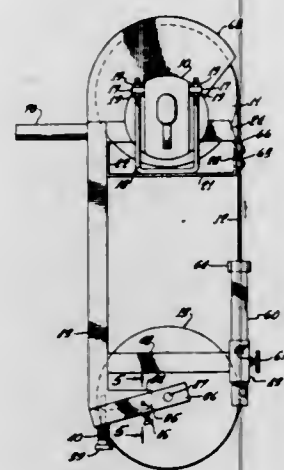
Int. Cl. B27b 13/08

U.S. Cl. 143-27 R

2 Claims

A portable band saw device including a frame supporting a prime mover which drives a first pulley, a second pulley

being supported on an arm pivotally connected to the frame so that said second pulley is movable relatively toward and away from the driven pulley against the resistance of a spring, the band saw blade being extended around the two



pulleys and guided by arrangements on one side of the frame, while a guard on the opposite side prevents inadvertent cutting at that location, both pulleys having provisions for adjustments of their axes of rotation, including an arrangement for tilting the arm carrying the second pulley.

3,658,103

LUMBER SLICING APPARATUS

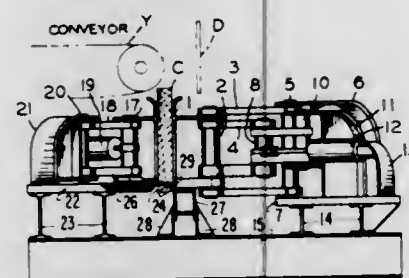
Lloyd A. Gilbert, Roseburg, Oreg., assignor to Frank Pozzi; Donald R. Wilson; Donald Atchison and Garry Kahn, Portland, Oreg., part interest to each

Filed Aug. 14, 1970, Ser. No. 63,687

Int. Cl. B27b 13/10

U.S. Cl. 144—162

13 Claims



A lumber slicing apparatus grips a log or timber cant between an active jaw and a passive jaw, each of which is individually mounted on a frame so that its movement is constrained to follow an angular path relative to a slicing blade. The passive jaw is supported by resilient means which permit the jaw to yield under application of pressure. The active jaw is provided with means to move it against the resistance of the passive jaw. Actuation of the moving means causes the active jaw to force the workpiece angularly against the slicing blade in a manner so that it is cut along its short dimension. The slicing action eliminates kerf loss and greatly increases the speed with which pieces can be cut from the workpiece.

3,658,104

FELLER BUNCHER INCLUDING DOUBLE BUNK TRAILER

Douglas D. Hamilton, Mount Royal, Canada, assignor to Canadian International Paper Company, Montreal, Quebec; Quebec North Shore Paper Company, Quebec and Ste. Anne Paper Company Limited, Beaufort, Quebec, Canada, part interest to each

Filed Jan. 30, 1970, Ser. No. 7,088

Claims priority, application Canada, Feb. 5, 1969, 042,057

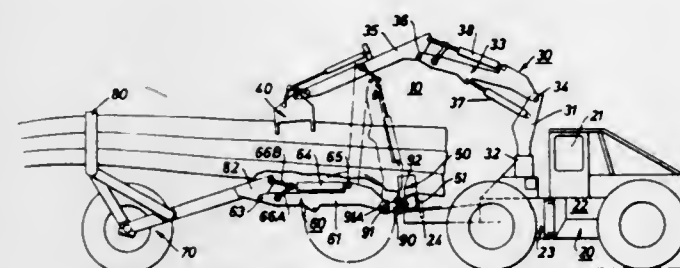
Int. Cl. A01g 23/02

U.S. Cl. 144—309 AC

12 Claims

A tree feller skidder including a mobile self-propelled articulated vehicle having a boom mounted thereon having a

felling head pivotally attached to the free end of the outermost boom section for felling trees and loading the same onto a pair of horizontally spaced bunks. The pair of bunks are interconnected by an articulated frame for moving the bunks in a direction toward and away from one another and simultaneously with moving the trailing bunk toward the bunk located forwardly thereof it is lowered, dropping the trailing end of a load of trees onto the ground facilitating unloading the same by moving the entire vehicle forward. The pair of bunks, in one instance, are mounted upon a trailer and, in another instance, one bunk is mounted on and carried



by the vehicle with the trailing bunk located on a trailer attached to the vehicle. The forwardly located bunk includes crescent-shaped arms pivotally mounted thereon or other means associated therewith for anchoring a load of trees to the bunk, retaining the trees in position relative to such bunk during movement of the other bunk in a direction toward the same. Movement of the rear bunk toward the front bunk is effected by retracting the articulated member interconnecting the same and, in so doing, the pivotally connected portion of the articulated member passes up between the load on the bunks. This, in one instance, is facilitated by load dividers located on the bunk and/or articulated member.

3,658,105

FASTENER DRIVING ARRANGEMENT

John Burt, 1870 Oakmont Drive, Glendale, Calif., and Louis S. Lotgering, 334 W. Monterey Road, Corona, Calif.

Filed May 4, 1970, Ser. No. 34,449

Int. Cl. B25b 15/00

U.S. Cl. 145—50 A

15 Claims



A fastener driving arrangement in which there is a recess in the head of the fastener, having outwardly extending pockets with parallel sidewalls and bottom walls defined by spherical segments, the driver having blades adapted to fit in the recess pockets, the blades having end walls that are complementary to the inner recess wall and sidewalls which are adjacent the inner bottom corner of each recess pocket and diverge progressively away from the recess sidewall in both the radial and axial directions so that, when torque loads are applied, the recess wall will be caused to deflect to gradually increase the area of contact between the driver and recess.

3,658,106

SCALLOPED CUTTING BLADE

Erwin Elsasser, Wiener Strasse 11, 7 Stuttgart, 30, Germany

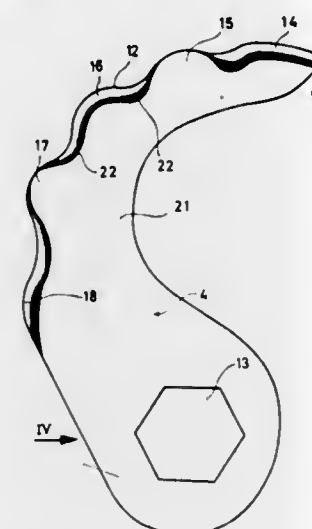
Filed Dec. 18, 1969, Ser. No. 886,103

Claims priority, application Germany, Dec. 21, 1968, P 18 16 416.4

Int. Cl. B02c 18/06

U.S. Cl. 146—106

7 Claims



A curved cutting blade has projections which are alternately ground on opposite sides so that the ground surface portions form a scalloped wavy cutting edge which also undulates between the lateral surfaces of the blade.

3,658,107

SELF-LOCKING SYSTEM

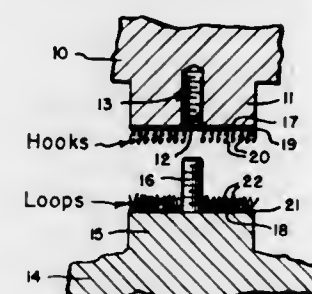
Joseph Perina, Huntington, N.Y., assignor to American Velcro Inc., Manchester, N.H.

Filed Apr. 1, 1971, Ser. No. 130,229

Int. Cl. F16b 39/282

U.S. Cl. 151—34

4 Claims



The self-locking system applies to two rigid members which are connected together by internally and externally threaded elements and have engaging surfaces which are flat. The self-locking arrangement is in the form of hooking elements bonded to the respective engaging surfaces.

3,658,108

TIRE CONSTRUCTION WITH IMPROVED REINFORCEMENT

Alfred Marzocchi, Cumberland, and Alfred Winsor Brown, Woonsocket, both of R.I., assignors to Owens-Corning Fiberglass Corporation

Continuation of application Ser. No. 699,193, Jan. 19, 1968, now abandoned, Continuation-in-part of application Ser. No. 622,588, Mar. 13, 1967, now Patent No. 3,433,689, which is a division of application Ser. No. 450,790, Apr. 26, 1965, now Patent No. 3,315,722. This application Dec. 19, 1969, Ser. No. 882,770

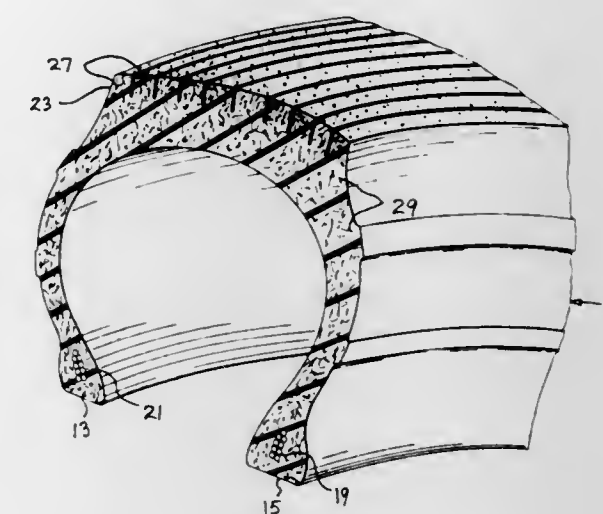
Int. Cl. B60c 9/12

U.S. Cl. 152—209 R

5 Claims

Tire construction featuring as the principal reinforcement a combination of chopped bundles or cords, each composed

of an assembled plurality of glass filaments held together, and chopped discrete glass filaments distributed throughout the rubbery matrix generally uniformly, preferably at a level of



about 2 to about 35 parts of glass per 100 parts of rubber and preferably with the bundles exceeding the discrete filaments in amount on a weight basis.

3,658,109

DEVICE FOR MOUNTING AND INFLATING TUBELESS TIRES

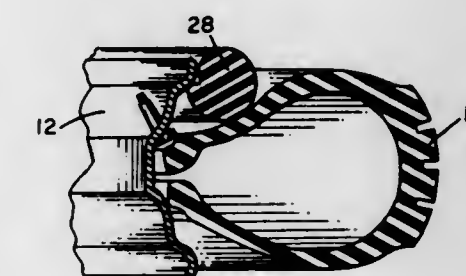
Anthony F. Kaminskas, Lyndhurst, and Steven O. Luzsiczka, Huron, both of Ohio, assignors to Clevite Corporation

Filed Jan. 23, 1970, Ser. No. 5,208

Int. Cl. B60c 25/12

U.S. Cl. 157—1.1

1 Claim



A device for mounting and inflating a tubeless tire on an automotive wheel rim. An annular member having an out-of-round cross-sectional configuration and an integral seating collar is placed between the flanged rim of the wheel and the sidewall of the tire to establish a sealed air chamber. The annular member includes a circular surface for rolling engagement with the sidewall and optionally a lip seal for engaging the sidewall.

3,658,110

TIRE MOUNTING AND INFLATION DEVICE

Joseph Kozlar, Warrensville Heights, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 16, 1970, Ser. No. 81,254

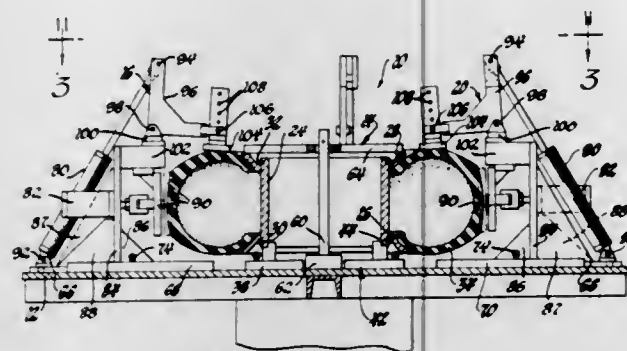
Int. Cl. B60c 25/12

U.S. Cl. 157—1.21

7 Claims

A tire mounting and inflation device having provisions for supporting a rim in a fixed position and having a plurality of

power-operated contact surfaces for selectively engaging the



side wall and the tread portion of the tire so as to facilitate mounting of the tire on the rim and inflation of the tire.

3,658,111

HOUSING FOR ROLLER BLINDS

Gunter Herms, Kapellenstrasse 52, 52 Siegburg-Kaldauen, Germany

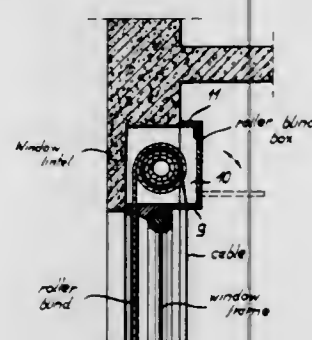
Filed Jan. 6, 1970, Ser. No. 887

Claims priority, application Germany, Jan. 7, 1969, P 19 00 471.8; Apr. 29, 1969, P 19 21 780.2

Int. Cl. E06b 9/10

U.S. Cl. 160-26

7 Claims



A multi-sectional box for roller blinds and for sealing the masonry part receiving the roller blinds, in which portions of said box consist of foam material held together by a cover foil on the outside of said box while the sections of said box are held together by rail means.

3,658,112
BLIND

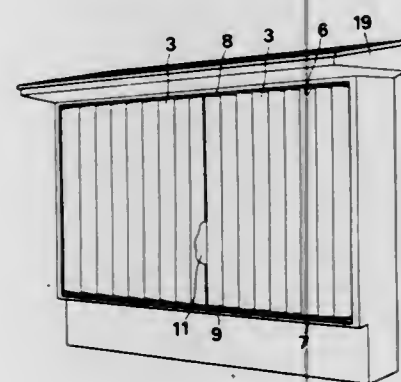
Kaneyoshi Imaizumi, 3-805 Hirai Edogawa-ku, Tokyo, Japan

Filed Aug. 3, 1970, Ser. No. 60,293

Int. Cl. E06b 9/36, 9/38

U.S. Cl. 160-172

10 Claims



A blind in which upper and lower end portions of upright shutter louvers are installed in lazytongs and each shutter louver is moved as the lazytongs mechanism expands and

contracts. When the lazytongs mechanism expands to an intermediate state the shutter louvers can be maintained in the half opened condition.

3,658,113

PROTECTIVE COVER FOR THE BED OF MACHINE TOOLS

Kurt Loos, Dreis-Tiefenbach, Germany, assignor to Kabelschlepp Gesellschaft mit beschränkter Haftung, Siegen, Germany

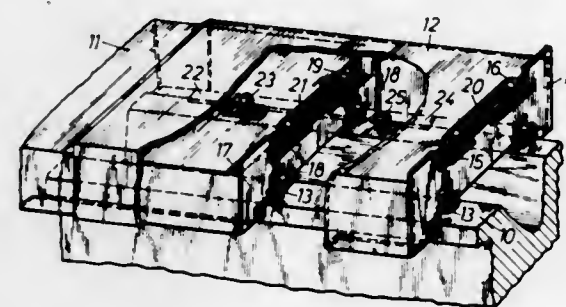
Filed June 24, 1970, Ser. No. 49,346

Claims priority, application Germany, June 27, 1969, P 19 32 555.4

Int. Cl. E05d 15/06

U.S. Cl. 160-202

2 Claims



A protective cover for guiding paths of machine tools which comprises a plurality of overlapping cover members arranged to telescope into and out of each other from one end position through an intermediate range into another end position and vice versa, in which energy storing means are interposed between adjacent cooperating energy storing means and are acted upon to store energy only when the respective cooperating cover members are outside said intermediate range.

3,658,114

DOOR ASSEMBLY

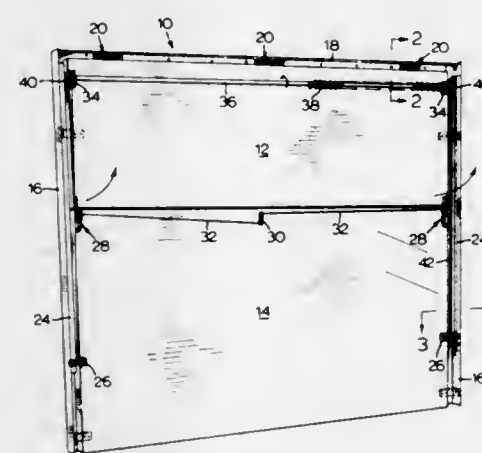
Allan M. Buehler, Hespeler, Ontario, Canada, assignor to Trigroup Industries Ltd., Hamilton, Ontario, Canada

Filed May 12, 1970, Ser. No. 36,571

Int. Cl. E05d 15/26

U.S. Cl. 160-207

12 Claims



A door assembly for a garage or the like. The door assembly including a pair of horizontally disposed panels hingedly connected to one another about a horizontal axis and spring activated tensioning means for opening and closing the door assembly to provide a power assist in both the opening and closing actions. The door assembly being particularly suitable for mounting in a frame in a factory production line as the locking hardware and power assist hardware may be operably mounted in a frame so that the installation required

is limited to the location of the frame in a door opening. The door assembly is also particularly suitable for double garage door structure as two independent doors may be mounted in one frame.

3,658,115

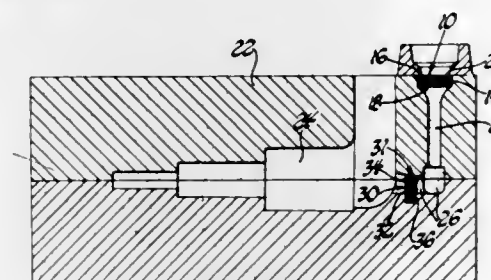
METHOD OF INOCULATING NODULAR CAST IRON
Edward F. Ryntz, Jr., Warren, and Thomas E. O'Conner, Mount Clemens, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Nov. 30, 1970, Ser. No. 93,632

Int. Cl. B22d 27/20

U.S. Cl. 164-57

4 Claims



An improved method of inoculating nodular cast iron to obtain uniform and thorough inoculation of nodular iron simultaneously with the casting thereof is disclosed. A preformed inoculant agent body having perforations extending between the opposing faces thereof and congruent ferrous metal cover plates contacting the body faces is placed in a stationary position across the gating system of the mold so as to cause the molten iron entering the mold to flow through the perforations uniformly dissolving the inoculant agent on contact and being inoculated thereby just prior to casting thereof. The ferrous metal cover plates extend the life of the inoculant body and result in more uniform inoculation and, consequently, a more uniform microstructure in the cast iron than otherwise obtainable.

3,658,116

METHOD FOR CONTINUOUS CASTING

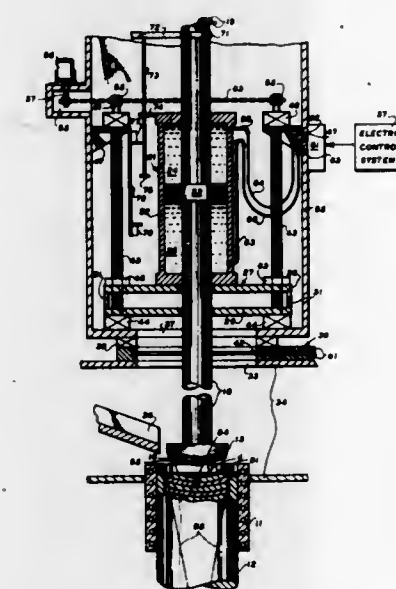
Charles d'A. Hunt, Moraga, Calif., assignor to Airco, Inc.

Filed June 8, 1970, Ser. No. 44,130

Int. Cl. B22d 11/12

U.S. Cl. 164-82

8 Claims



A method and apparatus are described for continuously casting an ingot wherein a cooled plug is repeatedly brought into contact with the top of the ingot during the continuous casting process to remove heat from the central region of the ingot.

3,658,117

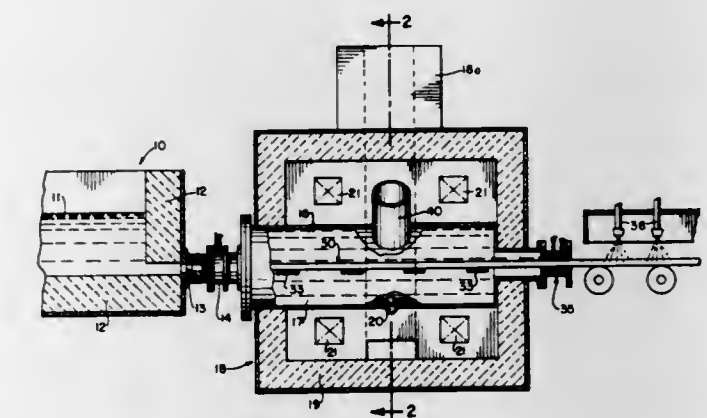
CONTINUOUS METAL CASTING METHOD AND APPARATUS

Howard A. Fromson, Rogues Ridge Road, Weston, Conn.
Continuation-in-part of application Ser. No. 829,921, June 3, 1969, now Patent No. 3,570,587, which is a division of application Ser. No. 596,292, Nov. 22, 1966, now Patent No. 3,468,361. This application May 7, 1970, Ser. No. 35,479

Int. Cl. B22d 11/12

U.S. Cl. 164-89

14 Claims



In accordance with the invention, molten metal under pressure passes continuously through a mold to form a partially solidified casting with a solid shell and a molten metal. Before the pressure of the molten core ruptures the solid shell, the casting is advanced through a chamber and submerged in a liquid coolant in this chamber. The liquid coolant continues the solidification of the casting and, at the same time, pressure is applied externally to the casting through the liquid coolant, preventing the pressure of the molten core from rupturing the solid shell. The casting is maintained submerged in the liquid coolant and under pressure until the solid shell is thick enough to prevent outbreak of the molten core in the absence of said pressure.

3,658,118

JOLT-SQUEEZE MOLDING MACHINE

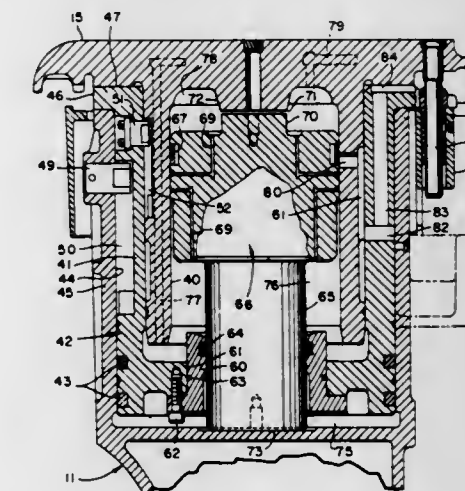
Edward D. Abraham, Cleveland, Ohio, assignor to The Sherwin-Williams Company, Cleveland, Ohio

Filed Sept. 23, 1969, Ser. No. 860,381

Int. Cl. B22c 15/30

U.S. Cl. 164-195

25 Claims



A foundry molding machine providing both an anvil jolt and a shockless jolt during squeeze which includes a ram projecting through the squeeze piston, such ram serving as a stationary stem cooperating with the table to obtain an anvil jolt and floating on the squeeze pressure during squeeze to obtain a shockless jolt.

3,658,119

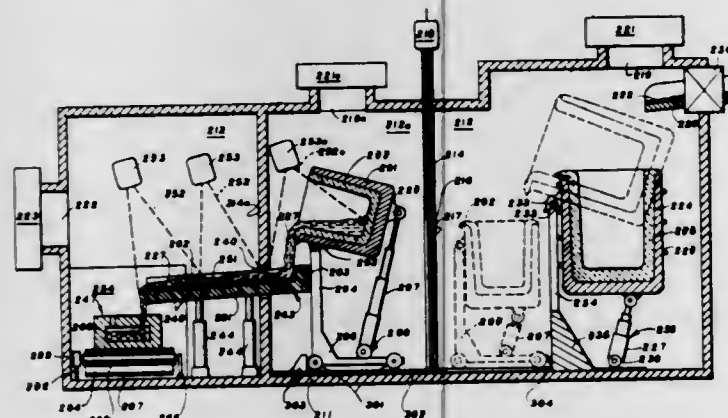
APPARATUS FOR PROCESSING MOLTEN METAL IN A VACUUM

Charles d'A. Hunt, Orinda, Calif., and Reese R. De Haven, Jr., Media, Pa., assignors to Alarco, Inc.
Continuation-in-part of application Ser. No. 718,586, Apr. 3, 1968, now abandoned. This application May 7, 1969, Ser. No. 824,030

Int. Cl. B22d 27/02, 27/16, 11/10

U.S. Cl. 164—250

8 Claims



A method and apparatus are described for producing a solidified metal product. Molten metal is heated in a refractory crucible within a vacuum enclosure. The contents of the crucible are poured across a cooled transfer structure while being simultaneously heated with an electron beam. The metal leaving the transfer structure is then solidified to form the metal product.

3,658,120

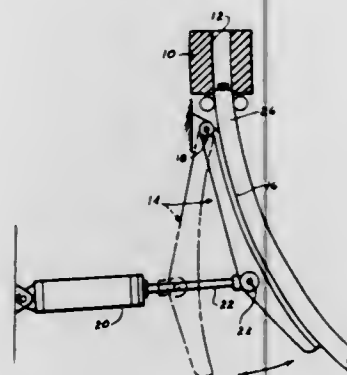
RETRACTABLE DUMMY BAR GUIDE

Horst Precht, Jamaica, N.Y., and Herbert Fastert, Wyckoff, N.J., assignors to Concast Incorporated, New York, N.Y.
Continuation of application Ser. No. 662,420, Aug. 22, 1967, now abandoned. This application Apr. 14, 1970, Ser. No. 28,516

Int. Cl. B22d 11/08

U.S. Cl. 164—274

3 Claims



A chute is provided below the exit end of a continuous casting mold to guide the dummy bar into the mold. Moving means are provided to move the chute away from the mold assembly after casting starts so that the chute will not be damaged by breakouts.

3,658,121

DIE CASTING APPARATUS

William E. Douglas, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 14, 1970, Ser. No. 97,850

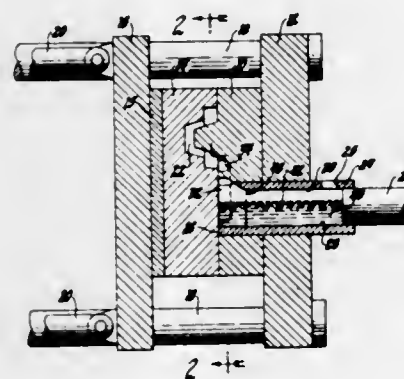
Int. Cl. B22d 17/04

U.S. Cl. 164—312

4 Claims

Die casting apparatus of the horizontal cold chamber type operative to prevent impurities such as dross and metal foam

floating on the surface of the molten metal charge in the shot sleeve from entering the die cavity. The apparatus involves the elimination of the usual vertical runner extending from the end of the shot sleeve adjacent the parting line of the dies to the die cavity, the provision of the overflow cavity above and at the end of the shot sleeve adjacent the parting line of



the dies, and the provision of one or more runners extending from the lower portions of the shot sleeve and around the overflow trap whereby when the plunger is caused to move the molten metal to the parting line of the die, the dross and metal foam formed on the surface of the die is trapped in the overflow trap and only clean metal is injected into the die cavity.

3,658,122

BABY BOTTLE WARMING CONTAINER AND METHOD OF ATTAINING THERMAL EQUILIBRIUM

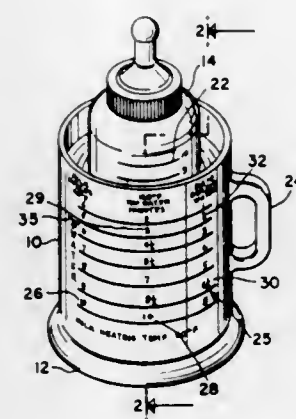
Harvey Nicholas Kalyk, 2462 Valleyview Drive, Kamloops, British Columbia, Canada

Filed May 19, 1970, Ser. No. 38,789

Int. Cl. A47g 23/04

U.S. Cl. 165—1

9 Claims



A method of warming a baby bottle containing a cold beverage involves immersing the baby bottle in a container of hot water and leaving the bottle in the hot water until the beverage and water are in thermal equilibrium. A calibrated scale on the container indicates when thermal equilibrium is attained. The scale may indicate warming time periods depending on the quantity of beverage in the bottle. The scale may be calibrated in association with a thermometer to indicate when thermal equilibrium is attained, the thermometer being arranged to measure the temperature of the water or other heating liquid in the container.

3,658,123

APPARATUS FOR CONTROLLING THE TEMPERATURE OF A HEAT EXCHANGE MEDIUM

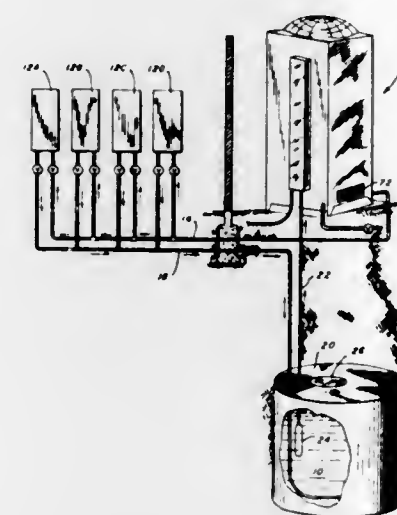
Donald S. Root, 3830 South Cincinnati, Tulsa, Okla.

Filed Oct. 19, 1970, Ser. No. 82,019

Int. Cl. F24f 3/00

U.S. Cl. 165—22

6 Claims



An apparatus for controlling the temperature of a heat exchange medium in a reverse cycle heat pump system includes within a closed heat exchange medium recirculating path thermostatically controlled heater mount elements and heat rejection panels. The heat rejection panels are cooled by both air flow and evaporative water system which incorporates a header having elongated members which discharge coolant onto the heat exchange panels through a continuous slot whereby a water curtain is formed to completely wet the heat rejection panel surfaces. A storage reservoir can be utilized to conserve the energy of the heat exchange medium.

3,658,124

AIR OPERATED ICE RINK

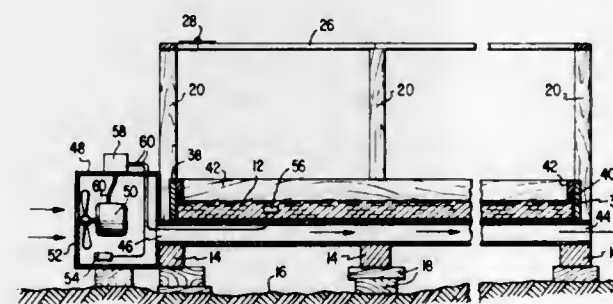
Joseph R. Tippmann, 211 West Street, New Haven, Ind.

Filed Aug. 6, 1970, Ser. No. 61,734

Int. Cl. A63c 19/10

U.S. Cl. 165—54

6 Claims



A skating rink having a flat ice supporting surface consisting of a plurality of adjacent air passageways, and one or more automatically controlled blowers connected to the passageways for forcing frigid air from the atmosphere through the passageways to maintain a slab of ice on the surface of the support.

3,658,125

INTERNAL CONFIGURATION FOR A RADIAL HEAT PIPE

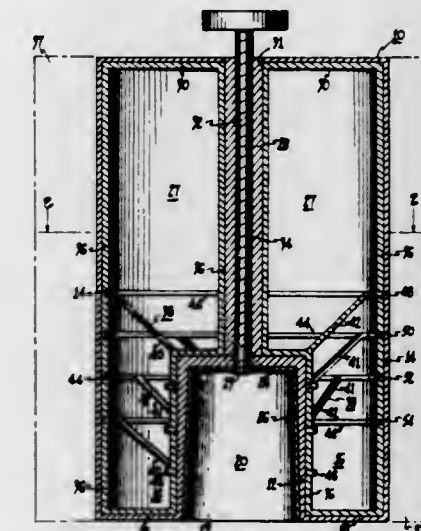
Robert A. Freggens, Lancaster, Pa., assignor to RCA Corporation

Filed Jan. 11, 1968, Ser. No. 697,181

Int. Cl. F28d 15/00; H01j 7/28

U.S. Cl. 165—80

11 Claims



A radial heat pipe has a plurality of radial struts covered with capillary lining which extend from an outer cylindrical heat output wall to an inner cylindrical heat input wall to assist in returning a working fluid from the heat output wall to the heat input wall. A deformable metallic lining is attached to the outside of the cylindrical heat input wall to provide a close fit with and a good thermal path from a heat source member to the heat input wall. The heat pipe also has a tube extending down its central axis which permits force to be applied to the heat source member to separate the heat source member from the heat pipe.

3,658,126

SERVICING WELLS

Willy F. Bohlmann, Jr., North Ridge, Calif.; Jerome D. Goodrich, Jr., Kenner, Ala., and Charles B. Corley, Jr., Houston, Tex., assignors to Esso Production Research Company

Original application Oct. 18, 1967, Ser. No. 676,323. Divided and this application Dec. 11, 1968, Ser. No. 794,464

Int. Cl. E21b 33/03; F16l 13/04

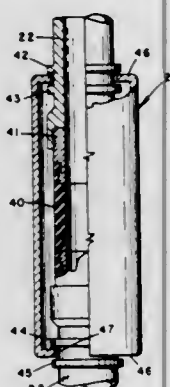
U.S. Cl. 166—77

5 Claims



Workover operations are performed in wells having a curved circuit such as a submarine well having a radius bend

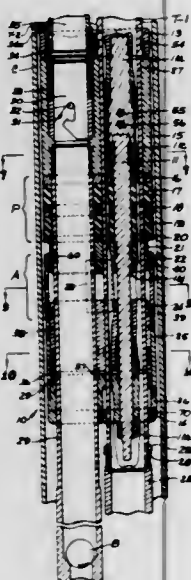
at the wellhead by introducing into the conduit a segmented tubular member such as a tool and running the tubular member through said conduit solely by fluid pressure exerted



thereagainst, a substantial portion of the length of the tubular member being maintained free of contact with the inner wall of the conduit to extend the life of the tubular member and reduce the pressure required to run it in.

3,658,127 WELL PACKER

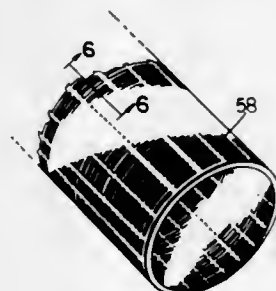
Chudleigh B. Cochran, and Phillip H. Manderscheid, both of Houston, Tex., assignors to Brown Oil Tools, Inc.
Filed May 13, 1970, Ser. No. 36,770
Int. Cl. E21b 23/06, 33/122
U.S. Cl. 166—120



A well packer adapted to form a seal between the surrounding conduit of a well and a plurality of smaller conduits extending axially within the surrounding conduit. The packer is expanded into anchoring and sealing engagement with the surrounding conduit by hydraulic pressure applied through one of the smaller conduits and is locked in expanded position by one-way acting slips. Release of the packer from its expanded position is effected by non-rotational axial movement of one of the smaller conduits through the set components of the packer. Another of the smaller conduits is removably connected to the top of the packer and acts as a safety device preventing inadvertent release of the packer any time the conduit is connected to the packer body. A plurality of retaining rods provide axial support for the packer components to reduce the force required for release of the set packer and to protect the smaller conduits extending through the packer body from undesirable forces tending to release the packer from its expanded position or tending to cause leakage across the set packer. The release mechanism of the packer includes positive acting structure for extracting

upper and lower spreading cones from under set anchor slips to assist complete release from the surrounding conduit.

3,658,128
REINFORCED PLASTIC WELL SCREEN
Samuel M. Shobert, 17760 Dragon Trail, Mishawaka, Ind.
Continuation-in-part of application Ser. No. 695,778, Jan. 4, 1968, now abandoned. This application Feb. 9, 1970, Ser. No. 9,925
Int. Cl. E21b 43/08
U.S. Cl. 166—231



A well screen in the form of a self-supporting element of cylindrical shape having a plurality of openings therein is constructed of a plurality of bundles of glass filaments embedded in hardened resin, a first series of these bundles being in the form of a number of circles or turns axially spaced and a second series of bundles being in the form of bars which extend axially in circumferentially spaced relation, all of said bundles being spaced sufficiently far apart to provide openings therebetween.

3,658,129
IN SITU GELATION OF POLYMERS DURING WATERFLOODING
William C. Lanning, and James W. Gall, both of Bartlesville, Okla., assignors to Phillips Petroleum Company
Filed Sept. 1, 1970, Ser. No. 68,769
Int. Cl. E21b 33/138, 43/20
U.S. Cl. 166—270

A method for plugging waterflood zones through the in situ production of gelatinous materials derived from injecting a solution containing a water-soluble bivalent metal salt and a water-soluble polymer of high molecular weight having groups chemically reactive with trivalent metal ions into a waterflood zone followed by the injection of air which converts bivalent metal ions to trivalent metal ions thereby resulting in the aforementioned gelatinous plugging material.

3,658,130
MOBILITY CONTROL IN A MISCIBLE-TYPE CRUDE OIL RECOVER PROCESS
John A. Davis, Jr., and William J. Kunzman, both of Littleton, Colo., assignors to Marathon Oil Company, Findlay, Ohio
Continuation-in-part of application Ser. No. 762,973, Sept. 26, 1968, now abandoned. This application Aug. 19, 1970, Ser. No. 65,338
Int. Cl. E21b 43/22
U.S. Cl. 166—273

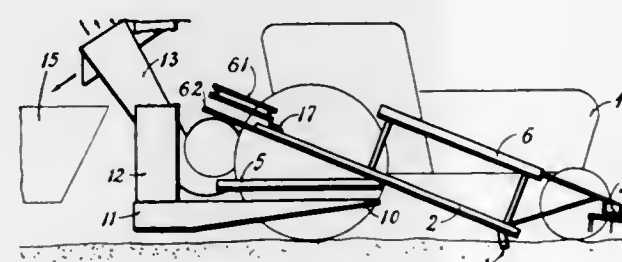
Improved oil recovery is obtained wherein highly saline water is used in an aqueous mobility buffer by incorporating about 0.05 percent to about 10 percent by weight of a water soluble surfactant in at least the front portion of the buffer, the portion of the mobility buffer equal to at least about 25 percent of the volume of a previously injected micellar dispersion. The mobility buffer is useful in secondary and tertiary oil recovery processes to displace a micellar dispersion through an oil-bearing subterranean formation toward a production means to recover oil therefrom. The mobility

buffer has a sufficiently low mobility to protect against fining in the process.

3,658,131
SELECTIVE PLUGGING METHOD
Jerry W. Biles, Tulsa, Okla., assignor to Cities Service Oil Company
Continuation-in-part of application Ser. No. 812,302, Apr. 1, 1969, now abandoned. This application Oct. 30, 1970, Ser. No. 85,741
Int. Cl. E21b 33/138, 43/22
U.S. Cl. 166—292

The more permeable channels in an oil producing formation are selectively plugged by the reaction in the formation of sodium silicate and a divalent cation-containing brine present in the formation. The sodium silicate reactant is separated from the formation brine by an inert spacing medium so that the precipitate is formed at a desired distance from the injection wellbore. The reactants may be caused to contact each other over a larger region of the formation by decreasing the amount of spacing medium employed during the introduction of the treating solutions.

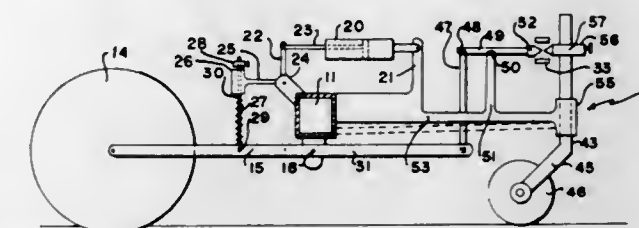
3,658,132
BRUSSELS SPROUT HARVESTER
Yagve Reinhold Akesson, Halsingborg, and Eve Torkel Gilbert Karlsson, Bjuv, both of Sweden, assignors to Flindus Produits S.A., Vevey, Switzerland
Filed Nov. 26, 1969, Ser. No. 880,251
Claims priority, application Switzerland, Nov. 29, 1968, 17,884/68
Int. Cl. A01d 27/00
U.S. Cl. 171—27



An apparatus for stripping vegetables such as Brussels sprouts from stalks comprises a stripping conveyor and a gripping conveyor, the gripping conveyor being movable along a path which diverges from the path of the stripping conveyor. The stalks are firmly gripped by the gripping conveyor and as the conveyors diverge the vegetables are stripped from the stalks. The apparatus may be mounted on a tractor and be used for harvesting and stripping the plants. Other features of the invention appear in the following specification and drawing.

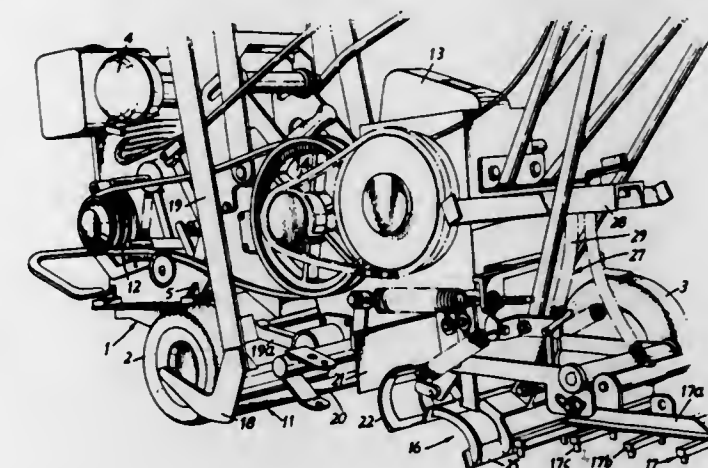
3,658,133
AUTOMATIC DEPTH CONTROL DEVICE FOR TILLAGE UNITS
Ralph Sweet, Forgan, Saskatchewan, and F. Ben Dyck, Current, Saskatchewan, both of Canada, assignors to Ralph Sweet, General Delivery, Forgan, Saskatchewan, Canada
Filed Dec. 8, 1969, Ser. No. 883,368
Claims priority, application Great Britain, Dec. 10, 1968, 58,648/68
Int. Cl. A01b 63/111
U.S. Cl. 172—4

The cultivating element rock shaft has an extension actuating micro-switches in conjunction with a floating sensing arm. The micro-switches operate solenoids which control the



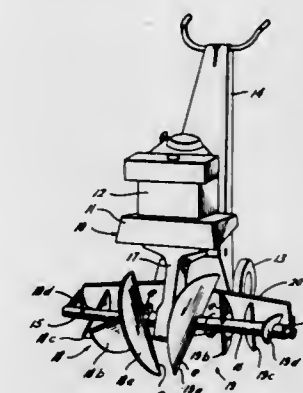
assembly for raising and lowering the elements either manually or automatically.

3,658,134
TURF ROLLING DEVICE FOR TURF-CUTTING MACHINE
Phillip Bibby, The Waterfalls, Lutterworth Road, Rugby, England
Filed Apr. 17, 1970, Ser. No. 29,424
Claims priority, application Great Britain, Oct. 31, 1969, 53,381/69
Int. Cl. A01b 45/04
U.S. Cl. 172—20



A turf or sulky roller which, in use, is drawn behind the cutting knives of a turf-cutting machine so as to engage a turned over portion of each turf cut by the knives comprises a first holding down component which prevents the turned-over portion from falling back to the ground until it can be engaged by a scoop which turns the turned over portion into a started roll for completion by a secondary turf roller, for example, a rack.

3,658,135
ROTARY TILLER WITH BACKUP PLATE FURROWING MEANS
Harold D. Thompson, 5834 Allison Road, Houston, Tex.
Filed Aug. 22, 1969, Ser. No. 852,177
Int. Cl. A01b 33/02, 21/08, 49/00
U.S. Cl. 172—42



In a first embodiment, tapered auger mechanisms are mounted on transversely extending shaft members rotatably

supported below the forward portion of a self-propelled, manually guided body structure upon which is mounted a motor which is coupled to the shaft members for causing rotation thereof. A rearward wheel assembly provides rearward support for the body structure. In a further embodiment, the auger mechanism and shaft members are adapted to be coupled to and drawn by a self-propelled tractor unit. In a further embodiment, the shaft members with the tapered auger mechanisms thereon and a curved guide plate are provided as attachments for a garden tiller to form rows in the earth as it passes thereover.

3,658,136

ROW CROP THINNING IMPLEMENT

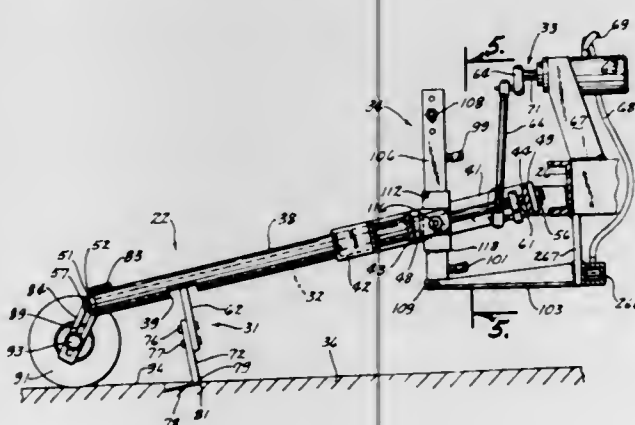
Arnold E. Ernst, Wolverton, Minn.

Filed Mar. 2, 1970, Ser. No. 15,541

Int. Cl. A01b 33/04, 41/02, 59/048, 63/118

U.S. Cl. 172-54

10 Claims



An improved apparatus for thinning growing plants planted in a row and growing less than a predetermined distance apart; the apparatus including an implement having a hoe swingable in a pendular arc to engage and remove undesired plants, the hoe connected to a shaft mounted on and extended coaxially to a wheeled frame pivotally connected to a self-propelled vehicle, a motor operably connected to the shaft and adapted to selectively adjust the speed of the swinging hoe independently of the speed of the vehicle, and a lift mechanism to raise and lower the implement frame relative to the ground for operating and transporting purposes.

The lift mechanism includes a hydraulically operated piston and cylinder unit pivotally connected to the vehicle below the implement frame, a lift member connected to and embracing the unit, the member having a flanged lower end, and a sleeve member pivotally connected to the frame and slidably mounting the lift member thereto whereby extending the unit engages the lift member flange and the sleeve to raise the frame, the frame and sleeve member being free to pivot downwardly upon contraction of the unit.

The vehicle is hydraulically powered and includes a frame and engine, a pair of drive wheels, a pair of steerable wheels, and a hydraulic mechanism including a hydraulic motor interconnecting the engine and drive wheels to propel the vehicle.

3,658,137

INDEPENDENT FRONT AND REAR LIFT SYSTEM

Shaun A. Seymour, Lebanon, Ohio, and Hugh E. Smith, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa.

Filed Oct. 5, 1970, Ser. No. 78,064

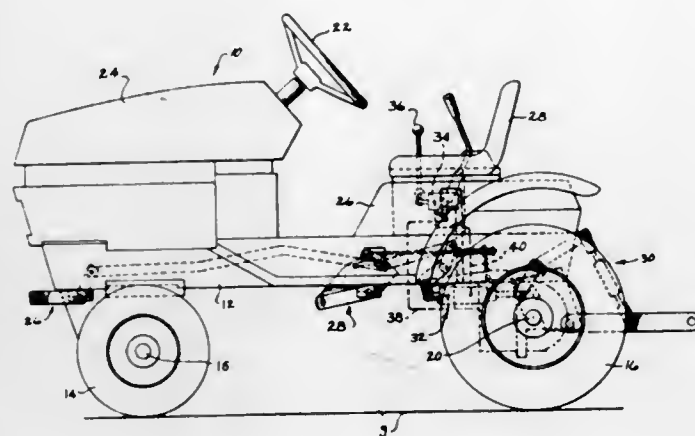
Int. Cl. A01b 59/048

U.S. Cl. 172-300

12 Claims

An independent front and rear lift means for a tractor that is hydraulically actuated by a single double acting cylinder in which each end thereof is operatively connected to one of the lift means. Disposed adjacent the cylinder is a locking

mechanism for selectively anchoring either end of the



cylinder whereby the other or free end may drive the lift means connected thereto.

3,658,138

PROCESS FOR OPTIMIZING THE PENETRATION SPEED OF A DRILLING TOOL DRIVEN BY A MOTOR WHOSE TORQUE DECREASES WITH AN INCREASING RUNNING SPEED AND APPARATUS THEREFOR

Jean Charles Gosselin, Versailles, France, assignor to Institut Français du Pétrole des Carburants et Lubrifiants, Ruell Malmalson (Hauts de Seine), France

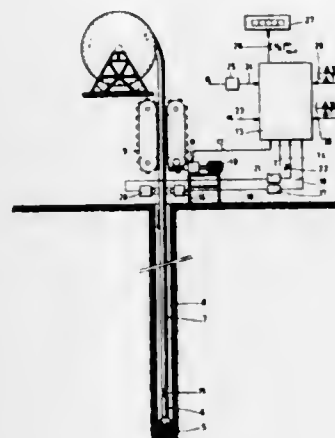
Filed Apr. 21, 1970, Ser. No. 30,534

Claims priority, application France, Apr. 30, 1969, 6913967

Int. Cl. E21b 3/12

U.S. Cl. 173-1

18 Claims



A process for optimizing the penetration speed of a drilling tool driven by a motor whose torque decreases with an increasing running speed and vice-versa, comprising the steps of alternately increasing and decreasing the load on the tool about its optimum value by acting on the tensile stress exerted on the drill string, thereby defining periods of increase and periods of decrease of the ratio $-(\Delta V_a/T)$ which is, with a changed sign the ratio between the variation of the penetration speed of the tool and the corresponding variation of the tensile stress exerted on the drill string, of controlling the passage from a tensile stress-increasing period, at the latest when the ratio $-(\Delta V_a/T)$ attains, while decreasing, a lower limit value and of controlling the passage from a tensile stress-decreasing period to a tensile stress-increasing period at the latest when said ratio attains, while increasing, an upper limit-value, said lower and upper limit values being preselected and adjustable.

3,658,139

ATTACHMENT FOR DRIVING POSTS AND THE LIKE ADAPTED TO BE AFFIXED TO VEHICLES

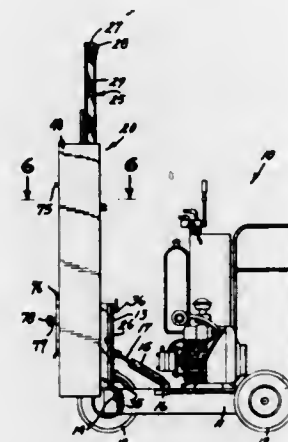
Raymond E. Von Ruden, Owatonna, Minn., assignor to General Equipment Co., Owatonna, Minn.

Filed Dec. 21, 1970, Ser. No. 100,045

Int. Cl. E02d 7/00

U.S. Cl. 173-124

7 Claims



A driving weight having a generally H-shaped cross section engaged on an elongated generally vertically oriented base for free vertical movement and a fluid piston and cylinder assembly affixed to said base and attachable to said driving weight through a ratchet and pawl assembly so that the weight is lifted by the cylinder and piston assembly and dropped in free fall after which the piston and cylinder assembly is retracted and utilized to raise the driving weight again.

3,658,140

MECHANICAL JAR

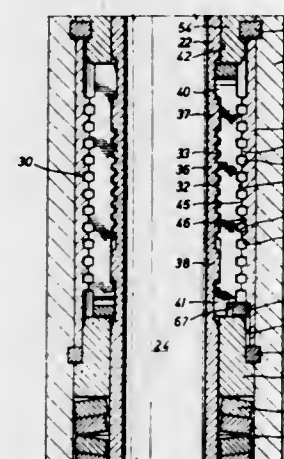
William O. Berryman, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Oct. 20, 1970, Ser. No. 82,287

Int. Cl. E21b 1/10

U.S. Cl. 175-304

10 Claims



A well jar including a mandrel telescopically disposed within a housing, the mandrel and housing being adapted to be disposed in a pipe string and having spaced apart impact surfaces that can be brought together to deliver a jarring blow, an expansible latch sleeve having gripping engagement with the mandrel, cam means for expanding the latch sleeve to release said gripping engagement, a locking sleeve fixed to the housing and having longitudinally spaced internal locking surfaces slidably engaging companion external surfaces on the latch sleeve to prevent expansion of the latch sleeve, the locking surfaces being disengaged from each other by longitudinal relative movement to enable the cam means to expand the latch sleeve, and means for yieldably resisting such

longitudinal relative movement to enable a stretch to be taken in the pipe string before the gripping engagement is released.

3,658,141

DRILL BIT

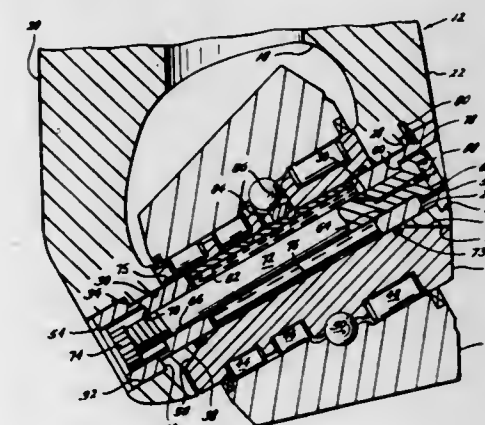
Percy W. Schumacher, Jr., Houston, Tex., assignor to G.W. Murphy Industries, Inc., Houston, Tex.

Continuation of application Ser. No. 811,341, Mar. 28, 1969, now abandoned. This application Apr. 23, 1970, Ser. No. 29,727

Int. Cl. E21c 13/00

U.S. Cl. 175-364

14 Claims



A drill bit including at least one roller cutter rotatively mounted on a journal which is supported by bushings between two legs of a saddle support to retain the journal in its position between the legs during drilling.

3,658,142

WHEEL LOAD SCALE

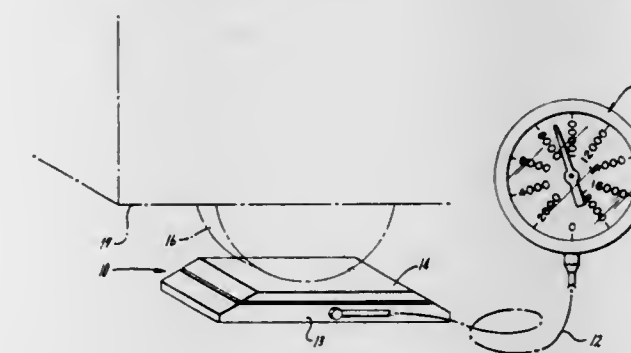
Kenneth N. Marshall, Santa Rosa, and Linus G. Schwartz, Rohnert Park, both of Calif., assignors to National Controls, Inc., Santa Rosa, Calif.

Filed Nov. 20, 1970, Ser. No. 91,237

Int. Cl. G01g 5/04

U.S. Cl. 177-208

10 Claims



Wheel load scale having a one piece base and utilizing flexure pivot assemblies and a hydraulic load cell formed as an integral part of the base to provide a highly portable unit having a low profile and a high degree of accuracy.

3,658,143

FLEXURE PLATE SCALE WITH HYDRAULIC LOAD CELL

Linus G. Schwartz, Rohnert Park, Calif., assignor to National Controls, Inc., Santa Rosa, Calif.

Filed Nov. 20, 1970, Ser. No. 91,496

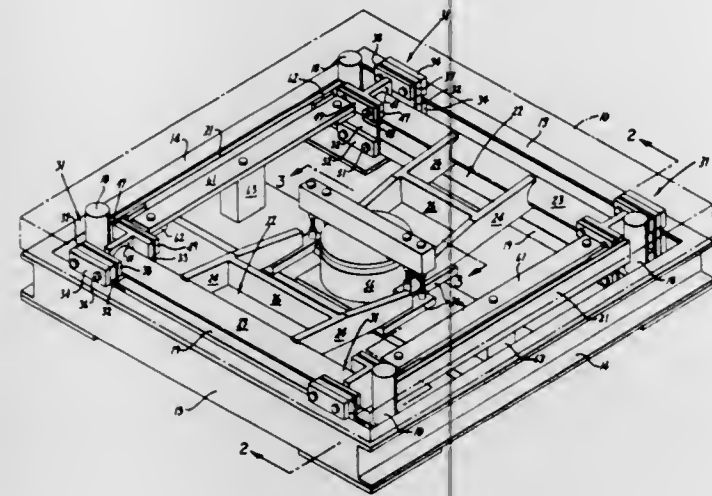
Int. Cl. G01g 3/08, 5/04, 21/02

U.S. Cl. 177-208

6 Claims

Platform scale having a simple lever system utilizing flexure plates and flexible cables to transmit forces from the plat-

form to a hydraulic load cell to produce a hydraulic output



signal having a pressure corresponding to the weight of an object placed on the platform.

3,658,144

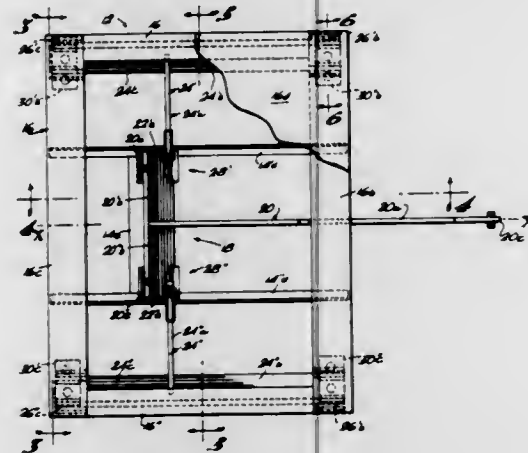
WEIGHT PLATFORM APPARATUS IN A WEIGHING MACHINE

John Bruce Corblitt, 4231 S. W. 32nd Street, Hollywood, Fla.
Filed Mar. 23, 1970, Ser. No. 21,685

Int. Cl. G01g 21/08

U.S. Cl. 177-258

12 Claims



Weighbridge or weight platform structure particularly useful in medium and heavy-duty platform type scales or weighing machines. The weight or load-receiving apparatus is operative through compound lever means for actuating typical weight counterbalancing and indicating elements in a weighing machine. The compound lever means includes a primary lever construction preferably arranged centrally of the weight platform structure and includes a pair of secondary lever constructions arranged oppositely symmetrically of the primary lever construction and coaxially operative therewith. The weight platform apparatus includes a plurality of support pedestal units supportingly interposed between the load-receiving platform structure and the secondary lever constructions, and includes an improved knife edge support means at the respective load arm and force arm fulcrum and load pivot areas of the apparatus, which are adjustable to restore the scale to sensitive response after a period of use in the field, for long term accurate and sensitive operation within accepted limits of precision.

NOVEL SUSPENSION FOR TRACK-LAYING VEHICLES

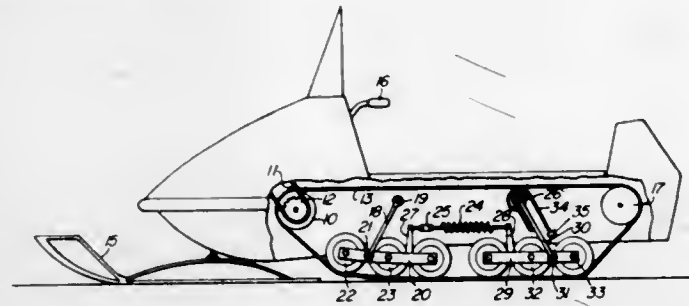
Eugen O. Bergmann, 1848 Redondo Avenue, Salt Lake City, Utah, and Robert L. Cook, 1042 Springfield Drive, Walnut Creek, Calif.

Filed Sept. 23, 1970, Ser. No. 74,626

Int. Cl. B62m 27/02; B62d 55/16

U.S. Cl. 180-5 R

18 Claims



A novel suspension system for track-laying vehicles such as snowmobiles where there is a minimum clearance between the upper and lower portions of an endless track has now been invented. The invention, in a preferred embodiment, comprises an upper drive wheel and an upper idler each fixed by axle means to the frame of said vehicle and forward and rear support arms pivotally attached to the frame, the upper pivot points of said arms being spaced longitudinally. The lower extremities of said arms connect with track contact means adapted to maintain the track in contact with the terrain surface. The forward arm is pivotally connected to said pivot point of said forward arm while the rear arm projects forward from the rear track contact means to its upper pivot point. Horizontal spring means are preferably connected directly to the rear portion of the forward track contact means and to the forward portion of said rear track contact means. The horizontal spring means preferably interconnects the forward and rear track contact means. The novel suspension system of this invention is especially useful on snowmobiles having a rear mounted powerplant.

3,658,146

TRACK VEHICLE SUITABLE TO BE USED ON SLOPING LANDS, THE TRIMMING MOVEMENTS OF WHICH ARE CONTROLLED BY AN OLEODYNAMIC DEVICE

Mario Trivero, Via Cemelli 8, Alessandria, Italy

Filed Feb. 4, 1970, Ser. No. 8,586

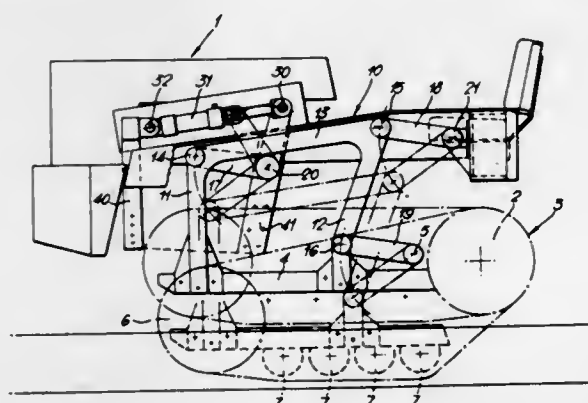
Claims priority, application Italy, Feb. 8, 1969, 6789 A/69;

Dec. 18, 1969, 7526 A/69

Int. Cl. B62d 55/00, 55/08

U.S. Cl. 180-9.52

16 Claims



An improved track vehicle suitable to be used on sloping lands of the type comprising on each side a rear toothed drive wheel, a front idle wheel working as a track tightener which is suitably pushed forward elastically and is supported by a side member on the underside of which are mounted a

suitable number of idlers. Said side member is rigidly connected to a stiff shaped frame which is supported by the vehicle chassis by means of at least two rockers linked at one end to the vehicle chassis and at the other end to said shaped frame. Suitable driving means automatically or manually controlled by the vehicle driver are provided for displacing said side member vertically with respect to the vehicle chassis in order to compensate the level differences in the ground.

3,658,147

DEVICE FOR MEASURING ACOUSTIC QUANTITIES

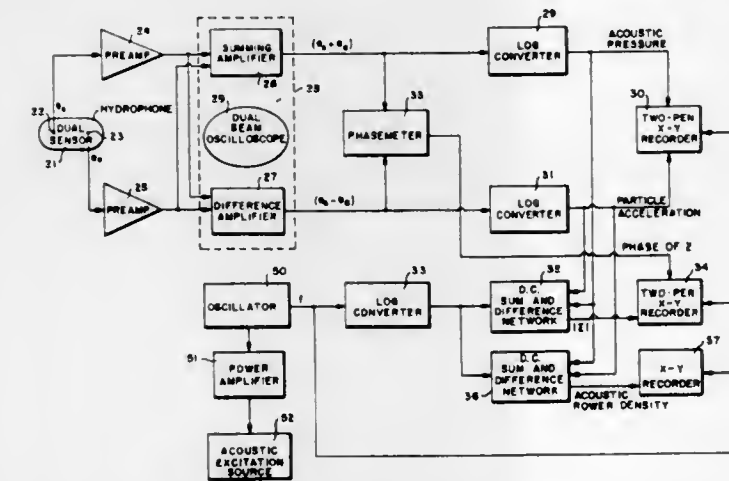
Louis T. Ho, Lanham, and Robert J. Flaherty, III, Glen Burnie, both of Md., assignors to The United States of America as represented by the Secretary of the Navy

Filed June 29, 1970, Ser. No. 50,767

Int. Cl. G01v 13/00

U.S. Cl. 181-.5 AP

5 Claims



A device for measuring and displaying four different acoustic quantities in a fluid medium. The specific acoustic quantities are: acoustic pressure; particle acceleration; acoustic impedance; and acoustic power density. All of these quantities are determined simultaneously and each is instantly displayed as a function of the driving frequency of an excitation source in the fluid medium.

3,658,148

LAND VEHICLE RELEASABLY CARRYING A GEOPHYSICAL EXPLORATION TOOL

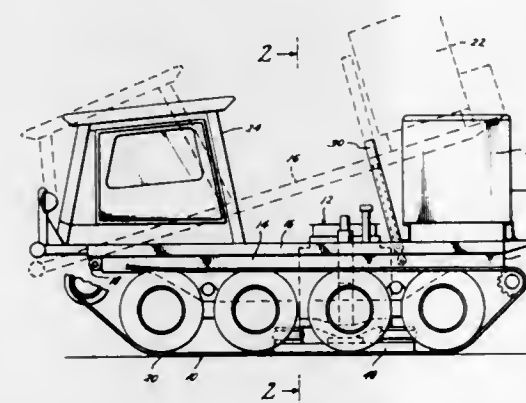
Frank Clynn, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 29, 1970, Ser. No. 32,864

Int. Cl. G01v 1/02

U.S. Cl. 181-.5 VM

12 Claims



A land moving vehicle for carrying a geophysical exploration tool between the ends of the vehicle in a normal upward position and adapted to lower the tool onto the ground for surveying in which the tool is releasably connected to the vehicle. The vehicle having a first frame with ground moving

means and including a longitudinal opening extending through one end in which the tool is releasably positioned and a second frame pivotally connected to the first frame at the second end, and means for raising the first end of the second frame relative to the first end of the first frame for removing or inserting the tool. The tool support including lifting and guide means and adapted to be releasably connected to the frame adjacent the longitudinal center of gravity of the vehicle.

3,658,149

OVAL-FLEXING SEISMIC SOURCE

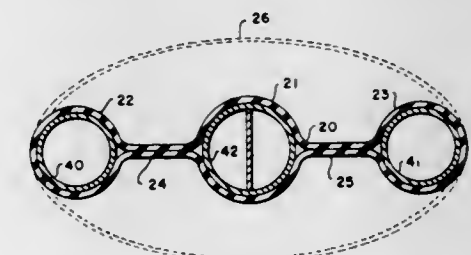
William J. Neal, Manvel; Jacob C. Richardson, Houston, and Thomas F. Vining, Houston, all of Tex., assignors to Shell Oil Company, New York, N.Y.

Filed Sept. 18, 1968, Ser. No. 760,461

Int. Cl. G01v 1/02

U.S. Cl. 181-0.5 NC

8 Claims



A seismic source wherein an explosive gas mixture is detonated within a closed chamber having a flexible wall in contact with a body of liquid. When the gas mixture is detonated, the flexible wall expands and displaces the adjacent liquid. Subsequently, before the flexible wall collapses, the chamber is opened to an exhaust conduit, and after a time delay the chamber is opened to a vacuum source. The vacuum completes the scavenging of the chamber, and it is then ready for the next cycle.

3,658,150

HEARING AUGMENTATION DEVICE

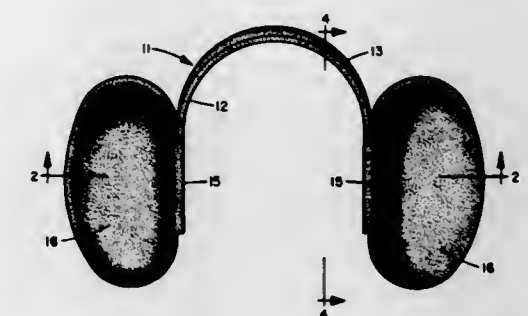
William A. Turner, 205 Sycamore Road, Franklin, Va.

Filed Mar. 5, 1971, Ser. No. 121,309

Int. Cl. G10k 11/10

U.S. Cl. 181-25

6 Claims

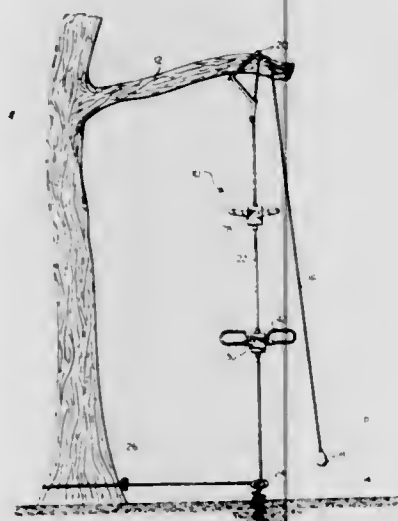


A hearing augmentation device including an inverted, substantially U-shaped headband section adapted to partially encircle a person's head sufficiently snugly to be clamped thereto; the headband section extending across the top of the head of a person wearing the device and terminating adjacent each of such a wearer's ears. A bone contact section is interconnected with each terminus of the headband section; each bone contact section being adapted to press against the bony cage above and behind an ear of the wearer of the device through the skin only thinly covering the bone. Each bone contact section carries a sound wave receptor element arranged to extend outwardly from the adjacent side of the head of the wearer of the device behind the adjacent ear;

each sound wave receptor element deflecting sound waves into the wearer's adjacent ear and also vibrating in response thereto to induce vibrations in the adjacent bone contact section and therefore in the bony cage above and behind the wearer's adjacent ear interpretable as audible signals.

3,658,151 CLIMBING AID

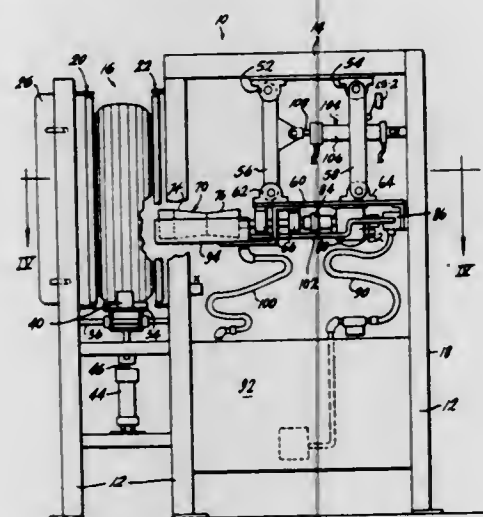
Hamilton L. Wisdom, 324 East Oak Lane, Lake Charles, La.
Filed July 14, 1970, Ser. No. 54,825
Int. Cl. A63b 27/00; A62b 1/06
U.S. Cl. 182-135



Climbing aid structure includes a grappling hook. A throw line and a climbing line are attached to the grappling hook. The throw line is thrown over an overhead support (such as a tree limb), and the grappling hook is emplaced by manipulation of the throw and climbing lines. The climbing line is then oriented in an upright position and tensioned by use of a ground anchor. Hand-and-foot engaging, line-gripping elevator devices are positioned on the climbing line for ascent of the line by a climber. The line-gripping devices include levers which wedge against the rope under the weight of a climber, to grip the rope and provide support for the climber to ascend the climbing line.

3,658,152 TIRE BEAD LUBRICATOR

John L. Mueller, Detroit, Mich., assignor to Sparton Corporation, Jackson, Mich.
Filed Jan. 11, 1971, Ser. No. 105,559
Int. Cl. F16n 1/00; B05c 5/02
U.S. Cl. 184-1 R

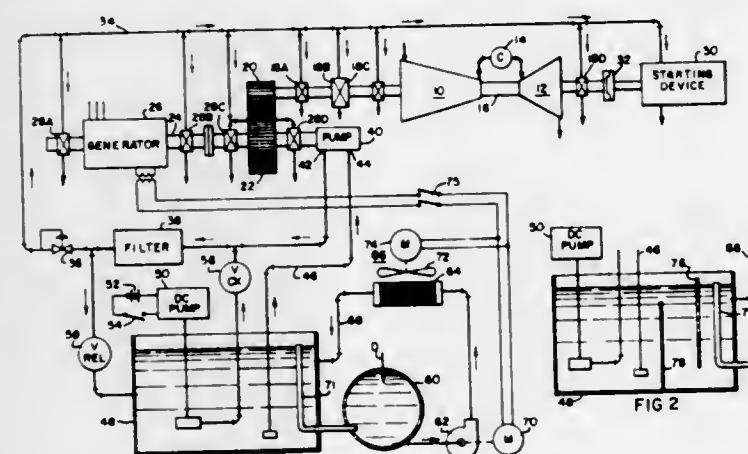


Apparatus for automatically applying a lubricating liquid to the beads of an unmounted pneumatic tire prior to the mounting of the tire upon a wheel. The apparatus includes a

rotating roller having a periphery coated with the lubricating liquid which is axially inserted through the tire opening and raised to support the tire upon the roller by its beads wherein rotation of the roller applies the lubricating liquid to the tire beads. The apparatus is automatically operated, and preferably, forms a part of an automated wheel assembly system. Axial and vertical movement of the roller is accomplished by a roller supporting linkage system.

3,658,153 LUBRICATING OIL SYSTEM FOR A PRIME MOVER

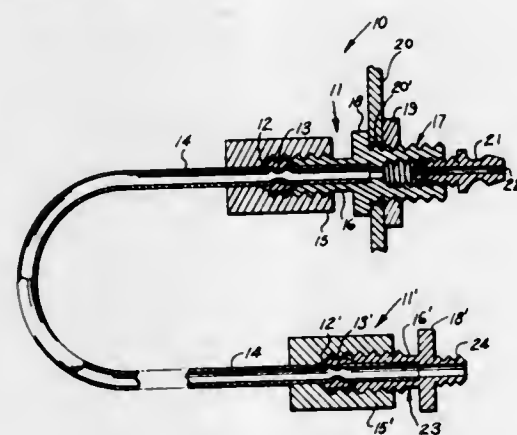
Paul A. Berman, Plymouth Meeting, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Nov. 28, 1969, Ser. No. 880,843
Int. Cl. F01m 7/00
U.S. Cl. 184-6.3



A lubricating oil system for an internal combustion prime mover having an oil pump driven by the prime mover shaft and an electrically driven oil pump arranged in series flow relation with the prime mover shaft bearings for pumping hot oil from the bearings through an oil cooler and into a main reservoir during normal operation. A drain tank is disposed between the bearings and the main reservoir and in communication with the reservoir above the normal oil level. During a "black start" when no power is available to drive the electrical pump and the oil cooler fan, the shaft driven pump is effective to pump cool oil from the main reservoir to the bearings and the thus-heated oil from the bearings to the drain tank without immediately returning the heated oil to the reservoir. Several "starts" are thus permitted before the oil in the main reservoir is heated by oil returning from the bearings and the drain tank.

3,658,154 CENTRALIZED GREASING SYSTEM

Stephen Edward Benko, Jr., 1055 Rosalie Avenue, Lakewood, Ohio
Filed Feb. 2, 1970, Ser. No. 7,882
Int. Cl. F16n 21/00
U.S. Cl. 184-8

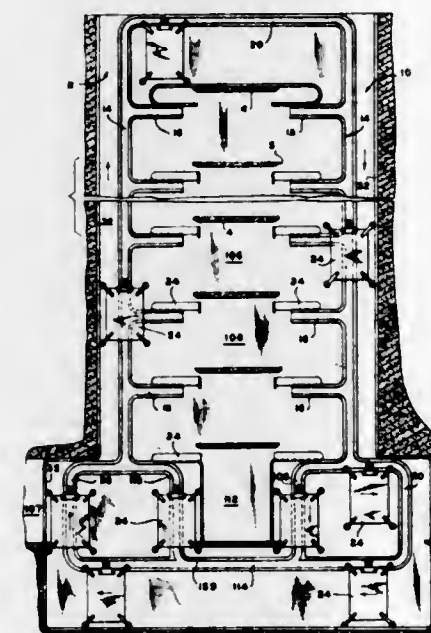


A greasing system which will allow greasing of all components of machines and vehicles from a central point. This

system includes a multiple number of nipple fittings secured to a panel or bulkhead. The portion carrying the grease extends from the fitting to various fittings screwed into various components of the machines or vehicles that are to be greased, the system preventing the former necessity of having to apply grease to each component at its immediate location.

3,658,155 ELEVATOR SYSTEM

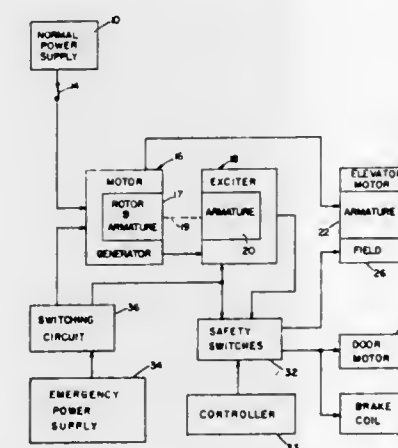
William G. Salter, 22001 Inkster Road, Farmington, Mich.
Filed Sept. 15, 1970, Ser. No. 72,480
Int. Cl. B66b 9/00
U.S. Cl. 187-16



A plurality of separate elevator cars are movable vertically in the same elevator shaft. Each car is self-propelled and can move laterally from the shaft at any floor, to a loading or unloading station, leaving the shaft clear for passage of other cars past that station in the same shaft. All cars move upwardly in one shaft and when they reach the top are transferred to the top of a second shaft and can move downwardly therein in the same leap-frog manner. As each car reaches the bottom of the second shaft it transfers to the bottom of the first shaft for upward movement therein.

3,658,156 ELEVATOR STARTING

Paul Douglas Abbott, 403 Webster Street, Needham, Mass.
Filed Aug. 27, 1969, Ser. No. 853,265
Int. Cl. B66b 1/46
U.S. Cl. 187-29 R

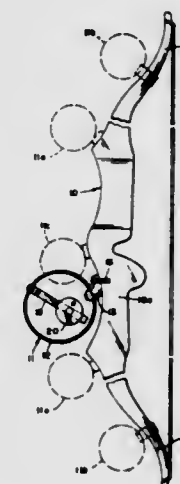


Utilizing an auxiliary power supply to start the motor-generator set of an elevator system in which the set has a pri-

mary motor with a large starting current requirement which may not be met by the auxiliary supply and in which the rotor of the motor is mechanically coupled to the rotor of a secondary motor whose starting current requirement is satisfied by the output of the auxiliary supply by energizing the secondary motor from the auxiliary supply until the rotational speed of the coupled rotors reaches a predetermined value at which the current demand of the primary motor is within the output capability of the auxiliary supply and then electrically connecting the auxiliary supply to drive the primary motor.

3,658,157 ARCHERY BOW TUNING AND STABILIZING ATTACHMENT

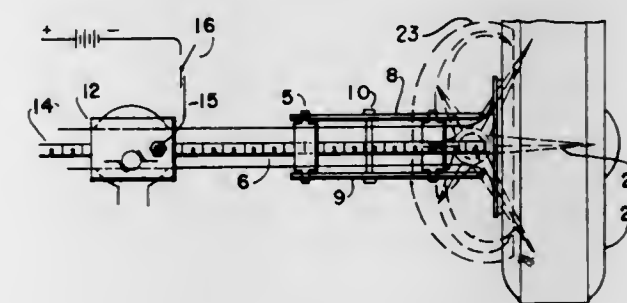
Frank M. Lee, 1201 N. Tuckahoe Street, Falls Church, Va.
Original application Oct. 31, 1968, Ser. No. 772,075, now Patent No. 3,525,822. Divided and this application May 15, 1970, Ser. No. 48,665
Int. Cl. F16f 7/10
U.S. Cl. 188-1 B



A torque ring adjustably secured at a selected point to an archery bow. A tuning bar has one end thereof universally adjustably secured to the torque ring and has a weight adjustably mounted thereon. The tuning bar is resiliently flexible for oscillation with the weight in any selected plane with respect to the plane of the bow, under shock transmitted from the bow to the torque ring.

3,658,158 ANTI-SKID DEVICE FOR MOTOR VEHICLES

Chauncey P. Saupp, 31 Bennett Street, Williamsport, Pa.
Filed Feb. 17, 1970, Ser. No. 12,103
Int. Cl. B60t 1/04
U.S. Cl. 188-4 B



An anti-skid device for motor vehicles having a hub with radial spokes with the spokes made in two parts with a sliding

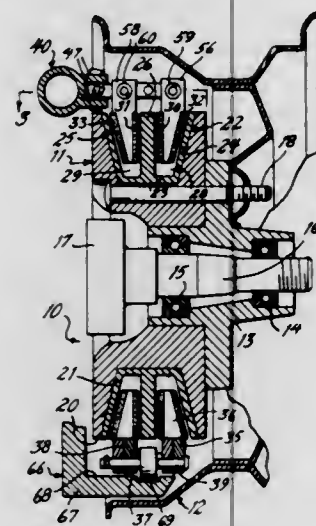
connection therebetween so that the spokes may change in length as they pass under the tire.

3,658,159 BRAKE DEVICE

John Mallinger, 109 N. Childs Street, Woodbury, N.J.
Filed Aug. 7, 1970, Ser. No. 61,946
Int. Cl. F16d 49/12

U.S. Cl. 188—77 R

16 Claims



A peripherally grooved rotary disc, a pair of pivotally connected arcuate shoes relatively swingable into and out of braking engagement within the disc groove, interconnecting means for effecting relative swinging of the shoes, and reinforcing means for enhancing the braking action of the shoes.

3,658,160 SPOT-TYPE DISC BRAKE

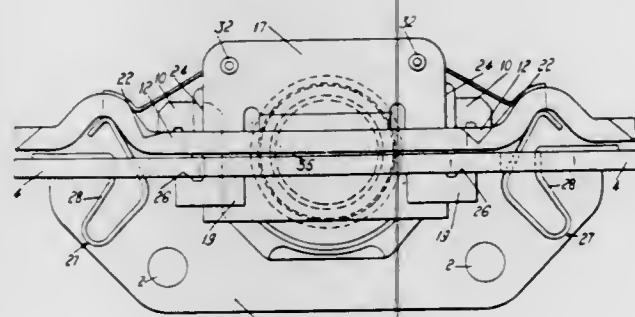
Hans Albert Beller, Bad Vilbel, and Jochen Burgdorf, Offenbach, both of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed June 22, 1970, Ser. No. 48,426
Claims priority, application Germany, June 25, 1969, P 19 32 057.1

Int. Cl. F16d 65/02

U.S. Cl. 188—73.4

15 Claims



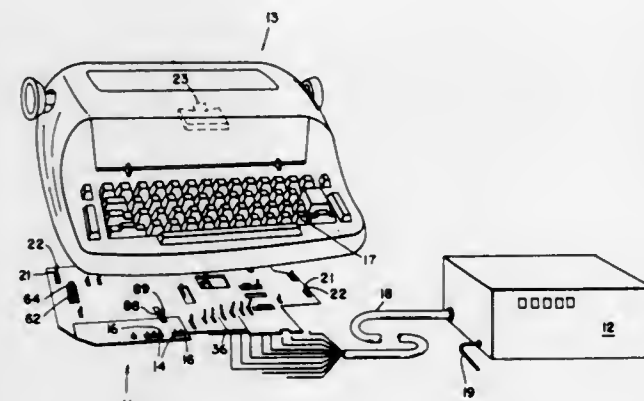
A floating spot-type disc brake having a fired brake carrier and a floating sheet metal frame which supports the actuating piston and transmits the actuating force from one side of the disc to the brake shoe on the other side of the disc. The frame and carrier are held in a parallel position in which they are spaced slightly from each other by means of springs urging them apart and restraining arms on either the carrier and/or the frame. The arms are perpendicular to the frame and carrier and terminate in bearing or contact surfaces facing the part to which the arm is attached for limiting the movement of the parts away from each other.

3,658,161 DATA INPUT MECHANISM FOR AN ELECTRICAL TYPEWRITER

Lawrence Holmes, Jr., 22A Byrne Court, Wayne, N.J.
Filed Feb. 18, 1970, Ser. No. 12,227
Int. Cl. B41j 5/30

U.S. Cl. 197—19

7 Claims



A baseplate attachment for initiating operations of a typewriter in response to coded electrical signals from an external source includes bail actuators for manipulating the internal character selection mechanism of the typewriter and further includes solenoids which determine the particular bail actuators to be activated in response to each set of incoming signals. The driving force for operating the bail actuators to manipulate the character selection mechanism is obtained from the typewriter motor rather than the solenoids which may be small and do not require high current input signals.

3,658,162
APPARATUS FOR ATTACHING A TYPE HEAD
Chien van der Werff, Harlesiel u. Carolinensiel, Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany
Filed Nov. 12, 1970, Ser. No. 88,768
Claims priority, application Germany, Nov. 13, 1969, P 19 57 054.8

Int. Cl. B41j 1/60

U.S. Cl. 197—52

10 Claims



Holding portions of a carrier shaft pass through a type head and have slots above the same located in a cap on the type head. An arresting slide is mounted in the cap and has an arresting end position located in the slots so that the cap retains the type head, and an inoperative end position in which the type head can be detached. A handle lever is mounted on the cap and connected by a spring with the arresting slide in such a manner that the spring is more tensioned in an intermediate dead center position than in the arresting and inoperative positions, and the arresting slide tends to remain in either end position.

3,658,163 VARIABLE FORMAT CONTROL FROM PRE-PRINTED LINE MARKS

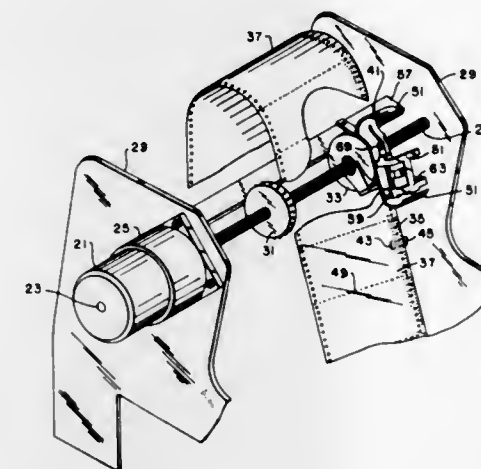
Albert Sniderman, Southfield, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed July 24, 1969, Ser. No. 844,560

Int. Cl. B41j 15/00

U.S. Cl. 197—133

20 Claims



A line printer of a data processing system uses continuous web paper that has been pre-printed or pre-marked with two vertical rows of line marks disposed along one edge thereof, each line mark representing a selectable printing line thereon. As each line of output information is transmitted to the line printer for printable recording, a binary code representing a selected printing line on a separable page form of the web paper is transmitted by the computer of the system and received and stored by the line printer, such receipt and storage serving to advance the web paper from the printing line on which the preceding line of information was recorded. During this advancement of the web paper, scanning means associated with the line printer, in cooperation with the advancing pre-printed line marks, serves to detect the arrival of the selected printing line in printing position and to stop the web paper and page form commensurate therewith for the performance of the printing function.

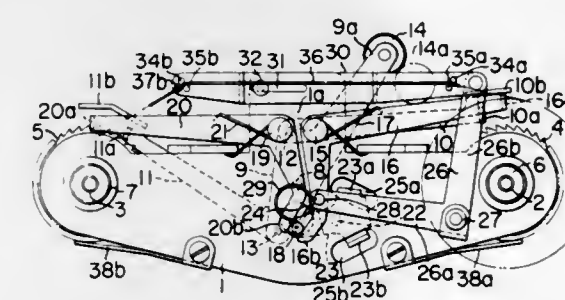
3,658,164
DEVICE FOR REVERSING LONG TAPE
Sakae Fujimoto, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Feb. 9, 1970, Ser. No. 9,550

Claims priority, application Japan, Feb. 20, 1969, 44/13084
Int. Cl. B41j 33/44

U.S. Cl. 197—165

5 Claims



A device for advancing tape or the like for use in, for example, typewriters in which a movable member is displaced by stoppers fixed to the tape adjacent to its ends so that in response to the movement of this member, the tape is reversed in direction. The tape or the like may be positively reversed and when the positions of the stoppers are slightly changed, the position at which, for example, a type strikes a

typewriter ribbon may be changed, so that the service life of the ribbon, tape or the like may be increased.

3,658,165 PLATEN TURNING KNOB WITH A PAPER EDGE INDICATOR SCALE

Dieter Mankau, and Werner Duddey, both of Wilhelmshaven, Germany, assignors to Olympia Werke AG, Wilhelmshaven, Germany

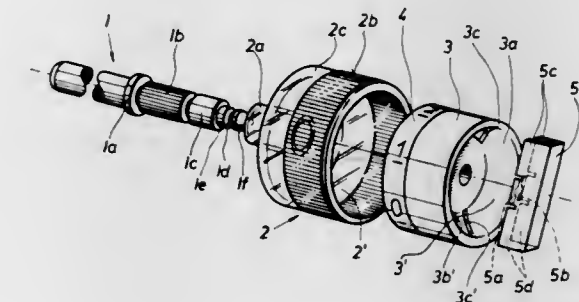
Filed May 6, 1970, Ser. No. 35,073

Claims priority, application Germany, May 7, 1969, P 19 23 239.4

Int. Cl. B41j 29/44

U.S. Cl. 197—189

4 Claims



A platen turning knob has a transparent cylinder with knurling on a portion of its peripheral surface. An independently rotatable insert member with a paper edge indicating scale provided on its peripheral surface is arranged inside the cylinder. The knob and insert member are slipped onto the end of the roller shaft, and a bar member is snapped onto the end of the shaft to retain the knob and insert member in position.

3,658,166 CONVEYING APPARATUS WITH ENDLESS CHAIN MEANS

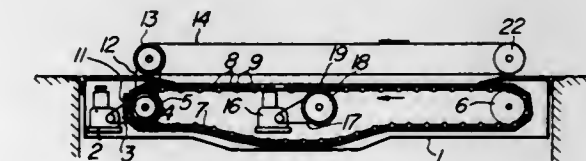
Takeshi Hara, Katsuta; Sholchi Nakao, Mito, and Katsuya Teranishi, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 1, 1970, Ser. No. 24,753

Claims priority, application Japan, Apr. 4, 1969, 44/25558
Int. Cl. B65g 23/00, 65/28

U.S. Cl. 198—16

9 Claims



Conveying apparatus provided with chain transmission means having an endless chain passing around a pair of sprockets, said chain transmission means further comprising an intermediate sprocket having involute teeth and disposed for meshing engagement with the endless chain on the tight side thereof, said intermediate sprocket being driven so as to move said endless chain.

3,658,167

METHOD OF AND DEVICE FOR CONVEYING AND ARRANGING EMPTY RECEPTACLES, SUCH AS BOTTLES OR JARS

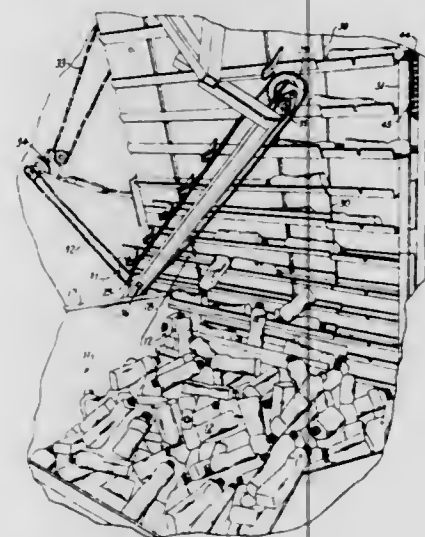
Frank Zabroski, 70 Hadley Way, Convent Station, N.J.; Walter McDonald, 558 Dell Road, Landing, N.J., and Norbert J. Seitel, 45 Gillette Road, Meyersville, N.J.

Filed June 11, 1970, Ser. No. 45,359

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AA

8 Claims



An endless conveyor fitted with parallel open-ended troughs passing through a bin containing empty receptacles scoops up several receptacles simultaneously which then settle in the troughs with their axes aligned. Endwise advance of the receptacles along each trough causes all but one receptacle to be ejected, resulting in the formation of a single continuous row of parallel receptacles along one conveyor edge. After removal from the row the receptacles are upended, placed in converging lanes which merge to produce a continuous supply line of a capacity of several hundred receptacles per minute.

3,658,168

METHOD OF, AND DEVICE FOR, ORIENTING OPEN-MOUTHED RECEPTACLES ARRIVING IN A CONTINUOUS ROW OF HORIZONTALLY DISPOSED RECEPTACLES

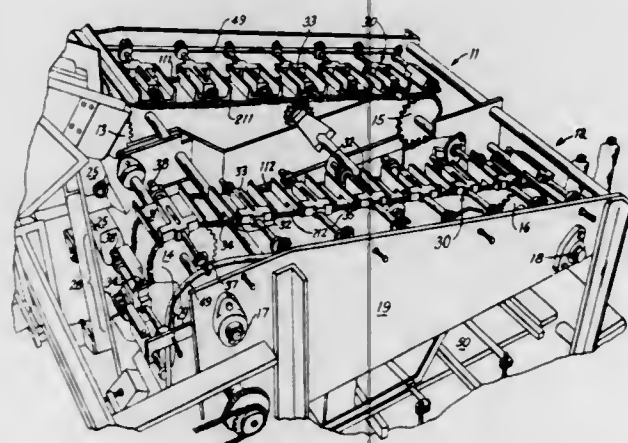
Frank Zabroski, 7 Hadley Way, Convent Station, N.J.; Walter McDonald, 558 Dell Road, Landing, N.J.; Anthony P. Pano, Jr., 57 Westgate Drive, Sparta, N.J., and Norbert J. Seitel, 45 Gillette Road, Meyersville, N.J.

Filed June 12, 1970, Ser. No. 45,656

Int. Cl. B65g 47/24

U.S. Cl. 198—33 AC

10 Claims



Horizontally disposed continuously arriving receptacles are successively grasped by their mouths and swung to the right

or left, depending on the mouth orientation, through a 90° arc into vertical upended position and deposited to form two discontinuous parallel lines in which presence of a receptacle in one line is matched by a gap in the other line. Both lines are advanced to a zone of merger where a single continuous line of receptacles results.

3,658,169

SCRAPER TO RECOVER BULK MATERIAL FROM STORAGE

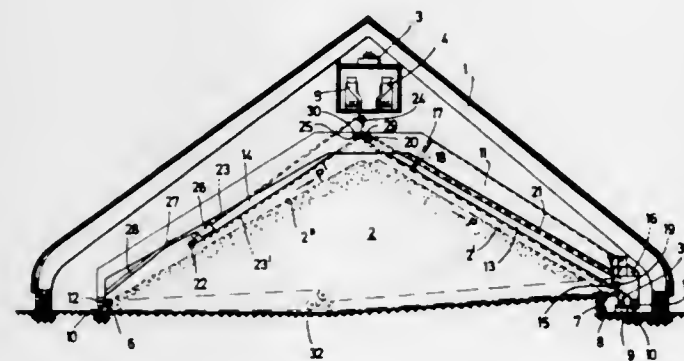
Ingo Potthoff, Dortmund-Schuren, Germany, assignor to Gustav-Schade Maschinenfabrik, Dortmund, Germany

Filed June 1, 1970, Ser. No. 42,288

Int. Cl. B65g 65/28

U.S. Cl. 198—36

14 Claims



A gantry frame resembling an inverted V is movable on tracks so as to straddle a heap of dry bulk material. Two jib cranes are articulated together, the articulation being at the vertex of the inverted V which the two jib cranes form together when the storage area is heaped full. One jib crane is pivoted at its outer end at the lower end of one leg of the gantry frame. The lower, free end of the other jib crane runs in a track or guideways mounted near the lower end of the other leg of the gantry frame. Each jib carries a flight-type of endless belt undershot conveyor, one jib conveyor having two rotary members (sprockets or idlers) at the inner or vertex end, and a plane through the axes of rotation forms an obtuse angle with the work run of the conveyor, such that the outer jib endless conveyor at its inner or delivery end at all times overlies the receiving end of the pivoted jib conveyor. The two conveyors form an angle that varies between approximately the vertex angle of the V (storage area full) and approximately 180° (storage area empty). A second embodiment is carried on a frame that pivots on a vertical axis on a self-propelled track-layer, wherein again the outer conveyor at its inner (delivery) end overlies the receiving end of the conveyor pivoted to the frame. Whereas the first embodiment is intended to straddle a heap, the second embodiment is intended to operate alongside the heap so that the outer conveyor extends upward alongside the heap so that the outer conveyor extends upward along the slope of heaped material, with the result that the two jibs and the conveyors carried by them form an angle between them that is greater than 180° in the position on a heap of storage material that is referred to above.

3,658,170

DOCUMENT CONVEYING MEANS

George Wilson, Mississauga, Ontario, Canada, assignor to Acme Visible Records, Inc., Crozet, Va.

Filed July 13, 1970, Ser. No. 54,404

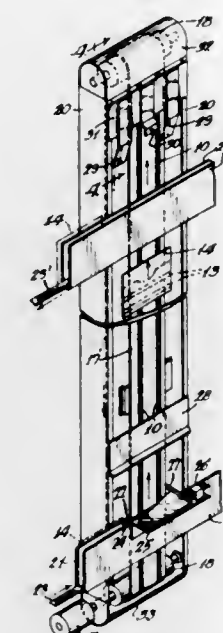
Int. Cl. B65g 15/00

U.S. Cl. 198—131

5 Claims

Vertically and/or horizontally traveling conveyor belt and a pocket member for conveying documents, one of said belt

and document conveyors having fixed thereto pile fabric and the other complementary hook fabric whereby the conveyor may be reversed for driving in the opposite direction while some of the springs are still attached without requiring the



can be releasably secured to and separated from the belt when desired.

3,658,171

TRANSPORTATION METHOD FOR USE IN EQUIPMENT OF MOVABLE BEAM TYPE

Kenzo Fukada, Kitakyushu, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

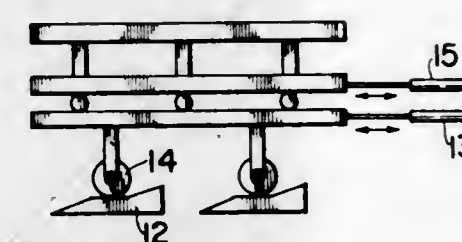
Filed Aug. 27, 1969, Ser. No. 853,442

Claims priority, application Japan, Sept. 7, 1968, 43/64515

Int. Cl. B65g 25/04

U.S. Cl. 198—219

6 Claims



A transportation method for use in a heating turnace of movable beam type or other equipment of such type, which transportation is carried out by the movement of the movable beams, such movement being subjected to speed reduction during the upward and the downward strokes just before the upper surface of said movable beams approaches that of the fixed beam.

3,658,172

AUTOMATIC PART FEEDING EQUIPMENT

Harold R. Hacker, 522 Woodview Drive, Noblesville, Ind.

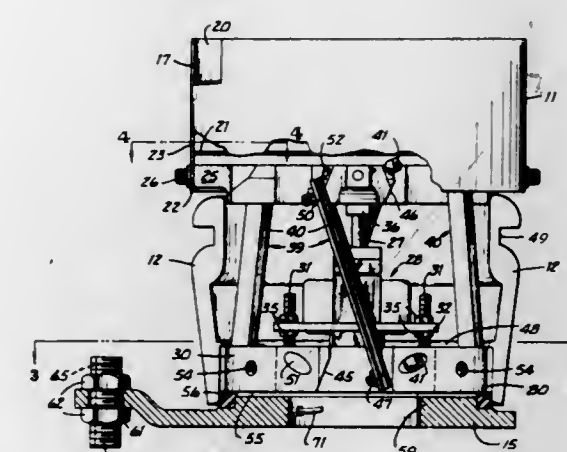
Filed Jan. 2, 1970, Ser. No. 119

Int. Cl. B65g 27/08

U.S. Cl. 198—220 CA

11 Claims

A vibratory parts feeder including a bowl having a depending flange through which screw fasteners extend fixing the bowl directly to and against a spider frame inside of the flange. The bowl and frame are supported by springs which extend between the frame and a support member which is in turn supported on an annular flexible vibration damper. A motor drive also extends between the frame and the support member. The damper is held in position by a base adjustable as to attitude and adapted to be rigidly bolted to a mounting surface. The springs are so mounted that portions thereof



unbolting and moving of spring attachment points which are permanently and integrally provided.

3,658,173

MECHANICAL FORCE SENSING DECLUTCHING MECHANISM

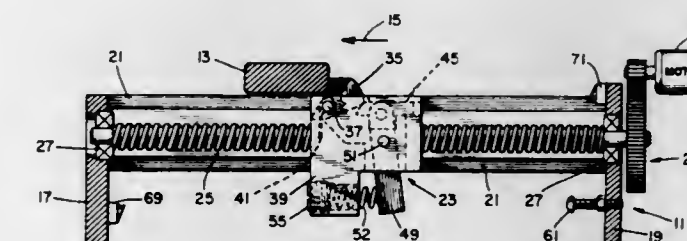
John A. Conti, Woodland Hills, Calif., assignor to Hughes Tool Co., Aircraft Division, Culver City, Calif.

Filed Feb. 2, 1970, Ser. No. 7,813

Int. Cl. B65g 25/08

U.S. Cl. 198—221

17 Claims



A declutching mechanism for use in a cycling conveyor-type feed system in which the workpiece being fed may be subjected to reaction forces due to a system blockage. A cam follower on a carrier member reacts against a cam surface on a slide member to resist normal reaction forces. When the reaction forces build up to a predetermined force, such as by a system blockage, a pivotally mounted slide actuator acting against a spring is pivoted so that the cam follower passes over the cam surface and the carrier member falls below the workpiece and is locked into a lowered position by the slide member. The work moving mechanism then continues past the stopped workpiece and continues on to the end of its travel for recycling.

3,658,174

WIG FORM AND CARRYING CASE THEREFOR

Morris Friedman, Fort Lee, N.J., assignor to Blockhead, Inc., New York, N.Y.

Filed Aug. 13, 1969, Ser. No. 849,714

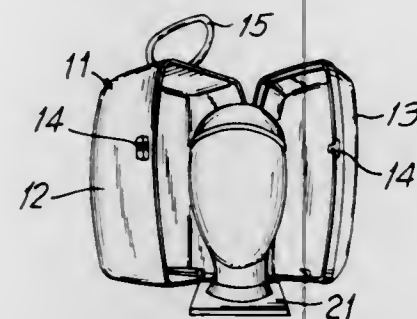
Int. Cl. A45c 11/62

U.S. Cl. 206—8

5 Claims

A wig form which can be used to hold a wig for styling and transport which makes use of its internal cavity for supporting and transporting a second wig or wiglet or hair piece and

a carrying case for the wig form which rigidly and securely locks the wig form in place within the case when the case is closed and which releases the wig form for ready removal when the case is opened.



closed and which releases the wig form for ready removal when the case is opened.

3,658,175 DISPLAY CARD

George Vrana, Flushing, N.Y., assignor to Riegel Paper Corporation, New York, N.Y.

Filed Feb. 4, 1970, Ser. No. 8,673
Int. Cl. B65d 5/50

U.S. Cl. 206—45.14



A one-piece display card for elongate articles is disclosed. The new card includes upper and lower pockets having a belows-type structure and an intermediate bridging section between the pockets. A flap member is provided at the rear portion of the upper pocket to facilitate the insertion and removal of an article to be packaged.

3,658,176

COMPACT NESTING SEPTIC TANK PACKAGE AND SEWAGE DISPOSAL SYSTEM UTILIZING SAME

Edward S. Reid, Hartsville, S.C., assignor to Sonoco Products Company, Hartsville, S.C.

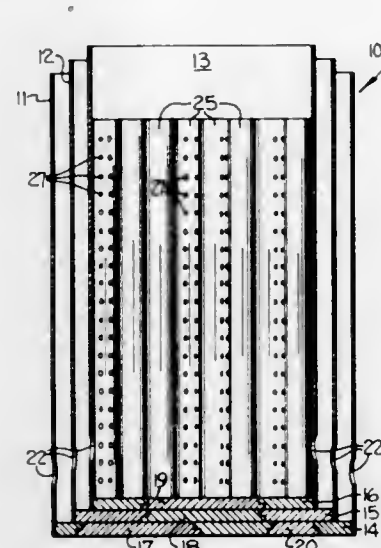
Filed Apr. 7, 1970, Ser. No. 26,321
Int. Cl. B65d 7/02, 85/62

U.S. Cl. 206—65 K

7 Claims

A compact nesting septic tank package comprising a plurality of prefabricated elongate septic tanks having one open end and successively diminishing cross-sectional areas with the tanks being successively and removably positioned one within the other. The inner septic tank preferably has a plurality of conduits positioned therein in a nesting package arrangement for use in forming sewage conduits. A sewage disposal system may be formed from the package comprising vertically extending, tandemly arranged septic tanks of diminishing cross-sectional areas to provide the desired capacity. The septic tanks include closures at the upper ends and are closed at the lower ends by being mounted on a base

member. The system includes conduits interconnecting the septic tanks and arranged for conveying sewage from a



source to the tanks, between the tanks and to an absorption field. Preferably, the conduits are so disposed for conveying the sewage throughout the absorption field.

1 Claim

3,658,177 PACKAGE FOR NEEDLES

Donald Saunders, Astwood Bank, near Redditch, England, assignor to The British Needle Company Limited, Redditch, Worcestershire, England

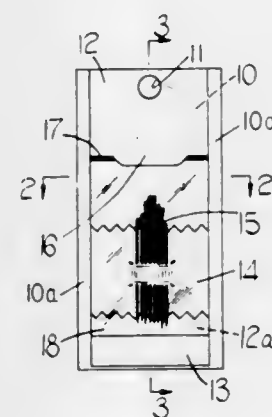
Filed Oct. 17, 1969, Ser. No. 867,279

Claims priority, application Great Britain, Nov. 6, 1968, 52,501/68

Int. Cl. B65d 85/24

U.S. Cl. 206—66

1 Claim



A needle package comprising a substantially rigid backing member, a needle mount piece slidably engaged in parallel flanges of the backing member and a transparent panel also engaged in the backing member flanges and overlying the needle mount piece, with sliding movement of the needle mount piece and transparent panel out of the backing member flanges allowing access to be gained to needles between the needle mount piece and the transparent panel.

3,658,178

MAGNET ASSEMBLY FOR MAGNETIC SEPARATOR

Robert A. Parnell, 648 W. Washington, Marengo, Ill.

Filed Mar. 26, 1970, Ser. No. 22,823

Int. Cl. B03c 1/22

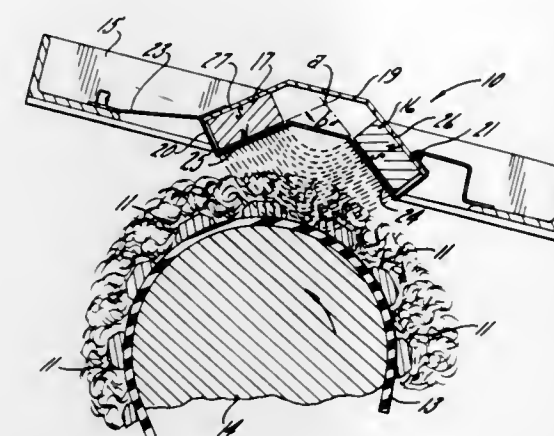
U.S. Cl. 209—223 R

3 Claims

A pair of ceramic permanent magnets are inclined at a

predetermined angle relative to one another and to an arcuate path along which cotton is conveyed so as to concentrate

agent such as a cement broth may be filled into the cavities remaining in the vessel between its wall and the filter component.



the magnetic field on the path and increase the ability of the magnets to attract magnetic particles from the cotton.

3,658,179

METHOD FOR SEPARATING LIQUID FROM SOLID SUBSTANCES AND STORING THE SOLID SUBSTANCES

Gustav Baumann, Untersiggenthal, and Gerhard Hentschel, Neuenhof, both of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

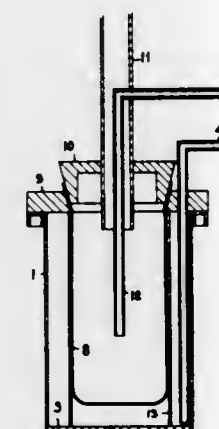
Continuation of application Ser. No. 689,440, Dec. 11, 1967, now abandoned. This application Feb. 3, 1970, Ser. No. 7,380

Claims priority, application Switzerland, Dec. 20, 1966, 18180/66

Int. Cl. B01d 57/00

U.S. Cl. 210—66

1 Claim



Apparatus for separating liquid-solid mixtures such as water from ion-exchange resins and mud in connection with the operation of a nuclear power plant, or separating other mixtures such as acid or alkali containing liquids, and thereafter storing the separated out solids all in one and the same vessel. Located within the vessel which is initially open at the top, and in radially spaced relation from the vessel wall is a filter component in the form of a cylindrical sieve or filter bag. The liquid-solid mixture is introduced into the filter component and the liquid component filters through the wall of the sieve leaving the solids within the filter. The liquid is then drawn off from the vessel by a suction pipe, after which the suction pipe is then removed and the vessel is then closed tightly by a cover member provided for the top. If desired, the vessel can be centrifuged to further remove the water component from within the filter, or compressed air can be introduced into the interior of the filter to serve the same purpose. If the solids are ion-exchange resins which are radioactive, a water and/or ionizing radiation-absorbing

3,658,180 APPARATUS FOR SENSING CONDITION OF A FLUID

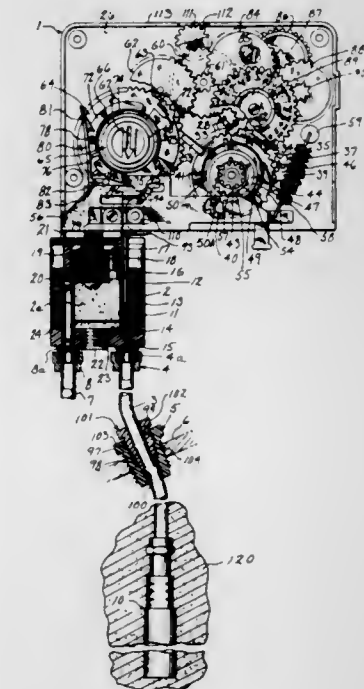
David G. Prosser, Mequon, Wis., assignor to Autotrol Corporation, Milwaukee, Wis.

Original application Apr. 23, 1969, Ser. No. 818,763, now Patent No. 3,574,330, dated Apr. 13, 1971. Divided and this application Sept. 2, 1970, Ser. No. 69,079

Int. Cl. B01d 15/04

U.S. Cl. 210—96

10 Claims



A water softener sensor control transmits the output of a motor in response to hardness of periodic water samples. The motor drives a timing gear that periodically actuates a control assembly to slide a cam member to open a valve in a resin containing chamber to admit a water sample, and to drop a plunger on the resin to detect its volume. If the water is hard, the resin shrinks and a latch in the plunger actuates an output assembly driven through a gear train by the motor to rotate an output shaft. This control also includes means for varying the level from which water samples are taken, and several novel mechanisms disclosed in detail.

3,658,181

UNDERWATER OIL LEAKAGE COLLECTING APPARATUS

Thomas O. Blair, 8026 S.E. Powell Boulevard, Portland, Ore.

Filed May 22, 1970, Ser. No. 39,928

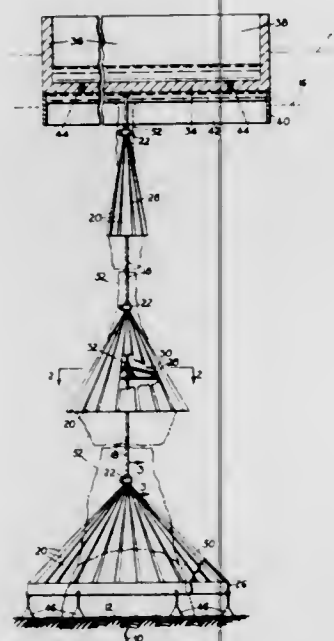
Int. Cl. E02b 15/00; C02b 9/02

U.S. Cl. 210—170

10 Claims

A plurality of perforate cones are secured at longitudinally spaced intervals on an elongated cable. The lowermost cone is arranged over an underwater source of oil leakage and the upper end of the cable terminates at an oil collecting chamber adjacent the surface of the water. Leaking oil thus

is reduced to small bubbles or streams by passage upward through the perforate cones which also direct the oil inward



toward the cable, forming a column of oil which is collected at the collecting chamber.

3,658,182

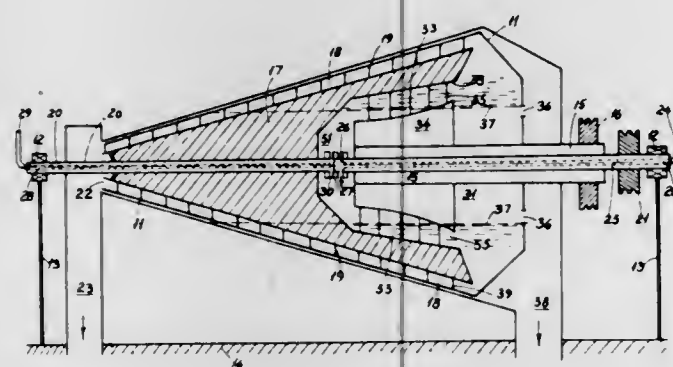
SLUDGE CENTRIFUGE

Jorgen Steen Bye-Jorgensen, Humlebaek, and Gunnar Hartvig Larsen, Rungsted Kyst, both of Denmark, assignors to I Kruger A/S, Copenhagen, Denmark
Continuation-in-part of application Ser. No. 865,926, Oct. 13, 1969, now abandoned. This application Mar. 31, 1971, Ser. No. 129,697

Int. Cl. B04b 3/04

U.S. Cl. 210-374

7 Claims



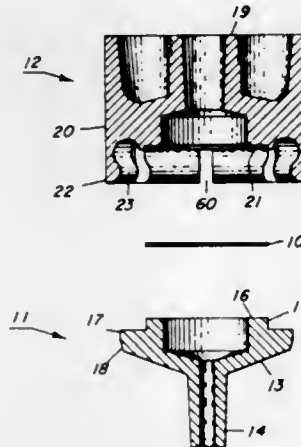
This invention relates to a sludge centrifuge of the type comprising a rotating drum and a conveyor worm to remove solids separated from the liquid in a drum. An improved purity of the liquid separated in the centrifuge is obtained by reducing the turbulence in the centrifuge, specifically in the separation chamber, and this is achieved by providing the centrifuge with a feed worm, by which the sludge is transported at gradually decreasing axial velocity and gradually increasing rotational velocity to the separation chamber.

3,658,183
FILTER HOLDER

Roger J. Best, Castro Valley, and Richard G. Sears, Livermore, both of Calif., assignors to General Electric Company
Filed Mar. 19, 1970, Ser. No. 21,142
Int. Cl. B01d 35/00

U.S. Cl. 210-446

5 Claims



A holder for thin filter elements formed of two components adapted to snap together to capture the filter element therebetween without damage to or distortion of the filter element.

3,658,184

HIGH EFFICIENCY FILTER AID

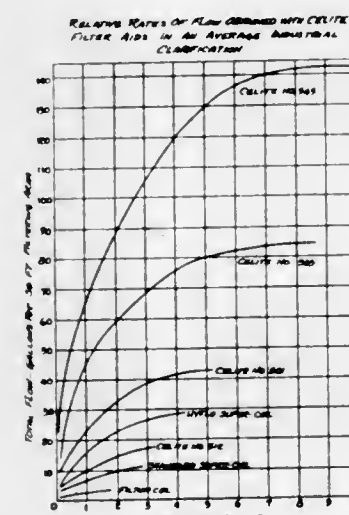
Donald William Davis, Clinton; James Michael Baloga, and Bruce Chamberlin Olmstead, Jr., both of Somerville, all of N.J., assignors to Johns-Manville Corporation, New York, N.Y.

Original application May 26, 1965, Ser. No. 458,883, now Patent No. 3,562,154. Divided and this application Dec. 18, 1970, Ser. No. 99,376

Int. Cl. B01d 39/06

U.S. Cl. 210-504

7 Claims



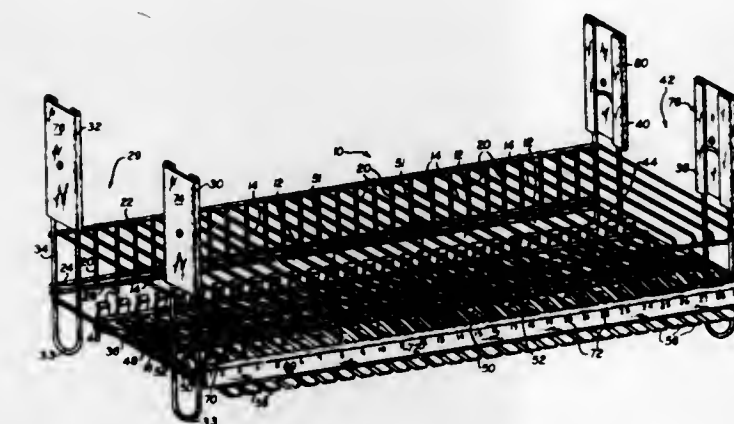
Simultaneously improved flow rate and turbidity removal by adding to the turbid solution to be filtered an animal protein gelatin or glue, or by coating a filter aid with an animal protein gelatin or glue.

3,658,185
STORAGE AND RETRIEVAL DEVICE

James J. Jacobson, New York, N.Y., assignor to Wahl Associates Inc., Long Island City, N.Y.
Filed Aug. 6, 1970, Ser. No. 61,689
Int. Cl. A47g 29/00

U.S. Cl. 211-40

1 Claim



A storage and retrieval device for disks and the like. The disks are normally stored in a rear position, and when a particular disk is to be retrieved, it is pushed to a forward position by an actuating member. The storage device is modular in nature being capable of being stacked on other storage devices to form shelves for a library of disks.

3,658,186

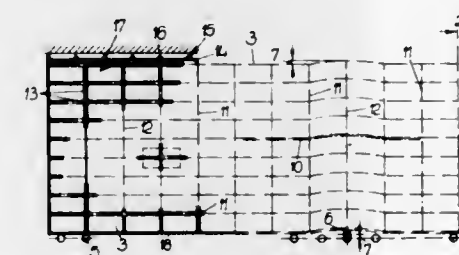
SHELVING ARRANGEMENTS

Alois Lodge, Frankfurter Weg 13, Paderborn, Germany
Continuation-in-part of application Ser. No. 696,016, Jan. 5, 1968, now abandoned. This application July 21, 1970, Ser. No. 56,938

Int. Cl. A47b 57/100

U.S. Cl. 211-134

11 Claims



A rack arranged to be moved lengthways on rollers is made up of uprights and shelves capable of moving vertically individually to allow for unevenness in the ground. The rack is provided with a vertical-longitudinal grid which is free to move in relation to the rest of the rack and prevents the uprights swaying in the longitudinal plane of the rack.

3,658,187

MARINE CARGO HANDLING CRANE

George Thomas Richardson Campbell, and Toshishige Kasuga, both of Tokyo, Japan, assignors to Algoship International Limited, Nassau, Bahamas

Filed Dec. 8, 1969, Ser. No. 883,002

Claims priority, application Japan, Dec. 27, 1968, 43/96323;

Apr. 10, 1969, 44/27949; Aug. 26, 1969, 44/81151

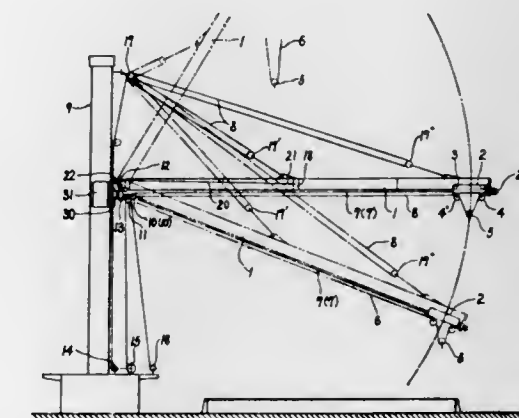
Int. Cl. B66c 23/52

U.S. Cl. 212-3

10 Claims

A crane particularly for assembly on the deck of a vessel, including a fixed post and a jib boom pivotally mounted on the fixed post for rotation in a horizontal plane and means for topping the boom, and a traversing trolley on the jib

boom from which the cargo hoisting hook is suspended, and independent means for slewing and topping the jib boom and



for raising and lowering the cargo hoisting hook in any traversed location of the trolley on the jib boom.

3,658,188

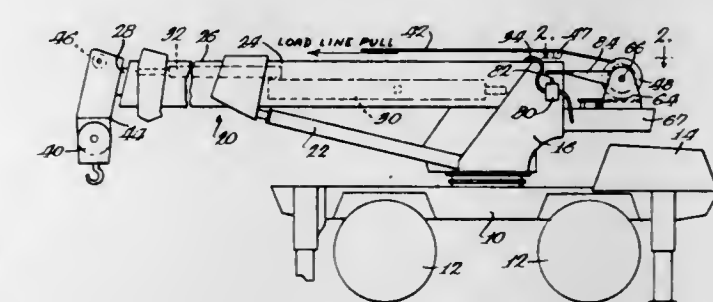
SAFETY CONTROL FOR LOAD LINE

Gerald P. Lamer, Rothschild, and Lembit Vaerk, Schofield, both of Wis., assignors to J. I. Case Company
Filed June 2, 1970, Ser. No. 42,837

Int. Cl. B66c 13/50; B66d 3/24

U.S. Cl. 212-39 R

2 Claims



A safety control mechanism for a load line forming part of an extensible boom crane which has a plurality of sections moved relative to each other by power means. The cable supports a load supporting member on one of the crane sections and is reeled or unreels from a driven drum supported adjacent another of the sections. The safety control means incorporates mechanism which will render the power means inoperative when the tension on the cable reaches a certain level. The safety control means consists of a bracket pivotally supporting the drum and pivoted about an axis. The bracket is normally biased to a first position, with the biasing means accommodating movement from the first position after the tensile load exceeds a lower level to actuate control means, forming part of the power means, to render the power means inoperative when the tensile load on the cable exceeds a desired maximum level.

3,658,189

HYDRAULIC EXTENSIBLE BOOM STRUCTURE

Archer W. Brown, Minneapolis; James L. Montgomery, St. Paul; Charles W. Wienke, North St. Paul; Alfons Roskowinski, St. Paul, and William A. Braddock, Bloomington, all of Minn., assignors to American Hoist & Derrick Company, St. Paul, Minn.

Filed Jan. 6, 1970, Ser. No. 872

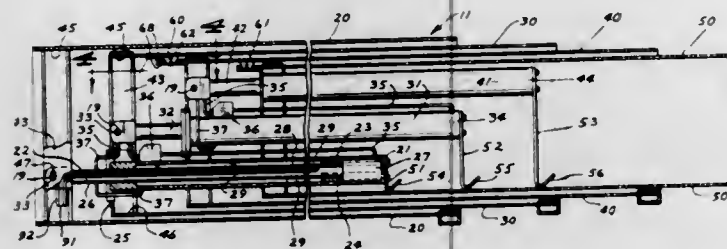
Int. Cl. B66c 23/06

U.S. Cl. 212-55

5 Claims

A plurality of telescoping boom sections are powered by double acting hydraulic piston-cylinder motors, each motor having a hollow piston rod pivotally mounted to the inward end of an inward boom member, a piston on the rod, and a

cylinder fixedly and rigidly mounted at its inward rod end to an inward end of the next adjacent nesting outward boom member. Hydraulic fluid to move the boom sections to extended and retracted positions is fed from the pivoted end of each of the piston rods, and along those rods to "extend" and "retract" cylinder chambers on opposite sides of the piston. "Extend" and "retract" conduits from these chambers on each inward motor open from opposite ends of each inward cylinder to carry this fluid to and from the next outward



piston rod. A normally closed hydraulic valve is situated in each "extend" conduit, and this valve is opened to provide a flow path to its outward motor only when the inward motor is fully extended. When two adjacent inward boom sections reach their extended positions with respect to each other, they are latched to each other against further longitudinal movement. Each such latch is mechanically released by the arrival at its fully retracted position of the boom section next outward from the latched pair.

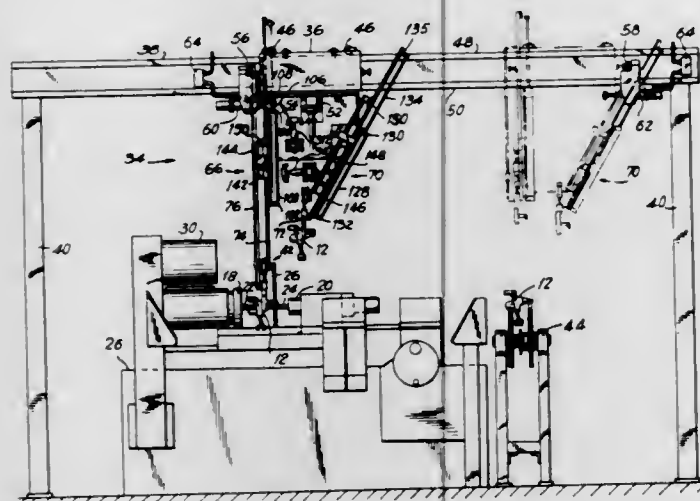
3,658,190

AUTOMATIC WORKPIECE LOADER AND UNLOADER
Roger H. Fournier, Millbury, Mass., assignor to Norton Company, Worcester, Mass.

Filed Sept. 25, 1970, Ser. No. 75,450
Int. Cl. B23b 13/02

U.S. Cl. 214-1 BB

4 Claims



A workpiece loader and unloader for use in conjunction with a machine tool adapted to perform a machining operation on a workpiece. A workpiece loader and unloader includes a pair of extensible workpiece grasping members carried by a carriage assembly adapted to reciprocate between a first position over the machine tool and a second position over a workpiece conveying apparatus. One of the workpiece grasping members is utilized to grasp and unload finished workpieces from the machine after they have been machined and the other of the workpiece grasping members is adapted to grasp and load unfinished workpieces in the machine tool prior to the machining operation. The workpiece grasping member utilized to load an unfinished workpiece into the machine is extensible along a path intersecting and substantially perpendicular to the axis about which the workpiece is

rotated in the machine and the workpiece grasping member utilized to unload a finished workpiece from the machine is extensible along a path which is angularly disposed with respect to the first-mentioned path so that when a workpiece loader and unloader are alternately extended the workpiece grasping member of each is extended to substantially the same point thereby to effect unloading and loading of the workpieces from and into the machine tool and the workpiece conveying apparatus.

3,658,191

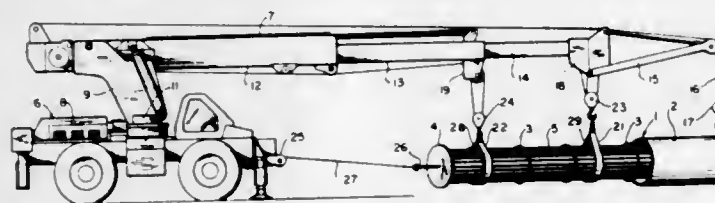
CRANE FOR EXTRACTING HORIZONTALLY-ALIGNED RELATIVELY-LONG TUBE BUNDLES

Thomas V. Murphy, 759 Long Hill Road, Briarcliff Manor, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,628
Int. Cl. B66f 1/00

U.S. Cl. 214-1 P

2 Claims



This disclosure teaches a hydraulic crane for removing a horizontally-aligned relatively-long tube bundle, along with its tube sheet, from its shell. A winch, connectable to the tube sheet by means of a horizontal line, extracts the tube bundle. The crane has a boom comprising a proximal, an intermediate and a distal section mounted successively in inwardly telescoping relationship. A first boom point with a first hoisting sling depends from the intermediate section of the boom to support the tube bundle as it is being extracted from the shell. A second boom point with a second hoisting sling depends from the distal section of the boom also to engage the tube bundle as it is extracted further from the shell. The boom points are spaced apart sufficiently so that the first and second slings span a major portion of the length of the tube bundle whereby the tube bundle can be suspended and balanced safely.

3,658,192

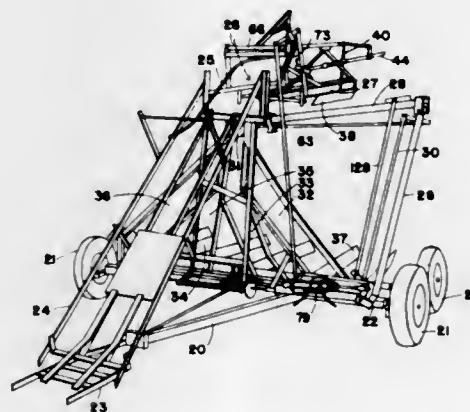
AUTOMATIC BALE STOOKER

Allen L. Oler, Lethbridge, Alberta, Canada, assignor to Oler-Stringam Manufacturers Ltd., Lethbridge, Province of Alberta

Filed Dec. 14, 1970, Ser. No. 97,807
Int. Cl. B65g 57/32

U.S. Cl. 214-6 B

15 Claims



The trip lever of an automatic bale stooker operates a control mechanism which sequences an hydraulic piston and cylinder assembly to move the carriage with the bale down

and then back up again and at the same time releasing and setting a bale separator. Means are also provided to transfer some of the bale weight to the frame when delivering to the furthestmost two track ways under which circumstances the actuating arm is extended almost horizontally and the greatest leverage is encountered.

3,658,193

MAGNETIC TAPE CASSETTE CHANGER

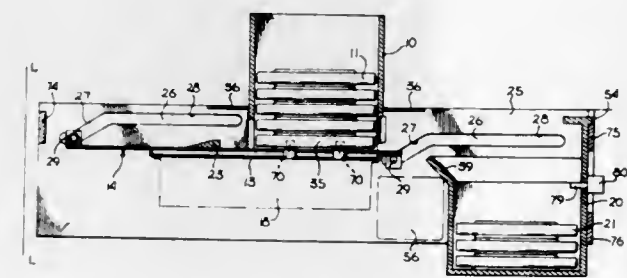
William J. Gross, Woodland Hills, Calif., assignor to Data Instruments Company, Sepulveda, Calif.

Filed Nov. 21, 1969, Ser. No. 878,632

Int. Cl. B65h 1/00

U.S. Cl. 214-6 D

7 Claims



An automatic magnetic tape cassette or magazine changer is disclosed which comprises an input hopper, discharge hopper and a carriage for transporting cassettes onto and from a tape recorder. The input hopper is mounted above the tape recorder and cassettes from the hopper are properly aligned to successively engage the recorder. The carriage provides vertical and horizontal motion to cassettes so that a cassette may be removed from the tape recorder and placed into the discharge hopper, in addition to lowering the next cassette from the input hopper onto the tape recorder.

3,658,194

GRAVITY TYPE PAN UNSTACKER

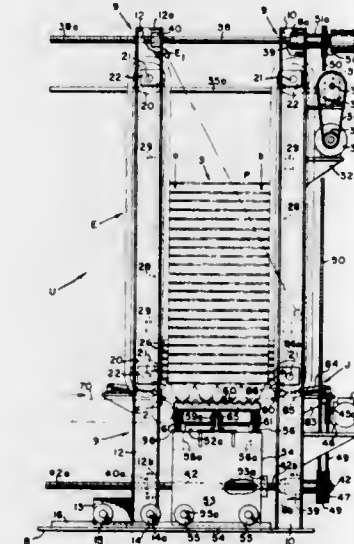
Roger J. Gendron, Bridgeport, and Dewitt Sims, Burt, both of Mich., assignors to Baker Perkins, Inc., Saginaw, Mich.

Filed May 11, 1970, Ser. No. 36,314

Int. Cl. B65g 59/06

U.S. Cl. 214-8.5 K

12 Claims



Apparatus for successively unstacking the lowermost panset from a vertically extending stack of pansets wherein vertically extending, opposed, endless lowerator conveyors comprising opposed resilient blocks are relatively horizontally movable between a relatively more spread stack receiving position, to receive a stack of pansets, and a more closed stack clamping position to grip a stack of pansets. A

reciprocally movable, track mounted carriage is provided for successively moving vertically extending stacks to a position between the opposed conveyors when the conveyors are in the stack receiving position, and a conveyor drive system is provided to move the conveyors downwardly when they are in the stack clamping position to move the stack downwardly and successively release the lowermost pan at the lever where the conveyor diverge at the lower ends of the conveyor runs. A horizontally movable discharge conveyor is positioned below the opposed conveyors in centered position to successively receive the unstacked pans and convey them to another location for further processing.

3,658,195

DISAPPEARING SAFETY WEDGE

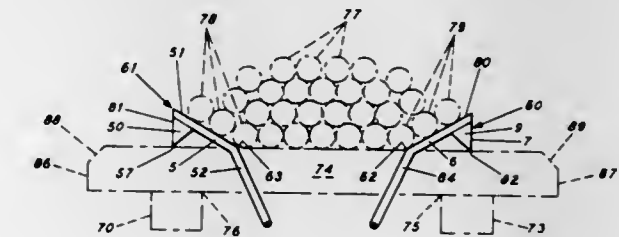
Louis M. Fantin, Richmond, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed June 12, 1970, Ser. No. 46,266

Int. Cl. B65g 1/14

U.S. Cl. 214-10.5 R

3 Claims



Pairs of wedge means are slidably mounted on cross members to permit the safe storing or transporting of cylindrically shaped objects. Individual wedge means are adapted to rotate between a first position where the wedge means is stowed over the end of a cross member and a second position where the wedge means is perched on top of a cross member to function as a wedge for cylindrically shaped objects. The wedge means are prevented from sliding off a cross member by contact with a stop means such as a longitudinal member which connects a series of cross members.

3,658,196

ELECTROMECHANICAL MECHANISM FITTED ON TRUCK VEHICLES FOR LOADING AND UNLOADING

Karl Schmitt, Frankfurter Strasse 13, 64 Fulda, Germany

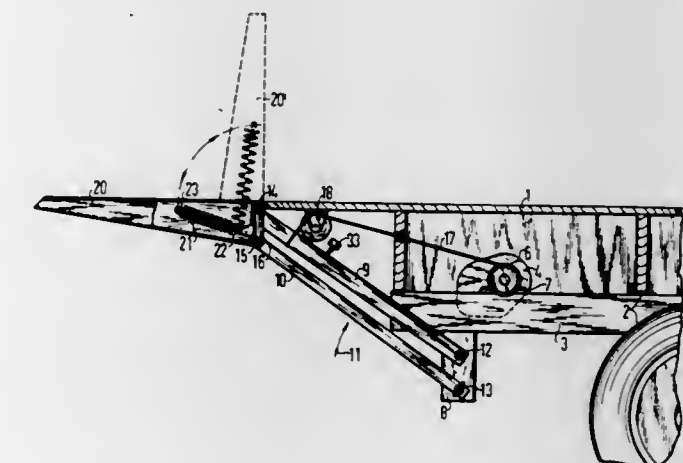
Filed Nov. 25, 1969, Ser. No. 879,707

Claims priority, application Germany, Dec. 2, 1968, P 18 12 172.7

Int. Cl. B60p 1/44

U.S. Cl. 214-77 P

8 Claims



The gate of a truck is mounted on two parallelogram linkages and raised and lowered by means of an electromotor in circuit with the truck battery, two drums driven by the motor through a spur gear transmission, and a cable or chain wound

on each drum and secured to an associated linkage. The gate can be swung between upright and horizontal positions on the linkage, and is spring-biased toward the closed position so that the spring cushions the gate-opening movement.

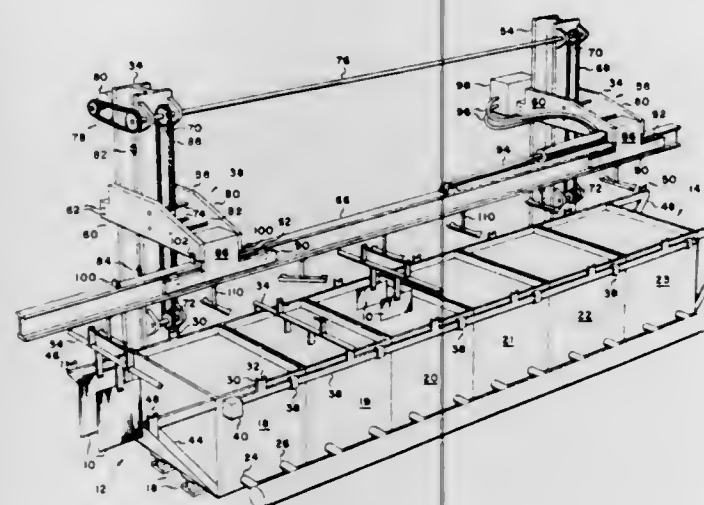
3,658,197

PROGRAMMABLE APPARATUS FOR CONVEYING ARTICLES THROUGH SUCCESSIVE PROCESS STEPS

Victor J. DiDonato, Downey, Calif., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed June 1, 1970, Ser. No. 42,294
Int. Cl. B66b 17/00

U.S. Cl. 214-89

3 Claims



The displacements of a reciprocable horizontal beam and a series of pickup assemblies suspended from the beam are programmed for intermittently and selectively picking up and transferring discrete articles from one tank to the next in a row of immersion tanks adapted to contain process solutions for treating the articles in accordance with a predetermined series of process steps, the duration of immersion of the articles usually varying between tanks.

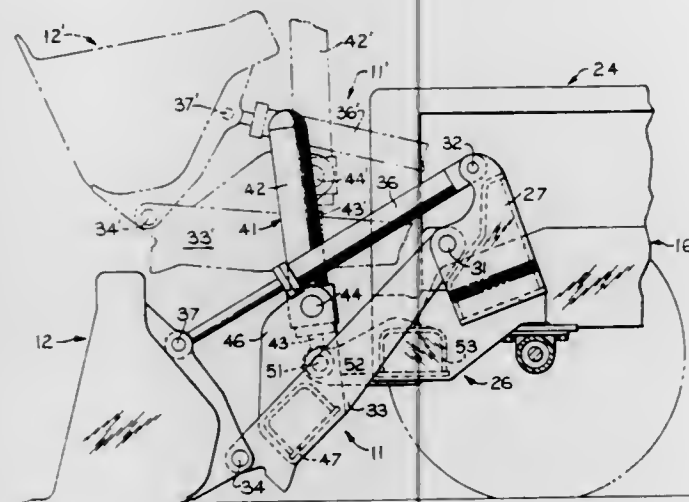
3,658,198

LOADER BUCKET MOUNTING ASSEMBLY

Howard O. Keskitalo, Batavia, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
Filed Jan. 26, 1970, Ser. No. 5,733
Int. Cl. B66f 9/00

U.S. Cl. 214-140

2 Claims



A compact mounting assembly for supporting a bucket in closely adjacent relation to one end of a loader vehicle comprising a lift arm and a tilt motor being interconnected between each side of the bucket and pivot brackets formed

on respective sides of the vehicular frame. A single hydraulic lift motor has its cylinder pivotally connected by means of a trunnion mounting to a cross member interconnected between the lift arms, its extendible rod being pivotally connected to a central portion of the vehicular frame assembly.

3,658,199

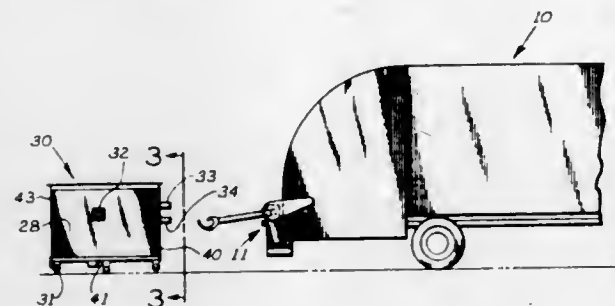
REFUSE CART AND DUMPING APPARATUS

Thomas G. Owen, Jr., R.R. #7, P.O. Box 250, Bloomington, Ind.

Filed Mar. 30, 1970, Ser. No. 23,916

Int. Cl. B65f 3/04

6 Claims



A dumping apparatus for lifting a refuse cart so as to cause the contents to fall from the cart. The dumping apparatus has two claw-like hands mounted to arms which are fixedly fastened to a shaft rotatably mounted in two vertical members. A sprocket attached to the end of the shaft is driven causing the two hands to automatically engage and lift cylindrical rods fastened to either side of the refuse cart. Projections are fastened to the forward wall of the cart and engage the cylindrical shaft causing the cart to rotate as it is being lifted. A bumper bar is fastened to the two vertical members forcing the two rods fastened to the cart wall to disengage from the inner cylindrical portion of the claw-like hands as the cart is placed back in a horizontal position.

3,658,200

SNOWMOBILE TRAILER

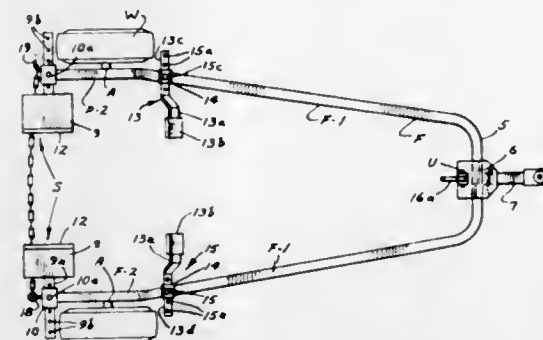
Charles A. Chaplinski, Middle River, Minn.

Filed May 6, 1970, Ser. No. 35,023

Int. Cl. B62d 53/00

U.S. Cl. 214-373

4 Claims



A snowmobile trailer has a wheeled supporting frame which is of a U-shaped configuration to straddle the snowmobile body in loading. The frame is swingable, preferably on the axis of a pair of aligned wheels, and has main supporting pads on the outer (rear) ends of the U-frame disposed beyond the axis of swinging and adapted to underlie and support the bottom of the forward part of the body when first tilted downward and then lifted upwardly somewhat. The sides of the frame disposed forwardly of the swinging axis carry adjustable inwardly disposed hold-down members for contacting and applying pressure to longitudinal running

board elements on the sides of the snowmobile when the frame is further tilted backwardly from the loading position. Lastly the yoke at the middle of the U-stem (draft connection) has an upstanding fastener which is connected to the draft or trailer element at the rear of the snowmobile, such connection being tensioned by pulling up on the rear of the body.

3,658,201

ARTICLE CARRIER APPARATUS FOR VEHICLES

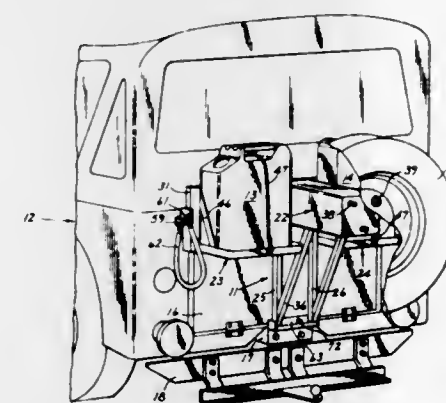
George L. Williams, 808 South Quitman, Denver; Glen L. Brooks, 4201 South Bannock, Englewood, and Earl M. Eaton, 2840 West Park Place, Denver all of Colo.

Filed June 25, 1970, Ser. No. 49,750

Int. Cl. B62d 43/00

U.S. Cl. 214-454

16 Claims



An article carrier for vehicles includes a support frame having a pivotal attachment member arranged to attach to the vehicle frame so as to permit the carrier to be pivoted to an out-of-the-way position without removing the carrier from the vehicle. A wheel mount is located centrally of the frame and a pair of article supports extend laterally from opposite sides of the wheel mount. A pair of laterally spaced vehicle attachment members are provided at opposite sides of the article supports which are arranged to releasably fasten to existing vehicle tailgate structure. The article supports are disposed inwardly of a mounted wheel and tire on the wheel mount which overlaps the article supports to shield them against damage in a possible rear-end collision. The article supports are arranged to receive conventional gasoline cans and are provided with a releasable hold-down member to firmly secure the cans in place and the wheel mount is also hollow and has a movable closure wall to carry tools and the like.

3,658,202

LOADER WITH IMPROVED STABILITY AND INCREASED REACH

Robert A. Peterson, San Leandro, Calif., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed June 1, 1970, Ser. No. 42,001

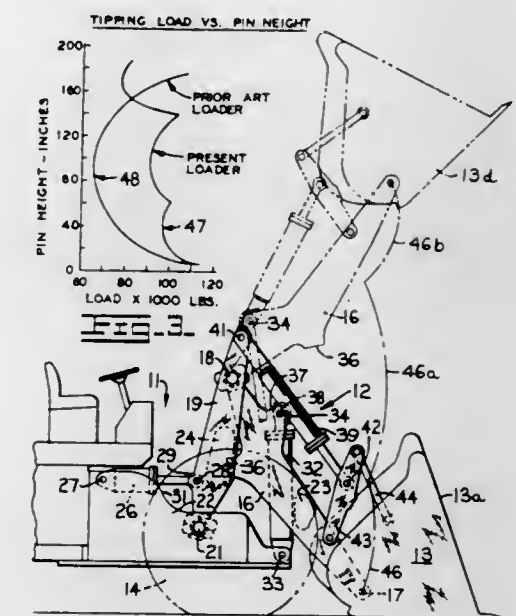
Int. Cl. E02f 3/62

U.S. Cl. 214-770

4 Claims

End loader linkage for effecting lift travel of a bucket in a plurality of relatively small arcs approximating a nearly vertical line closely adjacent the end of the loader to increase the

loader's lifting and digging capacity in the digging and carry positions, improve bucket lift travel through a bank while

3,658,203
BOTTLE CAP

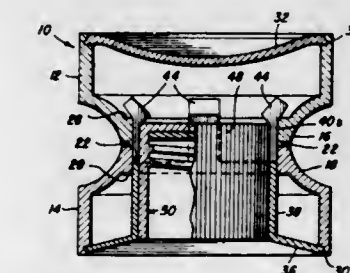
Warren Richards, Baltimore, Md., assignor to Pharma Plastics, Inc., Baltimore, Md.

Filed May 20, 1970, Ser. No. 38,956

Int. Cl. B65d 41/02

U.S. Cl. 215-38

7 Claims



A design for a bottle top construction is provided for fabricating difficult hollow articles which comprises an assembly of element shells with a common axis lock-bushing. Thin fingers of the lock-bushing spread apart and function as locks when the article is completed by inserting into the bushing a cylinder such as a bottle screw-top cap. Other insertion devices may be used such as the end of a shaft.

3,658,204

SET OF CONTAINERS FOR TWO LIQUIDS

Erik Bottger, Oslo, Norway, assignor to Grubernes Sprængstoffabriker A/S, Divisjon Plastprodukter, Oslo, Norway

Filed Apr. 13, 1970, Ser. No. 27,795

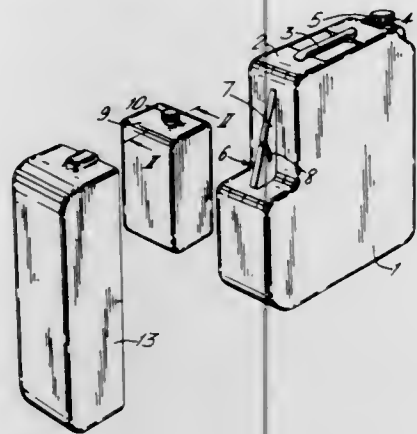
Claims priority, application Norway, Apr. 15, 1969, 1529/69
Int. Cl. B65d 21/02, 81/32

U.S. Cl. 220-23.4

2 Claims

A set of container consisting of a small and a large container, particularly for two-component varnishes, which components are to be mixed. The large container is provided with a recess corresponding to the shape and size of the small con-

tainer and holding means are provided in the recess for inter-connection of the two containers. An open vessel, intended



for use as a mixing vessel, is arranged to fit around the large and the small container in the area of the recess.

3,658,205

CARGO CONTAINERS

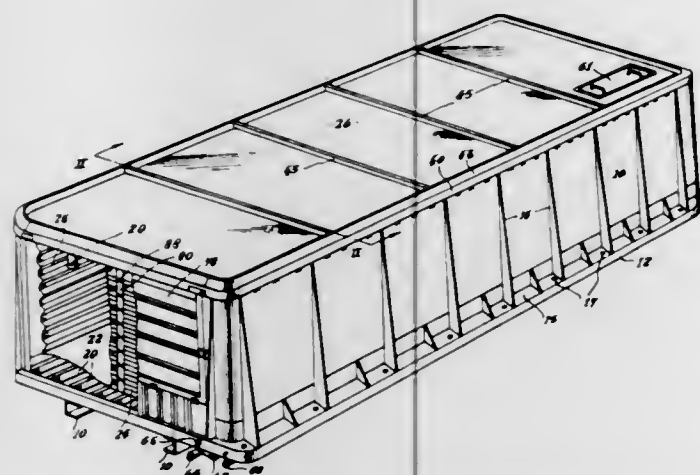
Mohamed Ruholah Yazdani Kassravi, P.O. Box 1701, Dar es Salaam, Tanzania

Continuation-in-part of application Ser. No. 728,987, May 14, 1968, now Patent No. 3,570,705. This application Nov. 12, 1970, Ser. No. 88,969

Claims priority, application Italy, Nov. 20, 1969, 41624 A/69 Int. Cl. B65d 25/18; B65p 3/22

U.S. Cl. 220-63 R

10 Claims



A cargo container comprises a rigid walled structure within which is a movable shield. A flexible corrugated sleeve is connected peripherally to the shield and to a fixed rigid wall of the container to form an expansible vessel. The fixed rigid wall and/or the shield has a peripheral channel with a constricted opening which receives one end of the sleeve and an inflatable member which retains said one end in the channel to form a fluidtight seal. The sleeve has flexible tie belts to cause smooth uniform extension of the sleeve on movement of the shield. The shield can be locked in a number of positions relative to the rigid walled structure. The rigid walls support the sleeve against internal pressure and protect it from external damaging influences.

3,658,206

BRAZED RUPTURE DISK ASSEMBLY

Jean Y. Barbier, Richmond Heights, Mo., assignor to Intertherm, Inc., Saint Louis, Mo.

Filed June 8, 1970, Ser. No. 44,251

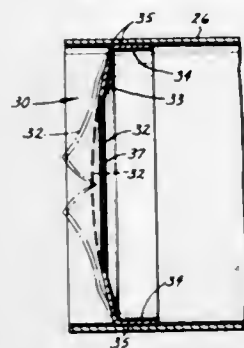
Int. Cl. B65d 25/00, 47/36

U.S. Cl. 220-89 A

5 Claims

A scored rupture disk is permanently installed in a fluid system, such as a hydronic baseboard heater designed for

operation at an elevated pressure; to rupture at a predicted pressure increment. The scored central portion of the disk is left substantially flat; but rounds at normally working pres-



sure, to work harden the metal at the score lines. When the pressure is raised, the material at the score lines ruptures at a precise pressure increment.

3,658,207

CENTRIFUGAL FEEDER FOR HEADED PARTS

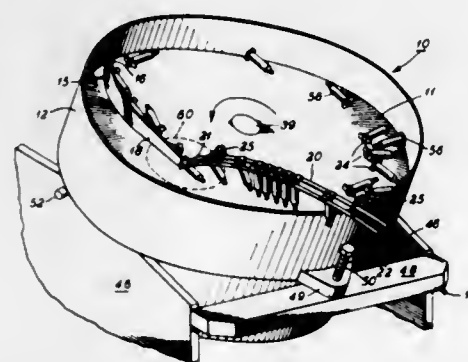
George E. Schultz, Clearwater, Fla., assignor to Tangen Drives, Inc., Clearwater, Fla.

Filed Jan. 26, 1970, Ser. No. 5,706

Int. Cl. B23q 7/12; B65g 42/24

U.S. Cl. 221-167

4 Claims



A centrifugal feeder is shown in which parallel rails are employed in a pick-off in combination with a plow having a curvilinear pick-up point and a straight edge delivery to the parallel rails. The parallel rails deliver headed parts which are fed by the centrifugal feeder to a track for repositioning in various assembly units.

3,658,208

COMBINED CONTROL HEAD SEAL AND RELIEF VALVE FOR PRESSURIZED FLUID DISPENSING APPARATUS

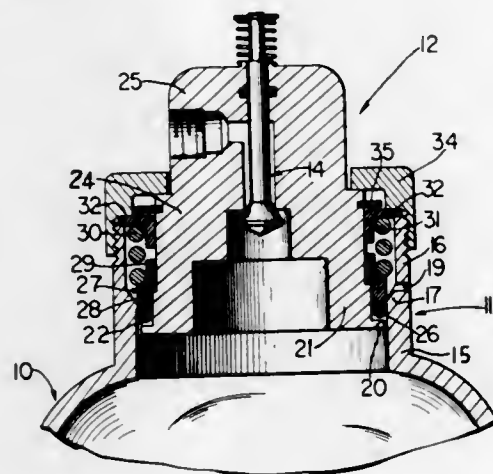
Arne Hansen, New City, N.Y., assignor to Walter Kidde & Company, Inc., Belleville, N.J.

Filed Nov. 4, 1969, Ser. No. 873,950

Int. Cl. F17c 7/00

U.S. Cl. 222-3

5 Claims



A movable sealing member is positioned in an annular space between the control head and the neck of the pres-

surized container and is spring loaded to assume a sealing position when normal pressures are present in the container. Abnormally high pressures in the container move the seal against the spring to a position wherein the interior of the container is in communication with a venting passageway.

3,658,209

AUTOMATIC CYCLING DISCHARGING DEVICE

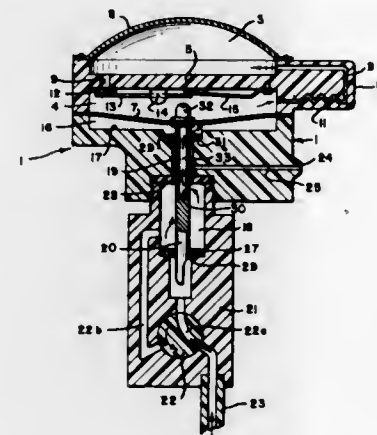
John D. Freeman, Westport, and David E. Earls, Norwalk, both of Conn., assignors to General Time Corporation, Phoenix, Ariz.

Filed Oct. 29, 1970, Ser. No. 84,961

Int. Cl. B67d 5/08

U.S. Cl. 222-70

8 Claims



The device has a timing system which consists of two chambers interconnected by a constricted passage and by a quick opening valve one chamber being permanently filled with a timing fluid, advantageously a liquid. A flexible member having means providing snap action forms the wall between one of these chambers and a discharge chamber from which pressure fluid is ejected to the atmosphere. Pressurized fluid from a pressure pack, such as an aerosol container, passes first to a metering chamber and then to the surface of the flexible member by which it is ejected through a discharge outlet.

3,658,210

DEVICE FOR EXPELLING THE CONTENTS OF A COLLAPSIBLE TUBE

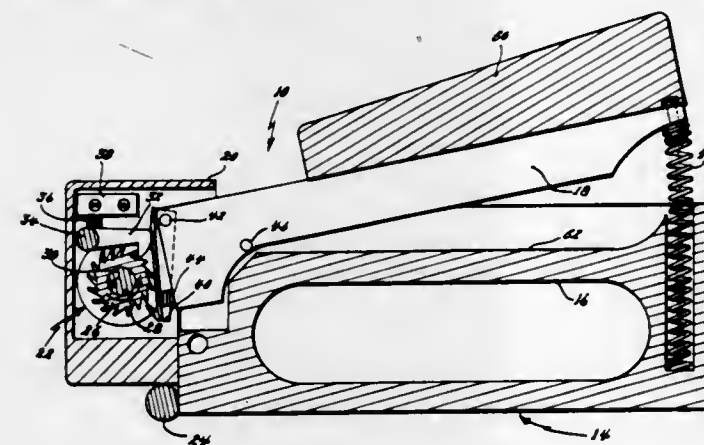
John E. Vanderveen, and Hans B. Bartholomew, both of San Antonio, Tex., assignors to The United States of America as represented by the Secretary of the Air Force

Filed June 2, 1970, Ser. No. 42,646

Int. Cl. B65d 35/34

U.S. Cl. 222-100

1 Claim



A dispenser for expelling the contents of a collapsible tube having an actuating lever which operates in conjunction with a ratchet assembly for dispensing a predetermined amount of material from the tube. The actuating lever is so arranged as to enable the operator to perform the dispensing operation with only one hand. Furthermore, a rest bar acts as a vice in order to virtually completely evacuate the tube.

3,658,211

FERTILIZER DISTRIBUTOR TANK

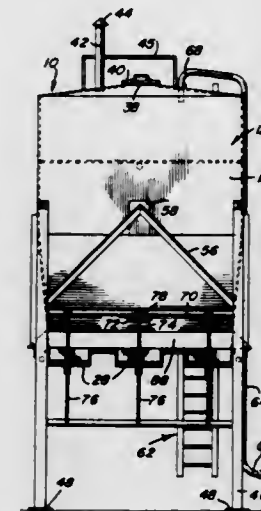
John T. Kitchens, Americus, Ga., assignor to W. M. Kitchens, Americus, Ga., a part interest

Filed June 16, 1970, Ser. No. 46,757

Int. Cl. B67d 5/06

U.S. Cl. 222-185

5 Claims



A storage and dispensing tank for granular material including upper and lower portions. The lower portion of the tank includes a first pair of opposite side wall portions which are downwardly convergent to a central elongated bottom wall structure extending between and along the lower edges of the side wall portions. The lower portion also includes a second pair of opposite front and rear walls extending between and connecting the side wall portions. The front and rear walls are only slightly downwardly convergent and the bottom wall structure includes a plurality of longitudinally spaced valved gravity discharge openings. Also, an upright partition extends between and is secured to the side wall portions between each pair of adjacent gravity discharge openings and the lower end of each partition includes inclined baffles extending to the adjacent ends of the adjacent discharge openings.

3,658,212

MULTIPLE ORIFICE FILLING MACHINE

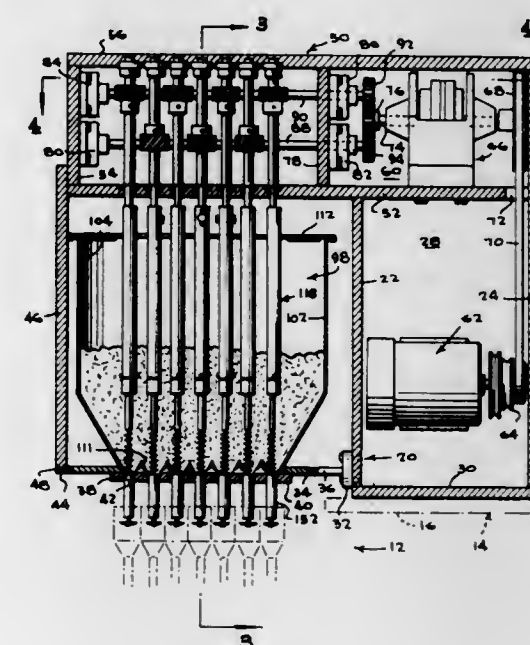
John Raymond Ullberg, Fort Washington, Pa., assignor to All-Fill, Inc., Newton Square, Pa.

Filed Oct. 22, 1969, Ser. No. 868,386

Int. Cl. G01f 11/00

U.S. Cl. 222-240

1 Claim



A multiple outlet feeder for filling containers with flowable materials has a surrounding frame which houses motor and

drive means disposed about a continuously feed hopper. The hopper has a plurality of outlets each supplied with an auger type flow control, and the augers are uniformly driven by common drive means.

3,658,213

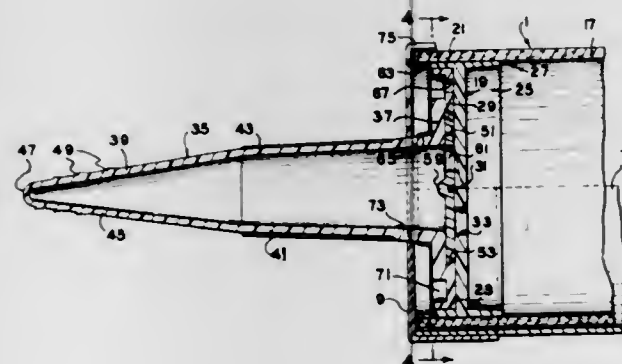
SHUT-OFF NOZZLE FOR CAULKING CARTRIDGE
Lawrence H. Plumer, Rutland, Vt., assignor to Rutland Fire Clay Company, Rutland, Vt.

Filed Dec. 22, 1970, Ser. No. 100,752

Int. Cl. B67d 5/42

U.S. Cl. 222-326

14 Claims



The end wall of the cartridge and the closure disc carried by the dispensing nozzle, each have a small discharge opening formed therein and, by rotating the nozzle relative to the end wall, the openings may be brought into alignment for discharging material from the cartridge or moved out of alignment for preventing the flow of caulking material from the cartridge.

3,658,214

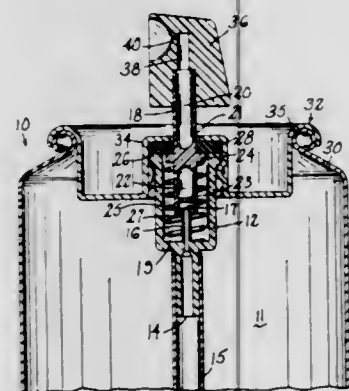
METERING VALVE FOR FLUID DISPENSER
Walter C. Beard, South Street, Middlebury, Conn.

Filed May 1, 1970, Ser. No. 33,781

Int. Cl. B65d 83/00

U.S. Cl. 222-402.2

11 Claims



Metering valve assembly for dispensing fluid products wherein a movable valve stem, communicating with a discharge orifice, and having a lower inlet chamber (female member) which, when the valve stem is depressed, slides over a fixed tubular projection (male member) communicating with the reservoir of the container, thereby discharging the contents of a metering chamber. When the valve stem is released, a spring urges it upwardly such that an outlet orifice in the valve stem moves out of the metering chamber, thereby closing the valve stem to entry of contents from the metering chamber. Simultaneously, an orifice of the tubular projection is opened to permit filling of the metering chamber.

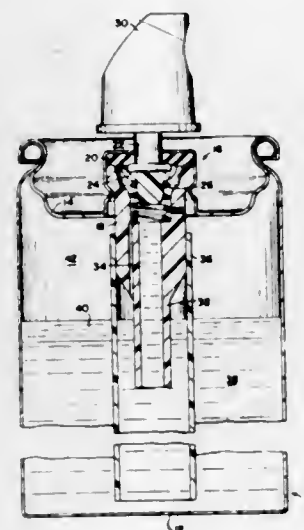
3,658,215
AEROSOL VALVE
Ronald F. Ewald, Rolling Meadows, Ill., assignor to Seaquist Valve Corporation, Division of Pittway Corporation, Cary, Ill.

Filed Nov. 24, 1969, Ser. No. 879,260

Int. Cl. B65d 83/14

U.S. Cl. 222-402.18

7 Claims



An aerosol valve which utilizes a double concentric dip tube with the inner tube shorter or of several telescoping parts which open or close depending upon the orientation of the container to hold between them a sufficient reservoir of liquid product to allow a prolonged discharge while the container is in an inverted position.

3,658,216

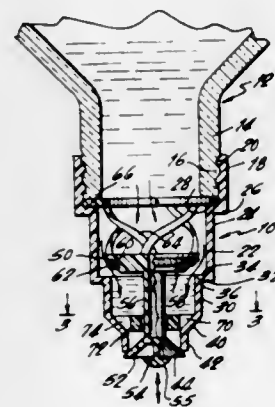
METERING AND DISCHARGE DEVICE
Gilbert Schwartzman, 20 Wilmet Circle, Scarsdale, N.Y.

Filed Feb. 27, 1970, Ser. No. 15,055

Int. Cl. G01f 1/132

U.S. Cl. 222-453

6 Claims



A metering device adapted to be secured to a container of fluid comprising a housing having a main body portion and a reservoir portion of lesser dimensions than said main body. The housing has a shoulder forming a first valve seat. The reservoir portion has a second valve seat. A valve assembly is disposed mainly in said housing and has a valve head engageable with the second valve seat and a valve ring engageable with the first valve seat. A rigid stem connects the valve head with the valve ring and helical springs under compression normally urge the valve ring against the first seat and the valve head out of contact with the second valve seat.

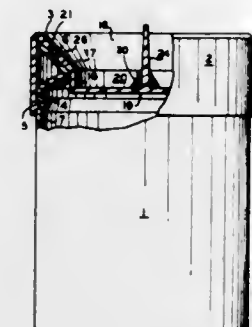
3,658,217
WEIGHT-OPENING DISPENSER
Stafford D. Collie, and Ronald R. Oliver, both of Kansas City, Mo., assignors to Phillips Petroleum Company

Filed Jan. 12, 1970, Ser. No. 2,200

Int. Cl. B67d 5/34

U.S. Cl. 222-463

2 Claims



A dispenser comprising a container in combination with a two-positional closure, an apertured surface of the closure being positionable in contact with an internal surface of the container wall in a no-flow position, the apertured surface of the closure being positionable in spaced relationship to the internal surface of the container wall in a second position in which flow from the container occurs.

3,658,218

TELESCOPIC CLOSURE FOR CAN AND CANISTER TYPE CONTAINERS

Gunter J. Krautkramer, Budenheim am Rhine, Germany, assignor to Jacob Berg K.G.

Filed May 6, 1970, Ser. No. 35,130

Claims priority, application Germany, May 9, 1969, G 69 18 848.3; Nov. 17, 1969, P 19 57 710.7

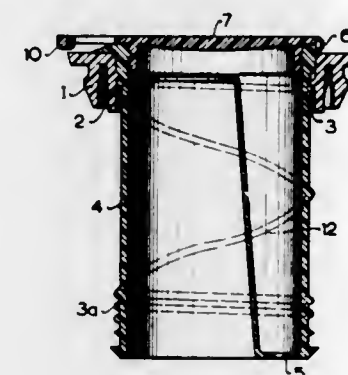
Int. Cl. B65d 25/40

U.S. Cl. 222-522

4 Claims

U.S. Cl. 225-2

8 Claims



The invention relates to a telescopic closure for can and canister-like containers, in which the part of the closure projecting beyond the upper base of the container has been kept particularly shallow in order to be able to guarantee a perfect stacking of the containers.

3,658,219

AUTOMOBILE FLOOR HUMP STRADDLE MOUNT FOR AUTOMOTIVE ACCESSORY

Jay H. Van Ord, 10871 South Grand, Ontario, Calif.

Filed Apr. 17, 1970, Ser. No. 29,545

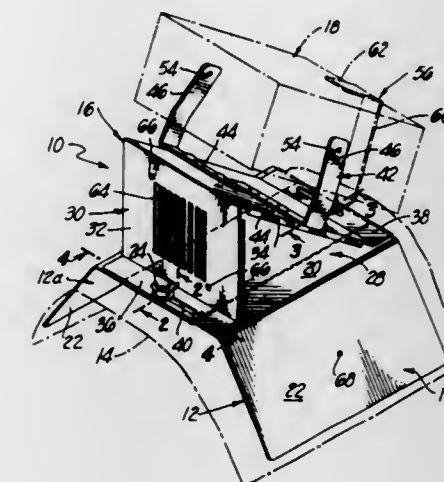
Int. Cl. B60r 7/00

U.S. Cl. 224-42.42 R

9 Claims

A straddle mount for removably or semi-permanently mounting an accessory, such as a radio, stereo tape player or the like, in an automobile having a drive shaft clearance hump rising from the floor along the longitudinal centerline of the vehicle. The straddle mount has a channel shaped base

for fitting over the floor hump in straddling relation to the base, and a riser attached to the top wall member of the base including an upper mounting plate which slopes upwardly in



the rearward direction and is equipped with brackets having upstanding bracket arms for straddling and mounting the accessory to be installed. The base and brackets are adjustable to accommodate a range of floor hump and accessory sizes.

3,658,220

CARTON HANDLING MECHANISM

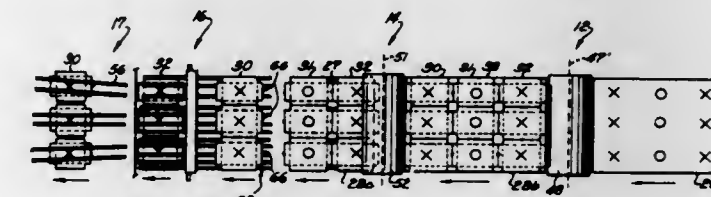
Robert K. Norton, Twinsburg, Ohio, assignor to Harris-Inter-type Corporation, Cleveland, Ohio

Continuation-in-part of application Ser. No. 1,257, Jan. 7, 1970. This application Mar. 11, 1970, Ser. No. 18,420

Int. Cl. B65h 35/10

U.S. Cl. 225-2

8 Claims



An apparatus processes sheet material which has been cut into waste and articles. The articles are arranged in rows extending transverse to the direction of movement of the articles and each row is connected to an adjacent row. The articles in each row are also connected. The apparatus includes means for moving the articles at a first surface speed and means for moving the articles at a second speed in excess of the first speed so as to separate the connected rows of articles by speeding up one row of articles relative to the next successive row of articles. After the rows of articles are separated, a classifying means directs the articles into first and second paths in which skewing conveyor means operates on the articles so as to laterally separate the articles in each of the rows of articles as they move in the first and second paths. This construction provides for clean separation of the articles due to the fact that the rows of articles and the articles in each row are separated at different times and also provides for accurate control of the articles by separating the articles in each row after classification of the rows so as to eliminate the possibility of stumbling of the articles during classification.

3,658,221

APPARATUS FOR THE FIBRILLATION OF FILMS OF SYNTHETIC RESINS

Samuel McMeekin, Drumbeg, Belfast, Northern Ireland, and Jan Dekker, Delft, Netherlands, assignors to Shell Oil Company, New York, N.Y.

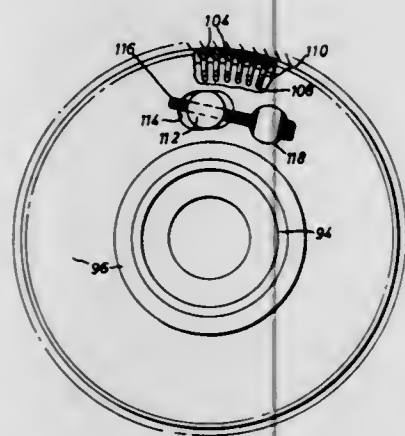
Filed Oct. 15, 1969, Ser. No. 9,465

Claims priority, application Great Britain, Oct. 15, 1968, 48,868/68

Int. Cl. B26f 1/24

U.S. Cl. 225-97

8 Claims



Thermoplastic films are fibrillated by passing longitudinally oriented film strips in an arcuate path over a roll which is rotating in the same direction as and faster than the motion of the strip and which is provided with rows of rearwardly inclined pins, the angularity of the pins being preferably adjustable.

3,658,222

PIPE TENSIONING APPARATUS

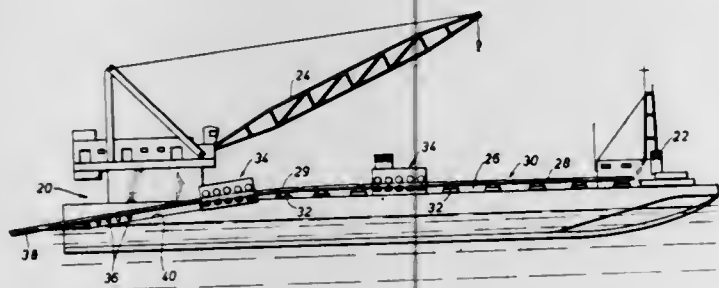
Edwin J. Dressel; Warren A. Petrie, both of New Orleans; Clarence W. Shaw, Metairie, all of La.; Janis Grinbergs, Seattle, Wash.; John E. Isakson, Stanwood, Wash., and Martin C. Adams, Lynwood, Wash., assignors to J. Ray McDermott & Co., Inc., New Orleans, La.

Continuation of application Ser. No. 823,107, May 8, 1969, now abandoned. This application Oct. 21, 1970, Ser. No. 82,851

Int. Cl. B63b 35/04

U.S. Cl. 226-25

32 Claims



A novel pipe tensioning device has a series of independently driven traction wheels disposed radially about the pipe at a number of longitudinally arranged traction stations. The wheels at each station may be retracted from or placed into engagement with the pipe to permit repair of passage of a field joint. The pipe tensioner carriage is mounted to bear against preloaded load cells in the pipelaying direction. These load cells function in an electronic system for sensing and regulating tension to a desired value.

3,658,223

PHOTOGRAPHIC PROCESSING APPARATUS

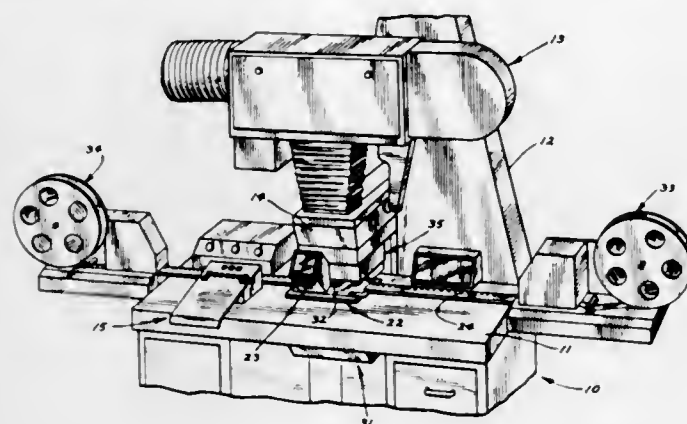
Richard N. Bergly, Minneapolis, and Patrick J. Gilligan, Bloomington, both of Minn., assignors to Pako Corporation, Minneapolis, Minn.

Filed June 1, 1970, Ser. No. 41,939

Int. Cl. B65h 23/18

U.S. Cl. 226-33

3 Claims



Photographic processing apparatus having a film transport for serially, selectively, disposing a film of photographic negatives, or the like, upon an aperture that is in light transmitting alignment between a source of light and a printing device.

A mounting frame includes a plurality of plate like members assembled to provide one or more adjacent apertures and a transverse slot that intercepts the apertures.

A longitudinally elongated film, having indicia disposed thereon in predetermined relationship to areas containing a photographic image, is movably disposed in the slot. At least a pair of indicia responsive devices, such as photocells, are disposed in predetermined relationship with, and adjacent the apertures in the frame so that the image on the film will be disposed over the desired aperture when both of the indicia responsive devices indicate the presence of indicia on the film.

A pair of film transporting devices in the form of resilient rubber rollers are disposed to engage the film in the slot on either side of the apertures and are driven in synchronism so as to serially, reversibly move the film past the apertures without exerting any substantive tensional or compressional forces longitudinally of the film to thereby avoid distortion and allow the film to lay flat in the area of the apertures.

Motor control circuitry, including suitable logic is connected to the indicia sensing devices, a motor and brake, a source of power and a manual and/or automatic controller to control at least in part, the transporting of a film strip serially of the apertures with automatic or semi-automatic serial movement of the film strip with selective stopping in an aperture as directed. The motor-brake drive, or energizing, circuitry includes means responsive to a plurality of signals derived from the indicia on the film for initiating or stopping the transport of a film strip through the processing apparatus.

3,658,224

TAPE FEEDING MECHANISM

Kurt Ehrat, Zurich, Switzerland, assignor to Ciba-Geigy AG, Basel, Switzerland

Filed Dec. 9, 1969, Ser. No. 883,473

Claims priority, application Switzerland, Dec. 13, 1968, 18665/68

Int. Cl. B65h 17/40

U.S. Cl. 226-58

20 Claims

Mechanism for intermittently feeding a tape wherein perforations in the tape are engageable by a tape feeding shuttle arm having a plurality of teeth adapted to reciprocate parallel to the plane of the tape as well as perpendicularly thereto and by a tape stop arm having a plurality of teeth adapted to

reciprocate at least perpendicularly to the plane of the tape. The shuttle arm and the stop arm are coupled to a mechanical oscillator by a first coupling device providing reciprocating motion parallel, and by second coupling device providing reciprocating motion perpendicularly, to the plane of the tape; the second coupling device includes linkage means causing the teeth of the shuttle arm to engage the perforations in the tape while disengaging therefrom the teeth of the

3,658,226

WEB TRANSPORT

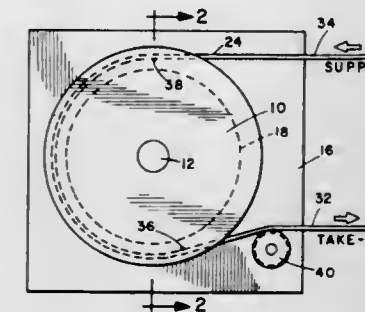
Willard D. Isbell, San Diego, Calif., assignor to Cubic Corporation, San Diego, Calif.

Filed June 11, 1970, Ser. No. 45,412

Int. Cl. G03 1/46

U.S. Cl. 226-184

4 Claims



A web transport by which a thin strip or web of material is driven by a novel roller having inclined confronting faces which grip the web by the extreme edges, avoiding any wear or damage to the web faces. In one form the drive returns the web in the general direction of the supply and permits slippage when the web from the supply is slack, but grips for a positive drive upon slight tension in the web supply. In another form, essentially positive drive is obtained at all times in a straight through configuration, both forms being adaptable to film, tape and other strip elements.

3,658,227

TAPE GUIDE SPINDLE

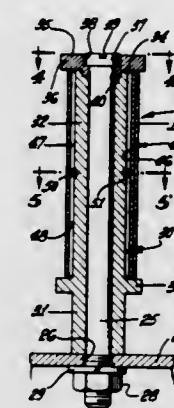
John F. Stephens, 2302-B North Ontario Street, Burbank, Calif.

Filed Apr. 3, 1970, Ser. No. 25,373

Int. Cl. B65h 23/26

U.S. Cl. 226-196

5 Claims



3,658,225
MEANS FOR INCREASING THE PLAY TIME OF TAPE CARTRIDGES

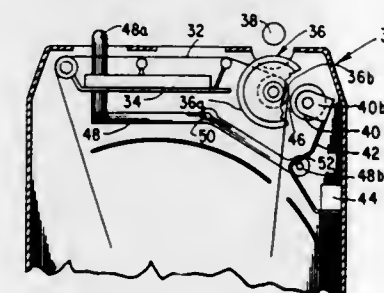
Melvin A. Lace, Prospect Heights, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 28, 1970, Ser. No. 41,488

Int. Cl. G11b 23/06

U.S. Cl. 226-90

1 Claim



A tape cartridge for insertion into a tape player has a tape transport wheel over which the tape within the cartridge moves during transport of the tape. The transport wheel is arranged to engage a drive capstan within the tape player which rotates at a given surface speed. The tape transport wheel includes means to transport the tape at a speed slower than the surface speed of the capstan drive of the tape player engaging the tape transport wheel.

An inner sleeve fixed in position on a shaft has an outer sleeve carried by it, over which a relatively wide magnetic tape is adapted to travel. The inside cylindrical surface of the outer sleeve is larger than the outside cylindrical surface of the inner sleeve and is held in uniform spaced relationship with it by an O-ring of resilient material located midway between opposite ends, so that the outer sleeve can tilt to accommodate a tape which approaches the outer sleeve in a position out of proper alignment.

3,658,228

WEB GUIDING MECHANISM

Robert J. Matoushek, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 21, 1970, Ser. No. 39,252

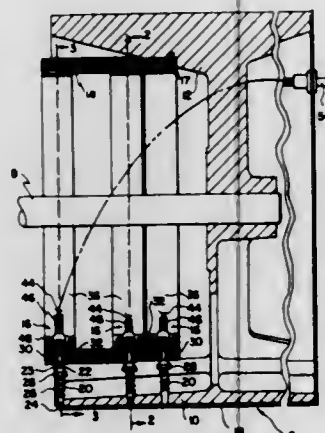
Int. Cl. G03b 1/44

U.S. Cl. 226-199

3 Claims

A web guiding mechanism to insure proper alignment or registration of one or more webs to be wound in overlapping

relation onto a common take-up core. The guiding mechanism comprises a web supporting plate and one or more projections movable between a retracted position, in



which the projection does not extend beyond the web supporting surface of the plate, and a web guiding position, in which the projection extends beyond the web supporting surface for guiding an edge of the web.

3,658,229

STUD DRIVING TOOL

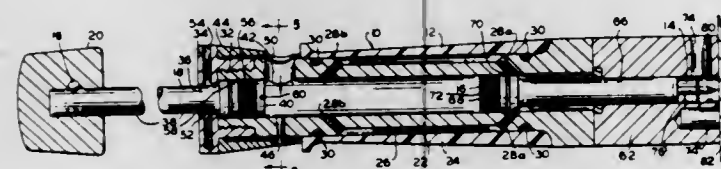
Raymond Visser Pomeroy, Portland, Oreg., assignor to Omark Industries, Inc., Portland, Oreg.

Filed July 30, 1970, Ser. No. 59,519

Int. Cl. B25c 1/14

U.S. Cl. 227-10

5 Claims



A handle having a cylindrical bore therethrough. A driving ram is slidable in the bore and adapted to drive a stud held in one end of the bore. An igniting ram is also slidable in the bore rearwardly of the driving ram. Means are provided for introducing a caseless charge between the driving ram and igniting ram.

3,658,230

AUTOMATIC BLIND RIVETING MACHINES

Clive R. Enock, Birmingham, England, assignor to USM Corporation, Boston, Mass.

Filed Oct. 14, 1970, Ser. No. 80,592

Claims priority, application Great Britain, Mar. 20, 1970, 13,692/70

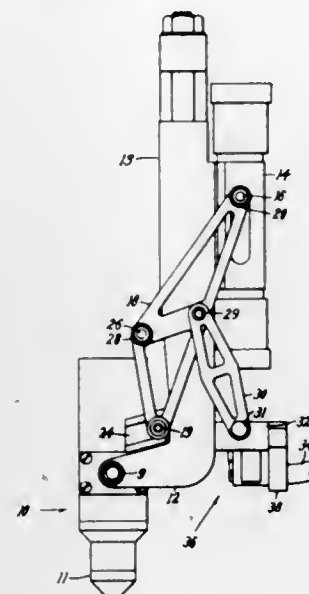
Int. Cl. B21j 15/10

U.S. Cl. 227-51

7 Claims

A machine for successively installing pull-to-set type blind rivets has a head reciprocable toward and from a setting posi-

tion, a rivet delivering mechanism including a gate for holding a rivet with its stem foremost, and means for pivoting the



head when retracted to enable it to receive the stems of the successive rivets positioned at said gate.

3,658,231

SYSTEM FOR ALIGNING TWO PIPELINES

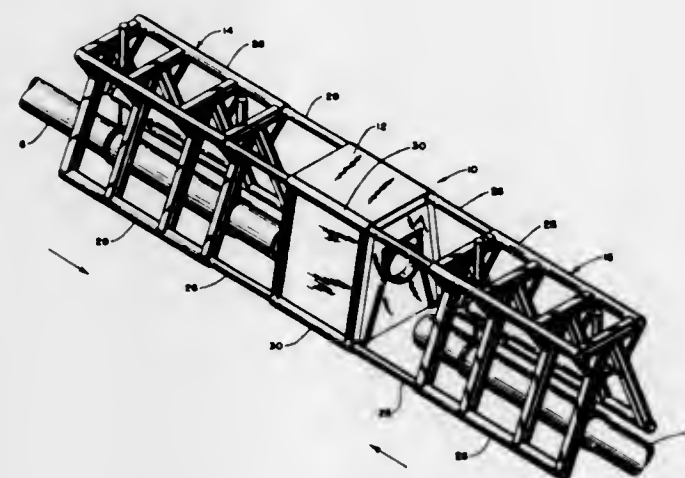
Bruce Calvin Gilman, Annandale, Va., assignor to Ocean Systems, Inc., New York, N.Y.

Filed Apr. 24, 1970, Ser. No. 31,681

Int. Cl. B23k 37/04; B63c 11/00

U.S. Cl. 228-4

10 Claims



A pipe alignment system including a central chamber and a fixture at each opposite end thereof along the longitudinal axis of the system. Each fixture includes pivotal support means for rigidly holding and axially aligning a pipe string. Pressure-actuated cylinders couple the end fixtures to the central chamber for controllably moving the fixtures relative to the chamber.

3,658,232

AUTOMATIC WELDING MACHINE

James M. Dill, La Porte, Ind., assignor to The New York Blower Company

Filed July 30, 1970, Ser. No. 59,642

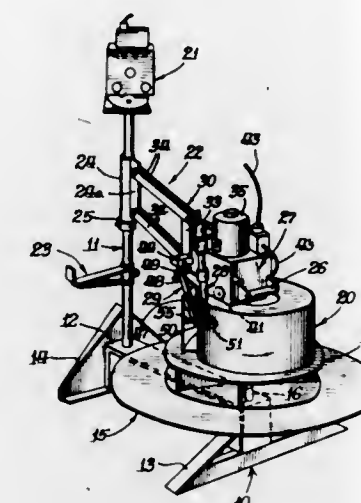
Int. Cl. B23k 37/04

U.S. Cl. 228-48

9 Claims

The disclosure concerns automatic welding machines and is directed to the improvement of certain drive and guide

means for a relatively freely carried welding head for continuous welding of a part resting on a freely rotatable table.



The drive and guide means are carried on the welding head and impart drive to the part while maintaining the welding head properly positioned relative to the part.

3,658,233

DISPENSING/FILLING CONTAINER

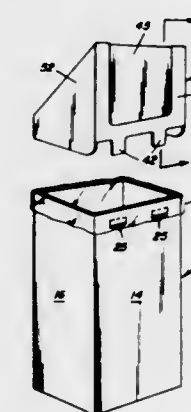
Joseph Voytko, Lakewood, Ohio, assignor to Westvaco Corporation, New York, N.Y.

Filed May 19, 1970, Ser. No. 38,847

Int. Cl. B65d 13/00

U.S. Cl. 229-23

6 Claims



A novel container construction is presented which is formed from two separate blanks of material that are cut and scored for assembly at the point of use without external fasteners. The lower portion of the container comprises a tubular container body which may or may not be lined, and the upper portion of the container comprises a detachable top closure unit which includes an integral swing-in access panel.

3,658,234

FOLDING BOX

Jonas Deckys, 19155-66th Place, N.E., Seattle, Wash.

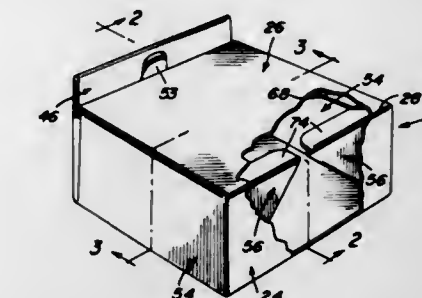
Filed Mar. 11, 1970, Ser. No. 18,560

Int. Cl. B65d 5/66

U.S. Cl. 229-31 FS

9 Claims

A box formed from a single blank and being so constructed as to be selectively collapsible to a flattened state for storage,



porating reinforcing flaps or flanges which, in the assembled box, form a peripheral shoulder about the opening therein. Cooperating closure and lock flaps effect a locked closing of the box.

3,658,235

CARTON

James H. Katzenmayer, Elkhart, Ind., and Harry J. Rossi, Flushing, N.Y., assignors to Continental Can Company, Inc., New York, N.Y.

Filed Dec. 23, 1969, Ser. No. 887,581

Int. Cl. B65d 5/22

U.S. Cl. 229-33

24 Claims



A carton constructed from a rectangular blank and which includes front, rear and end walls braced relatively to each other and the bottom of the carton in a manner resisting inward or outward deflection of the front, rear or end walls intermediate their opposite ends. The carton includes double walled lower corners and inner top panels projecting horizontally outwardly from the upper edges of the end walls over which horizontal endwise extensions of the top panel of the carton lie when the top panel is closed.

3,658,236

COLLAPSIBLE DISPOSABLE ASHTRAY

Lars Gustav Ringholm, Kallangevagen 30, Lidings, and Rolf Henry Sandberg, Algrytevagen 19, Skarholmen, both of Sweden

Filed Oct. 24, 1969, Ser. No. 869,109

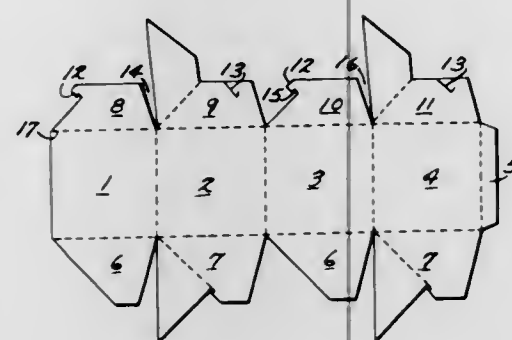
Int. Cl. B65d 5/02

U.S. Cl. 229-37 R

2 Claims

A collapsible, disposable ashtray, in which it is provided at the upper edges of the side members with panels arranged in spaced relationship and corresponding in length to the length

of the side members, two of said panels being provided with locking flaps and remaining panels with slots, the panels being so designed, interconnected and folded that when erected from the collapsed position of the ashtray they automatically engage within each other and lock the ashtray in a fully erected position and thereby form the opening of the



ashtray and the sloping surface surrounding said opening, and that the ashtray at the lower edges of the side members is provided with panels arranged in spaced relationship and corresponding in length to the length of the side members and which when erecting the ashtray automatically and with similar locking means form the bottom of the ashtray.

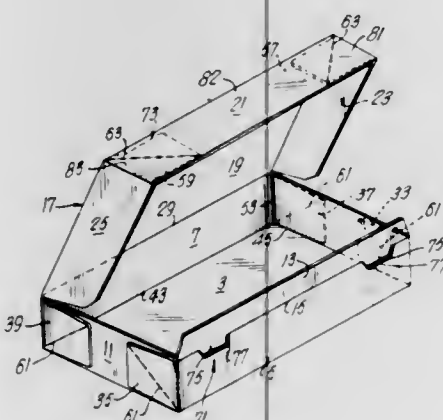
3,658,237

CONTAINER CLOSURE

Karl Engel, Pierrefonds, Quebec, Canada, assignor to Rolph-Clark-Stone Limited, Don Mills, Ontario, Canada
Filed June 24, 1970, Ser. No. 49,299
Int. Cl. B65d 5/36

U.S. Cl. 229-41

4 Claims



A collapsible container having a body with foldable side walls and a closure with foldable side walls. The body and closure have cooperating tab and abutment means respectively to lock the closure to the body. The abutment means on the closure are biased to a locking position by being located adjacent fold line on the closure side walls.

3,658,238

OPENING ARRANGEMENT WITH A COVER STRIP

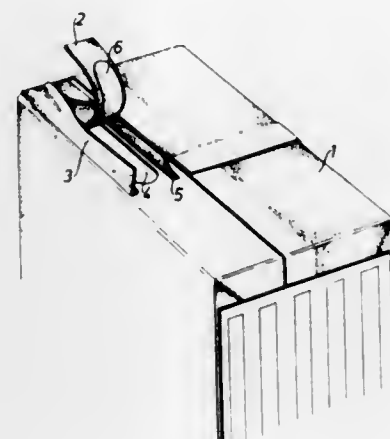
Gert J. V. Nedstedt, Malmo, Sweden, assignor to Tetra Pak International AB, Lund, Sweden
Filed Oct. 20, 1970, Ser. No. 82,344
Claims priority, application Sweden, Nov. 14, 1969, 15630/69
Int. Cl. B65d 5/70

U.S. Cl. 229-51 AS

4 Claims

A package is provided with a dispensing opening covered on the inside by a membrane heat sealed thereto. A cover

strip overlies and is heat sealed to the exposed portion of the membrane in the opening, and flaps arranged generally parallel to the opening overlying each other as well as the cover



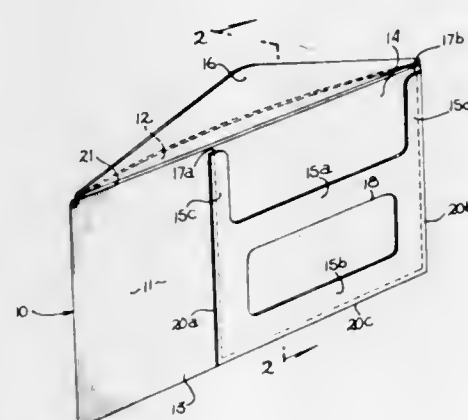
3,658,239

ENVELOPE STRUCTURE

Terrence K. Foutz, Sherman Oaks, Calif., assignor to Financial Federation, Inc., Los Angeles, Calif.
Filed Feb. 19, 1970, Ser. No. 12,776
Int. Cl. B65d 27/04, 27/06, 27/08

U.S. Cl. 229-71

2 Claims



An envelope structure fabricated of resilient, flexible plastic enabling repetitive use thereof. A central accessible compartment facilitates the mailing of such items as bank passbooks, documents or other mailable items. A second compartment is formed by securing a transparent, flexible plastic member to the outside surface of one of the compartment walls. The transparent plastic member is adapted to secure a reversible addressing member.

3,658,240

GIFT WRAPPER

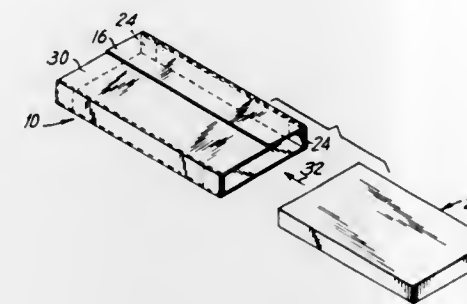
Malcolm H. Stoll, 51 Fifth Avenue, New York, N.Y.
Filed Aug. 13, 1969, Ser. No. 849,723
Int. Cl. B65d 75/00

U.S. Cl. 229-87 R

5 Claims

A gift wrapper which is preformed so that it can be immediately used for gift wrapping a given article. The gift

wrapper includes an elongated sleeve of flexible sheet material having a size and configuration conforming to that of an article which is to be gift wrapped. Therefore, all that is required is for the article to be slipped into the sleeve which then can be closed at its ends to complete the gift wrapping.



3,658,241

RECEIVER FOR EJECTED FIREARM SHELLS

Joseph O. Pistocchi, 95 East Williston Avenue, East Williston, N.Y.

Filed Oct. 30, 1970, Ser. No. 85,336

Int. Cl. F41c 27/00

U.S. Cl. 232-1 R

of the seal and only allows opening of the seal in the dumping position of the container.

3,658,243

BI-DIRECTIONAL FLOW THERMOSTAT

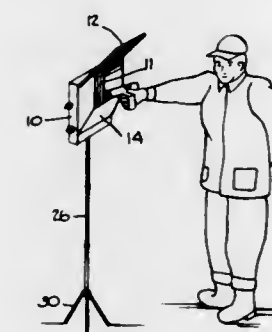
Paul K. Beatenbough, Medina, N.Y., and John A. Gardner, Jr., Tewksbury, Mass., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 24, 1970, Ser. No. 101,279

Int. Cl. F01p 7/16

U.S. Cl. 236-34

4 Claims



A free standing apparatus for catching spent shell casings ejected from firearms. A hollow body has an opening on its side, covered by a hinged hatch, and a trap door at its bottom. When opened, the hatch erects a collapsible chute fastened between the hatch and edges of the opening, which forms a passageway into the body. The attitude of the hatch in its open position enables it to deflect flying shell casings into the chute. The trap door provides means to empty the apparatus of accumulated shell casings. Adjustable support means for the apparatus is also provided.

3,658,242

TIPPING LOCK FOR A GARBAGE CHUTE

Eugene J. M. Van De Pol, The Hague, Netherlands, assignor to N.V. Ontwerp-en Exploitatiebureau "Shunt", The Hague, Netherlands

Filed Sept. 23, 1969, Ser. No. 860,225

Claims priority, application Netherlands, Sept. 24, 1968, 6813625

Int. Cl. B65g 11/04

U.S. Cl. 232-44

2 Claims

Tipping lock for a garbage chute comprising a container which is forwardly and rearwardly tiltable about a shaft and a

In preferred form a thermostat valve assembly having a sleeve valve member moved by a thermo-sensitive motor from a closed position in which annular valve portions on both ends of the sleeve member are seated against ends of a cup-shaped frame member into an open position in which dual coolant flow paths are provided between the frame member and the outer surface of the sleeve member and through the interior of the sleeve member. The construction of the thermostat lends itself to an in-line assembly method since all parts are installed through the top of the frame member and are concentric with respect to the frame member.

3,658,244

AIR TEMPERING SYSTEM

Roland B. Caldwell, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio

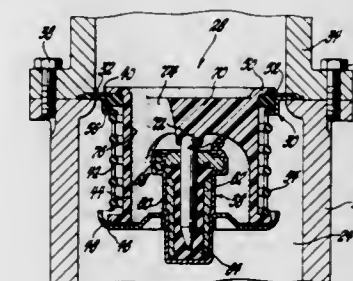
Filed Mar. 20, 1970, Ser. No. 21,452

Int. Cl. G05d 23/24

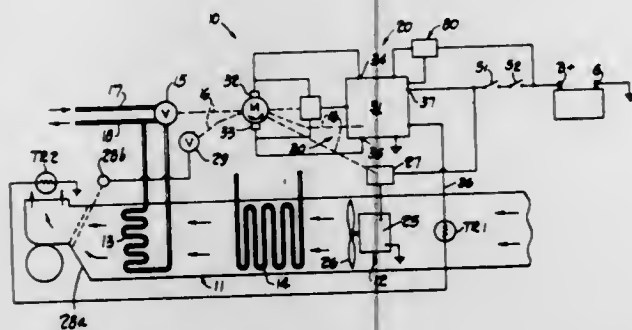
U.S. Cl. 237-2

13 Claims

An air tempering system for an automotive vehicle is disclosed in which heating of air is controlled by the position of



a valve member in an air heating heat exchanger. A servomechanism including a servomotor operates the valve between a maximum air heating position and a minimum air heating position. The servomechanism also controls the speed of a blower unit to provide maximum blower speeds when the valve member is at either limit position and



minimum blower speed when the valve is intermediate the limit positions.

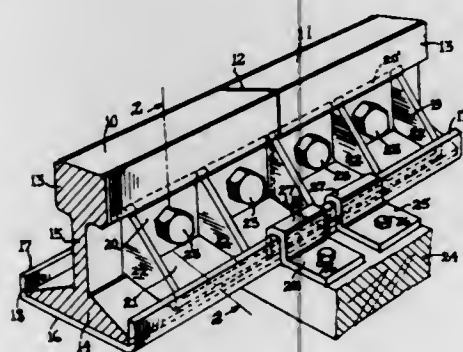
A temperature responsive circuit controls the servomotor in positioning the valve member. A motor control network is provided which energizes the motor to park the valve member in a predetermined position when the temperature responsive circuit is disconnected from its power supply by opening the ignition switch.

3,658,245 RAIL JOINT

Permil N. Nelson, P.O. Box 507, Galesburg, Ill.
Filed June 22, 1970, Ser. No. 48,202
Int. Cl. E01b 11/10

U.S. Cl. 238—151

1 Claim



A rail joint having a base plate channel-shaped in cross section to receive the base flanges of the rails and a fish plate substantially triangular in cross section with the vertical wall thereof abutting the web of the rails and with a horizontal wall positioned upon the base flange of the rails within the channel provided by the base plate, the fish plate having formed integral therewith substantially triangularly shaped partitions reinforcing the vertical and base wall of the fish plate, the fish plate being bolted to the web of the rails and the base plate being connected by one or more clips to the rails.

3,658,246

RAILWAY RAIL-FASTENING MEMBER AND A RAILWAY RAIL AND FASTENING ARRANGEMENT INCLUDING THE MEMBER

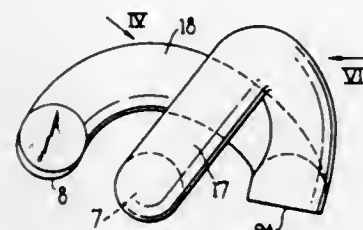
Geoffrey Peter Davies, London, England, assignor to Lockspike Limited, London, England
Filed Jan. 15, 1970, Ser. No. 3,105
Claims priority, application Great Britain, Mar. 19, 1969, 14,492/69

Int. Cl. E01b 9/30

U.S. Cl. 238—349

A resilient rail clip has a flat surface where it bears

downwardly upon electrically insulating material placed on



the flange of a railway rail. The clip is elsewhere of circular cross section.

3,658,247

RAILWAY SLEEPER AND CLIP FOR SECURING A RAIL THERETO

Marian Serafin, Paris, and Maurice Decubber, Beaumont, Seine-et-Oise, both of France, assignors to Societe Anonyme De Traverses En Beton Arme Systeme Vagneux

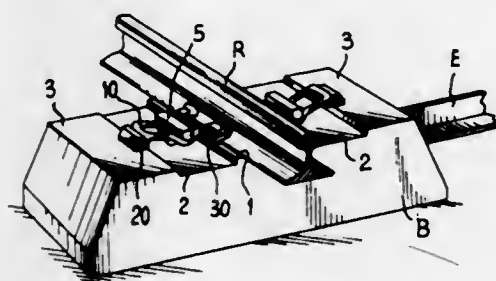
Filed Apr. 7, 1970, Ser. No. 26,379

Claims priority, application France, Apr. 11, 1969, 6911220

Int. Cl. E01b 9/30, 9/06

U.S. Cl. 238—349

4 Claims



A railway track in which each sleeper is constituted by two tie-beams interconnected by a distance piece with the top surface of each tie-beam having a central rail supporting part, a depression at each side of this central part, and an area in relief outboard of each depression. The railway track also includes a clip system for securing the rail to the tie-beam which system comprises two U-shaped clips engageable under a headed bolt in each depression and engaging at its outboard end on a wedge and in its inboard end on an insulating spacing member lying on the bottom flange of the rail.

3,658,248

AUTOMATIC PIPELINE STRAIGHTENER AND SPRINKLER HEAD LEVELER FOR SPRINKLER IRRIGATION SYSTEMS

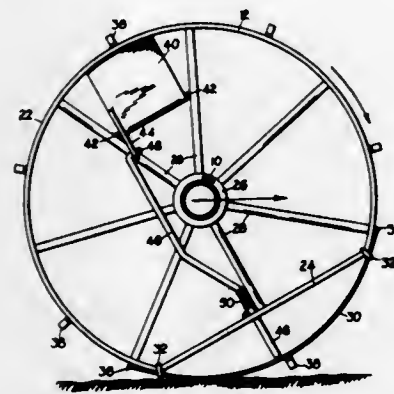
Leonard H. Williams, Hermiston, Oreg.

Filed Dec. 18, 1970, Ser. No. 99,624

Int. Cl. B05b 3/18

U.S. Cl. 239—73

5 Claims



In a sprinkler irrigation system in which an elongated pipeline is supported above ground on longitudinally spaced

wheels and sprinkler heads are mounted on the pipeline also at longitudinally spaced intervals, each of at least some of the wheels is provided with a separate arcuate rim segment aligned vertically with the sprinkler heads and capable of being collapsed under the weight of water in the pipeline.

3,658,249

APPARATUS AND METHOD FOR BURNING CONTAMINATED FUEL

Cecil H. Sharpe, Brownsburg, Ind., assignor to General Motors Corporation, Detroit, Mich.

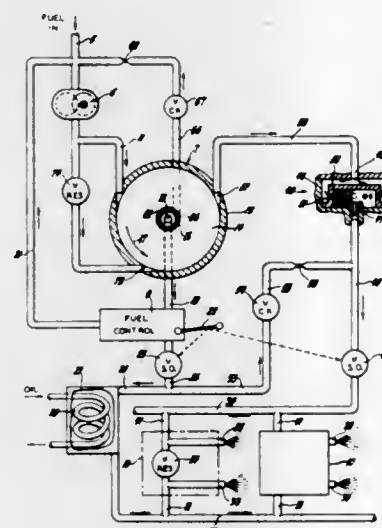
Continuation-in-part of application Ser. No. 752,820, Aug. 15, 1968, now abandoned. This application Oct. 21, 1970,

Ser. No. 82,573

Int. Cl. B05b 9/00

U.S. Cl. 239—125

9 Claims



A fuel system for a gas turbine engine adapted to handle dirty fuel includes a separating device of a centrifuge-filter type through which fuel is supplied from a fuel pump to a fuel control which controls the operation of the engine. The centrifuge-filter has a swirl chamber with a tangential inlet, a central annular filter, and outlets both outside and inside of the filter. It discharges a large portion of the fuel substantially clean and a small portion bearing the dirt. The clean fuel flows through the fuel control to small diameter ports of fuel nozzles and, at higher fuel flow rates, through a resistance valve or valves to large area ports of the fuel nozzles. The dirty fuel flows to the large flow ports of the nozzles, bypassing the fuel control. Alternatively, the centrifuge-filter may be downstream of the fuel control. In either case, a line from adjacent the outer surface of the filter to the pump inlet or to the large area ports acts to clean the filter by recirculating or discharging the finer dirt which tends to accumulate on the filter at low fuel flow rates.

3,658,250

AUTOMATIC REVERSING PART-CIRCLE SPRINKLER

Gall Cornelius, Portland, Oreg., assignor to R. M. Wade & Co., Portland, Oreg.

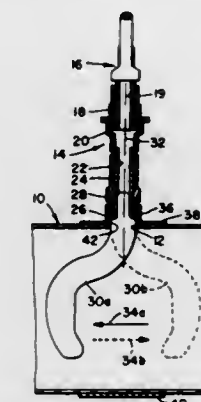
Filed Feb. 11, 1971, Ser. No. 114,515

Int. Cl. A01g 25/02

U.S. Cl. 239—212

6 Claims

Apparatus integral with a part-circle sprinkler for automatically reversing the direction of the part-circle water pattern generated by the sprinkler relative to the direction of movement of an associated long line of sprinkler pipeline.



The invention includes a vane of selected configuration secured to the sprinkler and exposed to water flow in the

pipeline, which vane is sensitive to the direction of water flow to determine and maintain the desired orientation of the sprinkler relative to the pipeline.

3,658,251

NON-PLUGGING SPRINKLER

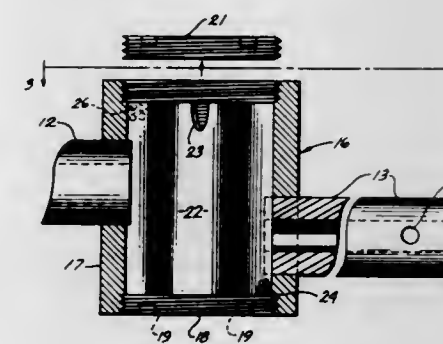
George L. Wolfelin, 7326 South Gretna Avenue, Whittier, Calif.

Filed Mar. 19, 1970, Ser. No. 21,134

Int. Cl. B05b 3/00

U.S. Cl. 239—228

9 Claims



A rotary sprinkler is described having a hub with a pair of arms extending radially from the hub and terminating in at least partly tangentially directed nozzles for inducing sprinkler rotation. In each arm between the hub and the nozzle is a debris trap comprising a vertical cylinder having a diagonal baffle between the inlet and the outlet. An aperture through the baffle near the top of the cylinder permits water to flow from the inlet to the outlet. The water inlet is near the top of the cylinder and the water outlet is near the bottom of the cylinder on the opposite side of the baffle. Centrifugal force as the sprinkler rotates forces debris having a density greater than water into a region formed between the diagonal baffle and the cylinder wall so that the debris is not carried into the nozzle to cause plugging. The diagonal baffle also defines a pocket or region radially inwardly in from the passage through the baffle wherein debris having lower density than water tends to accumulate, further protecting the nozzle from plugging.

3,658,252

SELF-CLEANING SPRAY DEFLECTOR

Robert B. Costa, Covina, Calif., assignor to Rain Bird Sprinkler Mfg. Corp., Glendora, Calif.

Filed Sept. 28, 1970, Ser. No. 75,932

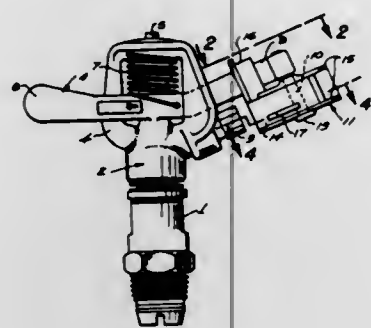
Int. Cl. B05b 3/02, 3/14

U.S. Cl. 239—230

2 Claims

A self-cleaning spray deflector intended primarily for sprinklers in which a shaft is mounted in front of the spray

nozzle and journals an oscillating spray deflector having slots exposing the shaft and positioned to direct a portion of the



water issuing from the nozzle against the shaft to flush particles which might prevent free rotation.

3,658,253

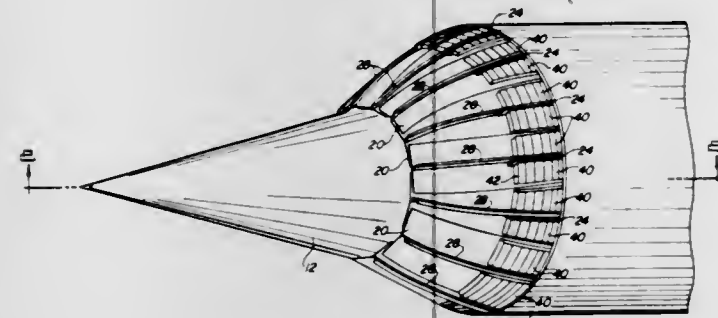
THRUST REVERSER FOR PLUG TYPE JET ENGINE NOZZLE

Fred W. Steffen, 3955 Meadow Gateway, Broadview Heights, Ohio

Filed July 1, 1970, Ser. No. 51,519
Int. Cl. B63h 11/10

U.S. Cl. 239-265.39

9 Claims



The specification and drawings disclose a jet engine nozzle of the type having an aerodynamically shaped plug member positioned in the nozzle outlet to define an annular outlet area. A plurality of leaves or deflector vanes are positioned in side-by-side, overlapping relationship about the nozzle outlet. Means are provided for moving the leaves simultaneously between first and second positions to vary the effective area of the annular outlet. Thrust reversing means are associated with the leaves including flow diverting means which become operative as the leaves approach the second position to direct at least a portion of the exhaust gases in a direction having a component opposite to the direction of flow through the annular area. Preferably, the flow diverting means comprise vanes carried on the leaves.

3,658,254

LIQUID ATOMIZING APPARATUS

Aaron Lee, Miami Beach, Fla., assignor to Chemair Corporation of America, Hialeah, Fla.

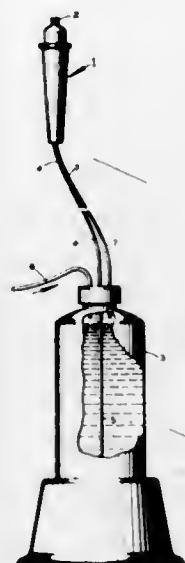
Filed May 16, 1969, Ser. No. 825,178
Int. Cl. B05b 7/32

U.S. Cl. 239-337

2 Claims

A liquid spray gun for atomizing and projecting a mixture of pressurized liquid and pressurized gas propellant having a housing for hand manipulation including a manually operated

combination spray nozzle, valve and a mixing junction secured in said housing. A pressurized liquid conducting tube connected to said mixing junction through a check valve having a non-reverse flow spring of predetermined resistance. A



pressurized gas propellant tube connected to the mixing chamber through a second check valve having a non-reverse flow spring of predetermined lesser resistance for preventing possible improper operation of the gun.

3,658,255

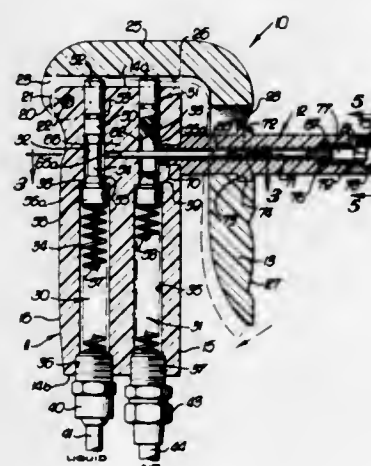
HAND HELD SPRAY GUN AND AIR VALVE

Richard W. Beall, Jr., 500 Poinsettia, Manhattan Beach, Calif.

Continuation-in-part of application Ser. No. 8,845, Feb. 5, 1970, now abandoned, which is a continuation-in-part of application Ser. No. 750,076, Aug. 5, 1968, now abandoned. This application Sept. 16, 1970, Ser. No. 72,590
Int. Cl. B05b 7/04

U.S. Cl. 239-415

3 Claims



A combination lubricator and air valve in the general character of a hand held lightweight spray gun of simplified form and made principally of plastic, operable as one function for dispensing a liquid lubricant by the flow of air, and in which an air supply valve opens first and a liquid supply valve opens thereafter, and the liquid supply valve closes first and the air supply valve closes thereafter, whereby there is no appreciable time lag in delivering the lubricant upon actuation of the device, and operable as a second function for delivering air only to a tire, or other inflatable member equipped with a conventional check valve, the device embodying a stop in the delivery nozzle to depress the stem in the check valve.

3,658,256

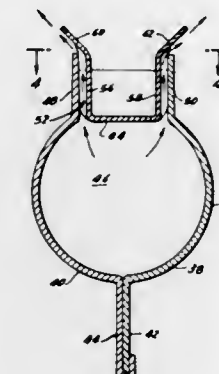
GAS BURNER

Donald W. Hartzell, Somerville, N.J., assignor to Fedders Corporation, Edison, N.J.

Filed July 20, 1970, Ser. No. 56,624
Int. Cl. B05b 1/14

U.S. Cl. 239-552

4 Claims



An improved gas burner is provided comprising a hollow tubular base member having an elongated cutout therein. An insert fits into the cutout and is provided with a series of spaced, outwardly extending grooves which sealingly engage the surfaces of the cutout. The portions of the insert between adjacent grooves cooperate with the surfaces defining the cutout in forming porting for the burner at which combustion occurs. Portions of the sides of the insert are angularly disposed so as to direct the combustion reaction products outwardly toward the walls of an associated heat exchanger.

3,658,257

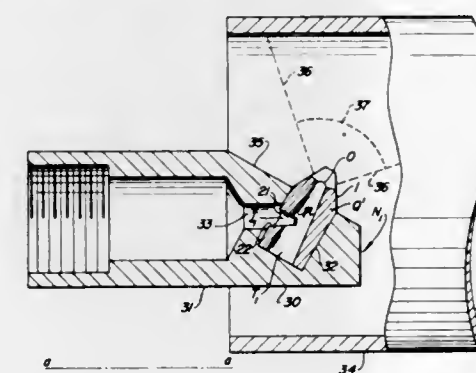
SPRAY NOZZLE

Alvin A. Rood, Westlake, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Filed Sept. 11, 1969, Ser. No. 856,983
Int. Cl. A01q 25/04

U.S. Cl. 239-589

31 Claims



Improved airless spray nozzles and methods and means for making them. A spray nozzle tip having a central longitudinal passage terminating in an outlet orifice is provided with a single lateral inlet to the passage. The opposite open end of the passage is closed to form a turbulence chamber by means which may be removable or detachable and may be yielding or resilient. The lateral inlet is related in size to the outlet orifice and is in the form of a slot having transverse faces which lie in planes that intersect in a line which lies in a plane normal to the longitudinal axis of the passage. The nozzle tip may be mounted in a carrier. The nozzle tip is readily cleanable by a cleaning probe inserted through the lateral inlet. The nozzle tip is made from a preformed blank having an internal passage by a grinding wheel of the proper shape and size. The effective areas of the inlet and outlet orifices are determined during their cutting by passing air through the passages and measuring the rate of flow from the lateral inlet and from the outlet orifice.

3,658,258

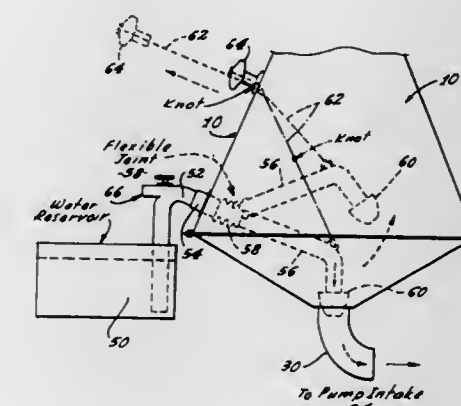
AGRICULTURAL APPARATUS

Richard A. Carlyon, Jr., 751 North Edmonds Drive, Carson City, Nev.

Original application July 10, 1969, Ser. No. 840,804, now Patent No. 3,586,245. Divided and this application Mar. 4, 1971, Ser. No. 120,826
Int. Cl. A01c 17/00

U.S. Cl. 239-662

6 Claims



Improved agricultural apparatus is provided which, for example, may be mounted on the back of a truck, or a trailer, and which may be used conveniently and efficiently to mulch, fertilize and seed an area. The apparatus to be described includes a tank containing a slurry of the seed, mulch and fertilizer, and a circulating pump coupled to the tank for circulating the slurry around the system. In addition, a spray dispensing hose is coupled to the circulating line from the pump for receiving a portion of the circulating slurry to be sprayed over the area. A simple means is provided by which fresh water from a reservoir may be pumped into the system.

3,658,259

METHOD FOR GRANULE PULVERIZATION

Anton Ledergerber, Domat/Ems, Switzerland, assignor to Inventa AG Fur Forschung Und Patentverwertung, Zurich, Switzerland

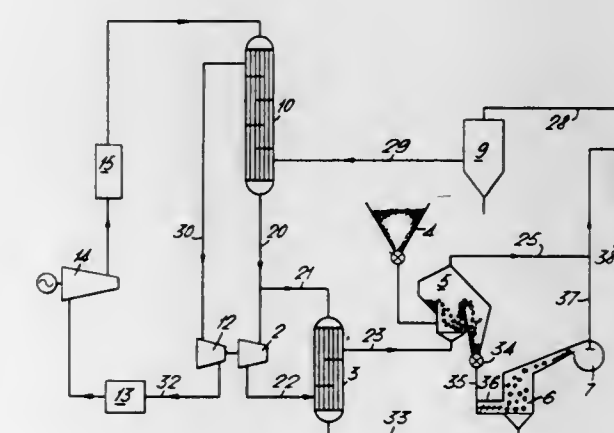
Filed Dec. 10, 1970, Ser. No. 96,805

Claims priority, application Switzerland, Dec. 15, 1969, 18576/69

Int. Cl. B02c 19/06

U.S. Cl. 241-5

7 Claims



Apparatus and process for pulverizing granules at low temperatures in a jet mill is provided wherein two cold-gas streams are used, one for precooling the granules to be pulverized and the other for cooling the granules as they are pulverized.

3,658,260

ON-STREAM ORE LIBERATION DETECTION SYSTEM

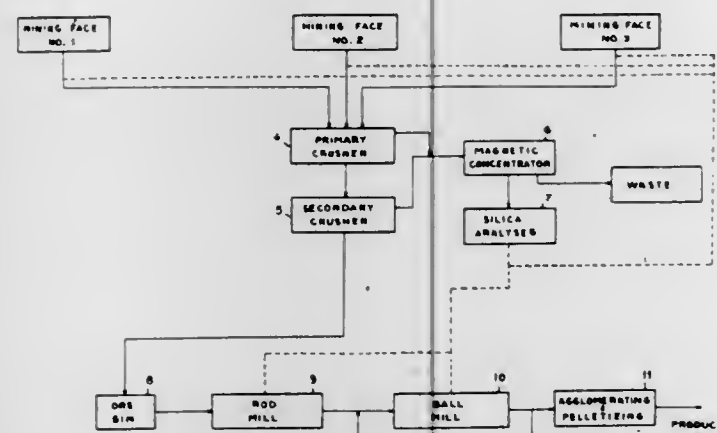
Charles J. Williams, Aurora, Minn., assignor to Erie Development Company, Cleveland, Ohio

Filed Nov. 19, 1969, Ser. No. 878,082

Int. Cl. B02c 25/00, 21/00

U.S. Cl. 241-19

9 Claims



A method for determining the extent to which ores should be crushed and ground for optimum beneficiation in which dust is separated from the crushed ore and is then continuously sampled, and concentrated as to the desired mineral component and the concentrate continuously analyzed to determine the content of one of the mineral components thereof. The analysis is then used to determine the extent of grinding to control the composition of the final concentrate. Also the analysis may be used to proportion ore obtained from various sources to assist in controlling the composition of the final concentrate.

3,658,261

METHOD FOR SALVAGING CARBON FROM ANODES

Gunter Limpinsel, Forsbach/Bezirk/Cologne, Germany, and Karl Fricker, Meilen, Switzerland, assignors to Kuhn Hartung & Co. Maschinenfabrik GmbH, Duesseldorf, Germany and Schweizerische Aluminium AG, Zurich, Switzerland

Filed May 21, 1969, Ser. No. 826,476

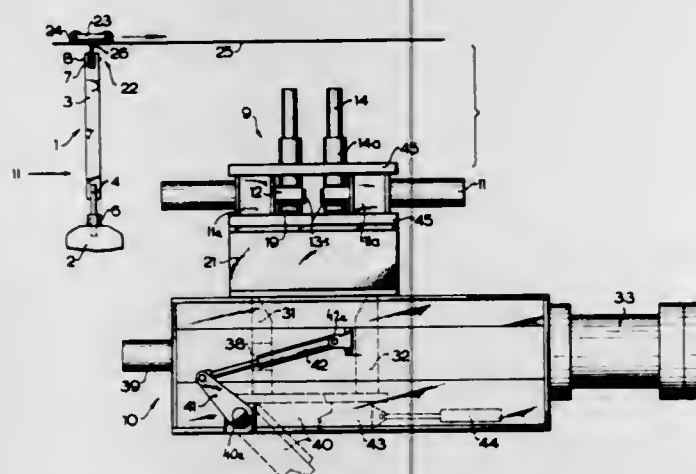
Claims priority, application Germany, Sept. 19, 1968, P 17

83 018.1

Int. Cl. B02c 1/06, 23/00

U.S. Cl. 241-25

7 Claims



Carbon anode blocks are separated from metallic suspending devices of used or defective anode units for the production of aluminum by clamping the suspending device between one or more pairs of piston rods, by stripping the anode block off the thus clamped suspending device, and by thereupon comminuting the separated anode block in a crushing chamber which is surrounded by toothed walls at least one of

which is movable into the chamber to thus comminute the anode block. An overhead conveyor is employed to transport used or defective anode units into the range of the clamping faces on the piston rods. The crushing chamber is located below the separating station so that a separated anode block can enter the crushing chamber by gravity.

3,658,262

SEWAGE SLUDGE AND GARBAGE GRINDER

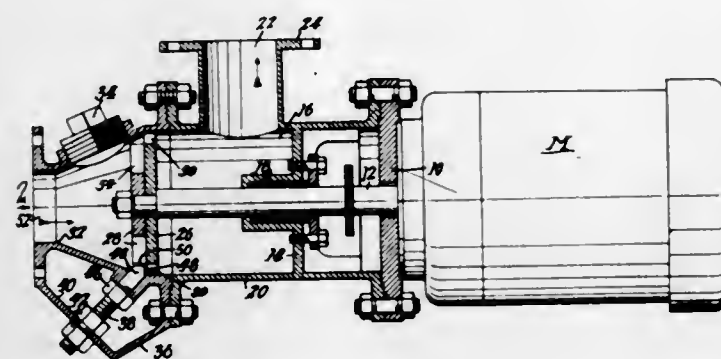
Walter Burant, Jr., Rothschild, Wis., assignor to Sterling Drug, Inc., New York, N.Y.

Filed Oct. 23, 1970, Ser. No. 83,346

Int. Cl. B02c 13/00

U.S. Cl. 241-46 B

12 Claims



A sewage sludge grinder comprising a housing, a shaft in the housing, a motor for driving the shaft, a chamber in the housing surrounding the shaft, an outlet and an inlet in the chamber, said shaft being free-ended within said housing and mounting at its terminal portion an assembly comprising an impeller which faces the inlet and tends to move sludge therefrom outwardly radially a set of cutters, and a grid-plate provided with peripheral through slots, the peripheral edge of the impeller cooperating with certain surfaces on said cutters, and the forward face of the grid-plate adjacent said slots cooperating with different surfaces on said cutters, the sludge flowing through the impeller and grid-plate assembly toward the outlet.

3,658,263

CHOPPING AND SCREENING MACHINE FOR CANDY PARTICLES AND THE LIKE

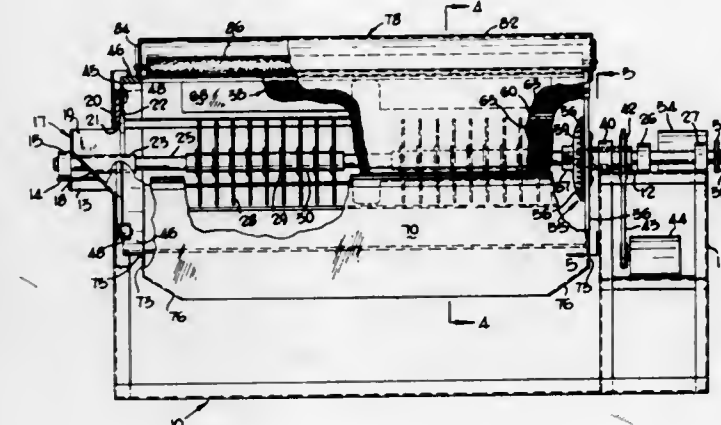
Edward G. Zeisler, and Glenn H. Zeisler, both of St. Louis, Mo., assignors to St. Louis Fondant Company, St. Louis, Mo.

Filed Apr. 3, 1970, Ser. No. 25,376

Int. Cl. B02c 11/08, 13/13

U.S. Cl. 241-56

2 Claims



Candy-like ingredients, such as are used in baking and candy making, may vary from hard to mushy consistency.

The present machine chops and screens them without producing undesirable fine particles. The product is introduced to rotating screened cage at one end. The cage is driven at the opposite end through a tubular drive, with a concentric contra-rotating bladed cutter shaft, the cage being surrounded by an upper casing terminating in discharge chutes, and its screen perforations being cleaned by a rotatable brush which rests on the cage within the top of the casing. A suction fan at the concentric drive end of the cage avoids outflow of chopped particles which might clog the drive mechanism.

3,658,264

ROLLER MILL DRIVE

Siegfried Schauer, Kaiserslautern-Hohenecken, Germany, assignor to Firma Gebr. Pfeiffer Barbarossawerke A.G., Kaiserslautern am Pfalz, Germany

Filed Nov. 16, 1970, Ser. No. 89,656

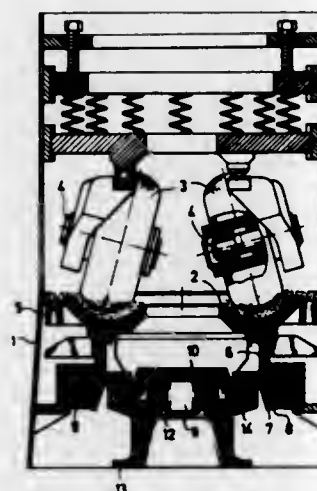
Claims priority, application Germany, Nov. 15, 1969, P 19 57

580.5

Int. Cl. B02c 15/00

U.S. Cl. 241-121

2 Claims



Drive for roller mills having a horizontally disposed grinding vessel rotatable about a vertical axis and rollers rolling in the vessel that rotate about stationary axes which are under pressure, where one part of the support of the outer periphery of the grinding vessel constitutes the rotor of the electromotor which drives the vessel and which carries the rotor winding is encompassed by a horizontally disposed stationary stator supported directly in the housing of the mill.

3,658,265

SHREDDER

Richard D. Johnson, 20800 Thornwood Drive, Olympia Fields, Ill.

Filed Mar. 19, 1970, Ser. No. 21,108

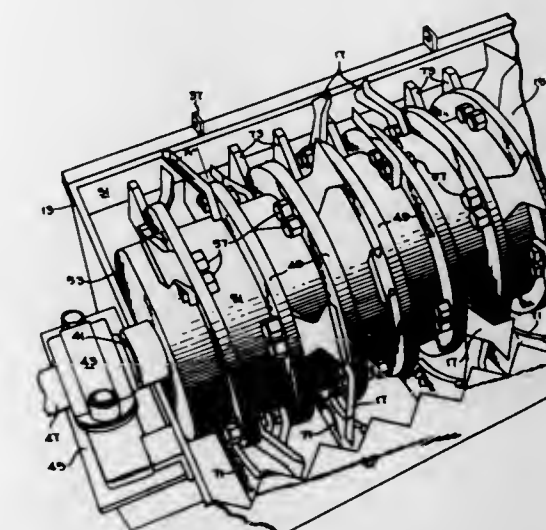
Int. Cl. B02c 13/06

U.S. Cl. 241-190

9 Claims

Apparatus for shredding sheet material including a housing having a front inlet and a rear outlet. A horizontal serrated abutment extends across the lower boundary of the front inlet through which sheet material is fed, as by a pinch conveyor. A horizontal arbor spaced rearward of the abutment rotates within the housing carrying cutting elements having pyramidal tips which trace paths of rotation that cause them to pass downward through the open regions between the ser-

rations in the abutment, piercing the sheet material. Arcuate sections adjacent the tips of the cutting elements cause a



ripping action to occur. The shredder operates at a much lower noise level than comparable equipment and provides uniform shredded materials that have interlocking edges.

3,658,266

COLLOID INJECTION MILL

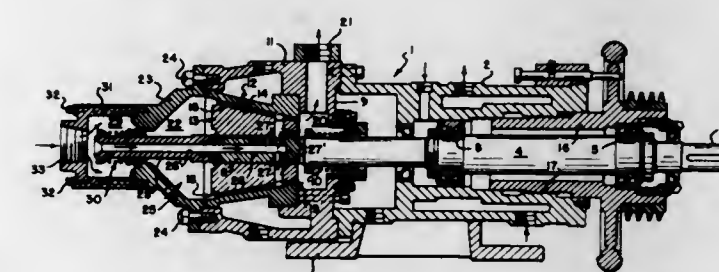
David F. O'Keefe, deceased, late of Long Island, N.Y., and by Keith Baker, executor, 149 Kensington, Garden City, N.Y.

Filed Oct. 1, 1970, Ser. No. 77,196

Int. Cl. B02c 7/175

U.S. Cl. 241-255

5 Claims



A colloid mill having a milling zone defined by the area between the opposed surfaces of a stator and rotor disposed in milling relationship with each other, a first passageway for feeding a main product through the milling zone, and a secondary product passageway connected from a point exterior to said mill to the milling zone to provide a means for mixing a second product with the main product at a predetermined location within the milling zone while subjecting the second product to a lesser amount of shearing than the main product.

3,658,267

APPARATUS FOR DISINTEGRATING TIRES AND THE LIKE

Stanley J. Burwell, Ravenhurst Circle, Glen Arm, Md.

Filed Feb. 16, 1970, Ser. No. 11,594

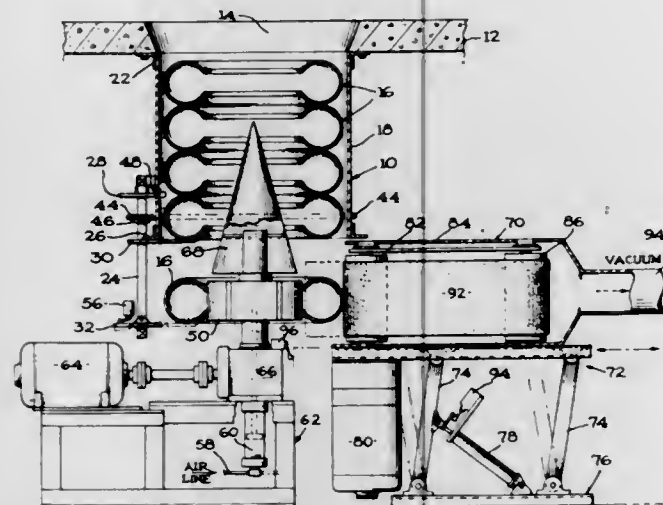
Int. Cl. B02c 19/00

U.S. Cl. 241-301

10 Claims

A tire grinding apparatus comprising means for storing a plurality of tires therein, means for feeding the tires one at a time to a rotating holding means, with means disposed ad-

adjacent said holding means for grinding and pulverizing a tire into a powdered form with vacuum means provided for collecting the powdered rubber from said apparatus, said grinding means having feed means for moving said grinding means into grinding engagement with a tire held by said holding



means, and tire bead disposal means positioned adjacent said tire holding means for cutting the remaining tire bead in two and swing finger means adapted to throw said tire bead down chute means when the pulverizing and cutting operations are completed.

3,658,268

APPARATUS FOR SHOCKING MATERIALS

Joshua W. Martin, III, Marlton, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 30, 1970, Ser. No. 85,423

Int. Cl. B02c 19/18

U.S. Cl. 241-301

8 Claims



Apparatus for shocking materials comprising one or two reusable receiving vessels to which are mounted one or more expendable shocking tubes containing the material to be shocked. A shock wave is generated by the axially progressive detonation of an explosive adjacent to the shocking tube or to a driver tube which collapses and impacts the shocking tube. The shocked material is substantially discharged into the receiver and agglomerates are comminuted.

3,658,269
MULTIPLE COIL WINDER
Camardella Giuseppe, 20154 Milan Via E. Biondi, 1, Milan, Italy

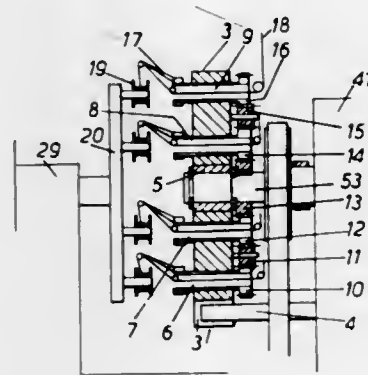
Continuation-in-part of application Ser. No. 698,199, Jan. 16, 1968, now abandoned. This application Oct. 23, 1970, Ser. No. 83,287

Claims priority, application Italy, Jan. 27, 1967, 11952 A/67

Int. Cl. H01f 11/04

U.S. Cl. 242-7.09

7 Claims



Apparatus for simultaneously winding a plurality of coils in a machine having a single stationary coil support and a single rotary wire guide shaft, comprising a support body mounted on the single shaft through a bearing and carrying a plurality of rotatable secondary wire guide shafts to which the rotation is imparted through an assembly of constantly meshing gears and a gear fast with the single wire guide shaft.

3,658,270

WELL TUBING INJECTOR AND REMOVAL APPARATUS

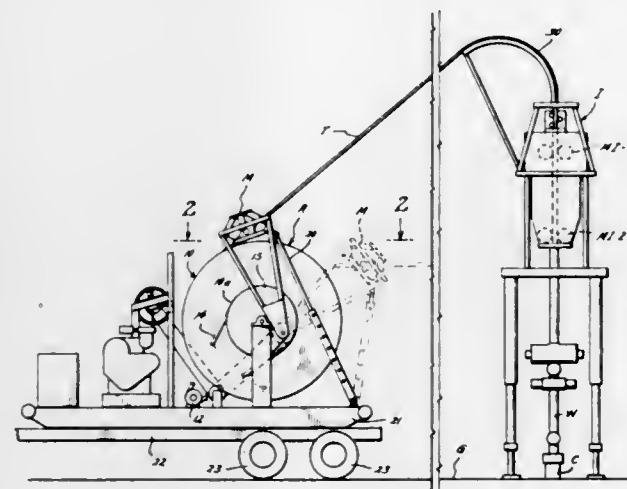
Damon T. Slator, and Archie R. Wilson, both of Houston, Tex., assignors to Bowen Tools, Inc., Houston, Tex.

Filed June 10, 1970, Ser. No. 44,921

Int. Cl. B65h 75/00

U.S. Cl. 242-54

7 Claims



Well tubing injector and removal apparatus having means for feeding the tubing from a reel into a well and vice versa while maintaining the tubing under tension between the reel and the tubing injector unit, whereby level winding and unwinding of the tubing relative to the reel is assured and dangerous movements of the portion of the tubing between the reel and the injector unit due to wind and other causes are avoided.

3,658,271

SPINDLE MOUNTED FLANGE

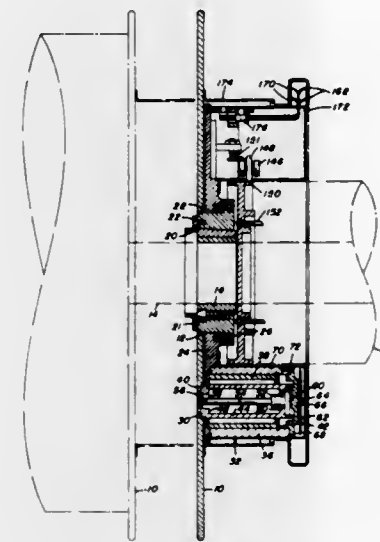
Richard C. Austin; Robert A. Traub, both of Rochester, N.Y., and Joseph S. Rengert, deceased, late of Rochester, N.Y. (Helen M. Rengert, executrix), assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 18, 1970, Ser. No. 38,282

Int. Cl. B65h 17/02

U.S. Cl. 242-67.1

13 Claims



An axially movable flange mounted on a rotatable spindle and arranged for rotation about a centrally located stationary support. The flange is connected to reciprocating means to move the flange axially with respect to the support while rotating on the spindle. A reversible motor is provided to drive the reciprocating means in the desired direction. Touch type control means rotatable with the flange and its associated structure operates the reversible motor. Power for the above operations is supplied by batteries. The voltage level of the batteries is maintained by a generator and voltage regulator to make the unit completely self-contained.

3,658,272

WEB WINDER

John P. Bennett, and Frank W. Wilshin, both of London, England, assignors to Masson Scott Thrissell Engineering Limited, London, England

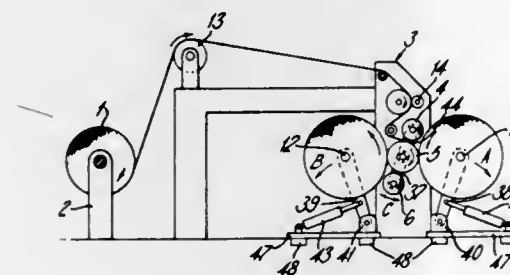
Filed Apr. 2, 1970, Ser. No. 25,204

Claims priority, application Great Britain, Apr. 3, 1969, 17,627/69

Int. Cl. B65h 17/08

U.S. Cl. 242-66

14 Claims



A winder, e.g. for winding paper webs into rolls, comprises three winder drums forming first and second nips into which first and second mandrels are urged. Separate webs are fed to the two mandrels, one web being fed between a first and a second of the three drums and the other web being fed between the second and third drums. Various means may be employed for urging the mandrels towards the nips.

3,658,273

MACHINE FOR ROLLING UP FLEXIBLE ARTICLES

Robert Chapuis, Grenoble, France, assignor to Etablissements Ruby S.A., Voiron-En-Chartreuse, France

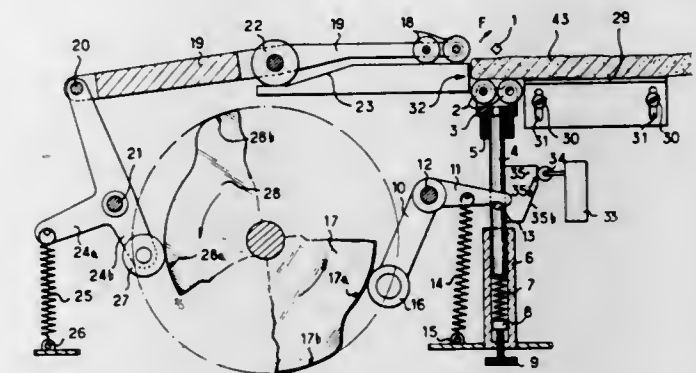
Filed June 5, 1970, Ser. No. 43,698

Claims priority, application France, June 11, 1969, 6919376

Int. Cl. B65h 75/02

U.S. Cl. 242-67.1

12 Claims



A machine for rolling up soft flexible articles comprises a non-circular rotating spindle, a first roller means below the spindle, and second roller means mounted to be brought toward and then over the spindle to bend over the spindle the end of a flexible article gripped between the spindle and first roller means.

3,658,274

ROTATABLE MANDREL

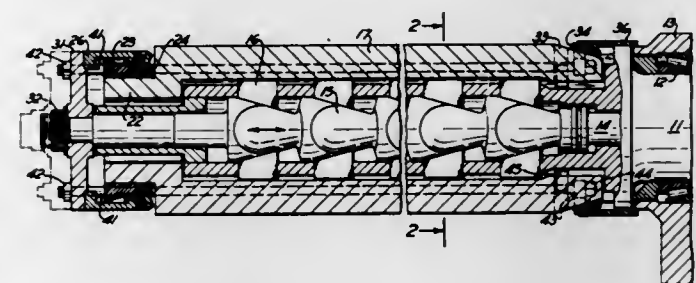
James Richard Adair, Pittsburgh, Pa., assignor to United Engineering and Fendry Company, Pittsburgh, Pa.

Filed Jan. 19, 1970, Ser. No. 3,740

Int. Cl. B65h 75/18

U.S. Cl. 242-72.1

5 Claims



This disclosure relates to a mandrel for coiling strip as produced by a hot rolling mill. The mandrel includes a rotatable arbor on which a plurality of outer segments are carried. The segments are moved radially relative to the arbor by an axially movable rod carried by the arbor. A piston cylinder assembly moves the rod and, hence, the segments into three radial positions. In order that the segments may be firmly held and supported in these positions, wedges are arranged at the opposite ends of the segments which are engaged by axially movable rings which carry complementary wedges and which are connected to the rod.

3,658,275

SPOOL FOR SEWING THREAD

Albert Heinrich Jurgen Lahmann, Gutach-Breisgau, Germany, assignor to Gutermann & Co. Aktiengesellschaft, Zurich, Switzerland

Filed Apr. 29, 1970, Ser. No. 32,900

Claims priority, application Great Britain, May 6, 1969, 23,061/69

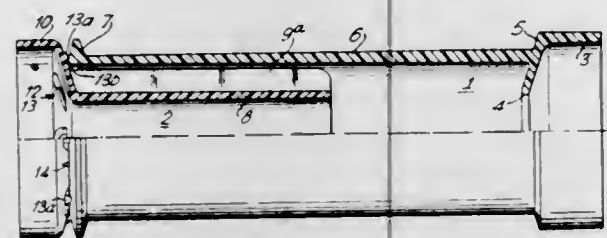
Int. Cl. B65h 75/14

U.S. Cl. 242-118.4

5 Claims

A spool for sewing thread comprising an outer tubular member for carrying the thread windings and an inner

member adapted to be telescoped within the outer tubular member, the inner member being provided with a tubular portion coaxial with the outer surface of the outer tubular member and adapted for mounting on a supporting post of a



sewing machine, the inner member also being provided with a head adapted to trap thread between it and an end of the outer tubular member when the inner member is telescoped into the outer tubular member.

3,658,276

MOTION PICTURE PROJECTOR WITH AUTOMATIC REWIND

Tadao Hayami, Tokyo, Japan, assignor to Kabushiki Kaisha Kōpaku, Tokyo-to, Japan

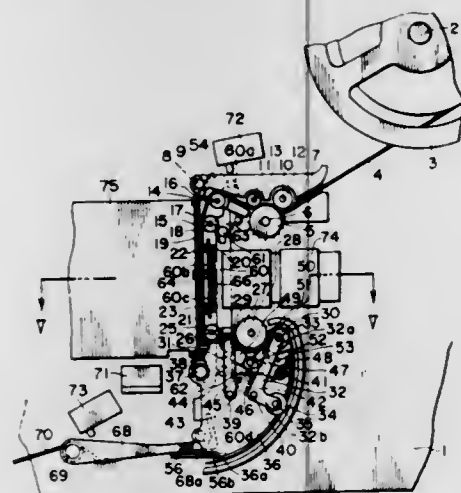
Filed Mar. 17, 1970, Ser. No. 20,277

Claims priority, application Japan, Mar. 22, 1969, 44/21843

Int. Cl. G03b 1/22, 1/58

U.S. Cl. 242—189

6 Claims



A motion picture projector with automatic rewind, comprising: a wheel adapted to rotate at a constant speed for feeding film, a mechanism operative to relieve the engagement between the film and said wheel and to cause the retreat of both a pressure plate of a film gate and a film drive claw from the film face, and a mechanism operative to cause the change-over of the connections of power source switches to a driving motor by the actions of members adapted to be actuated by the resultant tension produced in the film, causing the interruption and subsequent resumption of motion of said driving motor so as to rotate said supply reel at high speed in the direction in which the film is taken up by said supply reel.

3,658,277

AIRCRAFT ANTI-HIJACKING STRUCTURE

Charles I. Anderson, 7399 South Main Street, Downers Grove, Ill.

Filed Dec. 11, 1970, Ser. No. 97,070

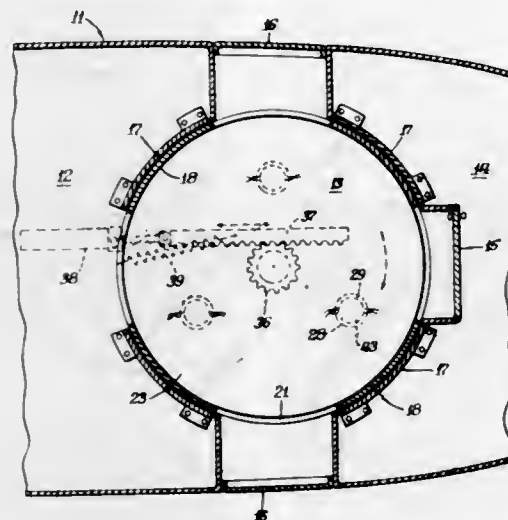
Int. Cl. B64c 1/00; E05g 3/00; E06b 3/34

U.S. Cl. 244—1 R

12 Claims

Normally inoperative walls in entrance area of aircraft between passenger and pilot areas rendered operable by con-

trol in pilot area and automatically actuated in response to downward pressure on floor in entrance area for movement to operative position to trap within the entrance area person or persons stepping on floor thereof. Such movable walls are segments of hollow cylinder rotatable to operative position



into edge-overlapping relation with stationary walls comprising segments of coaxial hollow cylinder thereby to block access from entrance area to exterior of aircraft and passenger and pilot areas. Thus enclosed entrance area may be filled with temporarily effective disabling gas and subsequently evacuated thereof, both under control from pilot area.

3,658,278

LOAD TRANSPORTING SYSTEM

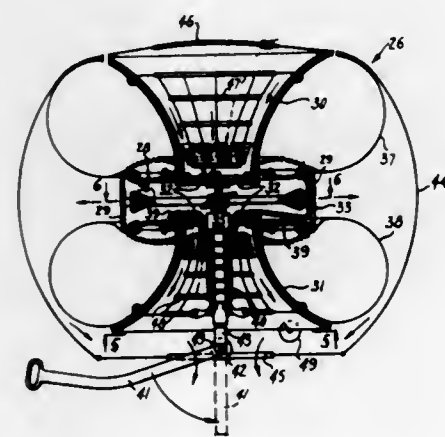
La Ferena Batchelor, 3976 Langley Avenue, Chicago, Ill.

Filed Dec. 16, 1969, Ser. No. 885,436

Int. Cl. B64b 1/50

U.S. Cl. 244—33

3 Claims



A load transporting system in which a balloon supports a flexible electric line leading from a source of electricity to a load carrying device. The load carrying device includes hand operated controls, a ground effects helium filled rotor driven by an electric motor and means for releasing gas to provide a load carrying force.

3,658,279

INTEGRATED PROPULSION SYSTEM

Arthur J. Robertson, Marietta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.

Filed Apr. 21, 1970, Ser. No. 30,457

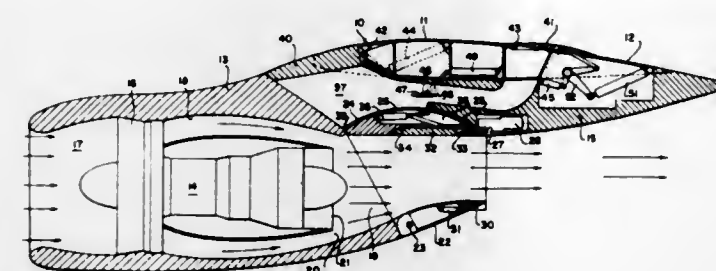
Int. Cl. B64d 27/00; B64c 3/50

U.S. Cl. 244—53 R

8 Claims

A thrust vectoring, thrust reversing and lift augmentation system is provided for jet aircraft in a compact package to optimize the several controlled flight regimes of the aircraft.

Thus, the pilot can selectively direct and control the exhaust gases of each engine to give maximum forward thrust, boundary layer control and/or jet flap lift augmentation or he can



select some combination of vectored thrust with lift augmentation. Additionally, when desired a thrust reversing position can be selected to minimize ground roll after landing of the aircraft.

3,658,280

ALTITUDE AND GLIDE SLOPE TRACK CONTROLLER

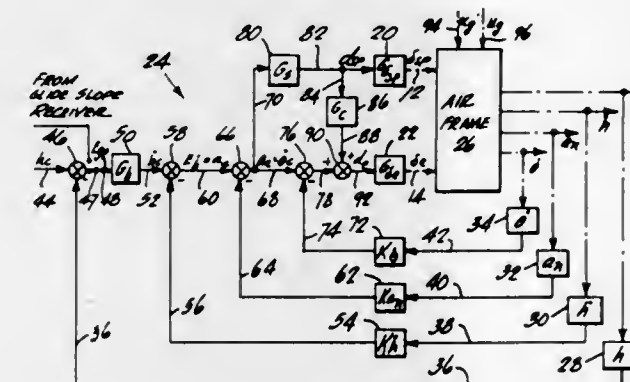
John D. McDonnell, Inglewood, Calif., assignor to McDonnell Douglas Corporation, Santa Monica, Calif.

Filed Oct. 29, 1970, Ser. No. 84,989

Int. Cl. B64c 13/50

U.S. Cl. 244—77 D

10 Claims



Aircraft flight control system providing rapid aircraft responses when controlling aircraft altitude, glide slope tracking and flare by the coordinated and combined use of spoilers and elevators in a closed loop control system. The system utilizes both spoiler-generated direct lift and elevator-generated lift due to rotation wherein the spoilers provide immediate changes in aircraft normal acceleration in response to an acceleration command and the elevators provide similar but longer term changes in response to an associated pitch rate command. The closed loop control system includes a common accelerometer feedback path to provide acceleration control through both spoilers and elevators, and a crossfeed path between the spoilers and elevators to cancel undesirable pitching moments produced by the spoilers.

3,658,281

SINGLE RELEASE FOR PARACHUTE HARNESS

John A. Gaylord, San Rafael, Calif., assignor to H. Koch & Sons, Inc., a division of Global Systems, a Gulf & Western Company, Corte Madera, Calif.

Filed Dec. 24, 1969, Ser. No. 887,929

Int. Cl. B64d 17/30, 17/38

U.S. Cl. 244—151

22 Claims

On a parachute harness, shoulder straps with manually releasable disconnect devices connecting to shrouds of the parachute; each shoulder strap is also connected by a releasable connection which is released by the action of gas under pressure. The chest belt 6 is also made in two parts

connected to one another by a separable connection which can be separated either manually or by the introduction of gas pressure; each leg belt of the harness has also parts connected by separable connection either by manipulation or by the introduction of gas pressure; a cartridge container secured on one of the straps or to the harness has a manipulable cartridge piercing device and is connected by



suitable flexible conduits to all the separable connections so that when the piercing device is manipulated and pierces the cartridge, the escaping gas under pressure is quickly conducted to all the severable connections and quickly releases all the harness straps and belts so that the person can quickly divest himself of the parachute harness by a single manipulation.

3,658,282

COLLAPSIBLE SUPPORT FOR A RECEPTACLE

Earl A. Safford, 1958 Lawrence Avenue, Detroit, Mich.

Filed May 22, 1970, Ser. No. 39,698

Int. Cl. B65b 67/12

U.S. Cl. 248—98

1 Claim



A collapsible support such as for instance, a disposable refuse container, is constructed of oppositely disposed upper and lower frame members pivotally hinged to both ends of a pair of spacer bars one of which is stationary with respect to said frame members and the other one is movable along said frame members to thereby permit said frame members to collapse in a flat position relative to said spacer bars for storage and transport of the receptacle support.

3,658,283

EXTENDIBLE WIG RACK

Marie Therese Martin, 440 East 79th Street, New York, N.Y.

Filed Nov. 18, 1969, Ser. No. 877,608

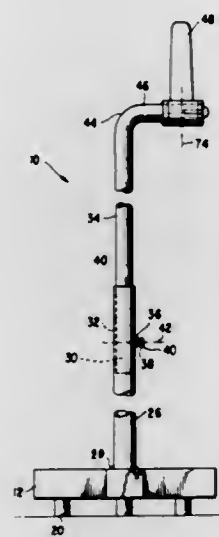
Int. Cl. A47g 29/08

U.S. Cl. 248—122

3 Claims

A rack device for supporting a wig; which includes a base plate from which a lower shaft extends in one direction for

receiving an upper shaft therein, and from which a plurality of stub shafts extend in the opposite direction to provide support therefor; said device further including a tapered spindle mounted on an angular extension of the upper shaft; which



has an adjustment for the upper shaft for varying the amount of extension and rotation with the lower shaft; and which has an adjustment for the tapered spindle for varying the amount of rotation with the angular extension of the upper shaft.

3,658,284 YIELDABLE SUPPORT

Robert J. Haasl, 6404 Cambridge Street, Minneapolis, Minn.
Filed Mar. 23, 1970, Ser. No. 21,892
Int. Cl. F16f 1/06
U.S. Cl. 248-145 5 Claims



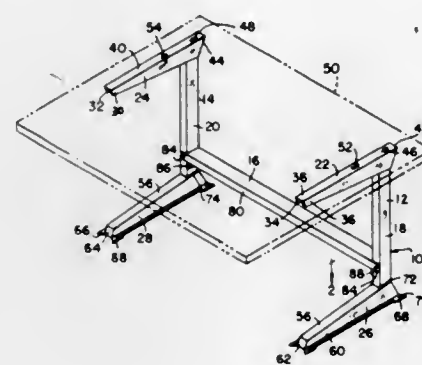
A stand for mailboxes, signs and like objects, having a generally upright stationary standard rotatably carrying a generally horizontal support. A pair of clamps attach a mailbox to the horizontal support. A coil torsion spring, concentric about a downwardly turned end of the support, coacts with a stop arm on the standard to yieldably hold the support in a selected position.

3,658,285 CANTILEVER TABLE BASE

Phillip Cohen, 135 Commerce Drive, Fort Washington, Pa.
Filed July 13, 1970, Ser. No. 54,199
Int. Cl. F16m 11/00
U.S. Cl. 248-163 1 Claim

A cantilever table base comprising a pair of spaced support members wherein each support member includes a vertical upright carrier. Each upright carrier terminates upwardly in a

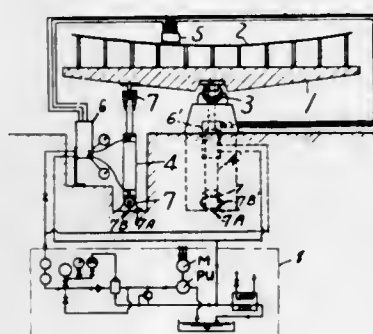
cantilevered table support and downwardly in a cantilevered base support. The spaced support members are horizontally



joined at the vertical upright carrier portions thereof by a horizontal rib which serves to both unify the structure and to provide lateral strength for the base.

3,658,286 APPARATUS FOR POSITIONING A HULL BLOCK

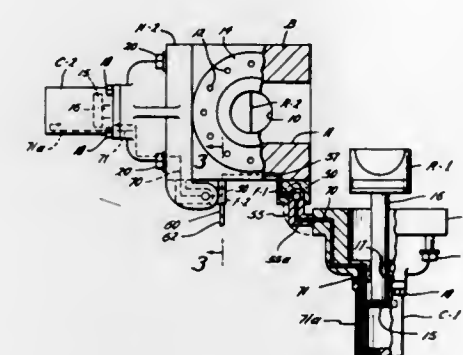
Kiyoshi Terai, Ashiya; Takashi Itoh, and Ryuichi Sagawa, both of Kobe, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan
Filed Mar. 27, 1970, Ser. No. 23,425
Claims priority, application Japan, Mar. 28, 1969, 44/28512
Int. Cl. F16m 11/14
U.S. Cl. 248-371 10 Claims



A block having three dimensional curves thereon is supported on a table by means of vertically extending struts which are adjustable to support the block and the plates forming the block in proper abutting relation of the plates in welding the abutting plates. The table is supported centrally on a universal joint so that the table may swing about either of two intersecting axes and to positively move the table so that any particular portion of the seam of the block is horizontal and this is accomplished by pushing and pulling devices which may be hydraulic cylinders reacting against a base and against the table with one push-pull device spaced from one axis and the other push-pull device spaced from the other axis so that the universal joint supporting the table is not in alignment with the push-pull devices. It is easier to weld a seam when the seam is horizontal and any portion of the hull block can be positioned by means of the push-pull devices to make any portion horizontal or such portion being welded and by proper manipulation of the push-pull devices the portion being welded can always be horizontal for a maximum welding efficiency.

3,658,287 SWINGING BLOWOUT PREVENTER HEAD WITH FLUID CONNECTOR

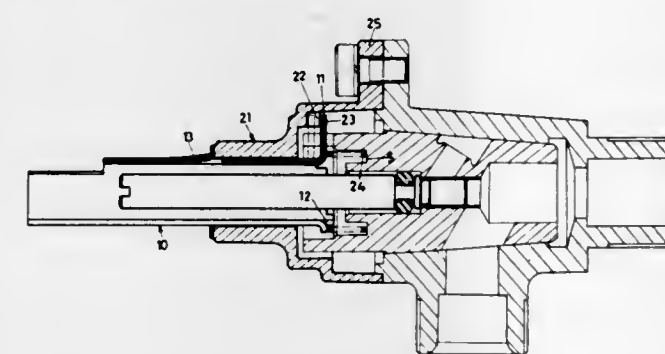
Robert K. Leroux, Houston, Tex., assignor to Hydril Company, Los Angeles, Calif.
Filed Dec. 4, 1970, Ser. No. 95,155
Int. Cl. E21b 33/06
U.S. Cl. 251-1 11 Claims



A swinging blowout preventer head with fluid connector wherein the swinging head is pivotally connected to a blowout preventer body so that a hydraulic fluid system to the ram cylinder mounted with the head remains sealed off at all times, including during the swinging of the head to and from its open and closed positions. Such fluid connector is non-load bearing, and preferably is capable of lateral movement as well as arcuate movement to assure sealing abutment between the body and the swinging head in the closed position while still confining the hydraulic fluid in the fluid system.

3,658,288 STEM FOR COCKS

Lamberto Mazza, Pordenone, Italy, assignor to Industrie A. Zanussi S.p.A., Pordenone, Italy
Filed Dec. 12, 1969, Ser. No. 884,762
Claims priority, application Italy, Dec. 14, 1968, 25105
Int. Cl. F16k 31/60
U.S. Cl. 251-96 4 Claims



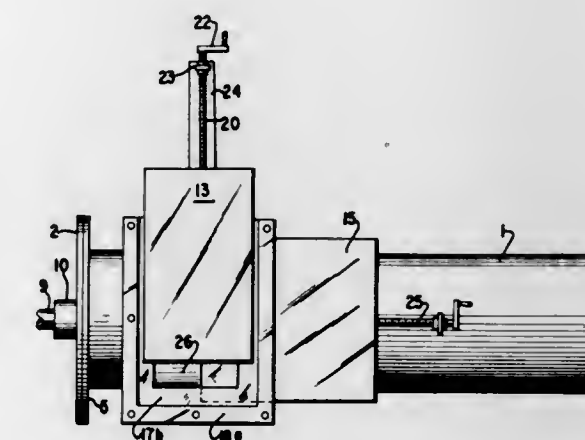
A sleeve-stem, particularly for a gas cock with a valve provided, which is formed from sheet-metal rolled round and comprises a stop catch for securing the stem to a valve of a cock and an elastic tongue which impedes the extraction of the stem from the cock.

3,658,289 CONTROL OF FLUID DYNAMICS IN SPIRALING GAS STREAMS

Richard L. Hodges, Seagraves, Tex., assignor to Cities Service Company, New York, N.Y.
Filed Dec. 22, 1969, Ser. No. 887,268
Int. Cl. F16k 47/00, 3/00
U.S. Cl. 251-118 3 Claims

Spin rate and volume flow rate of spiraling gas streams are regulated to control the fluid dynamics thereof. At constant

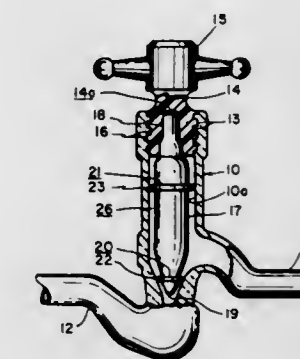
supply pressure, either the spin rate or the volume flow rate of the spiraling stream can be changed without altering the other rate. Should the supply pressure change, both rates can be maintained constant. In addition, the spin rate can be in-



creased even if the static pressure is lowered and can on the other hand be decreased if the static pressure is raised. These effects are accomplished by regulating the spin rate and the volume flow rate of a spiraling gas stream independently of one another.

3,658,290 FLOATING GLASS PLUG FOR STOPCOCK ASSEMBLY

Eugene R. Peters, and Walter H. Rutherford, both of Torrance, Calif.
Filed Dec. 14, 1970, Ser. No. 97,552
Int. Cl. F16k 31/50
U.S. Cl. 251-215 11 Claims



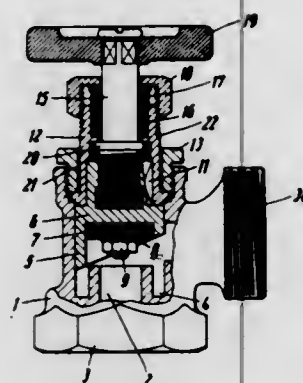
A floating glass plug for a stopcock is employed in a high vacuum. The glass plug is spaced from the stopcock barrel by O-ring seals and a threaded sleeve of teflon, nylon, etc. The glass plug is less expensive than one constructed solely of teflon or of ground glass, and is considerably more effective in service.

3,658,291 VALVE

Helmut Meges, Neheim-Husten, Germany, assignor to Metallwerke Neheim Goeke & Co. KG, Nordrhein-Westfalen, Germany
Continuation of application Ser. No. 791,332, Jan. 15, 1969, now abandoned. This application Mar. 15, 1971, Ser. No. 124,483
Claims priority, application Germany, Jan. 19, 1968, P 16 75 451.1
Int. Cl. F16k 31/44 7 Claims

A valve, particularly a radiator valve, has a housing and a valve seat provided in the housing. An inlet and an outlet are located at opposite sides of the valve seat in the housing and flow regulating means is provided, including a body having a sealing surface and being mounted for one movement rela-

tive to the valve seat to thereby preselect a desired maximum value of a flow aperture between the latter and the sealing surface, and being further mounted for another movement



relative to the valve seat to thereby decrease the flow aperture between the valve seat and the sealing surface at the will of a user from the preselected maximum value towards zero value.

3,658,292

BUTTERFLY VALVE SEAL

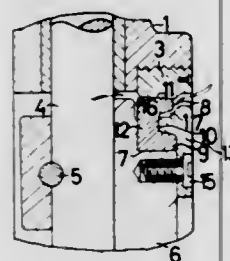
Tamekichi Takigawa, Kobe, Japan, assignor to Okamura Valve Mfg. Co., Ltd., Hikone-shi, Shiga-ken, Japan
Filed Mar. 13, 1970, Ser. No. 19,259

Claims priority, application Japan, Apr. 10, 1969, 44/32112

Int. Cl. F16k 1/22

U.S. Cl. 251—306

1 Claim



A flexible seal, affixed on outer periphery of a rotatable disc of a butterfly valve which closes or opens a flow of a fluid through a passage, the seal forming a valve face of frustoconical shape to bed on the butterfly valve seat, and being so formed that a clearance is provided between the seal and the disc to permit a part of the seal to be elastically deformed, when the valve is closed, thus giving a hermetical sealing effect between the face and the seat and that a pressure of the fluid will act on the back side of the face, when the valve is closed, to give an additional hermetical sealing effect.

3,658,293

BUTTERFLY VALVE WITH AN ARTICULATED CONTROL

Ludwig Gaebel, deceased, late of Blienkastrasse 43, Kinkel, Germany (by Margot Gaebel, born Welsch, administratrix)

Filed Jan. 20, 1971, Ser. No. 108,110

Claims priority, application France, Jan. 21, 1970, 7002056

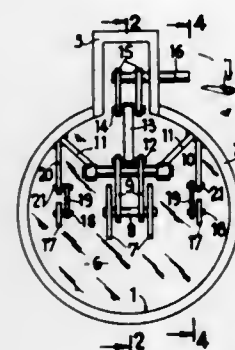
Int. Cl. F16k 31/52

U.S. Cl. 251—228

6 Claims

Butterfly valve having a butterfly element applied against its valve seat by a control device of the articulated type, the butterfly element being suspended from the valve body by link means. The control device includes a toggle structure so

arranged that the toggle structure exerts its maximum force on the butterfly element, upon rotation of the control spindle



of the control device, when the butterfly element is in, or is in the vicinity of, its position in which it is applied against the valve seat.

3,658,294

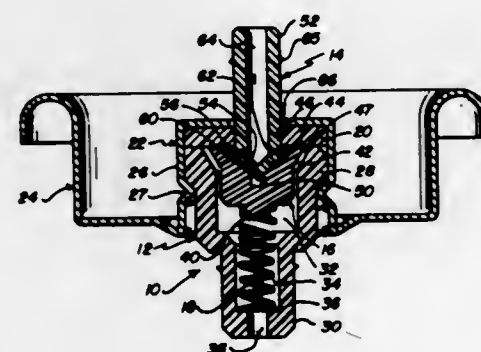
TILT VALVE

Ronald F. Ewald, 2700 Cardinal Drive, Rolling Meadows, Ill.
Continuation-in-part of application Ser. No. 801,132, Feb. 20, 1969, now Patent No. 3,547,405, dated Dec. 15, 1970. This application Feb. 16, 1970, Ser. No. 11,578

Int. Cl. F16k 31/524

U.S. Cl. 251—354

15 Claims



An aerosol valve of the tilt action type, having a valve body, a valve stem, a valve stem sealer, a sealing gasket and valve stem biasing means. The valve stem sealer is reciprocally disposed within the cavity of the valve body and has a valve stem cavity in its top wall which is adapted to receive a specially shaped plug on the inner end of the completely separate valve stem. A swirl chamber may be formed on the top surface of the sealer below the stem. The peripheral rim of the valve stem sealer is forcibly urged against the sealing gasket, by the valve stem biasing means, to form a seal. The valve stem is operated by tilting and/or depressing it to break this seal to permit the product to be dispensed. In one embodiment the valve may be designed to dispense a metered amount of product with each actuation. In another embodiment the valve may only be actuated by tilting the valve in one direction. In another, the valve has filter grooves and drain chambers. In another, the valve has structure to lock the valve in the open position. And in another, a variable adjustment is provided to control the rate of product flow.

3,658,295

VALVE SEAT

T. O. Paine, Administrator of the National Aeronautics and Space Administration with respect to an invention of, and George L. Root, Lancaster, Calif.

Filed Feb. 4, 1970, Ser. No. 8,636

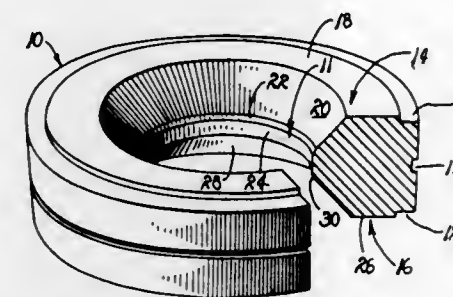
Int. Cl. F16k 51/00

U.S. Cl. 251—360

1 Claim

A valve seat of an annular configuration having a segmented valve sealing surface including a cylindrical surface

extending concentrically through the seat defining a substantially full-flow throat terminating in a first outwardly flared conical sealing surface segment which, in turn, terminates in a second outwardly flared conical surface segment, a feature



of the seat being the inclusion of a pair of coaxially arranged conical surface segments circumscribing the throat of the valve seat whereby a reduced-stress area sealing surface is provided for receiving a plug and the life of the valve seat is increased.

3,658,296

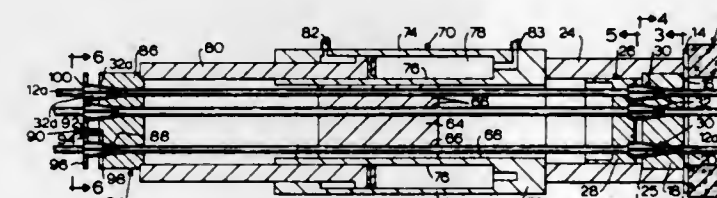
SYSTEM FOR POST-TENSIONING AND ANCHORING PRESTRESSING TENDONS

Lawrence R. Yegge, 139 Via de Tesoros, Los Gatos, Calif.
Filed Sept. 24, 1970, Ser. No. 75,091

Int. Cl. E04c 3/20; B23p 19/00

U.S. Cl. 254—29 A

12 Claims



A system for applying tension to and anchoring the end of a prestressing tendon extending from a concrete structure. The system includes a jack for applying tension to the tendon at a first location along the length thereof, anchoring means comprising an anchoring plate and collar means disposed about the tendon and adapted for movement into cooperation with the anchoring plate to grip the tendon located at a point on the tendon between the first location and the concrete structure, and actuator means mounted for movement relative to the jack and the anchoring plate to position the collar means into engagement with the plate and into gripping engagement with the tendon. The actuator means and the collar means incorporate cooperable structure for retaining the collar means against movement relative to the actuator means until the collar means moves into said gripping engagement.

3,658,297

ROPE OR CABLE TIE INCLUDING A HYDRAULIC TAKE-UP

William L. Banks, Jr., 226 Warner Avenue, Rosalyn Heights, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,702

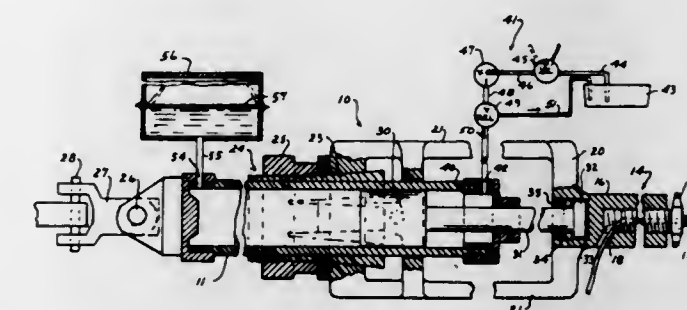
Int. Cl. B66f 3/00

U.S. Cl. 254—51

6 Claims

An apparatus for taking-up the slack in a sailboat rope or cable stay or in the tie line for cargo aboard ship or any vehicle. Hydraulic means in the form of a cylinder with a piston that is connected to the line that is to be tensioned beyond

normal individual manual ability, in which a hand pump produces the hydraulic pressure to advance the piston in the



3,658,298

DRILLING RIG WITH SHIFTABLE CROWN BLOCKS

Wesley W. Moore, Dallas, and Fletcher H. Redwine, Irving, both of Tex., assignors to United States Steel Corporation

Filed Oct. 14, 1969, Ser. No. 866,259

Int. Cl. B66d 1/36

U.S. Cl. 254—190

7 Claims



A drilling rig equipped with two sets of hoisting mechanisms. The two crown blocks are shiftable to enable either block to be positioned over the drill hole. The crown blocks carry depending guides for the two traveling blocks. The guides move horizontally and vertically as the crown blocks are shifted, but are constrained to remain vertical.

3,658,299

BOAT DECK WINDLASS

Stephen A. Sprague, 420 Linnie Canal, Marina Del Rey, Calif.

Filed July 6, 1970, Ser. No. 52,292

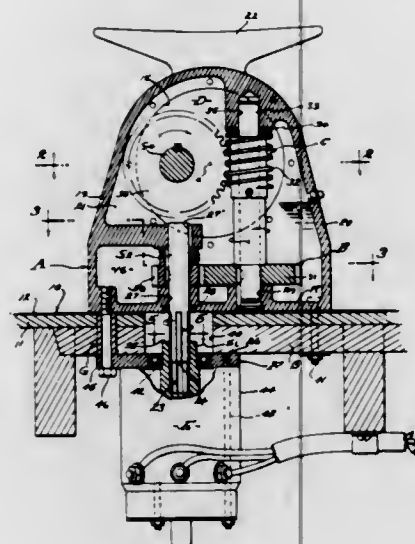
Int. Cl. B66d 1/30

U.S. Cl. 254—150

17 Claims

A windlass for boat decks and the like wherein the line hauling elements are exposed above deck and the prime mover therefor is protectively installed and accessible below

deck, mechanical advantage being increased through two stage gearing whereby a prime mover of reduced size and weight is made possible, and there being a separation of the



above and below deck elements whereby adaptability to decking of varied thickness is made possible, all the while maintaining mechanical integrity between said above and below deck elements.

3,658,300

VEHICLE GUARD FOR HIGHWAYS

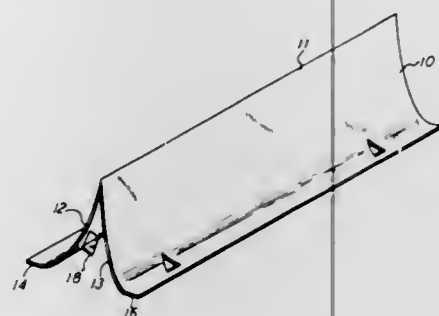
Richard A. Templeton, 480 Sunset Drive, Apt. 7, Burlington, Wis.

Filed Oct. 28, 1970, Ser. No. 84,810

Int. Cl. E01f 15/00

U.S. Cl. 256-13.1

10 Claims



An elongated sheet folded along its length and presenting two sides which extend from the upwardly positioned fold down to the highway. The sides terminate at their lower ends in aprons which extend on the highway or therealong, and the two sides are freely spaced apart from the common fold. The sides are concavely curved down to the aprons, and punch-outs or tangs project from the sides and extend downwardly from the location of the aprons for being imbedded in the highway to anchor the guard in the highway. Another embodiment shown has only one side shaped and curved as mentioned, and the opposite side is planar and extends vertically from the common fold between the two sides.

3,658,301

APPARATUS FOR PREPARING A DRY POWDER POTATO MIX

Rex L. Brunsing, and Jon P. Brunsing, both of 345 Golden Gate Avenue, Belvedere, Calif.

Filed Sept. 15, 1969, Ser. No. 857,780

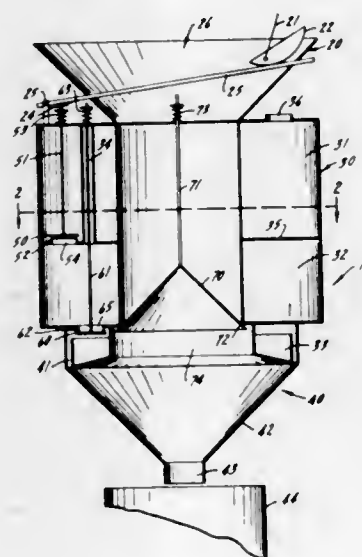
Int. Cl. B01f 15/02

U.S. Cl. 259-4

17 Claims

There is disclosed a method and an apparatus for carrying out the method for preparing a firm dough-like substance

from dry powdered potato mix comprising the steps of: placing a premeasured amount of dehydrated potato mix in a chamber, placing a predetermined amount of water in a second chamber, releasing the predetermined amount of liquid into a receptacle so as to form a thin film flow path of proper thickness along the sides of the receptacle, substantially simultaneously with releasing the liquid, releasing the



powdered food mix so as to cause the particles of potato mix to drop into and mix with the liquid stream without any agitation allowing the liquid to flow for a slightly longer period of time than the powdered food mix so as to act as a cleansing means for the receptacle, and collecting the mixture of powder and liquid, allowing the mixture to solidify to the proper consistency thereby forming a firm dough-like substance that is ready for further processing.

3,658,302

FEED UNIT FOR A FUEL BURNER

Louis Duthion, 66, avenue de Breteuil, 75, Paris, and Claude Jean-Marie Seguela, 158, avenue Charcot, Courbevoie, 92, both of France

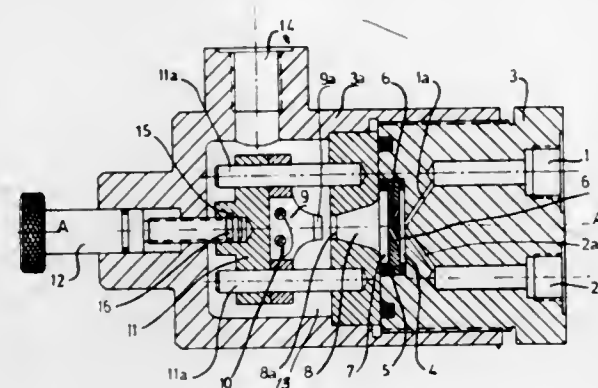
Filed Dec. 31, 1969, Ser. No. 889,623

Claims priority, application France, Dec. 31, 1968, 182,516

Int. Cl. B01f 5/02, 5/04

U.S. Cl. 259-18

10 Claims



A feed unit for a fuel burner has first and second conduit means for supplying liquid hydrocarbon and an emulsifying liquid, for example water, to a premixing chamber from which the premixture is conducted to a mixing chamber in which there is an injection nozzle with an opening through which a jet of the emulsion is emitted and causes a member located in the path of the jet to be vibrated so as to emulsify the emulsion.

3,658,303

DRIVE MECHANISM FOR CONCRETE MIXER

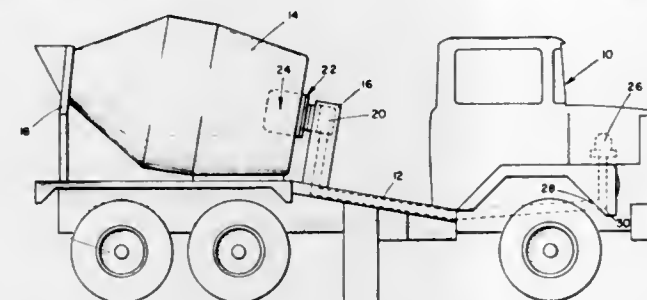
Howard C. Funk, Coffeyville, Kans., assignor to Funk Mfg. Company, Coffeyville, Kans.

Filed Oct. 17, 1969, Ser. No. 869,446

Int. Cl. B28c 5/18

U.S. Cl. 299-177

8 Claims



A drive mechanism for a concrete mixer comprising a planetary gear train interposed between a motor and the mixer housing for transmitting rotation to the mixer. The planetary gear arrangement comprises a sun gear in driving engagement with a plurality of planet gears for transmitting rotation thereto. Each planet gear is a double gear in simultaneous driving engagement with a stationary ring gear and a freely rotatable ring gear for transmitting rotation to the rotatable ring gear. The rotatable ring gear is secured to the mixer housing for rotation simultaneously therewith. In addition, a ball socket joint connection is provided for the mixer housing for absorbing substantially all the twisting motion for reducing strain on the vehicle or truck.

3,658,304

MEANS FOR VAPOR COATING

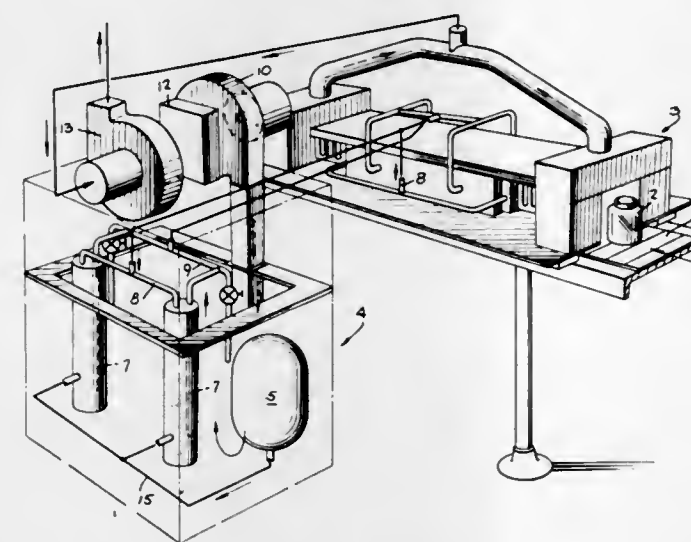
Thomas H. Hall, Jr., Jon R. Cottrill, and Roger D. Dubble, all of Lancaster, Ohio, assignors to Anchor Hocking Corp., Lancaster, Ohio

Filed May 11, 1970, Ser. No. 36,350

Int. Cl. B01f 3/04

U.S. Cl. 261-23 R

7 Claims



An apparatus for vapor coating glass articles where the coating is applied to heated glass articles being carried on a moving conveyor. The apparatus includes a vapor generating cabinet and a connected fuming or vapor coating tunnel which directs the vapor onto the surfaces of the moving glass articles. The vapor is reduced by the heat of the articles to a protective film such as a metallic oxide. The coating tunnel includes means for directing the vapor onto the moving articles and means at opposite ends of the tunnel for both exhausting excess vapor and for forming vapor confining and moisture excluding air curtains.

3,658,305

AERATION DEVICE

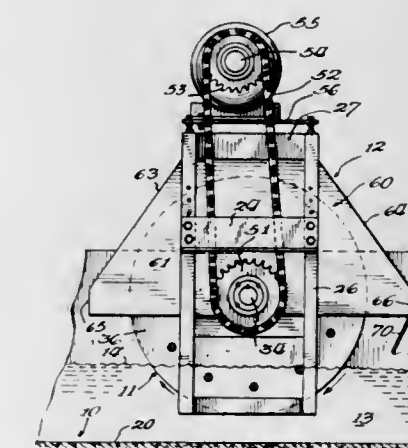
N. Kelth Newton, Forrest, Ill., assignor to Thrive Centers, Inc., Chicago, Ill.

Continuation of application Ser. No. 646,333, June 15, 1967, now abandoned. This application May 8, 1969, Ser. No. 824,384

Int. Cl. B01f 7/04

U.S. Cl. 261-92

12 Claims



Aeration rotor mounted in pit containing liquid for receiving animal waste. Rotor aerates liquid in pit. Rotor includes structure for entrapping air from above liquid and releasing it beneath surface of liquid. Rotor includes structure for lifting liquid above surface thereof and then spilling it back. Deflector structure directs liquid, carried around rotor and dropping behind rotor, toward rotor bottom while permitting foam accumulations behind rotor to pass through rotor to prevent foam build-up.

3,658,306

APPARATUS FOR CONTACTING A LIQUID WITH A VAPOR

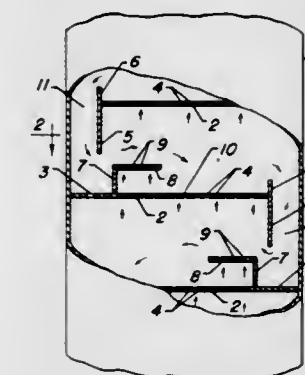
Edwin K. Jones, Kenilworth, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.

Filed July 23, 1970, Ser. No. 57,603

Int. Cl. B01d 3/18

U.S. Cl. 261-114 R

5 Claims



In a column for contacting a liquid with a vapor and having a plurality of vertically spaced apart vapor-liquid contacting trays therein, at least a portion of such trays are constructed such that a wall member is connected to the inlet surface of a contact tray and a perforated plate member is connected to such wall member in a manner to extend laterally inwardly above a part of the tray. The liquid flow path is directed over the wall member and across the perforated plate member to establish initial frothing of fluid and vapor prior to the distribution of the liquid flow over the remaining surface of the contact tray.

3,658,307

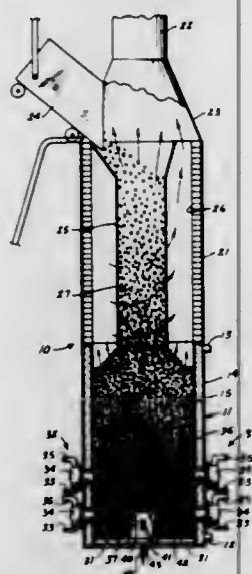
PROCESS AND APPARATUS FOR MELTING SLAG
Charles Delton Richardson, Frankton, Ind.; Robert John Corsentino, Jr., Temple, and Oliver Maxwell Gould, Belton, both of Tex., assignors to The Susquehanna Corporation, Fairfax County, Va.

Filed Aug. 4, 1970, Ser. No. 60,893

Int. Cl. F27b 19/00, 1/02

U.S. Cl. 263-27

15 Claims



A process and an apparatus for melting rock, slag, glass or other similar material or combination thereof for use in the production of high quality mineral wool fibers is disclosed. The apparatus includes a cupola to which is charged a base support of high temperature lump refractory material to serve as a permeable support for the slag charge. Gas-fired burners located along the side walls of the cupola below the upper level of the bed of lump refractory material produce hot combustion gases which move through the refractory bed and upward through the slag, melting it in the lower regions and preheating it in the upper part of the cupola. A water-cooled notch can be located at the bottom of the cupola to allow a pool of molten slag to accumulate, so that particles of unmelted slag which reach the bottom of the cupola will melt prior to being discharged from the cupola. The lump refractory material is selected for its high temperature and high load-bearing properties.

3,658,308

INCLINED KILN FOR THE FIRING AND SINTERING OF MATERIAL AND A METHOD FOR OPERATING SAID KILN

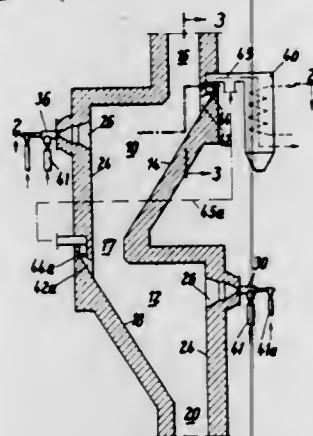
Karl Beckenbach, Hildegundisallu 33, Buderich, Dusseldorf, Germany

Filed Sept. 4, 1970, Ser. No. 69,527

Int. Cl. F27b 1/02

U.S. Cl. 213-29

4 Claims



An inclined kiln having an inclined run off surface bounded laterally by side walls, is provided with at least three

burners for playing on different longitudinal zones of the runoff surface, the burners being controllable independently of each other for differential heating of the respective zones. Spent, burnt gases are drawn along the runoff surface and led from the upper end thereof to a recuperator in which the burnt gases give up heat for the pre-heating of atmospheric air for combustion of the burners.

3,658,309

TEMPERATURE CONTROL OF ORE IN MULTIPLE HEARTH FURNACE

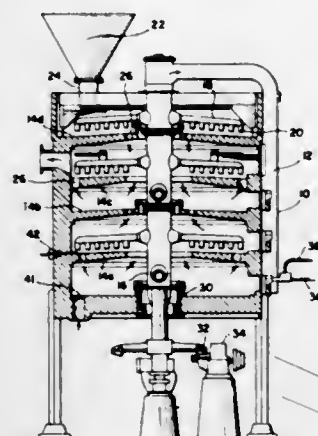
William James Lavender, Edmonton, Alberta, Canada, assignor to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada

Filed Aug. 3, 1970, Ser. No. 60,668

Int. Cl. F27b 21/00

U.S. Cl. 266-20

6 Claims



The temperature of ore on the hearth of a multiple hearth furnace is continuously monitored by means of a thermometer positioned in the undisturbed dead bed of the ore beneath the live bed which is being continuously raked. The temperature readings are used to control the roasting temperature in the live bed within a preselected range.

3,658,310
FURNACES

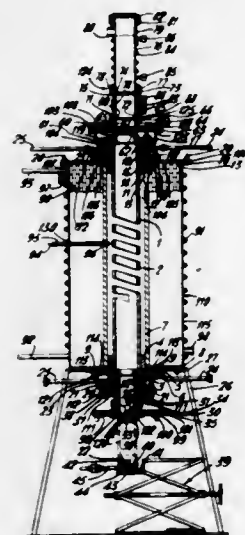
James Alfred Spooner, Reading, and Robin Harold James, Burghfield, both of England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Mar. 4, 1970, Ser. No. 16,357

Int. Cl. C21b 7/00

U.S. Cl. 266-24

12 Claims



A furnace has a series of interfitting crucibles extending between and through the apertures of first and second guide means mounted in spaced apart relation and adapted to

locate the series, the series being arranged such that an open end of a crucible is in interfitting engagement with a base of an adjacent crucible, and includes means for introducing the crucibles through the aperture of the first guide means and for moving the crucibles therefrom into and through the aperture of the second guide means, means for withdrawing the crucibles emergent therethrough and further means for heating at least a portion of the crucible series located between the first and second guide means, the crucible base having at least one hole therethrough and interfitting with the open end of another crucible such that the series so formed constitutes a substantially closed duct. A heatable conduit can extend between the first and second guide means such that the crucibles pass therethrough and the heatable conduit can be fabricated from electrical resistor material. It is preferred that a portion of the conduit is in the form of a helix to thereby provide a resistor element.

3,658,311

APPARATUS FOR MAKING POWDER METAL

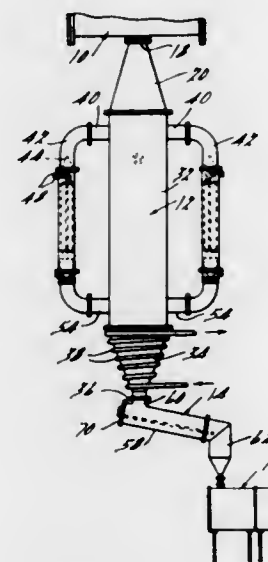
Vincent N. Di Giambattista, Ypsilanti, and Robert L. Greene, Jr., Ann Arbor, both of Mich., assignors to Kelsey-Hayes Company

Filed Feb. 19, 1970, Ser. No. 12,809

Int. Cl. C21c 7/00

U.S. Cl. 266-34 R

9 Claims



An apparatus for making metal powder of ultra high purity which comprises a vessel defining a main collection chamber filled with an inert gas which serves as a heat transfer medium for effecting a cooling and solidification of molten metal particles injected therein. The apparatus further includes heat transfer conduits for cooling and recirculating the heat transfer gas through the main collection chamber and a refrigerated secondary collection chamber in which further cooling of the spherical powder particles is attained. Suitable controls are provided to assure appropriate pressure levels within the apparatus, whereby metal powders of optimum properties are produced.

3,658,312

VEHICLE TORSION SPRING SUSPENSION ASSEMBLY

William A. Scheublein, Ballwin; Louis P. Fister, St. Louis, both of Mo.; Lawrence H. Fitch, Cahokia, Ill., and George K. Jeney, St. Louis, Mo., assignors to Moog Industries, Inc., St. Louis, Mo.

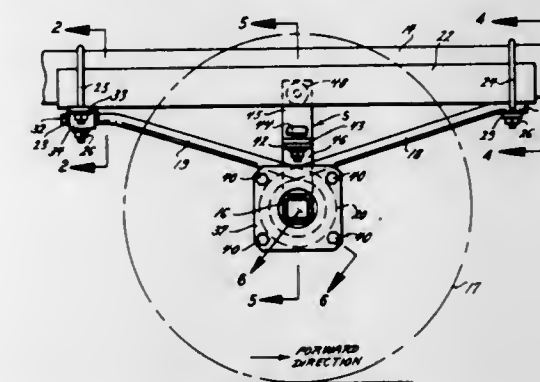
Filed Apr. 13, 1970, Ser. No. 27,916

Int. Cl. B60g 5/00, 11/20

U.S. Cl. 267-57

8 Claims

A torsion spring suspension assembly for vehicle frames having load supporting arms rated to the load capacity desired in which the torsion spring is formed with a cantil-



suspension system without wasting spring material or without stressing either the coil or cantilever sections beyond the design strength characteristics. The torsion spring in the suspension assembly is mounted between the axle and the frame such that the cantilever arm sections are connected to the frame to carry the load and accommodate elongation during spring flexing.

3,658,313

HYDRO-PNEUMATIC SUSPENSION UNIT WITH AUTOMATIC LEVEL REGULATION

Erich Hahn, Ennepetal, Germany, assignor to Firma August Bilstein, Ennepetal, Germany

Filed Sept. 16, 1970, Ser. No. 72,718

Claims priority, application Germany, Sept. 25, 1969, P 19

48 398.8

Int. Cl. F16f 5/00

U.S. Cl. 267-64

7 Claims



A hydro-pneumatic suspension unit with automatic level regulation in which the working liquid is completely separated from the level regulating liquid so that the working liquid does not come into contact with the pumping elements or the regulating valve. The unit includes a pressurized gas chamber which may be divided into a main chamber and a reservoir chamber so that the effective volume of gas in the main chamber can be kept constant independently of the load on the vehicle to which the suspension unit is fitted. The unit includes a motor-driven pump and a regulating valve which are both preferably located in a reservoir chamber which holds the level regulating liquid.

3,658,314

ELASTOMERIC FLUID SHOCK ABSORBER

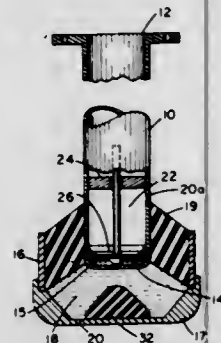
Steven O. Lusziczka, Huron, Ohio, assignor to Clevite Corporation

Filed Aug. 18, 1969, Ser. No. 850,807

Int. Cl. F16f 1/50, 5/00, 9/10

U.S. Cl. 267-121

17 Claims



Two coaxially disposed rigid tubes are interconnected by a radially secured elastomeric spring member with a fluid chamber formed in the inner tube as well as in the outer tube. The elastomeric member is effective upon relative axial movement between the two tubes to change the volumetric relationship between the two chambers by causing fluid to flow through differently sized orifices within the inner tube. An elastomeric compression bumper is disposed axially between the tubes and upon movement between the tubes of a certain magnitude, the bumper progressively covers some or all of the orifices. The elastomeric spring member provides one or more dissimilar spring rates. Additional load carrying capacity is provided by a gas pressure chamber within the inner tube.

3,658,315

DEVICE FOR PNEUMATICALLY CLAMPING PIECES OF WORK IN TRANSFER MACHINES OR SUCHLIKE

Gerard Benoni Boucherle, Potaeerstraat 1, Rumbeke, Belgium

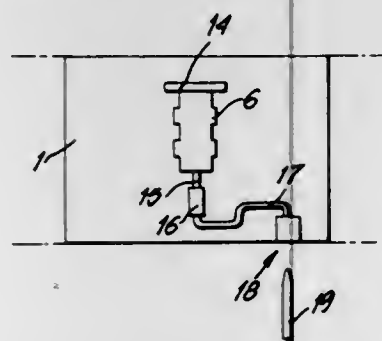
Filed June 12, 1969, Ser. No. 832,682

Claims priority, application Belgium, June 27, 1968, 717,208

Int. Cl. B23q 3/08

U.S. Cl. 269-20

4 Claims



The present invention is concerned with a device which permits the pneumatic clamping of workpieces or the like upon transfer machines whereby no moving air hoses are required.

3,658,316

DEVICE FOR FIXING THE CANVAS OF A RUG DURING FABRICATION

Jean Chretien, 2 bis rue Francique Jomard, Oullins, France

Filed Dec. 11, 1969, Ser. No. 884,115

Claims priority, application France, May 12, 1969, 6914876

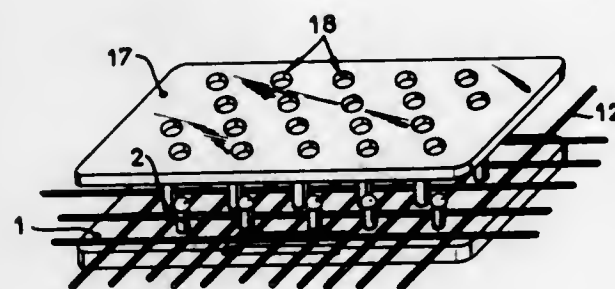
Int. Cl. B23q 3/00

U.S. Cl. 269-54

6 Claims

The device for holding a mesh-type backing fabric on a table top includes a plate having a plurality of upstanding

pins on one surface thereof. The undersurface of the plate is provided with a flange which raises the plate off the surface of the table and two parallel through slots are provided on



opposite edges of the plate to facilitate the passage of a strap therethrough. The strap may pass entirely around the surface of the table to secure the plate firmly on the surface of the table.

3,658,317

EXAMINATION TABLE

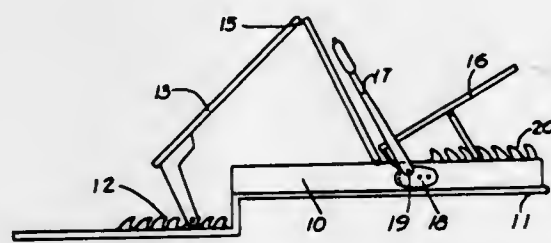
Reginald C. Bartlett, 479 Scotia St., and Lloyd C. Bartlett, 507 Medical Arts Bldg., both of Winnipeg, Manitoba, Canada

Filed Apr. 16, 1969, Ser. No. 816,528

Int. Cl. A47b 9/18; A61g 13/00

U.S. Cl. 269-325

4 Claims



A table for examination of a patient in a kneeling position with the head below the level of the knees comprising a head section, a center section, and a foot section, the head section being connected to the center section by a long hinge. A step construction is provided on the table top supporting the sections with the portion under the head section at a lower level than the remainder so that when the hinge is raised to form an acute angle between the head and center sections, thus forming an inverted V-shape, the free outer end of the head section is supported at a lower level than the end of the center section remote from the hinge.

3,658,318

METHOD AND APPARATUS FOR ADDING LOOSE INSERTS TO MAGAZINES

Charles W. Bunting; William R. Fortman, both of Dayton, and Albert H. Ash, South Vienna, all of Ohio, assignors to McCall Corporation, Dayton, Ohio

Continuation-in-part of application Ser. No. 766,387, Oct. 10, 1968, now abandoned. This application July 10, 1970, Ser.

No. 53,807

Int. Cl. B65h 5/32

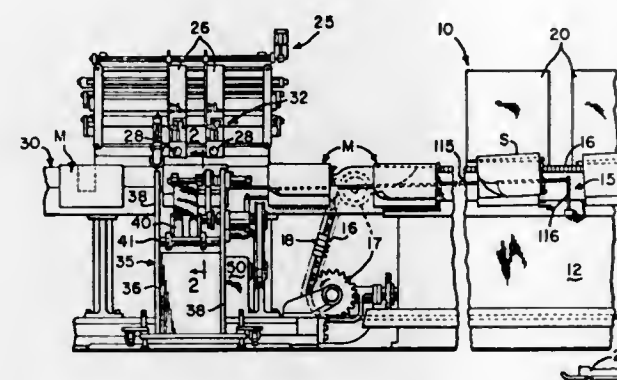
U.S. Cl. 270-55

22 Claims

Magazine signatures are successively gathered on a saddle to form a series of magazines which are successively stitched at a binding station located at the end of the saddle. A loose

insert is added to each magazine by feeding the insert upwardly between depending signature leaves which are

at varying heights above a feeding surface depending on the length of the sheets being fed. The backstop assembly is raised to a relatively high position above the feeding surface to permit the feeding of the bottom sheet of the stack by a



separated while the signatures are advanced along the saddle. A spot of glue may be applied to the loose insert being fed into each magazine.

3,658,319

VACUUM OPERATED SHEET FEEDING MECHANISM FOR NEWSPAPER INSERTER

Donald A. Glaser, Emporia, Kans., assignor to Diddle-Glaser, Inc., Emporia, Kans.

Filed Oct. 14, 1969, Ser. No. 866,230

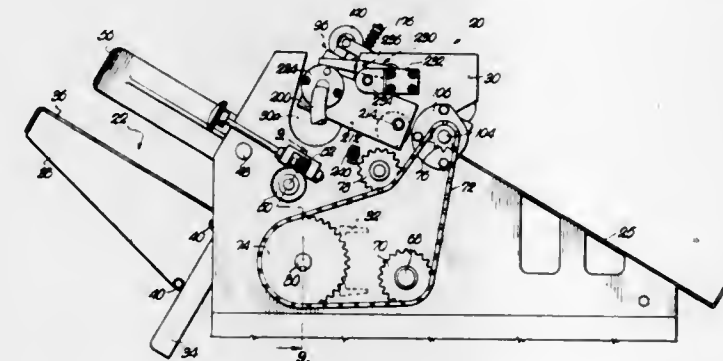
Int. Cl. B65h 3/10, 5/04

U.S. Cl. 271-29

10 Claims

U.S. Cl. 271-61

5 Claims



A feeding mechanism for single or multi-page sheets of flexible material combines a vacuum operated gripping assembly for initially gripping the lowermost sheet in an inclined stack thereof with a mechanical conveying unit for receiving the lowermost sheet from the assembly and delivering the same to a remote station therefrom. Grippers of the assembly are oscillated through an arcuate path during substantially vertical reciprocation of the carriage carrying the unit and the assembly such that a marginal portion of the sheet held by the grippers is bent away from the stack without moving the remaining portion of the sheet and introduced between opposed delivery elements of the unit for withdrawing the entire sheet from the stack. The grippers are retracted as the sheet is received between the elements, and a vacuum system associated with the assembly actuates the gripper in timed response to the reciprocation of the carriage and extension and retraction of the grippers.

3,658,320

APPARATUS FOR FEEDING SHEETS

Frederick Reinhold Kuehn, Baltimore, Md., assignor to Koppers Company, Inc.

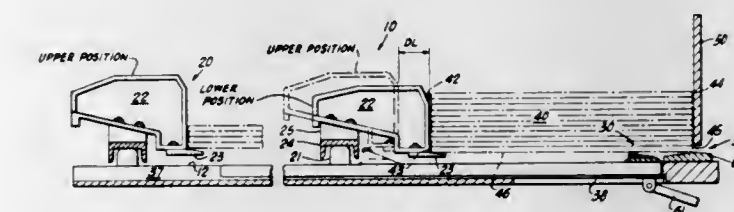
Filed Apr. 17, 1970, Ser. No. 29,463

Int. Cl. B65h 3/24

U.S. Cl. 271-44 R

7 Claims

A sheet feeding apparatus includes an adjustable backstop assembly for supporting the trailing edges of a stack of sheets



conventional reciprocating spring feeder assembly when a stack of longer sheets is being processed, and adjusted to a relatively lower position to permit the feeding of the bottom sheet from a stack of shorter sheets by a new low-profile spring feeder assembly.

3,658,321

MAGAZINE FOR PHOTOCONDUCTIVE ELEMENTS

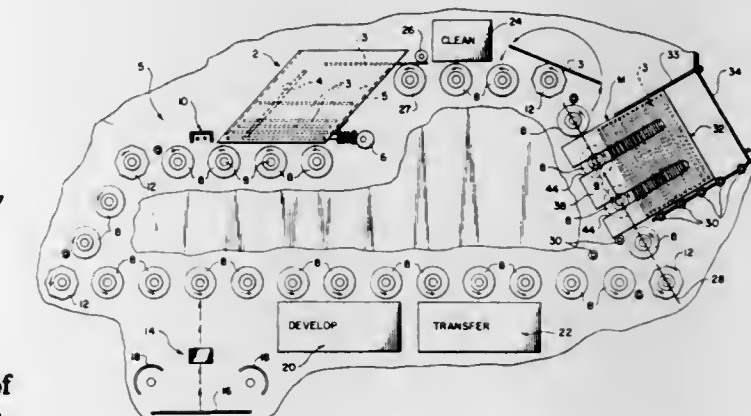
Oliver W. Gnage, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed July 6, 1970, Ser. No. 52,154

Int. Cl. B65h 1/06

U.S. Cl. 271-61

5 Claims



A magazine is provided for storage of photoconductive elements in a light-tight condition prior to insertion into an electrophotographic apparatus and is used to dispense the photoconductive elements serially into the electrophotographic apparatus for use. The magazine comprises a generally U-shaped housing having opposed side walls interconnected by an end wall, the side walls being provided with corrugations or slots for supporting the photoconductive element. Each side wall is provided with a pair of longitudinally extending parallel slots for receiving drive shafts of conveyor rollers in the electrophotographic apparatus as the elements are dispensed into the apparatus. Thus, as the elements are dispensed, the housing will slide down over the conveyor rollers to permit the next higher photoconductive element in the housing to be dispensed. An intermediate box is provided for receiving the housing prior to use to protect the elements for the light. Also, an outer box can be provided which extends over the housing the inner box to completely enclose the housing, for shipping. Conveniently, the housing is mounted to rest on idler rollers on a portion of the conveyor system which is at an acute angle to horizontally allow the housing to slide down over the conveyor rollers by gravity as the photoconductive chips are dispensed by the rollers.

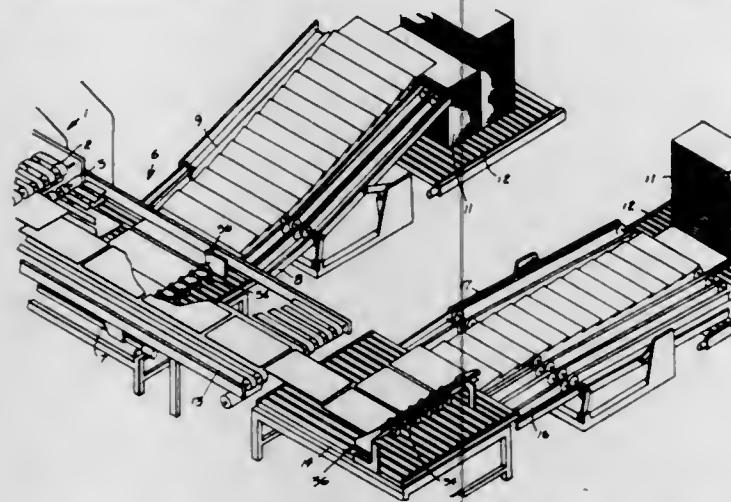
3,658,322

METHOD AND APPARATUS FOR HANDLING SHEETS

Merrill D. Martin, 2 Mall Court, Oakland, Calif.
Filed May 27, 1970, Ser. No. 40,908
Int. Cl. B65h 29/66

U.S. Cl. 271-76

3 Claims



The herein method and apparatus is used in connection with a corrugator machine. Corrugator machines convert paper from a web roll into flat corrugated box blanks. Such corrugator machines have a number of sections for forming such box blanks, and the devices in these sections are driven in synchronism by a line shaft. In the herein apparatus the blanks discharged from the corrugator lengthwise are moved at right angles, then shingled and stacked. The velocity of each of the steps in handling the sheets is co-ordinated for a relative speed ratio between the right angle take off of the sheets, the shingling and stacking, and is co-ordinated with the speed of the corrugator machine, through the line shaft in such a manner that when the corrugator speed varies, then the right angle take off, the shingling and the stacking also varies, but the same relative speed ratios between the right angle take off conveyor, shingling or transfer conveyor, and stacking conveyor are preserved. The ratio adjustments are predicated on the basic equation of the speed of movement on the right angle take off which receives the blanks from the corrugator as follows:

$$V_d = \frac{W}{L} V_c (1 - S)$$

in which V_c is the speed of the corrugator in ft./min., V_d is the speed on the right angle take off, W is the width and L is the length of the blank, and S is the ratio of the shingle, namely, $S = O/W$ in which O is the overlap; and the basic equation for the speed of the transfer conveyor or shingling conveyor relatively to the right angle take off is

$$V_t = \frac{W}{L} V_c (1 - S_t)$$

in which V_t is the speed of the transfer or shingling conveyor in ft./min. and S_t is the ratio of the shingle on the transfer conveyor; and the basic equation for the speed of the stacker is

$$V_s = \frac{W}{L} V_c (1 - S_s)$$

in which V_s is the speed of the stacker conveyor in ft./min. and S_s is the ratio of the shingle on the stacker. A device is provided for adjusting the ratio of the respective conveyors to predetermine the speeds of the conveyors relatively to the speed of the corrugator in accordance with the width and length of the blanks. A connection is provided to the line shaft of the corrugator so as to automatically control the overall speed in accordance with the variation of speed of the corrugator but maintaining the predetermined relative ratios between the respective conveyors.

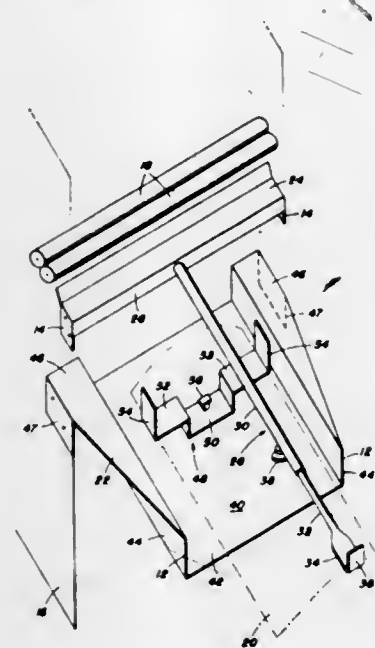
3,658,323

PRINT RECEIVING TRAY DESIGN

Paul Matwey, Binghamton, N.Y., assignor to GAF Corporation, New York, N.Y.
Filed Aug. 20, 1970, Ser. No. 65,615
Int. Cl. B65h 31/20

U.S. Cl. 271-86

3 Claims



The prints discharged from a reprographic machine are guided by and stacked on a substantially horizontal arm that is located somewhat above the longitudinal center of an inclined print receiving tray. The arm consists of a tubular inner member extending from the center of a box-like base member, and a rod-like outer member telescoped in the tubular member for longitudinal adjustment. The rod-like member is provided with a flattened upstanding stop for the sheets, and is secured in adjusted position by a thumbscrew in the under-wall of the tubular member. The outer end of the tray is open, and the tray may be provided with an auxiliary sheet guide member on the floor of the tray, having upstanding end walls that are spaced with respect to each other to accept sheets of different widths less than that of the side walls of the tray itself.

3,658,324

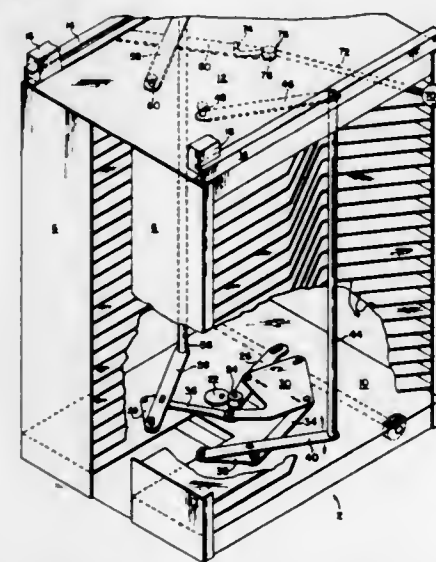
SHEET STACK JOGGING MECHANISM

Donald L. Snellman, Seattle, Wash., assignor to Norfin, Inc., Seattle, Wash.

Filed May 4, 1970, Ser. No. 34,368
Int. Cl. B65h 31/38

U.S. Cl. 271-89

14 Claims



A device for jogging or laterally tapping a loosely formed stack of sheets in order to form neat piles in receiving bins

having a plurality of vertical rows of shelves. A jogging rod periodically is activated to move the stack of sheets located upon the shelves against a uniform backing device assuring a vertical stack, the jogging rod is movable to a position allowing access to the shelves from the side having the jogging mechanism.

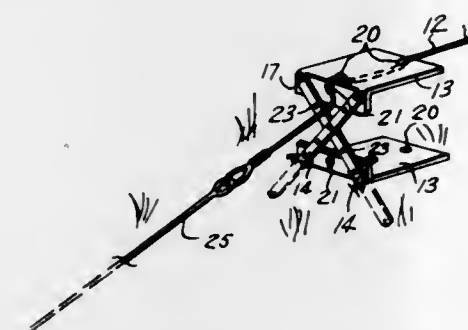
3,658,325

TIGHT ROPE APPARATUS

Cyril F. Baker, and Florence Baker, both of 37 Willow Avenue, Rockaway, N.J.
Filed July 15, 1969, Ser. No. 841,907
Int. Cl. A63b 23/04

U.S. Cl. 272-60

10 Claims



Tightwire sports equipment suitable for use either indoors or out-of-doors. The tightwire or rope is supported at either end by apparatus including horizontal plates. A topmost plate is used for a standing platform and for rope support by having a hole therethrough. The rope curves around a portion of the plate, extends through the hole and is anchored to a base. The base may be the ground, or may be a rigid member such as a wooden beam.

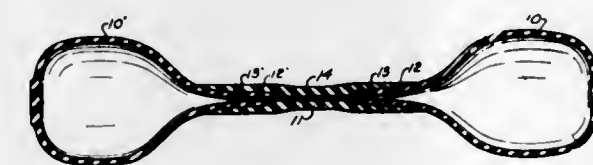
3,658,326

TWO-BULB, FLUID FILLED HAND EXERCISING DEVICE

Thomas L. Fawick, Hotel-Statler Hilton, Shaker Heights, Ohio
Filed Mar. 11, 1968, Ser. No. 712,170
Int. Cl. A63b 21/30

U.S. Cl. 272-68

3 Claims



The present hand exercising device has a pair of air-filled rubber bulbs, one for each hand, and an unobstructed small diameter passageway connecting the bulbs. Preferably, this passageway is provided by a rubber tube which may be longitudinally stretchable. One bulb carries a normally-closed check valve which opens if the air pressure in the device drops below atmospheric pressure.

3,658,327

PULL TYPE EXERCISING DEVICE

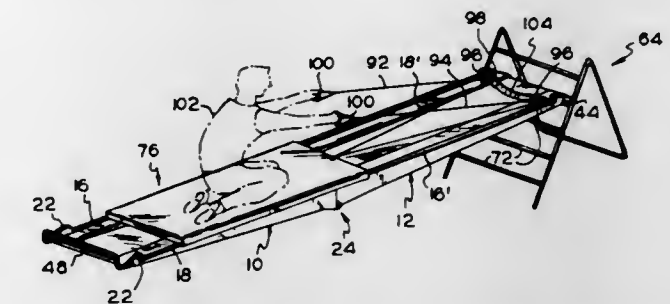
Clifford S. Thiede, 1745 Obispo Avenue, Long Beach, Calif.
Continuation-in-part of application Ser. No. 864,771, Oct. 8, 1969, now abandoned. This application Mar. 10, 1971, Ser. No. 122,733
Int. Cl. A63b 23/02, 23/04, 23/00

U.S. Cl. 272-79 R

12 Claims

A collapsible exercise device includes a pair of deck portions selectably disposed in extended end-to-end relation for

use, and which may be stored or shipped in adjacent relation. One end of the extended deck is supportable on the ground or floor with the opposite end thereof detachably engaging a



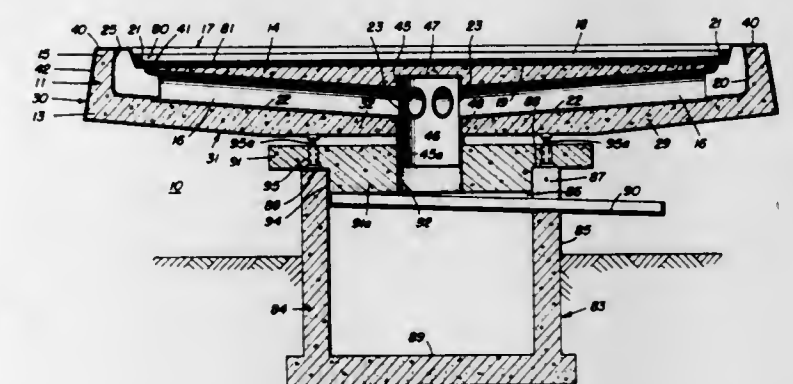
3,658,328

POOL GAME TABLES AND COMPONENTS FOR USE THEREIN

Donald B. Kooker, Doylestown, Pa., assignor to Cayuga Concrete Pipe Company, Inc.
Filed Mar. 21, 1969, Ser. No. 809,275
Int. Cl. A63j 3/00

U.S. Cl. 273-7

29 Claims



Pool game tables and components for use therein are characterized each by having a playing recess in a casting for accommodating pool balls, there furthermore being a plurality of passageways interiorly of the body of the casting and the casting includes a bed having a substantially plane face at the bottom of the recess and a perimetrical rail surrounding the recess, each of the passageways having a pool ball inlet at a different location around the rail adjacent to the rail and the substantially plane face of the bed for the passageway to receive a pool ball through the pool ball inlet from the recess, and each of the passageways having a pool ball outlet and communicating with the pool ball inlet of the passageway for a pool ball to move through the passageway from the pool ball inlet to the pool ball outlet of the passageway by gravity under conditions where the recess is entrant in a downward direction and the substantially plane face of the bed is approximately level.

3,658,329

SWINGABLE STRIKE ZONE BASEBALL DEVICE

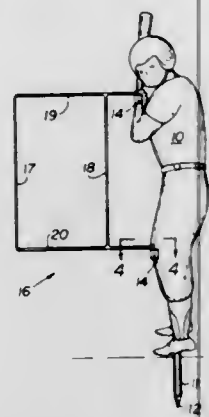
Richard Ciccarello, 7 Park Avenue, Glen Cove, N.Y.
Filed Oct. 20, 1970, Ser. No. 82,362
Int. Cl. A63b 69/40

U.S. Cl. 273-26 A

4 Claims

This invention relates to a practice device for baseball pitchers wherein the strike-zone is defined by a gate swingably mounted to an upright frame. The gate is provided

with a pair of spaced-apart hooks adapted to mate with a pair of apertures or wells disposed in said frame. The frame is



constructed in the configuration of a batter and may be of planar solid construction or of inflatable plastic material.

3,658,330

DEVICE FOR LAWN TENNIS TRAINING

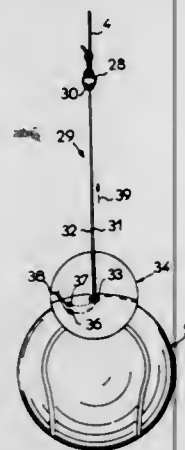
Rene Ignace Joseph Maestracci, avenue Jean-Jaures, 05 Gap, and Charles Maestracci, 71 avenue Raymond Poincare 75, Paris XVI, both of France

Continuation-in-part of application Ser. No. 723,111, Apr. 22, 1968, now abandoned. This application June 30, 1970, Ser. No. 51,037

Int. Cl. A63b 69/38

U.S. Cl. 273-29 A

9 Claims



The second rubber cord is secured to the ball by a looped cord which penetrates the ball cover at a first point and exits from the ball cover at two spaced apart points.

A device for training in and practicing lawn tennis made of two vertical spaced posts between which is stretched a first rubber cord to the middle of which is fixed by means of a swivel a second rubber cord carrying at its lower end a tennis ball.

3,658,331

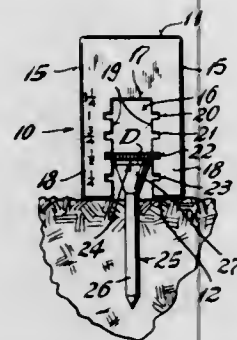
GAUGE FOR PLACING GOLF BALL TEES

James E. Driscoll, 314 Maple Ridge Drive, Waterbury, Conn. Filed Apr. 13, 1970, Ser. No. 27,838

Int. Cl. A63b 57/00

U.S. Cl. 273-33

4 Claims



A block of rigid material has an elongate slot open at the

bottom to receive between the legs formed by the slot ahead and shank of a golf ball tee, there being a plurality of horizontal vertically spaced pairs of grooves in the facing surfaces of the legs to receive an abutment member, such as a coin or a ball marker to engage the head of the tee and force the shank thereof into the ground more or less depending upon which pair of grooves is occupied by the abutment when downward pressure is applied to the block, for instance on the top surface thereof to cause the bottoms of the legs to engage the ground.

3,658,332

EVASIVE ACTION TACKLING PRACTICE APPARATUS

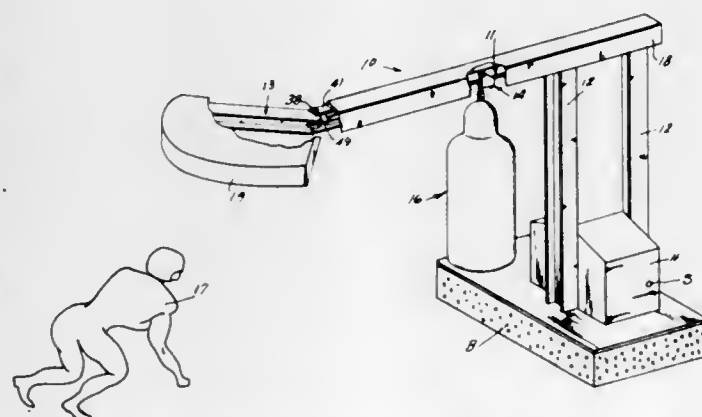
Nicholas F. Adduci, 12601 Eggleston, Chicago, Ill., and Raymond L. Valente, 535 So. May, Kankakee, Ill.

Filed Nov. 19, 1969, Ser. No. 878,024

Int. Cl. A63b 67/00

U.S. Cl. 273-55 R

17 Claims



A tackling practice apparatus has a tackling dummy suspended on a trolley for movement along a cantilever type track having a free end section supported for selective pivoting movement about a generally vertical axis to impart evasive lateral movement to the tackling dummy. Track control means enable an operator to select straight, laterally right or laterally left movements for simulating evasive action to improved skill in tackling. Means releasably suspending the dummy from the trolley may be adjusted to vary the tackling force necessary to remove the dummy from the trolley.

3,658,333

GRAVITY OPERATED HORSE RACING GAME

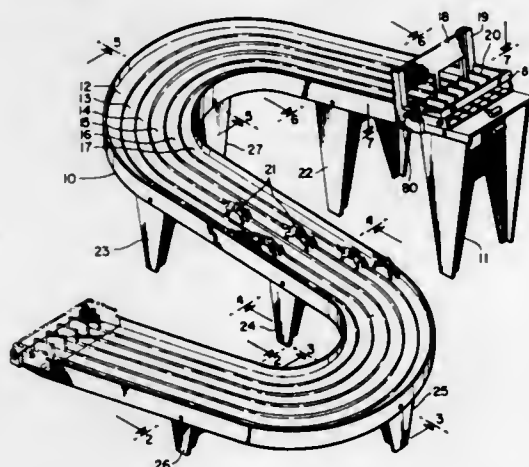
John Carcel, 157 Stroud Avenue, Ettingville, N.Y.

Continuation-in-part of application Ser. No. 20,702, Sept. 28, 1970, now abandoned. This application Mar. 24, 1971, Ser. No. 127,703

Int. Cl. A63f 9/00

U.S. Cl. 273-86 C

8 Claims



A horse racing game consisting of a plurality of parallel race tracks which are inclined slightly downhill to permit simulated race horses housed in a starting gate to be simul-

taneously released, and slide downhill on the tracks to a finish line at the end of the track. A pair of handles mounted adjacent to the starting gate allows the game operator to both open the starting gate and release the horses with a loud audible sound so that they will simultaneously begin sliding down the inclined guided tracks to the finish line.

3,658,334

PEGBOARD GAME UNIT WITH UTILITY COMPARTMENT

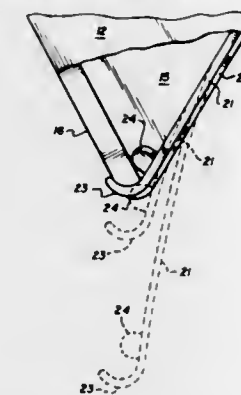
Billy J. Burden, 3944 Magnolia, Colorado Springs, Colo.

Filed Sept. 24, 1969, Ser. No. 860,502

Int. Cl. A63f 9/06

U.S. Cl. 273-133

1 Claim



A game has a combined pegboard and storage receptacle for the pegs with the pegboard being supported as an integral part of the top of the receptacle. A readily operable closure is provided for an access opening in the receptacle into which the pegs may be selectively inserted and removed for storage when not on the pegboard. The closure is preferably a slidable side wall which is flexible along its length so that an interned U-shaped fastener at the end thereof clears the end of an adjacent side wall in moving between the open and closed positions.

3,658,335

STRING HOLDING ARROW NOCK

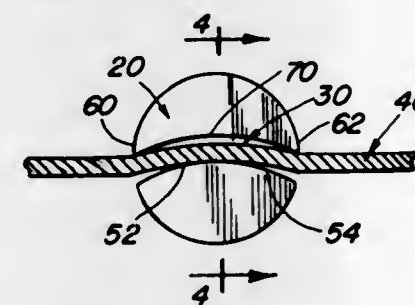
Charles A. Saunders, Box 102, Columbus, Nebr.

Filed Feb. 10, 1971, Ser. No. 114,130

Int. Cl. F41b 5/02

U.S. Cl. 273-106.5 C

4 Claims



An archery arrow having an improved bowstring-receiving slot. The slot defines a generally nonlinear bowstring-receiving groove to establish limited frictional engagement between the slot defining walls and the bowstring, whereby the arrow is frictionally supported on the bowstring until released when shot from the bow. The slot may be in the shape of an arc of a circle, a "V" or a chevron.

3,658,336

BOARD GAME APPARATUS

Caroline Wilke Knapp, 188 Tree Lane, Elmhurst, Ill.

Filed June 3, 1970, Ser. No. 43,145

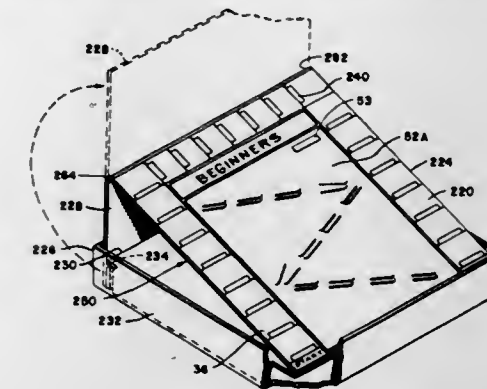
Int. Cl. A63f 3/02

U.S. Cl. 273-134 AE

4 Claims

A ski instruction game apparatus comprising a playboard having depicted thereon a path representing a ski trail along

which skier representations are advanced by chance and a demonstration hill simulating member separate from or comprising a portion of the playboard depicting the ski trail on



which players demonstrate proper ski maneuvers by means of manually operable ski representations as each player's skier representation reaches different positions along the trail.

3,658,337

BOARD GAME APPARATUS

Jack Peters, 24008 Bessemer Street, Woodland Hills, Calif.;

James E. Williams, 1227 South Geneva Avenue, Los Angeles, Calif.;

Ross Murray, 620 Crater Camp Dr., Calabasas, Calif.;

Lawrence F. Stoliker, 815 East Mountain Street, Glendale, Calif.;

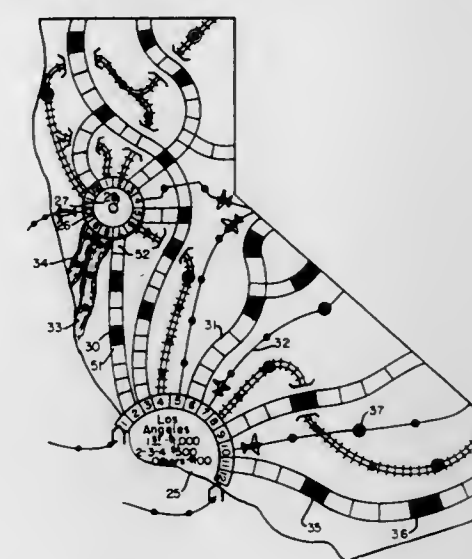
and Patrick T. Carlin, 3617 West La Grange Street, Newbury Park, Calif.

Filed May 22, 1969, Ser. No. 826,874

Int. Cl. A63f 3/02

U.S. Cl. 273-134 AC

10 Claims



A board game comprising a map of a political entity, such as the continental United States, bearing designations thereon of the major cities and also of the major transportation routes between such cities for various different modes of transportation. Two or more alternate routes utilizing respectively different modes of transportation are provided between adjacent cities. Each player is provided with a plurality of tokens, each representing a different form of transportation, and the objective of the game is to traverse a devious route over the map from a given starting point to a selected destination.

3,658,338

BOARD GAME APPARATUS

Kurt O. Wheelock, 27580 Evelyn Court, Warren, Mich.

Filed Sept. 17, 1969, Ser. No. 858,725

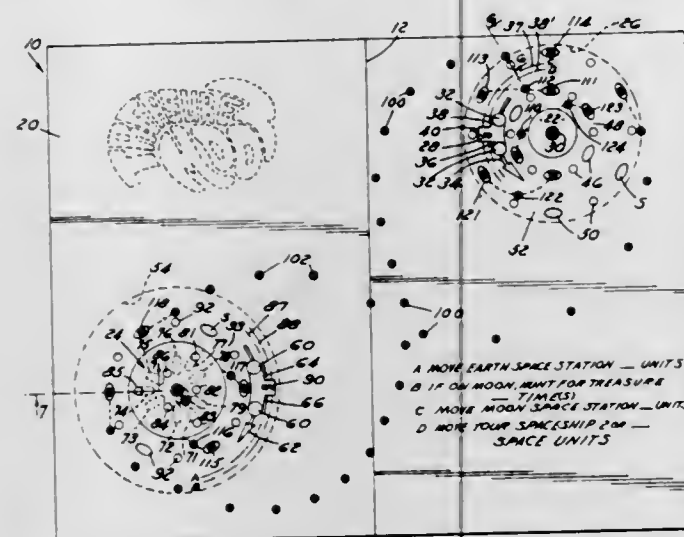
Int. Cl. A63f 3/00

U.S. Cl. 273-134 AE

9 Claims

A game board having representations of two celestial bodies such as the earth and the moon on its top surface, and

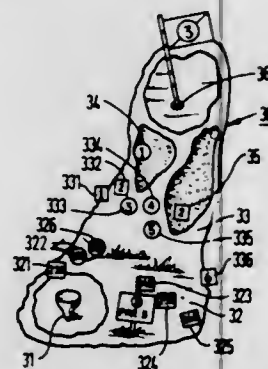
having tokens representing space stations for orbiting the two celestial bodies, as well as tokens simulating spaceships adapted to link up with the space stations and to travel from one celestial body to the other. Rotatable disks carry slugs



under the board surface. The tokens are attracted to the slugs by magnetism so as to move with the slugs in orbits around the celestial bodies. The disk associated with the moon is constructed to receive members representing buried treasure.

3,658,339

SIMULATED GOLF BOARD GAME APPARATUS
Louis Bolleau, Moncton, New Brunswick, Canada, assignor to Atlantic Games Limited, Halifax, Nova Scotia, Canada
Filed Oct. 27, 1969, Ser. No. 869,807
Claims priority, application Canada, June 24, 1969, 055,210
Int. Cl. A63f 3/00
U.S. Cl. 273-134 CG 1 Claim

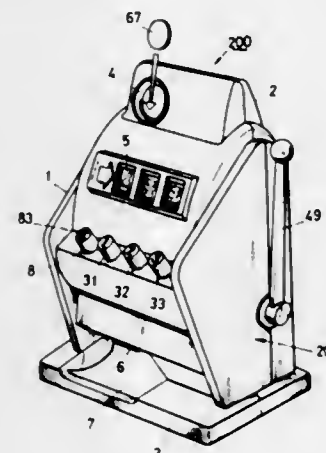


A novel golf game is provided which is the combination of the following three elements. (a) A game board laid out as a scaled-down facsimile replica of a 'real' golf course and including thereon two sets of indicia disposed adjacent the tee and the green respectively, the indicia of each set being visually distinguishable from each other, and the indicia of each set having a common characteristic which renders them visually distinguishable from the indicia of the other set, thereby to provide a plurality of positively premarked and predetermined positions representative of the positions of a golf ball during 'real' play of the game of golf, and designating unique positions of the disposition of all game pieces. (b) Game pieces representative of golf balls adapted to be moved manually to be disposed at a unique directed one of said plurality of positively premarked and predetermined positions on said game board in a manner analogous to that of the disposition of golf balls during the 'real' play of the game of golf. Finally (c) a plurality of dice, each die bearing indicia on the faces thereof different from those on conventional dice but being identical with those of a different one of said

sets of indicia on said game board, the casting of a single selected die directing the manual placing of the game pieces to a position which is representative of a 'real' golf stroke.

3,658,340

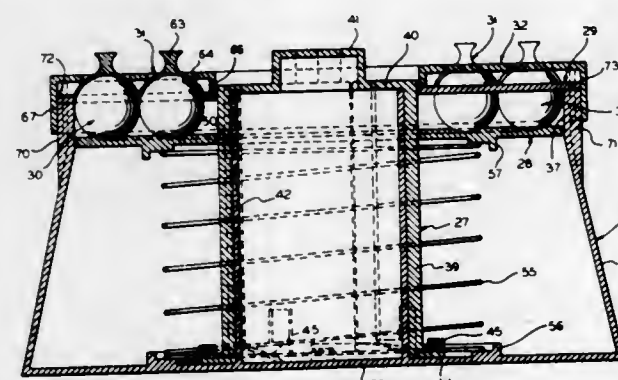
MOTOR DRIVEN ROTATABLE DRUM CHANCE DEVICE
Haruo Ohki, 2-10, 2-chome, Shlratori, Katsushika-ku, Tokyo, Japan
Filed July 8, 1970, Ser. No. 53,243
Claims priority, application Japan, Oct. 6, 1969, 44/79224
Int. Cl. A63f 5/04
U.S. Cl. 273-143 R 19 Claims



A toy amusement device has a drive motor which is started by the insertion of a disc in the device whereupon a handle can be operated to cause the motor to rotate a plurality of display drums all at the same time and then pushbuttons can be depressed successively to discontinue rotation of the drums at different times and if the display drums show winning symbols means are automatically activated to discharge a given number of discs as evidence thereof.

3,658,341

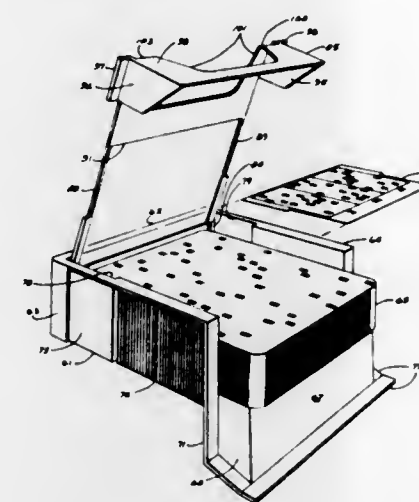
BALL MIXING DEVICE
Larry C. A. Curtner, 11914 South Lowe Ave., Chicago, Ill.
Filed Aug. 28, 1970, Ser. No. 67,754
Int. Cl. A63f 7/04
U.S. Cl. 273-144 B 32 Claims



Apparatus for mixing a plurality of balls and placing them in a fixed pattern for playing a game including a ball positioning plate coacting with a ball guide plate wherein the guide plate is movable toward and away from the positioning plate to permit mixing of the balls in a mixing chamber. In the playing of a game, the balls will have suitable indicia thereon, and cover means will be provided to conceal the indicia following the mixing and placing of balls in a fixed pattern with respect to the positioning plate. Thereafter, the covers may be removed selectively to reveal the indicia of the balls.

3,658,342

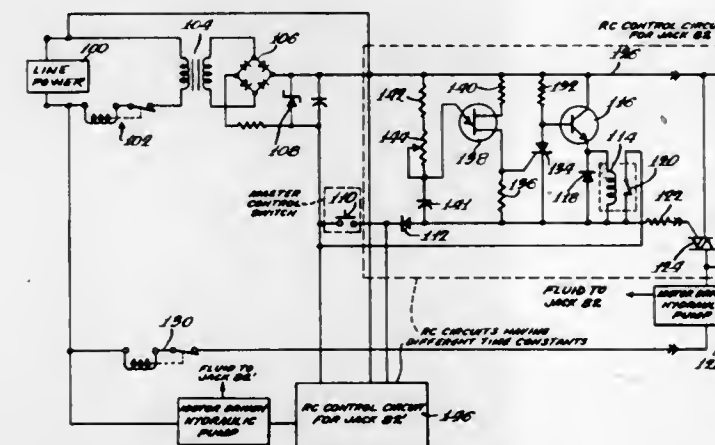
PLAYING CARD DISTRIBUTION APPARATUS
William M. Boren, 12614 Kimberly, Houston, Tex.
Continuation-in-part of application Ser. No. 30,314, Apr. 20, 1970, now abandoned, which is a continuation of application Ser. No. 734,429, June 4, 1968, now abandoned.
This application June 29, 1970, Ser. No. 50,786
Int. Cl. A63f 1/14
U.S. Cl. 273-149 P 2 Claims



The disclosure is of an apparatus for enabling distribution of playing cards into predetermined groups, or "hands", for the game of Duplicate Bridge. The determination of distribution of the playing cards into four hands or sets of equal number is made by use of a punched code card having punches or holes for indicating the distribution of each card of a deck of playing cards, each playing card having printed on its back side a code corresponding to holes of the code card whereby matching superimposed holes of the code card and the printed code of each playing card indicates the hand in which that playing card should be placed.

3,658,343

CONTOURABLE GREEN WITH RANDOMLY OPERABLE CONTOUR SELECTION
Albert P. Rogers, Spring Lake; Robert M. Conklin, North Muskegon, and Bradford J. Baldwin, Muskegon, all of Mich., assignors to Brunswick Corporation
Filed Dec. 10, 1968, Ser. No. 782,528
Int. Cl. A63b 67/02
U.S. Cl. 273-176 H 8 Claims

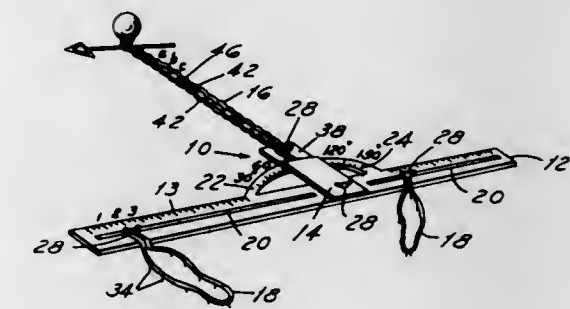


A contourable putting green ideally suited for use in indoor golf games including a contourable platform having an upper putting surface thereon and secured by tensioned springs to a parallel series of spaced, pivotally interconnected movable beams pivotally connected intermediate their ends to stationary beam support members. Motor driven self-

reversing hydraulic jacks move the beams differentially to distort the platform and thereby vary the contour of the green. An electronic control circuit is provided for each jack, including an RC timer circuit having a discrete time constant, and is arranged so that operation of all of the jacks is simultaneously initiated by a master control switch, yet the operation of each jack continues to operate independently over its discrete period of time; resulting in unsynchronized movement of the various portions of the platform and a putting surface of substantially random contour.

3,658,344

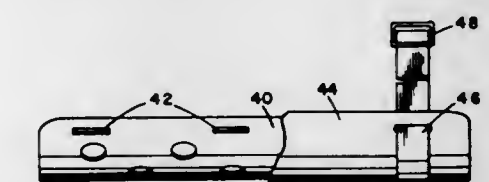
GOLFER'S STANCE GAUGE
Quinton Kimble, 18970 Littlefield Ave., Detroit, Mich.
Filed Oct. 7, 1970, Ser. No. 78,648
Int. Cl. A63b 69/36
U.S. Cl. 273-187 R 3 Claims



A golfer's stance aid for locating the feet of the golfer properly with respect to a golf ball. The device comprises a linear member adapted to rest on the ground, having foot pads adjustable angularly as well as lengthwise of the linear member. Spikes anchor the foot pads in the ground. An extensible member extends laterally outwardly from the linear member to the golf ball. The extensible member has an arm pivoted at its inner end to the midpoint of the linear member, and also has an elongated bar formed by a single strand or wire having coextensive elements shaped to provide a series of openings along its length. These openings are adapted to receive a fastener in the outer end of the arm so that the strand or wire may be connected to the arm through any one of the openings and thereby vary the length of the extensible member. The strand or wire terminates at its outer end in a loop for receiving a golf tee and a pointer.

3,658,345

ARM STABILIZING DEVICE FOR GOLFERS
Jack J. Siggeon, 5337 Peyton Place, San Diego, Calif.
Filed June 1, 1970, Ser. No. 41,835
Int. Cl. A63b 69/36
U.S. Cl. 273-189 A 3 Claims



A U-shaped elongated rigid member is provided with a cushioning material, enclosed in a removable cover, and shaped to fit against the upper and lower arm across the elbow, on the side opposite the direction of pivotal movement of the lower arm. The rigid member is provided with apertures over its entire length for cooling and lightening purposes and aligned slots to accommodate three straps for holding the arm rigid during the golfing swing.

3,658,346

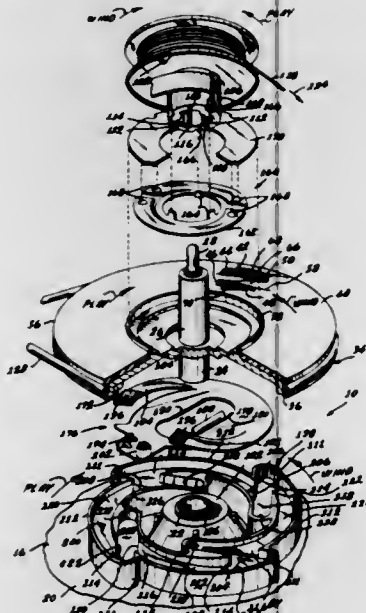
APPARATUS FOR AUTOMATICALLY STARTING A ROTATABLE MEMBER AT PREDETERMINED POSITIONS SEQUENTIALLY

Howard R. Stern, Anaheim; James E. Marshall, Westminster, and Thomas E. Sloane, Jr., Redondo Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Feb. 27, 1970, Ser. No. 14,924
Int. Cl. G11b 27/10, 3/78

U.S. Cl. 274-9 R

5 Claims



An indexing mechanism for playing a plurality of messages on a phonograph record sequentially by stopping the record at predetermined reversely-rotated positions following playing of each message. A first stop on the record engages a third stop on a carrier frictionally coupled to the record for movement thereby during reverse rotation until a second stop interrupts movement of the carrier with the record coincident to movement of the third stop into the path of travel of the first stop. The carrier again moves with the record during forward movement thereof to move the third stop out of the path of travel of the first stop when the next message is played.

3,658,347

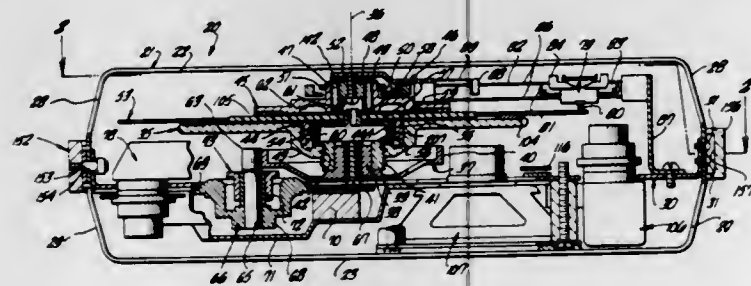
SLOT-LOADING PORTABLE RECORD PLAYER

Robert G. Cheeseboro, Los Angeles, Calif., assignor to Cheeseboro Products Corporation, Los Angeles, Calif. Continuation of application Ser. No. 600,923, Dec. 12, 1966, now abandoned. This application May 13, 1970, Ser. No. 37,056

Int. Cl. G11b 25/04

U.S. Cl. 274-9 B

27 Claims



A slot-loading record player in which a single reversible motor is provided for moving a record support turntable along the axis of turntable rotation into engagement with a record to clamp the record between the turntable and a record clamp disc disposed coaxially of the turntable and for rotating the turntable in a record playing direction when the

motor is operated in one direction, and for removing the turntable from clamping engagement with the record when the motor is operated in the reverse direction.

3,658,348

SEAL FOR PISTON RODS AND PISTONS OF PISTON MACHINES

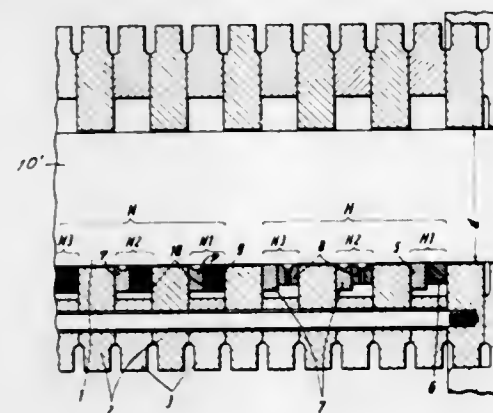
Heinz Nink, Gladbeck, Germany, assignor to Borsig Gesellschaft mit beschränkter Haftung, Berliner Strasse, Berlin, Germany

Filed May 22, 1970, Ser. No. 39,826
Claims priority, application Germany, May 22, 1969, P 19 26 102.0

Int. Cl. F16j 15/24

U.S. Cl. 277-58

5 Claims



A composite seal for sealing a high pressure side of a reciprocable member relative to the low pressure side thereof, in which two groups of sealing units are provided and arranged respectively at the high pressure side and the low pressure side, said sealing units which are in substantially axial alignment each having supporting ring means and sealing ring means.

3,658,349

DAMPING DEVICE FOR A MECHANICAL FLUID SEAL

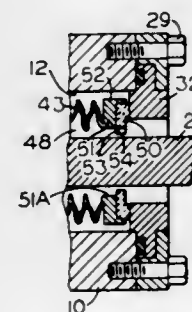
Justus Bickford Stevens, East Providence; Walter William Meyer, Warwick, both of R.I., and John Sinclair Howland, Framingham, Mass., assignors to Sealol, Inc., Warwick, R.I.

Original application Jan. 23, 1969, Ser. No. 793,431. Divided and this application Dec. 3, 1970, Ser. No. 94,801

Int. Cl. F16j 15/36

U.S. Cl. 277-89

3 Claims



This specification discloses a damping device for a bellows employed in a mechanical fluid seal. The seal comprises a mating and a sealing ring. One of said rings is anchored to a stationary housing with the other ring being drivably connected to a shaft rotatably mounted in the housing. A bellows is employed to urge one ring into engagement with the other ring.

This invention relates to damping means and more specifically to means for removing the vibrations, dancing and gathering of the convolutions in a bellows employed in a mechanical fluid seal.

3,658,350

AIR COMPRESSOR PISTON RING

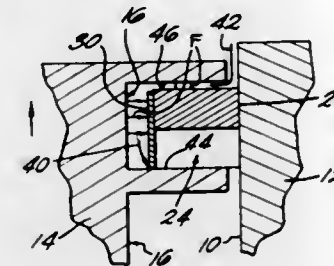
Joseph A. Ondraka, Stevensville, Mich., assignor to Gast Manufacturing Corporation, Benton Harbor, Mich.

Filed Nov. 10, 1969, Ser. No. 875,075

Int. Cl. F16j 9/00; F02f 5/00

U.S. Cl. 277-157

2 Claims



An improved oil-less air compressor piston utilizing a lap-joint, self-lubricating, piston ring and a sealing strip, the length of the latter being such that its ends overlap when it is installed within and against the inner surface of the piston ring. The height of the ring and the strip must be less than the height of the piston groove into which they are installed, so that air pressure against the ring causes it to seal against the downstream side of the piston groove and the cylinder wall, and still allows the ring to slowly revolve about the piston so as to distribute wear evenly.

3,658,351

INSTANT CHANGE TOOL HOLDER

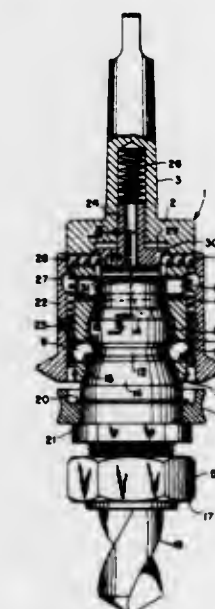
Milton L. Benjamin; David D. Walker, and Wilbur N. Miles, all of Chagrin Falls, Ohio, assignors to Erickson Tool Company, Solon, Ohio

Filed Apr. 3, 1970, Ser. No. 25,410

Int. Cl. B23b 31/06

U.S. Cl. 279-1 B

3 Claims



A tool holder characterized in that the drive housing socket and the tool adaptor shank driven thereby have a quick release connection with each other, and have sleeves rotatable thereon to facilitate the connection and disconnection of the adaptor and housing without stopping rotation of the machine tool spindle in which the drive housing is adapted to be mounted. The housing sleeve is axially movable on the housing between locking and unlocking positions and the housing has a latch mechanism which holds the housing sleeve in unlocking position, the latch mechanism being operated by insertion of the adaptor shank into the housing socket to automatically release the housing sleeve for movement to adaptor locking position. The tool holder herein is further characterized in that the socket and shank have interengageable tapered surfaces which retain them in coaxial alignment without axial or radial play.

3,658,352

QUICK CHANGE TOOL HOLDERS FOR AUTOMATIC TOOL CHANGERS

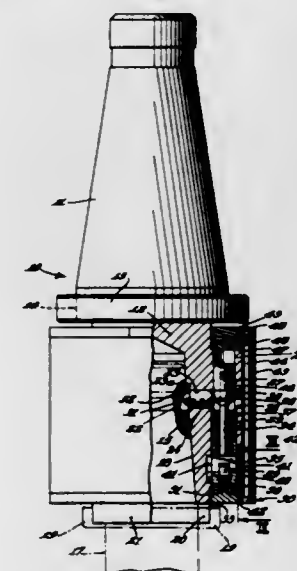
Roland G. Koch, and John L. King, Jr., both of Frankenthum, Mich., assignors to Houdaille Industries, Inc., Buffalo, N.Y.

Filed July 29, 1970, Ser. No. 59,165

Int. Cl. B23b 31/16

U.S. Cl. 279-89

15 Claims



A supporting body adapted to be mounted corotatively with a machine tool drive head or spindle has an axial bore releasably receptive of a tool adaptor shank which has an annular groove, the body having a lateral pin bore opening into the axial bore in alignment with the position occupied by the adaptor shank groove and a locking pin being reciprocally mounted in the pin bore for movement between a retracted release position and a locking position partially projecting into the axial bore and into the annular groove. The body has a longitudinally extending plunger bore intercepting the pin bore with a locking plunger reciprocally mounted in the plunger bore and means normally biasing the plunger to lock the pin in the locking position, with a relatively shiftable member carried by the body and operable in opposition to the biasing means to release the plunger from the pin to enable retraction of the pin to the release position. The shiftable member may be a cam carried rotatably on the body or it may be an axially movable trip ring. Means are associated with either the cam member or the plunger for positively ejecting the adaptor shank when the locking pin is released.

3,658,353

MASTER JAW STEPPING CHUCK

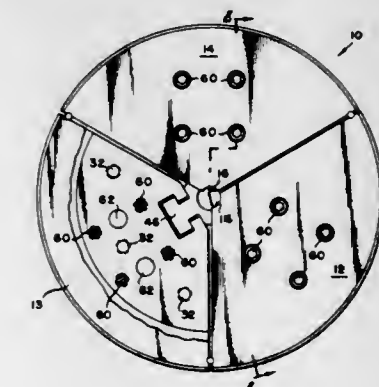
Hubert J. Parsons, Horseheads, N.Y., assignor to Hardinge Brothers, Inc., Elmira, N.Y.

Filed Aug. 4, 1970, Ser. No. 60,862

Int. Cl. B23b 31/16

U.S. Cl. 279-121

16 Claims



A master jaw chuck for machine tools including a guide plate attachable to a machine tool spindle, a key plate positioned rearwardly of the guide plate, master jaws positioned

forwardly of the guide plate, spacer means between the key plate and the master jaws for spacing the key plate from the master jaws, fastener means passing through the spacer means for securing the key plate means to the master jaws and means operating against the master jaws for radially moving the master jaws, the spacer means, and the key plate.

3,658,354

METHOD AND APPARATUS FOR CONVERTING A TRICYCLE TO A BICYCLE

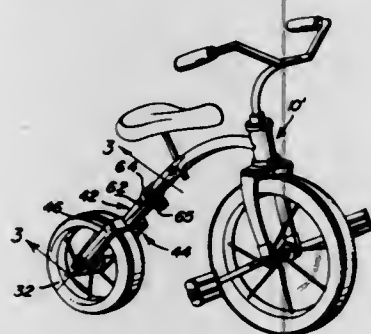
George W. Read, 5005 Kalanianaʻole Highway, Honolulu, Hawaii

Filed Feb. 16, 1970, Ser. No. 11,417

Int. Cl. B62k 13/04

U.S. Cl. 280—7.15

1 Claim



An attachment for the lower rear end of the forwardly and downwardly opening arcuate main frame portion of a tricycle to comprise a replacement for the rigid rear transverse axle assembly of a tricycle. The attachment includes a fork member similar to the front fork of a tricycle and includes a pair of generally parallel arms interconnected at one pair of corresponding ends by means of a transverse bight portion extending therebetween. The bight portion of the fork member includes a sleeve portion projecting from the side thereof remote from the other pair of ends of the arms of the fork between which a single rear wheel is journaled and the sleeve or sleeve portion projecting from the bight portion is telescopingly engageable with and rigidly securable to the rear lower portion of the main frame of the tricycle after the conventional solid transverse axle assembly of the tricycle has been removed. In this manner, the tricycle is converted into a low bicycle including driving pedals on its front steerable wheel. It is also envisioned that the attachment may have the fork member portion thereof constructed of two identical pieces with one half of the sleeve or sleeve portion of the fork member being defined on each piece whereby the halves of the sleeve member may be "through bolted" to the rear end of the main frame portion of the tricycle to be converted.

3,658,355

TOE IRON FOR SAFETY SKI BINDINGS

Ludwig Axthammer, Schweinfurt, Main, Germany, assignor to

Hannes Marker, Garmisch-Partenkirchen, Germany

Filed Mar. 26, 1970, Ser. No. 22,909

Claims priority, application Germany, Apr. 2, 1969, P 19 17 117.6

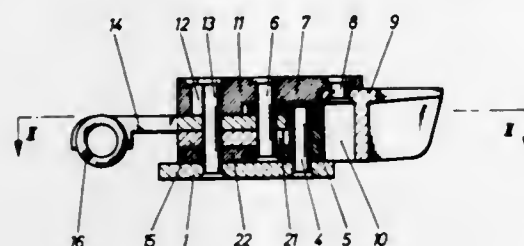
Int. Cl. A63c 9/00

U.S. Cl. 280—11.35 T

6 Claims

The toe iron comprises a pivoted member, which is rotatable against the force of at least one spring about a pivot pin, which is at right angles to the surface of the ski and which is held on a baseplate secured to the ski. The pivoted member carries a soleholder member, which is also rotatable about a pivot pin which is at right angles to the surface of the ski and when the toe iron is in normal position the soleholder member is engaged on both sides of the longitudinal center line of the toe iron. The soleholder member bears on the pivoted member and by means of another pivot pin and a pivoted lever is linked to the pivoted member. The pivoted

lever consists of a two-armed lever and that arm which does not carry the soleholder member is formed with a slot, by which the lever is mounted for rotation and for a sliding movement in the longitudinal direction of the lever in a vertical pivot pin, which is also held on the baseplate, all pivot



pins lie on the longitudinal center line of the toe iron when the latter is in its normal position, and the maximum distance between the two pivot pins for the pivoted lever is less than the distance between the two pivot pins secured to the baseplate.

3,658,356

SKI POLE DEVICE

Richard G. Van Reyper, 1123 Pioneer Building, St. Paul, Minn.

Filed Mar. 16, 1970, Ser. No. 19,916

Int. Cl. A63c 11/22

U.S. Cl. 280—11.37 H

10 Claims



A fastener for instantaneous engagement and disengagement of a strap from a pole. The fastener is especially adapted for use on ski poles. The professional appearance of conventional poles remains unaltered when the fastener is incorporated as part of the ski pole structure.

The fastener consists of a female catch member and a male lug member. One member is fixedly mounted in the recess of a hand grip where the wrist strap of conventional ski poles is normally permanently attached. The other member is fixedly mounted to the wrist strap to form a unitary object with the wrist strap. Thus the wrist strap and the fastener part fixed to it are removable from the ski pole and hand grip; but when the two elements of the fastener of the invention are joined, the complete appearance of the ski pole is that of the normal or conventional pole most widely used by professionals and amateurs.

The male lug member of the preferred fastener is forked. It is also equipped with plates between which the ends of the wrist strap are secured.

The female catch member of the preferred fastener is provided with a special mounting post which permits mounting of it in the recess of the hand grip portion of a ski pole with a single screw. The mounting post serves the added function of

being a guide for aligning the forked male lug member during the step of attaching or engaging the two parts of the fastener.

3,658,357

SLIDING VEHICLE

Ferdinand Alexander Porsche, Doffingen, and Theodor Bauer, Leinfelden, both of Germany, assignors to Firma Dr.-Ing. h.c.F. Porsche K.G., Stuttgart-Zuffenhausen, Germany

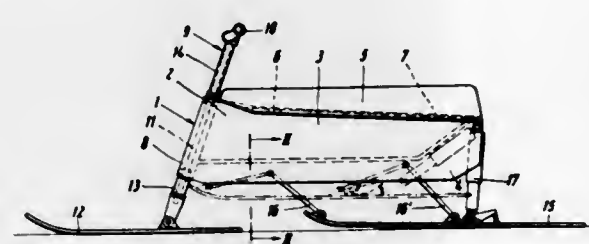
Filed June 24, 1969, Ser. No. 835,939

Claims priority, application Germany, Aug. 2, 1968, P 17 80 123.9

Int. Cl. B62b 13/04

U.S. Cl. 280—16

21 Claims



A one-track, steerable sled consisting essentially of a supporting frame with a pivotably articulated front and rear runner attached thereto and a steering mechanism. The steering mechanism is associated with the front runner and the rear runner is connected with the supporting frame by guides substantially in the form of a parallelogram and cushioned by a bilaterally effective spring element. This arrangement permits good contact of the front runner with the lane of travel and permits shocks to be absorbed.

3,658,358

PROTECTIVE STORAGE STRUCTURE FOR SNOW-MOBILES

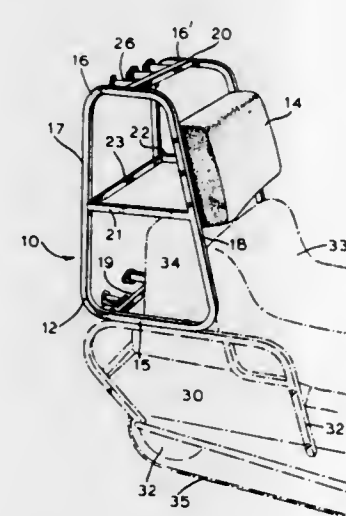
Frederick A. Baker, Toronto, Ontario, Canada, assignor to Alltrack Vehicles Limited, Weston, Ontario, Canada

Filed Apr. 10, 1970, Ser. No. 27,370

Int. Cl. B60r 9/06

U.S. Cl. 280—150 R

4 Claims



A structure for providing protection for snow-mobile riders and storage at the rear end of the vehicle. A rigid frame extends upwards over the rear of the vehicle to prevent the riders from being crushed and upon this frame a rear-seat back rest and a tray may be mounted to provide storage.

3,658,359

HINGED FOLD-UP LANDING SUPPORT

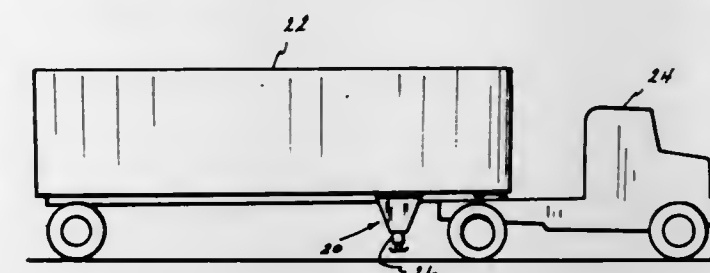
Hyle K. Claffin, North Muskegon, and Jack T. Belke, Grand Rapids, both of Mich., assignors to Westran Corporation, Muskegon, Mich.

Filed Dec. 9, 1970, Ser. No. 96,541

Int. Cl. B60s 9/02

U.S. Cl. 280—150.5

12 Claims



A landing gear support including a pair of legs secured to opposite sides of the forward portion of a trailer to support the same and movable between an extended operable position and a retracted inoperable position. Each of the legs may also be folded inwardly to a horizontal position beneath the trailer. Each of the legs includes a gearing mechanism such that with the use of a manual crank the legs may be moved between their retracted and extended positions. A separate gear housing is associated with each of the legs and the housings are connected together by a shaft extending therebetween such that a single crank may be used to move the legs between their positions. When the legs are moved to their folded position beneath the trailer, the two gear housings and the shaft extending therebetween are moved to an upper position beneath the trailer.

3,658,360

MOTORCYCLE STAND

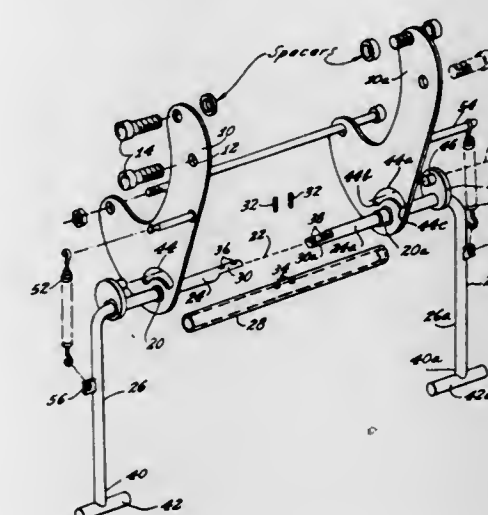
George R. Wood, 528-1/2 E. Fairview, Inglewood, Calif.

Filed June 22, 1970, Ser. No. 48,119

Int. Cl. B62h 1/02

U.S. Cl. 280—302

2 Claims



A stand comprising a pair of plates for attachment to the forward part of the frame of a motorcycle, providing a pair of bushings on a transverse axis through which bearings the cross-bar of a U-shaped assembly is passed. At least one of the plates is further arcuately orificed for a predetermined distance to receive a stop member adapted to move about an arc parallel to the cross-bar and to be stopped by the extremities of the arcuate orifice. A spring connected between a projection on at least one plate and one of the arms of the U-shaped member serves to urge the latter into either a locked extended or retracted position.

3,658,361

MULTI-IMPLEMENT ADAPTER FOR A VEHICLE HITCH

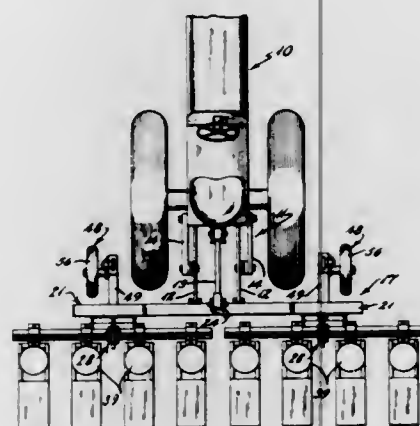
Cornelius G. Van Wyk, Route 1, Box 99-B, Pinetown, N.C.

Filed July 1, 1970, Ser. No. 51,465

Int. Cl. B62d 53/00

U.S. Cl. 280—411 A

3 Claims



Apparatus for mounting a plurality of earth-working implements on a propelling vehicle having hitch means. The apparatus includes an adapter having means connectable to the vehicle hitch and a plurality of means for accommodating the hitch connections of a plurality of implements.

3,658,362

FARM IMPLEMENT LEVELING MECHANISM

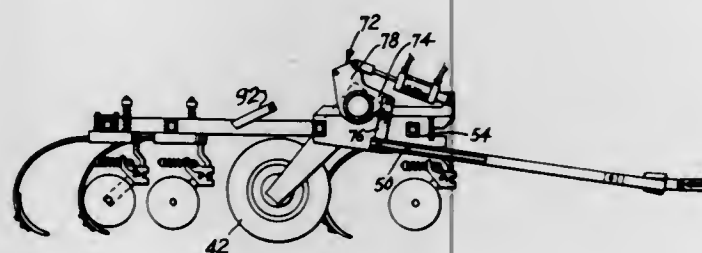
Kenneth C. Fackler, Anchor, Ill.; John O. Bradford, 221 West 18th St., Gibson City, Ill., and Elmo R. Meiners, Anchor, Ill.

Filed Mar. 5, 1970, Ser. No. 16,812

Int. Cl. B62d 61/12

U.S. Cl. 280—414.5

3 Claims



Elevation and level control means is provided for a two-wheel farm wagon attached to a tractor by a draw bar. The draw bar is pivotally attached to the platform and is connected by a linkage member to a lever arm welded to a pivot rod journaled in the platform. Wheel mounting members are attached to the opposite ends of the pivot rod. An expansible cylinder is connected to still another lever arm welded to the pivot rod. By controlling the expansion of the cylinder, the pivot rod is rotated to thereby rotate the wheel mounting members and raise or lower the platform. Simultaneously, the draw bar is pivoted about its connection to the platform so that the hitch end of the draw bar attached to the tractor is maintained at a substantially constant level.

3,658,363

HINGED COUPLER

Melvin L. Marler, P. O. Box 325, Bremerton, Wash.

Filed Apr. 1, 1970, Ser. No. 24,584

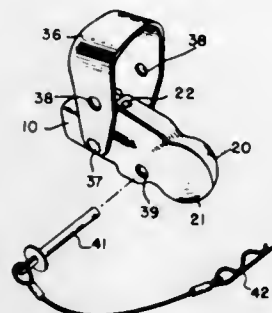
Int. Cl. B60d 1/06

U.S. Cl. 280—511

3 Claims

Two socket sections are pivoted to the forward end of a drawbar and are swingable laterally between an outer opened position and an inner closed position. The socket halves are

provided with internal ball-retaining recesses and lower cut-out portions. A cover member has an internal surface which conforms closely to the external surfaces of said socket halves and is pivotally secured to the drawbar for swingable



movement over said section halves. A locking pin is insertable through said cover member and said socket halves. The forward end of the drawbar is cupped so that the drawbar and closed socket halves form a continuous spherical compartment for housing the ball of a trailer hitch.

3,658,364

FAN-FOLDED PRINT-OUT PAPER FOR HIGH-SPEED PRINTERS

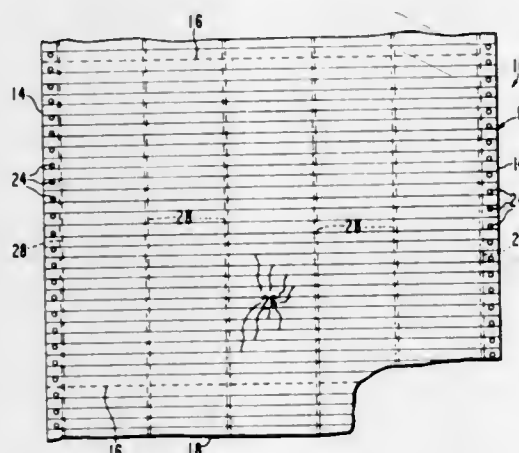
Frederick A. Da Mert, 31 Muir Ave, Piedmont, Calif.

Continuation-in-part of application Ser. No. 676,993, Oct. 9, 1967, now abandoned. This application June 26, 1969, Ser. No. 836,730

Int. Cl. B42d 19/00

U.S. Cl. 281—5

5 Claims



A paper product adapted for print-out use with high-speed printers associated with computer equipment wherein the product can be one-part paper or multiple-part paper. The product includes at least one sheet having transverse perforations or score lines permitting the sheet to be fan-folded into a stack of sheet sections having a predetermined size. Spaced longitudinal stiffeners are applied to one face of the sheet to increase the stiffness thereof and thereby facilitate the fan-folding of the sheet. The stiffeners of adjacent sheets of multiple-part paper are staggered with respect to each other.

3,658,365

BOOK SHAPED EDUCATIONAL AMUSEMENT DEVICE

Jurgen Greubel, Schone Aussicht, Germany, assignor to Braun Aktiengesellschaft, Frankfurt/Main, Germany

Filed Sept. 24, 1970, Ser. No. 75,114

Claims priority, application Germany, Oct. 8, 1969, 73 MR 7671; Feb. 10, 1970, P 20 05 981.8

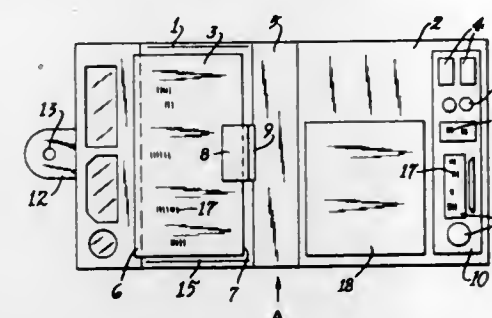
Int. Cl. B42d 3/12; G09b 1/00

U.S. Cl. 281—31

6 Claims

A book shaped educational amusement device has outer covers that can be moved between open and closed positions.

Three dimensional removable educational material and a message carrier such as printed sheets making reference to said educational material are disposed near each other, each on a respective cover. The material and said printed sheets in



the closed position of the covers are positioned laterally relative to each other while the material projects with its face beyond the confines of the collected printed sheets towards the outer surface of an opposite cover.

3,658,366

UNDERWATER PIPELINE CONNECTION

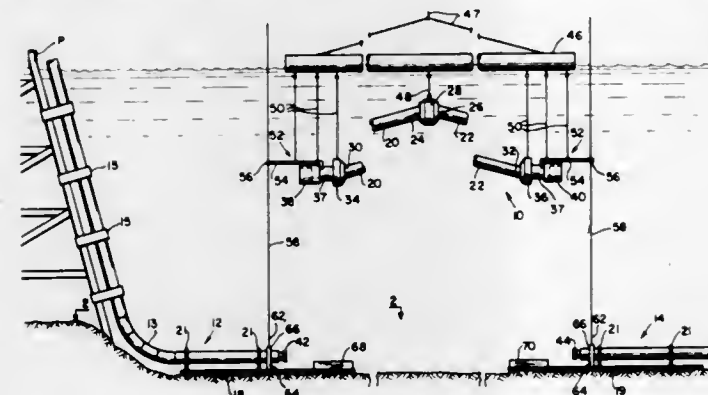
Robert W. Welch, Jr., Columbus, Ohio; George H. Bolton, New York, N.Y.; John P. Oliver, and Alfred W. Wedel, both of Houston, Tex., assignors to Columbia Gas System Service Corporation, Wilmington, Del., by said Welch and Bolton and Cameron Iron Works, Inc., Houston, Tex., by said Oliver and Wedel

Filed Apr. 23, 1970, Ser. No. 31,257

Int. Cl. F16l 35/00

U.S. Cl. 285—24

17 Claims



In an underwater pipeline connection system, a pair of swivelably interconnected pipes, supported in angular relation above the ends of a pair of pipeline sections, are provided with swivel connection members mounted on the free ends thereof which are adapted to be operably connected with taunt wire lines for guiding the swivel members and pipes from remote locations to positions adjacent the ends of said pipelines, actuator members connected between said swivels and said wires are adapted to move said pipes towards an aligned configuration when the swivels are thus positioned, thereby moving the swivels into engagement with the pipeline ends to form a completed connection therebetween.

3,658,367

PIPE JOINT

Anton Pfeuffer, 301 East 78th Street, New York, N.Y.

Continuation-in-part of application Ser. No. 662,844, Aug. 16, 1967, now Patent No. 3,498,649, which is a continuation-in-part of application Ser. No. 518,151, Jan. 3, 1966, now abandoned. This application Jan. 14, 1970, Ser. No. 2,876

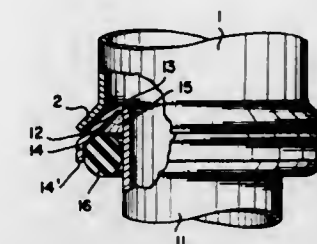
Int. Cl. F16l 25/00

U.S. Cl. 285—177

2 Claims

A joint for flanged conduit ends associated with conduits of different diameters and including at least one annular seal-

ing ring, the flanged ends being held together by a clamping ring and the parts being shaped and assembled to minimize exposure of the sealing ring to the fluid passing through the conduit.



3,658,368

DRILL ROD STRUCTURES

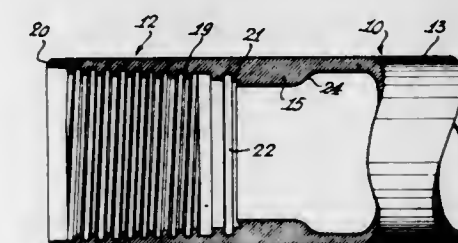
Lyle W. Hokanson, Kirkland Lake, Ontario, Canada, assignor to Heath & Sherwood Drilling Limited, Ontario, Canada

Filed June 1, 1970, Ser. No. 42,175

Int. Cl. F16l 25/00

U.S. Cl. 285—333

1 Claim



A drill rod is provided which is adapted to have improved high joint pressure efficiency and high joint mechanical efficiency. The rod comprises a plurality of pipes each having an internally upset joint section at each end thereof. Each joint section has a threaded portion of tapering diameter and an annular shoulder at each end of the threaded portion. Each shoulder has an axially presented face disposed at an angle to a plane normal to the axis of the pipe.

3,658,369

LOCKING EQUIPMENT COUPLING PIN

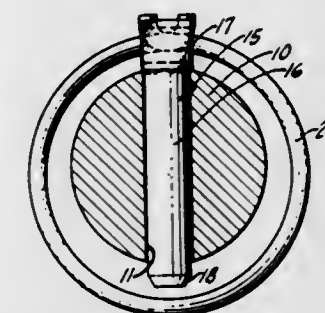
David A. Barnes, Route 1, Box 2, Whitehouse, Tex.

Filed July 6, 1971, Ser. No. 159,788

Int. Cl. F16d 1/06

U.S. Cl. 287—52.08

8 Claims



A coupling pin for securing a pair of members together, having a locking retaining ring for holding the pin in place against displacement. The pin has a head with a pivotally mounted retaining ring designed to secure the pin in place in a bar, rod or shaft in which it is positioned to prevent displacement of the pin therefrom, particularly for retaining equipment such as farm implements connected to tractor draw bars or the like. Positive locking means is provided to prevent accidental displacement of the retaining ring from

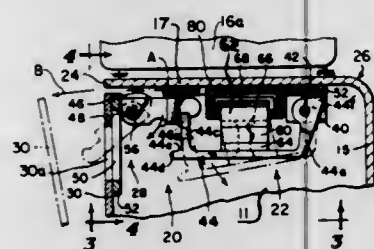
locking position, and finger grips are provided for facilitating manipulation of the retaining ring by the operator for releasing the same from locking position.

3,658,370

LATCHING ASSEMBLY WITH MAGNETIC LOCKING
William S. Wang, Marina Del Rey, Calif., assignor to Consolidated Controls Corporation, Bethel, Conn.
Filed Jan. 15, 1970, Ser. No. 3,132
Int. Cl. E05c 3/06, 19/04

U.S. Cl. 292—201

11 Claims



A latching assembly for a door swingable toward and away from a doorjamb or the like between a closed and an open position, comprising a pair of latch members mounted on the door and jamb, respectively, and relatively movable between an engaged latching position and a disengaged unlatched position. Each latch member includes one or more latching surfaces engageable with a latching surface on the other latch member when in the latched position preventing movement of said door relative to said doorjamb. Permanent magnet holding means is provided for holding or locking said latching members in said latched position, and selectively controlled electromagnetic means is used for producing a magnetic unlocking force with a polarity opposing that of said permanent magnet means for unlocking and relatively moving said latching members out of said latched engagement when said door is to be opened.

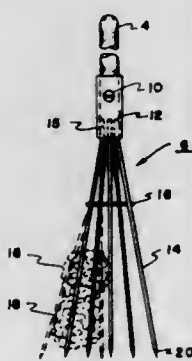
3,658,371

PINE CONE GATHERING IMPLEMENT
Thomas W. Dowdey, 222 Alexandria Drive, West Columbia, S.C.

Filed Jan. 29, 1970, Ser. No. 6,659
Int. Cl. B08b 1/00

U.S. Cl. 294—61

3 Claims

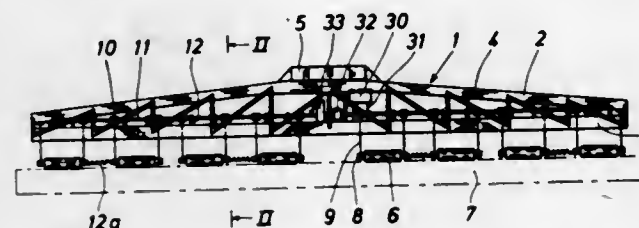


A pine cone gathering implement comprising a handle of suitable length and a gathering mechanism having a plurality of outwardly projecting resilient finger members, the inner ends of which are gathered together and secured to the handle by a bracket. Projecting outer ends of the fingers all diverge in a single plane at an angle exceeding 3° and are tied together by a tension bar located intermediate their ends at a specified distance from the bracket. The free ends of the fingers are so spaced apart as to provide a pocket into which pine cones are forced and retained.

3,658,372
MAGNET YOKE FOR LIFTING IRON BARS
Elgil Madsen, Olstykke, Denmark, assignor to H. Nielsen & Son Maskinfabrik A/S, Herler, Denmark
Filed May 5, 1970, Ser. No. 34,815
Claims priority, application Denmark, May 23, 1969, 2810/69
Int. Cl. B66c 1/04

U.S. Cl. 294—65.5

15 Claims



A yoke for lifting sectional irons comprising a girder beneath which a plurality of electromagnets are suspended vertically displaceable in slings from spring suspension means. These means are mounted on a rotatable shaft in the girder, said shaft extending longitudinally of the girder and being supported in fixed bearings. Preferably each spring suspension means comprises two rope pulley nuts which are rotatable in relation to the shaft and resting on a sliding sleeve. This sleeve is axially displaceable in relation to the shaft and acted upon by a pressure spring which is coaxial with the sleeve. The two rope pulley nuts are rotatable in relation to each other with inside screwthreads of opposite hand having identical screwthread diameter and slope angle. The sliding sleeve has on its outer side a first screwthread section and a second screwthread section with screwthreads corresponding to the two rope pulley nuts.

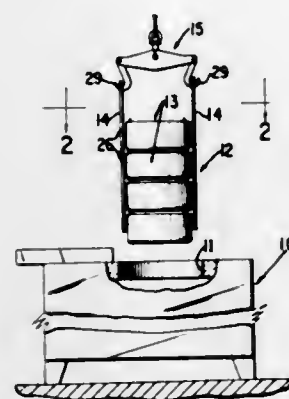
3,658,373

HEAT TREATING BASKET
Steven A. Elkow, Lagrange Park, and Kenneth D. Van Beek, Westchester, both of Ill., assignors to Sola Basic Industries, Inc., Milwaukee, Wis.

Filed Dec. 8, 1970, Ser. No. 96,012
Int. Cl. B66c 1/16

U.S. Cl. 294—67

4 Claims



A stack of heat treating baskets each having a cylindrical side wall with opposed openings therein is lifted by a plurality of lifting bars each having vertically spaced lifting lugs which are inserted into the side wall openings. The lugs are so spaced that the load of each basket is distributed directly to the lifting lugs as the stack of baskets is lifted.

3,658,374

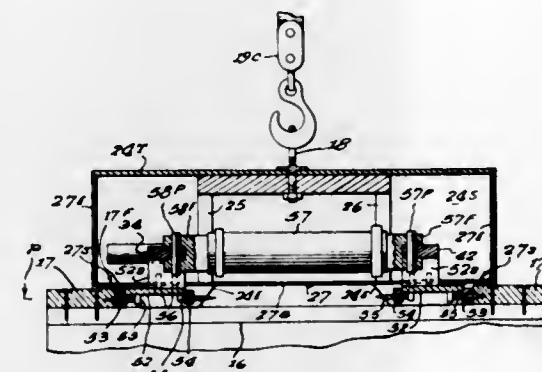
SKID TOP LIFTER
Donald H. Busam, Hometown, Ill., assignor to Interlake Steel Corporation, Chicago, Ill.
Filed Feb. 19, 1970, Ser. No. 12,623
Int. Cl. B66c 3/04

U.S. Cl. 294—88

5 Claims

A lifting apparatus for handling skids includes a pair of grippers equipped with bite-arrays for penetrating into the

skid runners. A pick-up module is supported from a hoist suspension providing controlled vertical movement thereof and mounts the grippers for oppositely directed translational movement. Spacer structure engages the skid to position the spikes of the bite arrays for unimpeded movement in a plane



that intersects the skid runners. Fluid pressure drive mechanism actuates the grippers individually to produce separate movement thereof and applies self-balancing forces thereto to drive the grippers through runner-penetrating travel only after both grippers have established runner contacting engagement.

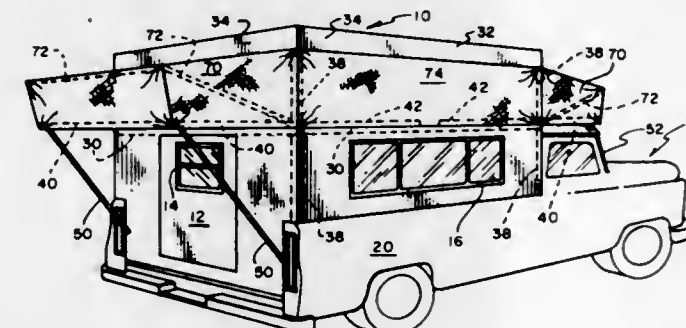
3,658,375

PICKUP TRUCK CAMPING BODY
Duane C. Bowen, Construction Trades Center 2541 State Street, Carlsbad, Calif.

Filed July 13, 1970, Ser. No. 54,303
Int. Cl. B60p 3/34

U.S. Cl. 296—23 MC

4 Claims



A pickup truck camping body has a roof that raises and beds that pull or fold out for camping in the manner of standard folding camping trailers

3,658,376

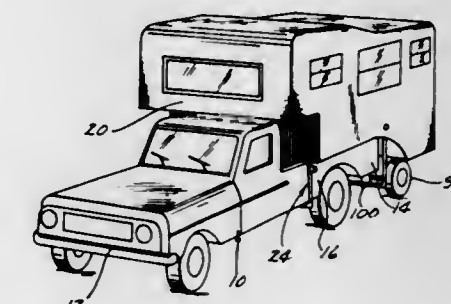
JACK AND TIE-DOWN SYSTEM FOR A VEHICLE MOUNTED CAMPER
John N. Dodgen, and Kenneth R. Johnson, both of Humboldt, Iowa, assignors to Dodgen Industries, Inc., Humboldt, Iowa
Continuation-in-part of application Ser. No. 9,003, Feb. 5, 1972. This application Oct. 5, 1970, Ser. No. 77,937
Int. Cl. B60p 3/34

U.S. Cl. 296—23 MC

8 Claims

A jack and tie-down system for a vehicle mounted camper including first and second jacks secured to the lower front corners of the camper and third and fourth jacks secured to the rearward end of the camper. The first and second jacks each include a vertically movable leg portion extending downwardly therefrom and having a U-shaped support member secured to the lower ends thereof and extending therebetween. The support member serves as a stand for the front end of the camper when the camper is removed from the vehicle and extends beneath the vehicle frame and en-

gages the same to serve as a tie-down means for the front end of the camper when the camper is on the vehicle. First and second arms are pivotally connected at their upper ends to the lower rearward end of the camper and have the rearward ends of first and second frame members selectively pivotally connected thereto. The forward ends of the first and second frame members are pivotally connected to a support member which is secured to and extends between the lower ends of the third and fourth jacks. A pair of ground engaging wheel members are rotatably secured to the first and second frame members. First and second brackets are secured to the rearward end of the vehicle frame and are adapted to receive the support member extending between the lower ends of the



third and fourth jacks when the third and fourth jacks are raised to serve as a tie-down for the rearward end of the camper and also serving as a means for aligning the wheel members secured to the frame members. The support member extending between the lower ends of the third and fourth jacks serves as a stand for the rearward end of the camper when the camper is removed from the vehicle. A spring means is operatively connected to the axle supporting the wheel members for yieldably urging the wheel members into ground engagement whether the third and fourth jacks are in their raised or lowered positions. The selective pivotal connection of the first and second frame members with the first and second arms provides a means for varying the amount of weight carried by the wheel members.

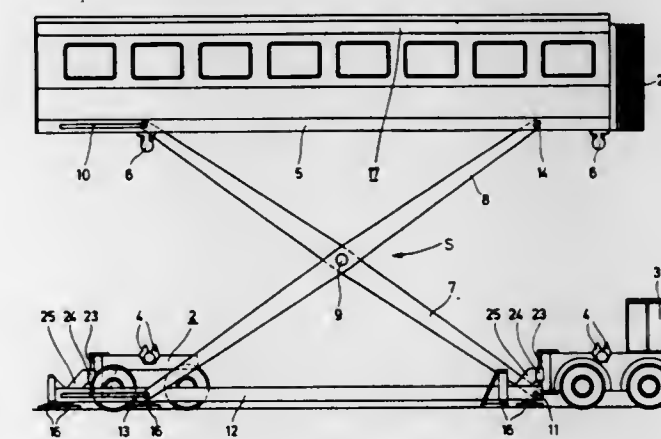
3,658,377

TRANSPORT VEHICLE FOR LARGE AIRPLANES
Georg Behrmann, Lauf an der Pegnitz, Germany, assignor to Dipl.-Ing. Karl Heinz Schmidt, Vorr, Hersbruck, Germany
Filed Feb. 25, 1970, Ser. No. 13,891
Claims priority, application Germany, Feb. 25, 1969, P 19 09 462.3

Int. Cl. B62d 31/02

U.S. Cl. 296—28 A

16 Claims



A transport vehicle for large airplanes designed for carrying either passengers or freight and including a chassis, a platform for supporting passenger or freight carrying means, and scissors linkage operably connected to the platform for raising and lowering the platform relative to the chassis. Lon-

gerons operably associated with the scissors linkage are held in spaced relation from the roadway when the scissors linkage is collapsed and the platform rests on the chassis, with the longerons bearing on the roadway when the scissors linkage is extended and the platform is spaced from the chassis. Readily releasable coupling means are provided for securing the platform to the chassis.

3,658,378

FOLDING HEAD CONTROL DEVICES

Claude Sutren, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt and Automobiles Peugeot, Paris, France

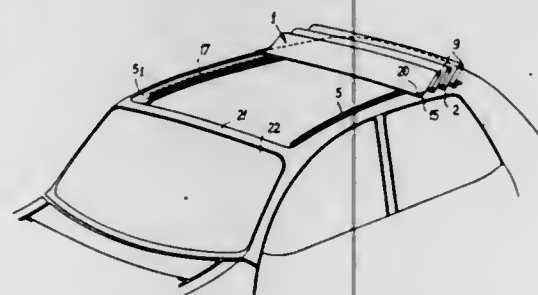
Filed June 1, 1970, Ser. No. 42,139

Claims priority, application France, July 7, 1969, 6922958

Int. Cl. B60j 7/10

U.S. Cl. 296-137 C

3 Claims



This control device for operating a folding head, notably of automotive vehicle, comprises alternate free and guided bows attached to the curtain, a shaped longitudinal section member associated with a longitudinal slideway and disposed on either side of the roof aperture, a plastic slide disposed on either side of each guided bow and engaging said slideway, and torsion bars interconnecting on either side of the curtain a free bow with the next guided bow, each torsion bar being secured at one end to said slide and at the opposite end to said free bow.

3,658,379

TABLE AND SUSPENDED CHAIR UNIT WITH CENTERING APPARATUS

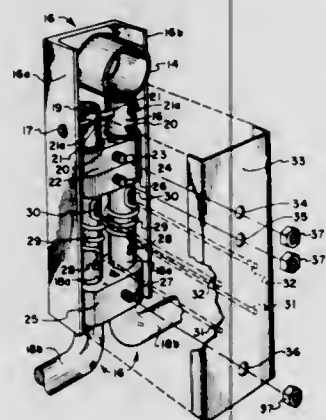
Herman Wendell Black, Blackfoot; Richard R. Wright, Idaho Falls, both of Idaho; Don K. Fullmer, and Keith W. Naylor, both of Camarillo, Calif., assignors to Herman Wendell Black, Blackfoot and Richard R. Wright, Idaho Falls, Idaho, part interest to each

Filed July 22, 1970, Ser. No. 57,150

Int. Cl. A47c 39/00

U.S. Cl. 297-157

16 Claims



A support system for chairs suspended beneath a table top wherein plastic bearings are used to provide horizontal and vertical pivot surfaces and supports for chair suspension arms, a yieldable means is provided to limit rotation of each chair arm, and resilient means are provided for moving the chairs to a normally centered position.

3,658,380
SPRING SEAT FOR CYCLE SADDLES

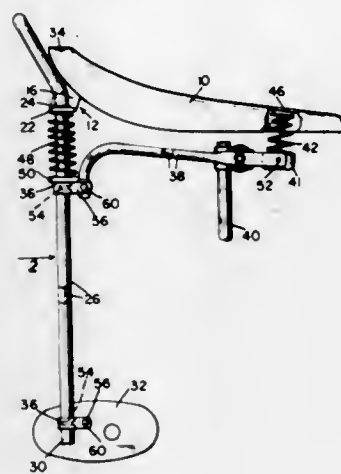
Almon F. Townsend, Worcester, Mass., assignor to Persons-Majestic Mfg. Co., Worcester, Mass.

Continuation-in-part of application Ser. No. 778,928, Nov. 26, 1968. This application June 15, 1970, Ser. No. 46,487

Int. Cl. B62j 1/02

U.S. Cl. 297-211

4 Claims



Elongated saddle for a cycle having rear wheel braces, springs for the braces supporting the rear portion of the saddle, a truss secured to the braces, and a spring on the truss at its forward end supporting the front portion of the saddle.

3,658,381

FURNITURE WITH DISCONNECTABLE PARTS

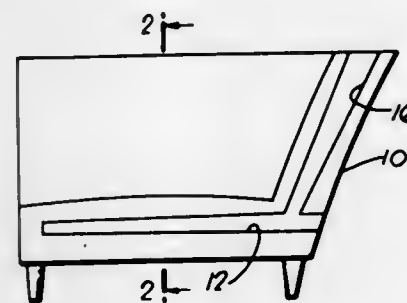
Everette A. Grant, Sr., 116 Shaft Street, Glace Bay, Nova Scotia, Canada

Filed Feb. 4, 1970, Ser. No. 8,535

Int. Cl. A47c 7/00

U.S. Cl. 297-440

1 Claim



Furniture such as chairs, sofas and tables are provided with parts having slides or rails which can be assembled by interconnecting slides and rails and can be disassembled by disconnecting slides and rails.

3,658,382

MODULE FRAMES FOR STANDARDIZED UPHOLSTERY TYPE FURNITURE AND METHOD OF CONSTRUCTING AND ASSEMBLING SAME

Victor F. Anderson, Wenonah, N.J., assignor to Shell Oil Company, New York, N.Y.

Filed Apr. 2, 1970, Ser. No. 25,191

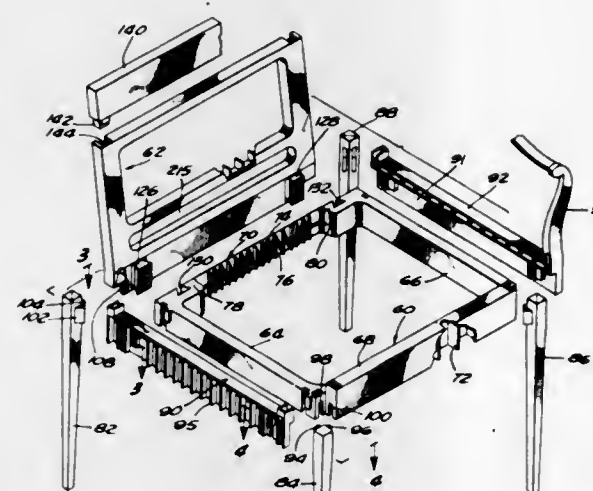
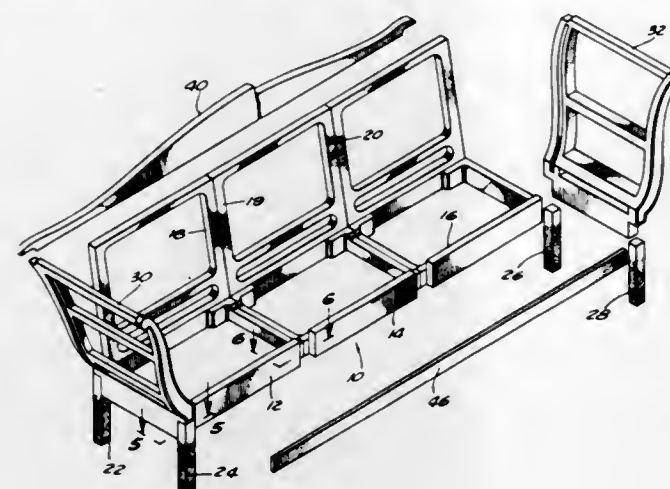
Int. Cl. A47c 5/00, 3/00, 7/20; F16b 7/00

U.S. Cl. 297-445

4 Claims

A standardized frame assembly for a sofa or chair comprising a standardized seat frame and back frame of a synthetic resin, the frames including projections and complementing slots for ease of manufacture, added strength and for allowing economical assembly with each other and accessory pieces such as a set of legs and side panels which give the

sofa or chair its styling characteristic. The frames may be embodied as one piece elements, as a set of elongated elements



and corner mounts or as a closed metal loop with elongated elements to give the frame a body to attach upholstery.

3,658,383

STORAGE AND DISPOSAL VEHICLE

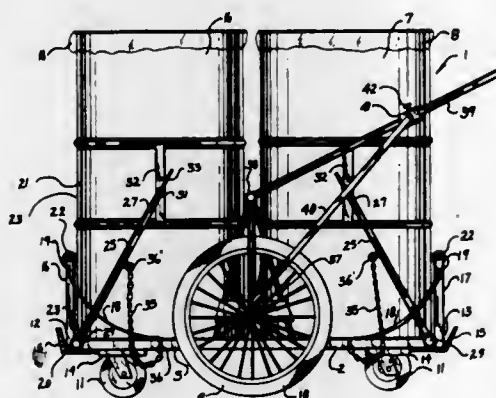
Glirard B. Sisson, 4810 Park Road, Kansas City, Mo.

Filed Sept. 28, 1970, Ser. No. 76,129

Int. Cl. B62b 1/24

U.S. Cl. 298-2

8 Claims



A loaded container is easily lifted and up-ended from a stable, resting position on a mobile platform through the use of a yoke swingably mounted on the edge of the platform and pivotally connected to the container. An upstanding leg on the edge of the platform engages the container below the yoke connection, pivoting the container as it is lifted and transported over the edge of the platform. After discharge, the container tends to return itself to normal resting position on the platform.

3,658,384
DETACHABLE WRECKING DEVICE

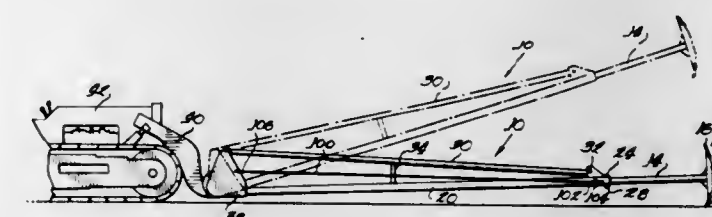
Rudolph J. Gluszek, 10565 West 14th St., La Grange, Ill.

Filed July 2, 1969, Ser. No. 838,456

Int. Cl. E21c 27/30

U.S. Cl. 299-37

13 Claims



An implement for wrecking small buildings which may conveniently be attached to or removed from a bucket loader is described. It comprises upper and lower tubular booms for connection to the upper and lower sides of the bucket, a spreader between the booms, and a tool assembly attached to the lower boom and having a tool support and a tool head attached to the support. A jack is placed within the bucket to keep it from collapsing under the loads imposed by the implement.

3,658,385

MINING MACHINE HAVING VERTICALLY ADJUSTABLE CHAIN CUTTER

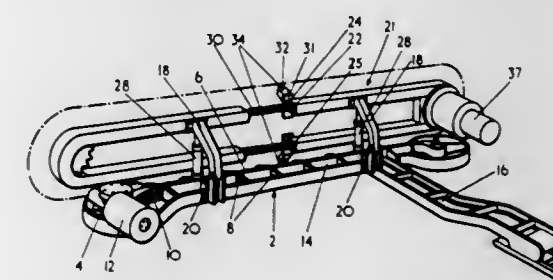
Terence Owen, and Gordon Ernest Boast, both of Burton upon Trent, England, assignors to Coal Industry (Patents) Limited, London, England

Filed July 15, 1970, Ser. No. 54,918

Int. Cl. E21c 25/56

U.S. Cl. 299-43

8 Claims



A mineral mining machine for advancing a shortwall face has a vertically adjustable cutter head which supports an endless cutter chain carrying cutter tools arranged to excavate all the mineral from the face and which carries the drive motor for the cutter chain. A supporting guideway maybe rigidly mounted on the cutter member and arranged to be slidably engaged by slide members carried by the cutter chain.

3,658,386

HOPPER CRAFT

Johannes Bertus Laarman, Swijndrecht, Netherlands, assignor to N. V. Industriële Handelscombinatie, Holland, Rotterdam, Netherlands

Filed Oct. 31, 1969, Ser. No. 872,973

Claims priority, application Netherlands, Nov. 1, 1968, 68.15628

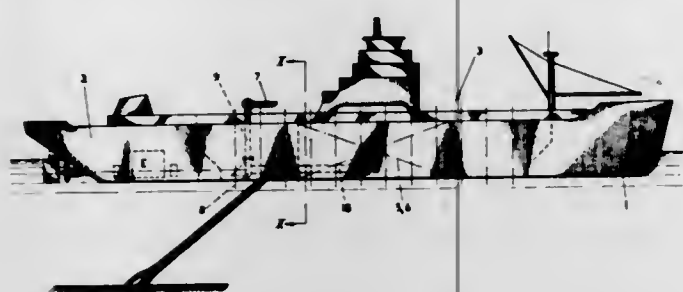
Int. Cl. B65g 53/30

U.S. Cl. 302-15

3 Claims

A hopper craft is adapted to be loaded with relatively light material such as mud or with relatively dense material such as mixtures of sand and gravel. A central hopper is provided with air chambers on either side, and loading means selectively direct the load into the central hopper and/or the air

chambers. The central hopper overflows into the air chambers and the air chambers overflow to the sea; while alternatively, the central hopper can overflow directly to the sea. The central chambers are used for any type of material but the air chambers are used only for light material.



tively, the central hopper can overflow directly to the sea. The central chambers are used for any type of material but the air chambers are used only for light material.

3,658,387

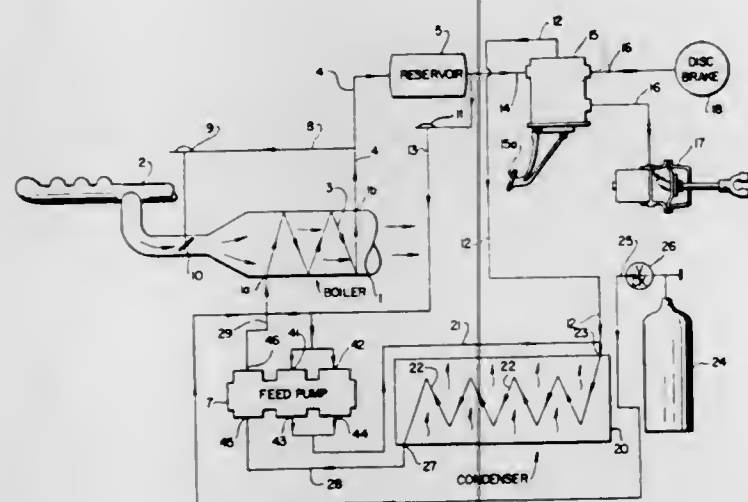
THERMALLY ACTIVATED POWER BRAKE SYSTEM AND PUMP THEREFOR

John Roper, 1325 Eutaw Place, Baltimore, Md.
Continuation-in-part of application Ser. No. 79,586, Oct. 9, 1970, now abandoned. This application Dec. 9, 1970, Ser. No. 96,538

Int. Cl. B60t 13/16

U.S. Cl. 303-10

12 Claims



A power brake system for vehicles wherein thermal energy from the exhaust of the engine of a vehicle is converted into mechanical energy which is used to apply the brakes of the vehicle. In the system, working fluid in the liquid phase is changed to high energy vapor by exhaust heat from the engine. The high energy vapor is expanded in brake motors to produce mechanical braking energy. The system includes a feed pump for the liquid working fluid which is driven by the high energy vapor of the system. The pumping apparatus and the pump driving apparatus are both contained in a single, totally enclosed, sealed housing.

3,658,388

ANTI-SKID DEVICE

Kiyoshi Hasegawa, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Sept. 15, 1970, Ser. No. 72,256

Claims priority, application Japan, Nov. 12, 1969, 44/90697

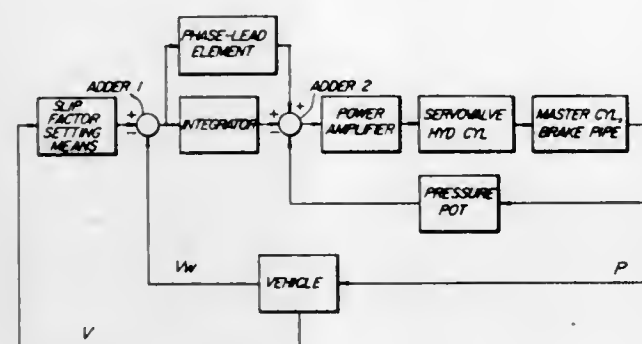
Int. Cl. B60t 8/02, 8/10

U.S. Cl. 303-21 P

3 Claims

An anti-skid device for maintaining the slip factor of the wheels of a running vehicle constant is additionally provided with a second order phase-lead element whose constants are

set to the optimum value with regard to the acceleration and deceleration vibration phenomena of the wheels under con-



trolled conditions which characterize the dynamic characteristics of the anti-skid device, whereby an improved overall control performance of the system is ensured.

3,658,389

SAFETY DEVICE IN ANTISKID CONTROL SYSTEM FOR AUTOMOBILES

Atutosi Okamoto, Toyohashi-shi; Koichi Taniguchi, Kariya-shi; Yoshiaki Nakano, Gifu-shi, and Koichi Toyama, Toyohashi-shi, all of Japan, assignors to Nippon Denso Company Limited, Kariya-shi, Japan

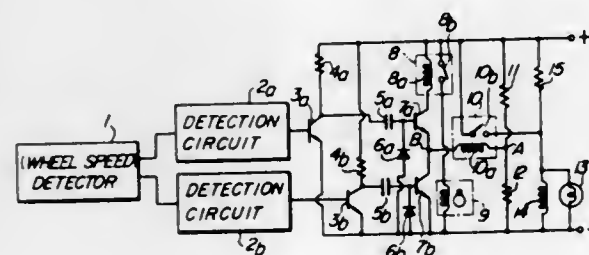
Filed May 16, 1969, Ser. No. 825,307

Claims priority, application Japan, June 17, 1968, 43/41733

Int. Cl. B60t 8/12

U.S. Cl. 303-21 CG

1 Claim



In an antiskid control system for automobiles having two braking force control circuits arranged in parallel, these two lines of control circuits are connected to a control relay of a braking force release solenoid valve such that the braking force may be relieved only when said two control circuits provide a braking force release signal simultaneously. Such being the case, should any one of the two braking force control circuit lines go wrong in such a manner as to cause a braking force release signal, at least the minimum function is ensured of adjusting the braking force by pressure of a foot with the aid of the working of the other control circuit line to thereby provide extraordinary safety against any accidents that may otherwise result in disaster.

3,658,390

ANTI-LOCK MEANS FOR FLUID PRESSURE OPERATED BRAKING SYSTEMS

Leslie C. Chouings, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, England

Filed June 13, 1969, Ser. No. 833,086

Claims priority, application Great Britain, June 25, 1968, 30,117/68

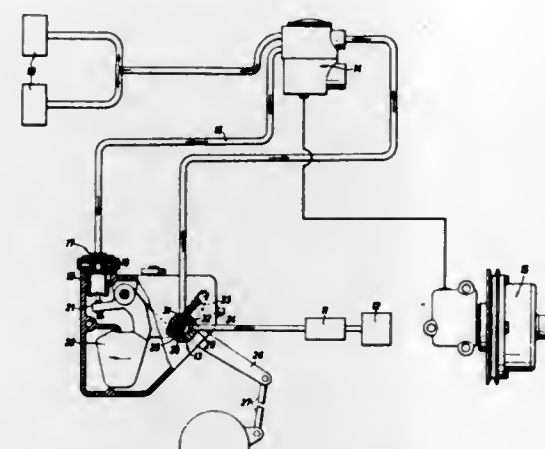
Int. Cl. B60t 8/16, 8/18

U.S. Cl. 303-21 A

2 Claims

In a compressed air operated braking system including a valve, automatically operated by a skid sensing device to disconnect the brake motor cylinders from the compressed air source and connect them to exhaust when a skid is sensed; and to reconnect the motor cylinders to the said

source and disconnect them from exhaust when the tendency to skid ceases, a variable flow restricting device is provided between the compressed air source and the automatic valve



and is controlled to vary the degree of flow restriction responsive to changes in a condition, such as vehicle loading, which affects the tendency to skid.

3,658,391

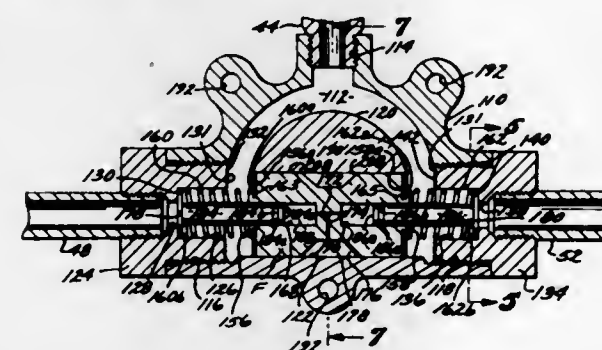
SAFETY DEVICE FOR AIR ACTUATED ASSEMBLIES

James R. Hensley, 1325 Nutmeg, Escondido, Calif.
Continuation-in-part of application Ser. No. 846,443, July 31, 1969, now Patent No. 3,556,616. This application Nov. 23, 1970, Ser. No. 91,851

Int. Cl. B60t 15/00, 17/18

U.S. Cl. 303-84 A

7 Claims



A safety device for use with two concurrently operable fluid actuated assemblies by means of which one of said assemblies may be operated after the other of said assemblies has been rendered inoperative due to development of a leak in the assembly or the conduit leading thereto. One form of the device for use with pressurized air operated assemblies includes time delay means as part thereof, to prevent actuation of the device by a false signal such as could occur if different sized air cylinders were used on the two brake assemblies. Also, the time delay means prevents the device being actuated by a minor leak in the hose or conduit, which is of not sufficient consequence to prevent the two air actuated assemblies from being operated.

3,658,392

TRACKED VEHICLE SUSPENSION

Jules Perreault, Sherbrooke, Quebec, and Bertrand Southiere, Granby, Quebec, both of Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

Continuation of application Ser. No. 794,628, Jan. 28, 1969, now abandoned. This application Sept. 28, 1970, Ser. No. 76,207

Claims priority, application Canada, Jan. 10, 1969, 39,810

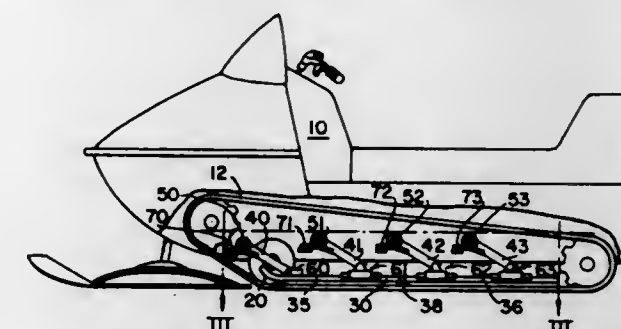
Int. Cl. B62d 55/10

U.S. Cl. 305-24

4 Claims

A suspension system for tracked vehicles especially small

snowmobiles, which has longitudinally aligned skid elements that are articulated to one another and are resiliently held



against the inside surface of the ground engaging portion of the track.

3,658,393

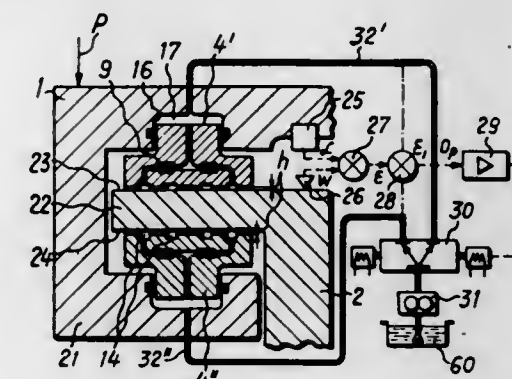
HYDROSTATIC BEARINGS

Walter Luthi, Zurich, Switzerland, assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle AG, Zurich, Switzerland
Filed Aug. 20, 1970, Ser. No. 65,489

Int. Cl. F16c 17/00

U.S. Cl. 308-5

3 Claims



A hydrostatic bearing having a bearing body positioned between a first and a second part displaceable relative to each other. A guideway is mounted on the second part. The bearing body for the displacement of the first part relative to the second part in a direction perpendicular to the guideway has a piston displaceable in a direction perpendicular to the guideway. Regulating means is provided for regulating the position of the first part with respect to the second part in a direction perpendicular to the guideway in accordance with a predetermined value. A chamber is formed between the bearing body and a part containing a recess and a pipe for pressurized fluid extends to the chamber. The bearing body has on its side opposite the chamber support recesses for supporting the bearing body and bores in the bearing body connect said last named recesses to the chamber. The bearing body has a circular support surface in which the support recesses are each distributed in a quadrant of the circular support surface, and a throttle is connected to the support recesses. The throttle is a screw-threaded bolt screwed into a threaded bore, through the screw thread of which pressurized fluid flows to the support recesses.

3,658,394

DRAWER SLIDE AND GUIDE ASSEMBLY

Kenneth H. Gutner, 3285 Dato, Highland Park, Ill.

Filed Sept. 1, 1970, Ser. No. 68,640

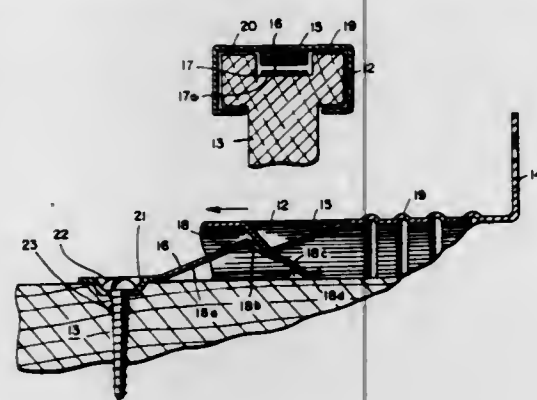
Int. Cl. F16c 29/00

U.S. Cl. 308-3.6

10 Claims

A sliding assembly for a dresser drawer which is particularly adapted to make use of a metal slide in combination

with a wooden guide, the slide being equipped with detent means while the guide is equipped with spring clip means to



provide an overcomeable stop against drawer removal from an associated dresser.

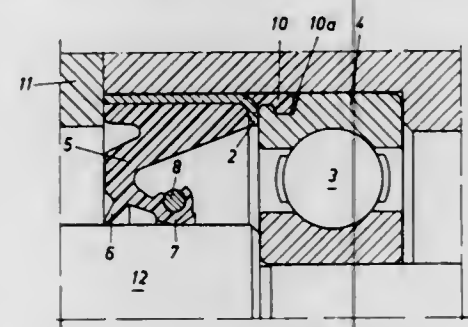
3,658,395 SUPPORTING AND SEALING MEMBER FOR ROLLING BEARINGS

Stig Lennart Hallerback, Vastrå Frolunda, Sweden, assignor to SKF Industrial Trading and Development Company N.V., Amsterdam, Netherlands

Filed June 29, 1970, Ser. No. 50,821
Claims priority, application Sweden, June 30, 1969, 9407/69
Int. Cl. F16c 33/78

U.S. Cl. 308—187.2

3 Claims



A member for supporting and sealing of rolling bearings of any type, which mainly comprises a reinforcing portion and a sealing portion, the sealing portion being of an elastic material which, by way of a suitable joining method, e.g. vulcanization, is rigidly attached to the reinforcing portion.

Said reinforcing portion being formed to provide a supporting surface for the outer race ring of the rolling bearing and/or for the end surfaces of the rolling bodies.

The sealing body and the reinforcing ring thereby forming a unit which supports and seals the bearing in a proper manner, and at the same time secures the outer race ring from rotating in its bearing seat.

Furthermore, the member is thus formed that it also serves as a connecting member, which keeps the bearing parts and the member itself together when unassembled. The dismounting of such a bearing unit also will be facilitated as the bearing keeps to the member during dismounting.

3,658,396 BEARING SEAL ASSEMBLY

Clinton A. Taylor, Huron, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 25, 1971, Ser. No. 109,137

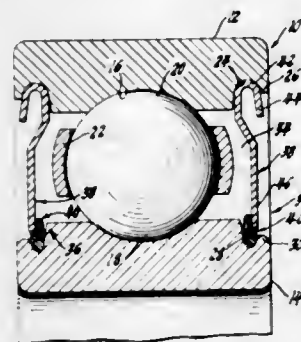
Int. Cl. F16c 33/78, 33/80

U.S. Cl. 308—187.2

2 Claims

A seal assembly for the annular lubricant chamber between the inner and outer races of an anti-friction bearing includes an annular shield attached to the outer race which

cooperates with a molded T-shaped seal mounted in a groove on the inner race. The seal has a radial web terminating in an enlarged seal body engaging the inner surface of the shield, the web being provided with an inner axial fin which



resiliently engages the side of the groove for axially biasing the web and urging the seal body into operative sealing relationship with the ring and an outer axial fin which cooperates with the inner periphery of the shield to establish a labyrinth seal.

3,658,397 DESK

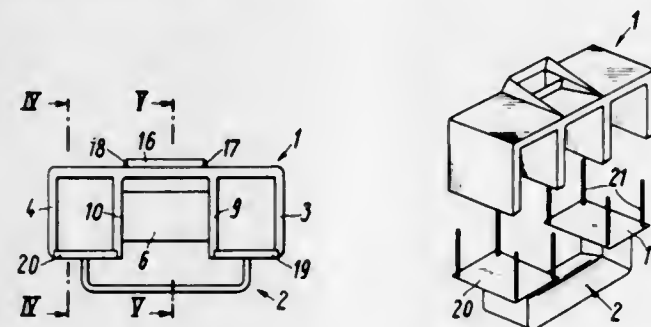
Ernest Hofmann-Igl, Rosenheim, Mitterfeld, Germany, assignor to Wilhelm Werndl Buromobelfabrik, Rosenheim, Germany

Filed Aug. 31, 1970, Ser. No. 68,195
Claims priority, application Germany, Sept. 3, 1969, P 19 44 731,5

Int. Cl. A47b 17/00, 87/00

U.S. Cl. 312—194

7 Claims



Desk comprising two boxes connected in spaced relationship via a cover and a back wall wherein the two boxes with the back wall and upper cover are formed by a one-piece fabricated hard foam body which is open in the region of the front side and the bottom of the boxes and at the bottom of said boxes is supportable and closable each by means of a rigid ground plate and which at a spacing from the back wall is provided with a partition in prolongation of the lower end of said back wall and defining therewith and with the adjacent box walls a hollow space which may be covered up on the top by separate elements.

3,658,398 DETENT MECHANISM FOR A CABINET HAVING A PULL-OUT DRAWER

Ronald A. Abbate, Jr., Glen Head, and Stewart J. Fried, Merrick, both of N.Y., assignors to International Playtex Corporation, New York, N.Y.

Filed Nov. 10, 1970, Ser. No. 88,440

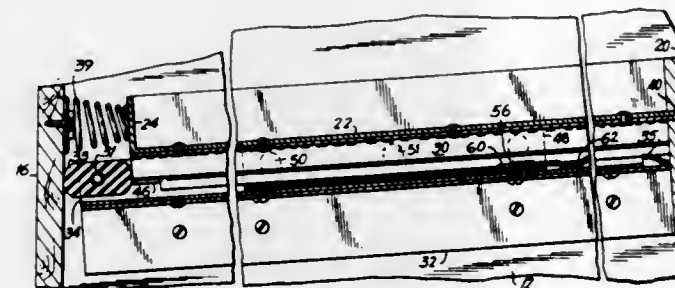
Int. Cl. A47b 88/00

U.S. Cl. 312—333

5 Claims

A cabinet is provided having at least one pull-out drawer which is slidably mounted therein on a linear ball-bearing assembly. The drawer is releasably held in its extended or

pulled out position by a leaf spring carried by the ball-bearing cage of the ball-bearing assembly in cooperation with a



protrusion in the stationary guide member of the ball-bearing assembly, which form a detent mechanism entirely independent of the ball bearings.

3,658,399 DRAWER SUSPENSION

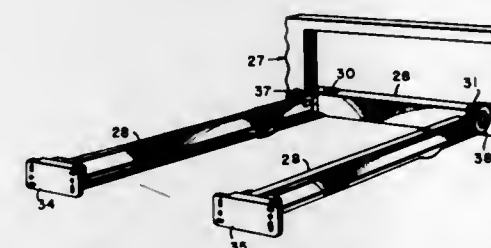
James B. Vogt, Ada, Mich., assignor to Vogt Industries, Grand Rapids, Mich.

Filed Aug. 5, 1970, Ser. No. 61,217

Int. Cl. A47b 88/04

U.S. Cl. 312—343

2 Claims



A roller drawer suspension using rails mounted inside the vertical projection of the drawer, and locating the drawer laterally at the drawer opening on roller flanges positioned outside the drawer.

3,658,400 METHOD OF MAKING A MULTIALKALI PHOTOCATHODE WITH IMPROVED SENSITIVITY TO INFRARED LIGHT AND A PHOTOCATHODE MADE THEREBY

Fred Anderson Helvy, Lancaster, Pa., assignor to RCA Corporation

Filed Mar. 2, 1970, Ser. No. 15,742

Int. Cl. H01j 39/00

U.S. Cl. 313—94

8 Claims

- 1-6 FORMING A BASE LAYER CONTAINING ANTIMONY AND POTASSIUM ON A TEMPERATURE STABILIZED SUBSTRATE
- 7 EVAPORATING SODIUM ON THE BASE LAYER UNTIL A SENSITIVITY BETWEEN 25 AND 60 MICRO-AMPERES PER LUMEN IS ATTAINED, THEN
- 8 CONTINUING THE EVAPORATION OF SODIUM WHILE SIMULTANEOUSLY EVAPORATING ANTIMONY UNTIL THE SENSITIVITY PASSES A MAXIMUM AND DECREASES TO BETWEEN 1% AND 5% OF THE VALUE AT THAT MAXIMUM, THEN
- 9 EVAPORATING POTASSIUM UNTIL A SUBSTANTIALLY MAXIMUM SENSITIVITY IS ATTAINED, THEN
- 10 CONTINUING THE EVAPORATION OF POTASSIUM UNTIL THE SENSITIVITY PASSES A MAXIMUM AND DECREASES TO BETWEEN 1% AND 5% OF THAT MAXIMUM, THEN
- 11 REPEATING, IN ORDER, THE ABOVE STEPS OF EVAPORATING SODIUM, SIMULTANEOUSLY EVAPORATING ANTIMONY AND ANTIMONY, EVAPORATING POTASSIUM, AND SIMULTANEOUSLY EVAPORATING POTASSIUM AND ANTIMONY UNTIL THE SENSITIVITY IS BETWEEN 5% AND 10% OF THE HIGHEST SENSITIVITY PREVIOUSLY REACHED IN ANY OF THESE STEPS, THEN
- 12-13 ACTIVATING THE PHOTOCATHODE BY EXPOSING IT TO INFRARED LIGHT, AND THEN ALTERNATELY EVAPORATING ANTIMONY AND POTASSIUM UNTIL THE SENSITIVITY IS BETWEEN 5% AND 10% OF THE HIGHEST SENSITIVITY PREVIOUSLY REACHED IN ANY OF THESE STEPS, THEN

A method for making a multialkali photocathode includes simultaneous evaporation of sodium and antimony alternate-

ly with simultaneous evaporation of potassium and antimony. The disclosure includes a photocathode made by the method described.

3,658,401 METHOD OF MANUFACTURE OF CATHODE RAY TUBES HAVING FRIT-SEALED ENVELOPE ASSEMBLIES

John Austin Files, Amboy, Ind., assignor to RCA Corporation

Filed Jan. 6, 1970, Ser. No. 959

Int. Cl. H01j 9/38, 17/26

U.S. Cl. 316—21

6 Claims

- A FRIT SEAL PANEL TO FUNNEL TO FORM ENVELOPE
- B IMMEDIATELY ADMIT NON-CONTAMINATING GAS TO FLUSH RESIDUAL ATMOSPHERE AND FILL ENVELOPE
- C MAINTAIN ENVELOPE FILLING DURING A HOLD PERIOD
- D INSERT AND MOUNT ELECTRON GUN AND GETTER
- E EXHAUST AND BAKE TO REMOVE GAS FILLING AND DE-GAS ELECTRODES
- F PERFORM CONVENTIONAL CATHODE ACTIVATION, TIP-OFF, GETTER FLASH, ETC.

A cathode ray tube envelope is flushed, soon after the faceplate panel is sealed to the funnel, with a non-contaminating gas, such as nitrogen or warm air, to remove any contaminating materials that may have been produced therein during the sealing operation, and a filling of the gas is maintained in the envelope until the latter is exhausted and sealed off, whereby the envelope can be held or stored for a relatively long period between the sealing and exhaust steps without appreciably reducing the life of the completed tube.

3,658,402 HOLOGRAM GRAPHIC DATA TABLET

Nobuo Nishida, and Mitsuhiro Sakaguchi, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

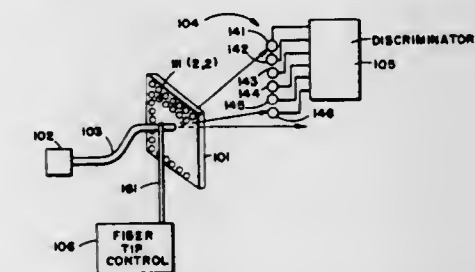
Filed June 30, 1970, Ser. No. 51,266

Claims priority, application Japan, July 4, 1969, 44/52497

Int. Cl. G02b 27/00

U.S. Cl. 350—3.5

18 Claims



A holographic tablet device comprises a recording plate on which an array of holograms is arranged. Each hologram has coded positional information therein corresponding to its location on the plate. The recording plate is illuminated with a collimated monochromatic or substantially monochromatic beam by an indicating device. Diffracted beams are thereby produced corresponding to which of the holograms have been illuminated. The diffracted beams are detected and corresponding binary signals are produced. Also disclosed is an arrangement for maintaining a desired constant angle between the illuminating device and the recording plate.

3,658,403

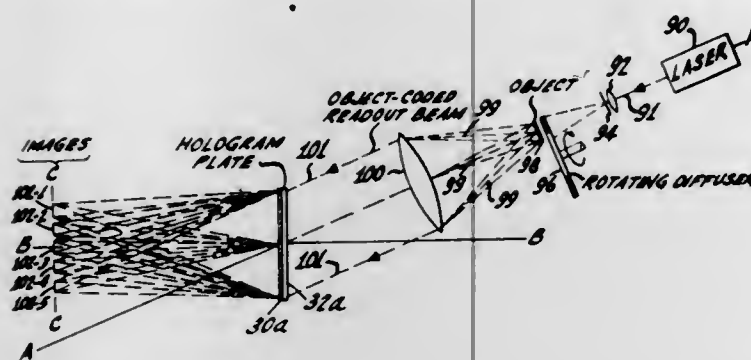
HIGH FIDELITY READOUT OF A HOLOGRAM PERFORMING THE FUNCTION OF A COMPLEX WAVE MODIFYING STRUCTURE

David L. Greenaway, Basserdorf, and John P. Russell, Thalwil, both of Switzerland, assignors to RCA Corporation
 Filed Mar. 27, 1969, Ser. No. 810,954
 Claims priority, application Great Britain, June 20, 1968, 29,580/68

Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

3 Claims



The method of reading out the type of hologram which results from the simultaneous recording on a recording medium surface of first and second components of coherent wave energy, wherein the first component consists of a beam traveling substantially in a given direction with respect to the surface and wherein the second component has been operated on by a particular complex wave modifying structure working on the principles of optics, such as an array of lenses lying in a plane parallel to the medium surface. Readout is accomplished with a readout beam of incident wave energy traveling substantially in the direction with respect to the medium surface which is opposite to the aforesaid given direction. Object information may be also recorded on the hologram by spatially modulating the first component with the object information, or object information may be obtained during readout by spatially modulating the readout beam with object information. In either case, high fidelity reconstruction is obtained, which depends both on the object information and the particular complex wave modifying structure utilized in making the hologram. In the case where the structure is a lens array, multi-imaging of the object information is obtained. Also, in the case where object information is obtained by spatially modulating a readout beam which has been diffused by a diffuser, speckle noise normally present in the reconstructed image may be eliminated by destroying the coherence of the wave energy for example by rotating the diffuser during readout.

3,658,404

COMPLEX WAVE MODIFYING STRUCTURE HOLOGRAPHIC SYSTEM

David L. Greenaway, Basserdorf, Switzerland, assignor to RCA Corporation
 Filed Mar. 27, 1969, Ser. No. 810,983
 Claims priority, application Great Britain, June 20, 1968, 29,579/68

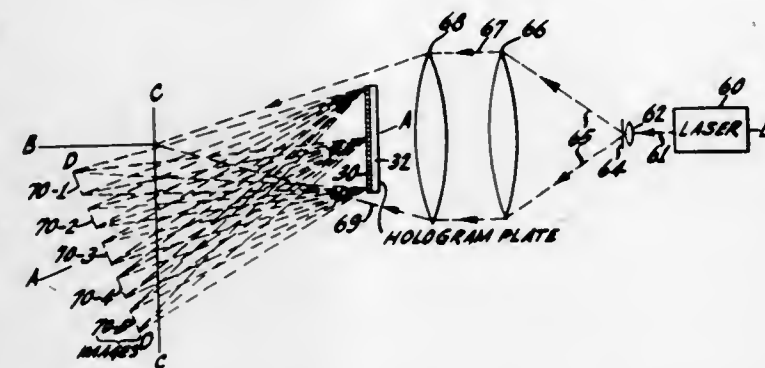
Int. Cl. G02b 27/22

U.S. Cl. 350—3.5

3 Claims

The use of a particular complex wave modifying structure for making a special type of hologram. This structure, which works on the principles of optics, in the preferred embodiments can be a pinhole plate or lens array which when illuminated by a first portion of coherent wave energy produces a plurality of similar but separate spaced divergent reference beams. The special type of hologram results from interference at the surface of or in a recording medium between an information beam obtained from an object illuminated by a first component of coherent wave energy with second com-

ponent consisting of each of the separate spaced reference beams. This special type of hologram, when read out by a



proper single readout beam of wave energy, produces a separate image of the object corresponding to each and every one of the spaced reference beams.

3,658,405

VARIABLE PHASE-CONTRAST AND INTERFERENCE MICROSCOPE

Maksymilian Pluta, Centralne Laboratorium Optyki, ul. Kamionkowska 18, Warszawa 4, Poland
 Filed May 22, 1970, Ser. No. 39,716
 Claims priority, application Poland, May 26, 1969, P-133821

Int. Cl. G02b 27/28

U.S. Cl. 350—12

11 Claims



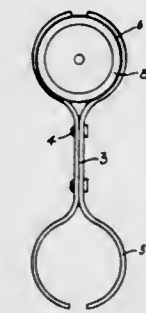
An interference system for qualitative and quantitative investigation of micro-objects in transmitted light by means of the variable phase-contrast and variable shear interference methods. The system is located between an microscope objective and eyepiece. It resembles the Michelson interferometer in which a standard light beam splitter is replaced by an interference polarizer (Banning type), giving two orthogonally polarized beams, and two quarter-wave plates inserted in the split beams, and a common linear polarizer placed in the recombined beams. The interferometer mirrors are located in the planes conjugated with an aperture diaphragm of a microscope condenser. For interference investigation a slit condenser diaphragm is used. The optical path difference between the object under investigation and the surrounding medium is measured by the Senarmont method. Image shear is varied by tilting one of the interferometer mirrors. For phase contrast observation a ring-shaped condenser aperture is used together with an annular opening located close to one interferometer mirror and annular opening located close to the other mirror. The annular stop absorbs the direct (undiffracted) light and the annular opening absorbs the diffracted light, thus the first said mirror reflects the diffracted light and the second mirror reflects the direct light. Both light beams are recombined by the inter-

3,658,408

SAFETY REFLECTOR DEVICE FOR VEHICLES
 George A. Santovi, 4043 West 83rd Street, Chicago, Ill.
 Filed May 7, 1969, Ser. No. 822,651
 Int. Cl. G02b 5/12

U.S. Cl. 350—97

7 Claims



3,658,406

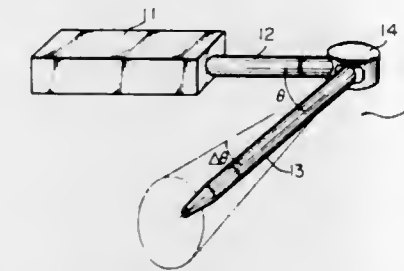
ARTICULATED LASER BEAM GUIDE TUBE

Norio Karube, and Yasuyuki Morita, both of Kadoma, Osaka, Japan, assignors to Matsushita Electric Industrial Company Limited, Kadoma, Osaka, Japan
 Filed Sept. 24, 1969, Ser. No. 860,647
 Claims priority, application Japan, July 28, 1969, 44/60679; Sept. 27, 1968, 43/70901

Int. Cl. G02b 23/08

U.S. Cl. 350—52

9 Claims



An articulated guide tube having a reflector mirror for guiding an input beam such as a laser beam freely in any desired direction without use of any space-taking, heavy-weight carrier. The mirror is rotated by a specially constructed gear mechanism by an angle equal to one-half of an angle by which the beam is to be oriented with respect to the direction of the input beam.

3,658,407

IMAGE TRANSMITTER FORMED OF A PLURALITY OF GRADED INDEX FIBERS IN BUNDLED CONFIGURATION

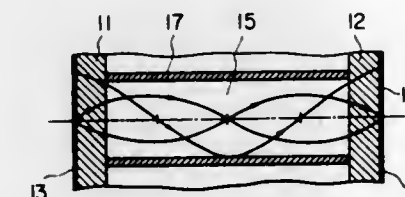
Ichiro Kitano; Ken Koizumi, both of Hyogo-ken; Hiroyoshi Matsumura, Osaka-shi; Koji Ikeda, Mie-ken, and Teiji Uchida, Tokyo-to, all of Japan, assignors to Nippon Selfoc Kabushiki Kaisha, Tokyo-to, Japan

Filed Aug. 21, 1969, Ser. No. 851,956

Claims priority, application Japan, Aug. 22, 1968, 43/60120
 Int. Cl. G02b 5/16

U.S. Cl. 350—96 B

4 Claims



Optical device for transmitting an image wherein a number of optical fibers are disposed in such a manner that they are arranged neatly in the same relative position among them, at least, both ends thereof, each of said fibers having such a refractive index distribution as to substantially satisfy the equation

$$n = N(1 - ar^2)$$

in a cross section thereof, where N is a refractive index at a center, n is a refractive index at a distance r from the center, and a is a positive constant, whereby light due to an object placed at one end of said fibers forms an image of the object at the other end thereof.

3,658,409

DIGITAL LIGHT DEFLECTOR

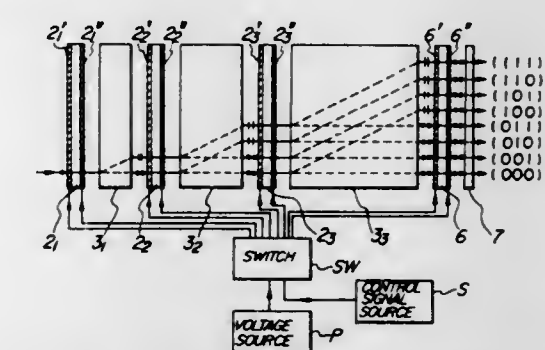
Chiaki Shimbo, Mitaka; Hiroomi Kojima, Hachioji; Michio Sekiya, Hachioji; Kiyoo Takeyasu, Hachioji, and Sadao Nomura, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 1, 1970, Ser. No. 51,417

Claims priority, application Japan, July 11, 1969, 44/54508
 Int. Cl. G02f 1/26

U.S. Cl. 350—150

1 Claim



Electro-optic crystal elements and uniaxial birefringent crystals are alternately aligned together and an additional electro-optic crystal element followed by a polarizing plate is further aligned with the last stage birefringent crystal. Each of the electro-optic crystal elements has opposite faces provided thereon with transparent electrodes to which a half-wavelength voltage is selectively applied whereby undesired light components are shut off by the polarizing plate to thereby improve S/N (signal to noise) ratio.

3,658,410

WIDE ANGLE ANAMORPHIC REFRACTIVE LENSES
 Ronald R. Willey, Indialantic, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed Feb. 8, 1971, Ser. No. 113,180

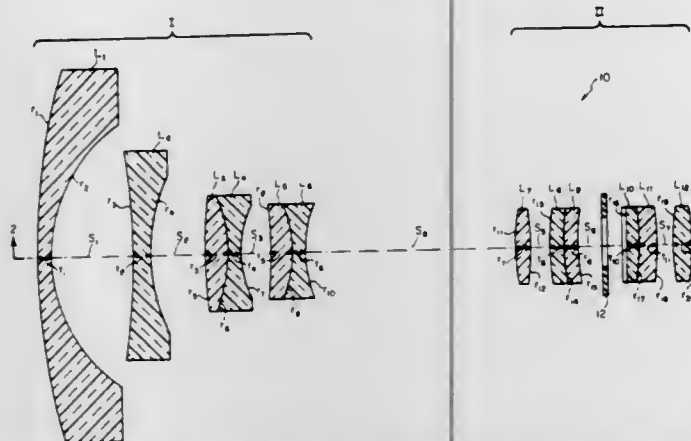
Int. Cl. G02b 13/08

U.S. Cl. 350—181

1 Claim

A wide angle anamorphic refractive lens system having an anamorphic field of view in excess of $160^\circ \times 60^\circ$ is disclosed which can be scaled for T.V. camera and Eidophor projec-

tion. The system is characterized by a large diameter negative group of lens elements in which all elements have spherical surfaces except one element which has cylindrical surfaces.



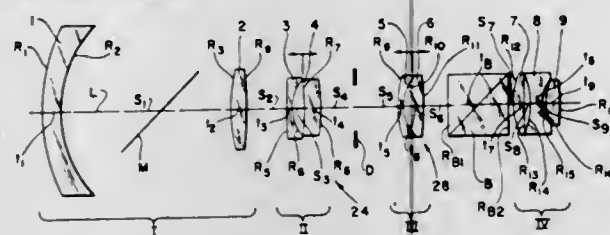
faces, and a positive group including an element having at least one cylindrical surface which brings an image, compressed in one direction by the cylindrical element of the first group, into sharp focus.

3,658,411 FOLDED PATH ZOOM LENS

William H. Price, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sept. 8, 1970, Ser. No. 70,169
Int. Cl. G02b 15/18

U.S. Cl. 350-184

1 Claim



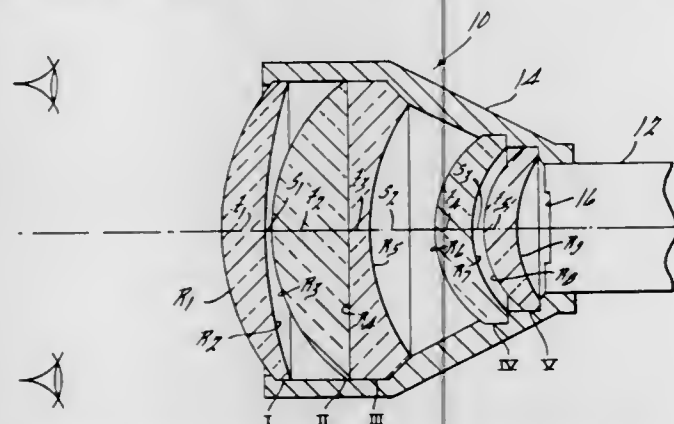
A foldable zoom lens system including a simple triplet fixed portion and a zoom portion that includes a reversed-telephoto front objective with a mirror between the negative and positive components of this objective; a movable zooming component; and a compensating component. Another mirror is located between the zoom portion and the fixed portion to provide a compact zoom system that is folded twice. The front objective includes a fixed first component and a second component which is movable for focusing the lens for various subject distances.

3,658,412 WIDE ANGLE BIOCLULAR EYEPIECE

William J. Seaman, Center Line, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Oct. 1, 1970, Ser. No. 77,223
Int. Cl. G02b 25/04

U.S. Cl. 350-220

6 Claims

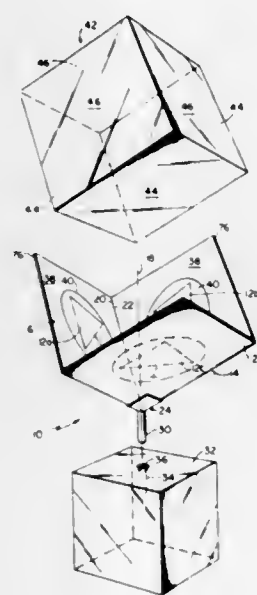


A wide angle biocular eyepiece comprising four or five spaced optical elements.

3,658,413
DISPLAY DEVICES
Robert G. Cornell, 111 Boardman Street, Norfolk, Mass.
Filed Apr. 8, 1970, Ser. No. 26,554
Int. Cl. G02b 27/02

U.S. Cl. 350-235

10 Claims



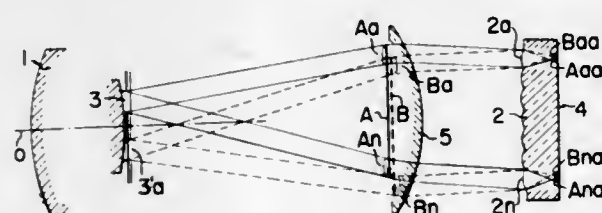
A display device for photographs and like objects has means for supporting at least three of the objects for viewing around an axis about which the device is turnable to bring each of the objects successively into a given viewing position. The means supports the objects generally facing the axis and at an incline outwardly from the axis from the base toward the top thereof and also provides a transparent viewing surface spaced opposite each of the objects successively when turned into the viewing position.

3,658,414 PROJECTOR FOR IMAGES FORMED BY COMPOUND PHOTOGRAPHY

Yoshio Fukushima, Tokyo, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan
Filed Dec. 2, 1969, Ser. No. 881,561
Claims priority, application Japan, Dec. 10, 1968, 43/90744
Int. Cl. G03b 21/26, 23/02

U.S. Cl. 353-30

3 Claims

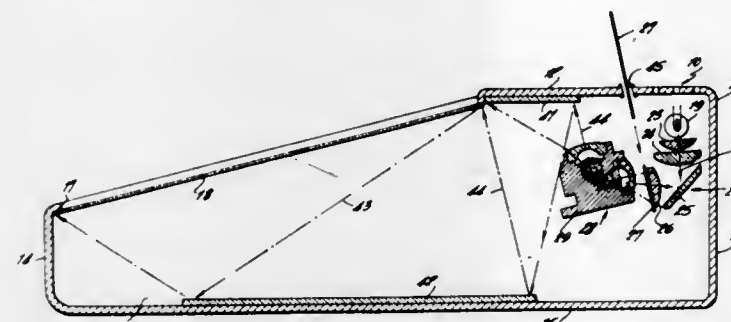


A device for projecting upon a screen the images formed and recorded by the compound photographic camera which comprises a first lens directed toward a subject, an aperture movable in a plane within said first lens or in the vicinity thereof and at a right angle relative to the optical axis thereof and a microlens group disposed behind a plane upon which an image in the air is formed through said first lens, whereby said image is further split into finely divided images and recorded upon a sensitized material disposed behind said microlens group and a plurality of images of other subjects are recorded upon said sensitized material in the same manner as described above.

3,658,415
OFF AXIS LOW VOLUME MICROFORM PROJECTOR
John R. Miles, Glenview, Ill., assignor to Microdisplay Systems, Inc., New York, N.Y.
Filed Sept. 14, 1970, Ser. No. 71,658
Int. Cl. G03b 21/22, 21/28

U.S. Cl. 353-78

4 Claims

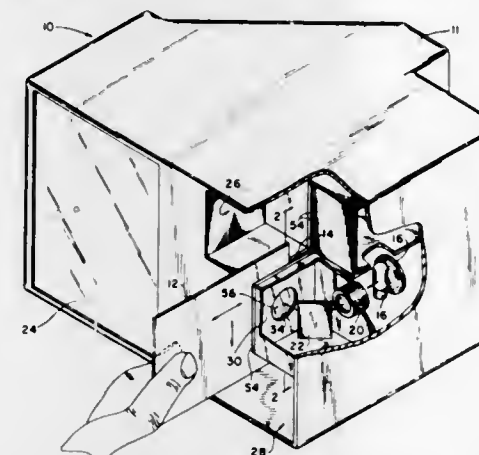


A compact film projector in which a wide angle lens is used for focusing the object on a screen, but considerably less than all of the available wide angle lens field is used. The cubic volume of the system is greatly reduced by discarding a portion of the field. A reflecting prism incorporated in the lens assembly and a reflecting mirror as a part of the condensing lens system make the projector even more compact.

3,658,416
MICROFICHE HOLDING DEVICE
Bruce E. Crayton, Hamlin, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Feb. 3, 1970, Ser. No. 8,193
Int. Cl. G03b 23/08, 1/48

U.S. Cl. 353-95

9 Claims



A resilient image-bearing medium holding device is disclosed for supporting a resilient image-bearing medium such as a microfiche or aperture card in a projection plane of a microfilm viewing apparatus or reader. The device includes a pair of opposed plates in a fixed relationship to each other and has opposed complementary curved surfaces that flex a resilient image-bearing medium inserted therebetween, thereby lightly holding the resilient image-bearing medium in the inserted position independent of gravitational forces while allowing for relatively easy movement thereof for scanning.

3,658,417
CONTACT PRINTING APPARATUS AND METHOD
Robert E. Lewis, Palo Alto, and Melvin D. Wright, San Jose, both of Calif., assignors to Teledyne, Inc., Hawthorne, Calif.

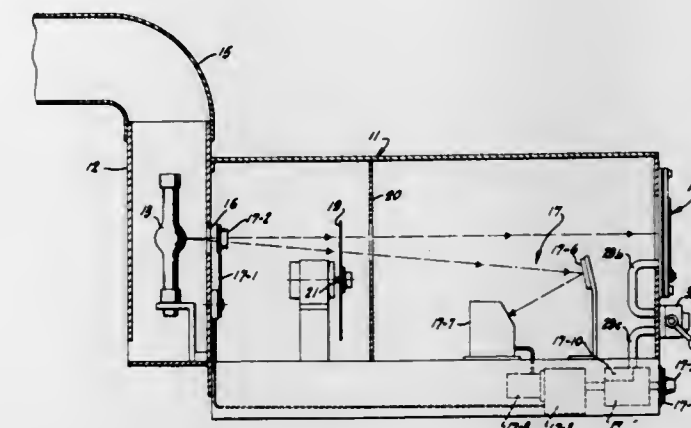
Filed June 11, 1970, Ser. No. 45,361
Int. Cl. G03b 27/20

U.S. Cl. 355-94

24 Claims

Contact printing apparatus and method for directing light through a master plate onto a photosensitive plate. The two

plates which may be of the same or different sizes, are placed into an exposure frame and a vacuum is applied to a

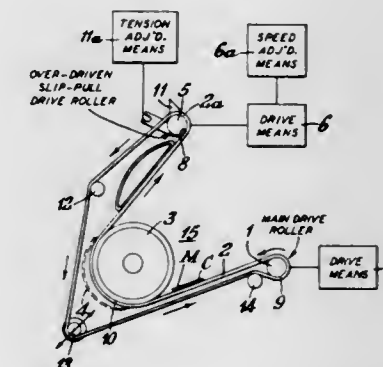


peripheral portion of the plates while atmospheric pressure is maintained on the outside surface of both plates to force the plates into intimate contact.

3,658,418
PRINTER MULTI-BELT TENSION CONTROL
Emilio G. Mastrolanni, Endicott, N.Y., and Robert C. Goodman, St. Croix, V.I., assignors to GAF Corporation, New York, N.Y.
Filed Dec. 31, 1969, Ser. No. 889,525
Int. Cl. G03b 27/10

U.S. Cl. 355-110

2 Claims



Master and copy materials are conveyed around the rotating glass cylinder of a printer in the exposure section of a whiteprint duplicating machine, by multiple belts which are driven by a main printer drive roller which advances the belts toward such glass cylinder, and an auxiliary booster drive roller which draws the belts from the cylinder by rotating at a speed slightly higher than that of the main drive roller. The outer surface of the auxiliary drive roller also has a coefficient of friction that is less than that of the main drive roller, so that the auxiliary drive roller continuously slips against the printer belt, but at the same time pulls and evens out the looped belts over the critical printing area of the cylinder.

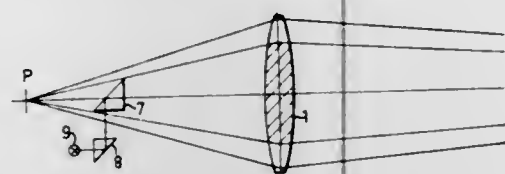
3,658,419
DEVICE TO FACILITATE THE FOCUSING OF A DISTANCE METER
Gunnar Carl Rune Simonsson, Farsta, Sweden, assignor to Jungner Instrument AB, Stockholm, Sweden
Filed June 8, 1970, Ser. No. 44,013
Claims priority, application Sweden, June 13, 1969, 8477/69
Int. Cl. G01c 3/02

U.S. Cl. 356-3

5 Claims

The present invention relates to a device for facilitating the focusing of a distance meter in which the object is accurately imaged by a lens, and the distance sought is determined by measuring the lens-to-image distance. A screen is used to

screen the central rays so that only the edge rays are used for imaging. In addition, a luminous mark is placed on the side of a beam and the image of said mark is refracted into the beam by a reflector and projected on the object by the lens. The



reflector is a prism which is located in the screened section of the beam, between the imaging lens and the image of the object. This arrangement is suitable for use when the object to be measured is located in a rock chamber, or the like, in which case it is essential that the object be illuminated.

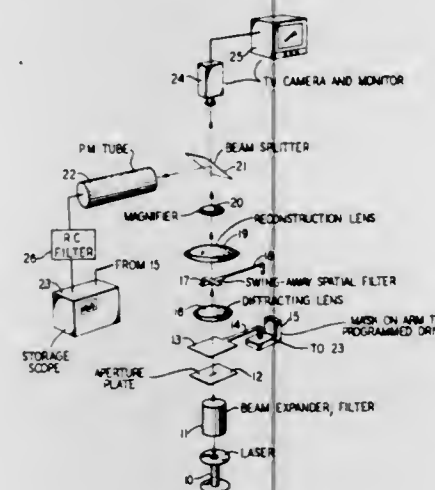
3,658,420

PHOTOMASK INSPECTION BY SPATIAL FILTERING
Norman N. Axelrod, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 10, 1969, Ser. No. 883,957
Int. Cl. G06k 9/08; G01n 21/16, 21/32

U.S. Cl. 356-71

3 Claims



This disclosure describes an optical spatial filtering technique for detecting hole-type defects and excess spot defects in photomasks used in making microcircuits. An approximate form factor intensity filter provides suppression of the regularly shaped mask features. For masks with features whose boundaries are along only the X-Y direction, this filter advantageously is a cross placed in the transform plane. With rectangular features suppressed, only nonrectangular defect data passes. Spots as small as 0.1 mil are detected and displayed on a TV monitor; or, using a photomultiplier tube, signals are stored on an oscilloscope or by a recorder for analysis, or counted with a pulse counter. Masks or circuits on opaque substrates are also inspected by this method.

3,658,421

ENGINE AIR FILTER REPLACEMENT AND SIZE INDICATOR

Clark R. Shelton, Sarasota, Fla., assignor to Filter Finder, Inc.

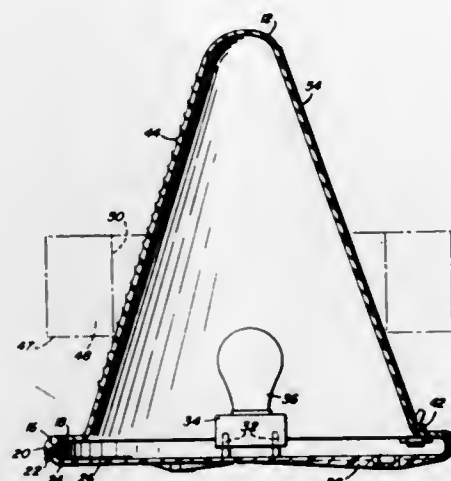
Filed Sept. 8, 1970, Ser. No. 70,059
Int. Cl. G01n 21/00, 21/16; G02b 27/32

U.S. Cl. 356-72

2 Claims

A translucent conical member passes light therethrough from a lamp positioned within the member. When an annular carburetor filter is positioned on the member, the light passes through the filter material and exposes the condition of the filter. A vertical recess is formed in the wall of the conical

member and a printed aluminum foil tape, received within the recess, has markings thereon for indicating the stock



number of a replacement filter. The different markings correspond to varying filter inner diameters.

3,658,422

DUAL RANGE DOUBLE BEAM NULL-TYPE SPECTROPHOTOMETER

Michael Burton Wilkinson, Cambridge, England, assignor to Pye Limited, Cambridge, England

Filed May 12, 1970, Ser. No. 36,547

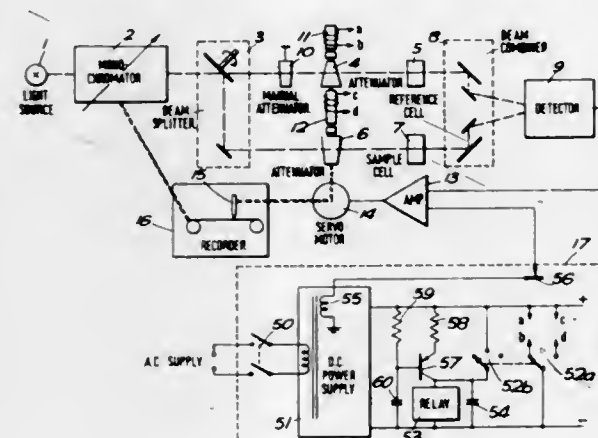
Claims priority, application Great Britain, July 18, 1969,

36,376/69

Int. Cl. G01J 3/42

U.S. Cl. 356-89

16 Claims



A spectrophotometer of the double-beam null type having a reference beam passing through a reference cell and a sample beam passing through a sample cell and means for adjusting the relative attenuation of the two beams which is operable over two ranges of measurement. Two attenuators are provided, one in each beam, the two attenuators giving different ranges of attenuation. The two attenuators can be operated together, one increasing attenuation as the other decreases it, so that a maximum range of relative attenuation is obtained or one attenuator is operated alone. The attenuators are mechanically movable attenuating elements which can be electrically locked together and control means are provided which automatically bring the two together and lock them when both are to be used or automatically move one to a datum position and locks it there when only the other is to be used.

3,658,423

ECHELLE SPECTROMETER

William G. Elliott, Lincoln, Mass., assignor to SpectraMetrics, Incorporated, Burlington, Mass.

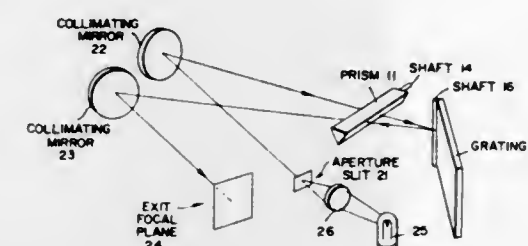
Continuation of application Ser. No. 710,881, Mar. 6, 1968, now abandoned. This application Jan. 14, 1971, Ser. No.

106,561

Int. Cl. G01J 3/02, 3/14, 3/18

U.S. Cl. 356-98

23 Claims



A spectrometer having an entrance aperture, at least one collimating mirror, a prism and an echelle grating which is so mounted to provide rotation in two directions thereby providing adjustment of the vertical and horizontal components of the dispersed energy in the exit focal plane.

3,658,424

METHOD OF FOCUSING THE HORIZONTAL AND VERTICAL COMPONENTS FROM AN ECHELLE GRATING

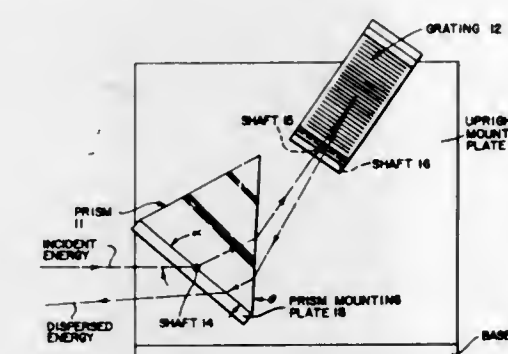
William G. Elliott, Lincoln, Mass., assignor to SpectraMetrics, Incorporated, Burlington, Mass.

Original application Mar. 6, 1968, Ser. No. 710,881, now abandoned, Continuation of application Ser. No. 106,561, Jan. 14, 1971. Divided and this application Jan. 14, 1971, Ser. No. 106,500

Int. Cl. G01J 3/14, 3/18, 3/02

U.S. Cl. 356-98

7 Claims



A method for focusing the horizontal and vertical components of energy reflected from an echelle grating which includes rotating the grating about a first axis substantially parallel to a prism face and rotating the grating about a second axis substantially normal to the first axis.

3,658,425

ELECTROMECHANICAL FEEDBACK DEVICE FOR FINE CONTROL OF A PLATFORM POSITION

Henry M. B. Bird, Vancouver, British Columbia; Geoffrey C. Dixon, and J. Warwick Knowles, both of Deep River, Ontario, all of Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Ontario, Canada

Filed Dec. 29, 1970, Ser. No. 102,359

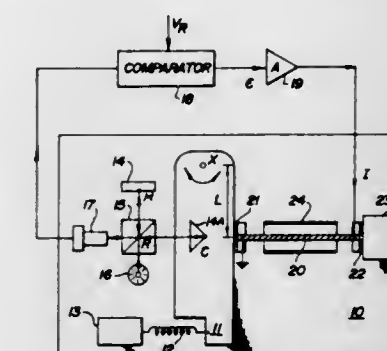
Int. Cl. G01b 9/02

U.S. Cl. 356-110

4 Claims

A feedback control system for controlling the position of a platform movably mounted on a datum base, comprising a wire of pre-set length attached to the platform and extending to and connected to a fixed position on said base, spring

means connected between said platform and a second fixed position on said base for extending the wire, electro-optical means for detecting changes in position of said platform relative to the base and providing an error signal related to such changes and current generating means for applying a current



3,658,426

ALIGNMENT TELESCOPE

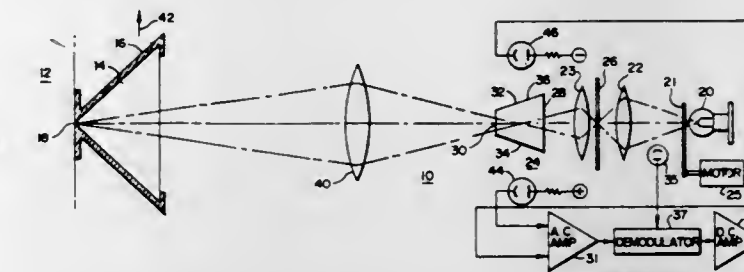
Joseph Richard Vyce, Lexington, Mass., assignor to Itek Corporation, Lexington, Mass.

Filed Sept. 11, 1968, Ser. No. 758,939

Int. Cl. G01b 11/26

U.S. Cl. 356-152

13 Claims



An electro-optical alignment telescope is disclosed which is adapted to detect lateral displacement of an object having a retroreflector mounted thereon by imaging an illuminated nose portion of a truncated prism on such reflector and imaging back the reflected light on the prism. Light reflected from the sides of the prism is detected and measured to provide information on the amount and direction of lateral displacement.

3,658,427

ATTITUDE SENSOR, AND SYSTEM FOR CONTROLLING ATTITUDE OF AN OBJECT

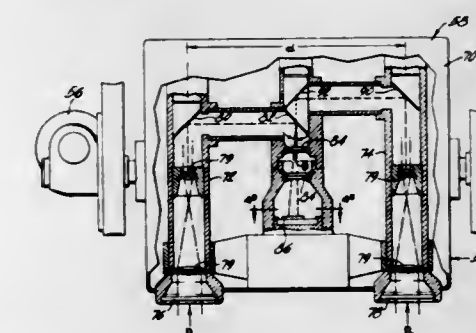
Anthony B. DeCou, Springdale Road, Cherry Hill, N.J.

Filed Nov. 28, 1969, Ser. No. 880,617

Int. Cl. G01b 11/26

U.S. Cl. 356-156

9 Claims



Apparatus for sensing attitude of an object with respect to the direction of incident coherent light, by sensing the rela-

tive phase of such light at two spaced-apart points which are located adjacent the object and which move with the object. The relative phase of the light is sensed by producing interference fringes with the light picked-up at the two spaced-apart points. The position of the fringes on a surface is an indication of the relative phase at the two spaced-apart points and thus of the attitude of the object. For automatic control, the motion of the fringes is automatically sensed by photoelectric means to produce an electrical signal for controlling the attitude of the object in a manner to oppose departures from the desired attitude.

3,658,428

METHOD AND APPARATUS FOR MEASURING A DIMENSION OF AN OBJECT

Gerhard Voigtlaender-Tetzner, Leverkusen-Schlebusch, Germany, assignor to Exatest Messtechnik GmbH, Leverkusen, Germany

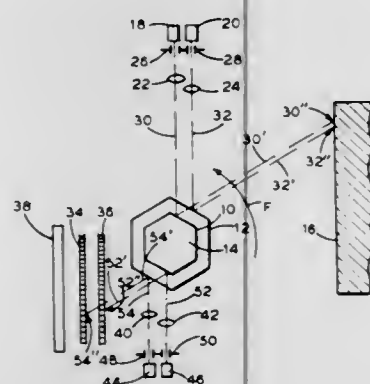
Filed Feb. 24, 1970, Ser. No. 13,411

Claims priority, application Germany, Feb. 25, 1969, P 19 09 294.5

Int. Cl. G01b 11/02

U.S. Cl. 356-167

10 Claims



A method of measuring a linear dimension of an object which includes generating a plurality of parallel, spaced-apart sight lines of the object dimension. The lines, in effect, rotate around different centers of rotation contained within a plane which extends substantially parallel to that portion of the object the dimension of which is under measurement. Plural object images defined by the rotating sight lines are converted into two electrical signals having durations corresponding to the angle circumscribed by the sight lines scanning the object dimension; the electrical signals being displaced in the time domain relative to one another by a time interval which is a function of the distance between said centers of rotation. A representative dimensional parameter for said object dimension is obtained by dividing said time interval and the time duration of one of the two electrical signals. One advantage of the disclosed method is that the accuracy of measurement is practically independent of the distance between the centers of sight line rotation and the object. Various embodiments of apparatus for performing the method are also described.

3,658,429

DISPLACEMENT MEASURING APPARATUS

Richard B. Ziplin, Dayton, Ohio, assignor to The Bendix Corporation

Filed May 11, 1970, Ser. No. 36,201

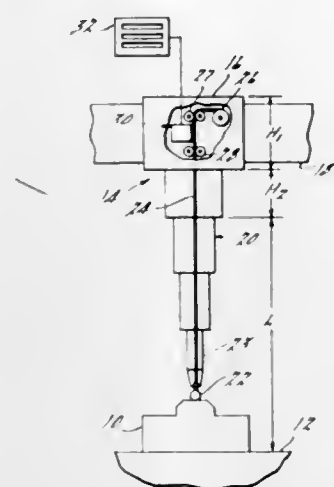
Int. Cl. G01b 11/04

U.S. Cl. 356-169

2 Claims

A displacement measuring device including a tape scribed or etched with a grating and arranged to be pulled out from a constant torque reel means by a telescoping measuring probe

past a reading head designed to produce output signals corresponding to the relative movement of the tape grating and



reading head to thereby yield output signals in response to the extension of the probe.

3,658,430

APPARATUS FOR DETECTING, QUANTIZING AND DISPLAYING THE POSITION OF REGISTRATION MARK ON A SHEET

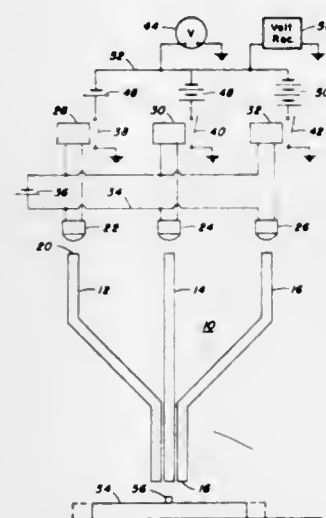
Allyn S. Rashkin, Ramsey, N.J., assignor to GAF Corporation, New York, N.Y.

Filed Nov. 27, 1970, Ser. No. 93,172

Int. Cl. G01b 11/26; G02b 5/14; H01h 47/24

U.S. Cl. 356-172

6 Claims



As the title sheet carrying an index registration stopping mark comes to rest, the surface of the sheet in the vicinity of the mark is viewed by a plurality of photocells, each through its individual fiber light guides having their objective ends located directly above the sheet. When the mark is viewed by one of the photocells, a corresponding relay is operated, applying a pre-selected voltage the value of which corresponds to the relative position of the mark, to a voltage recorder, which thus provides a history of the several positions of rest of successive sheets in tile cutting for detecting and correcting any indexing errors.

3,658,431

PHOTOMICROGRAPHIC EXPOSURE METER

James V. Richards, King of Prussia, Pa., assignor to American Optical Corporation, Southbridge, Mass.

Filed June 1, 1970, Ser. No. 42,003

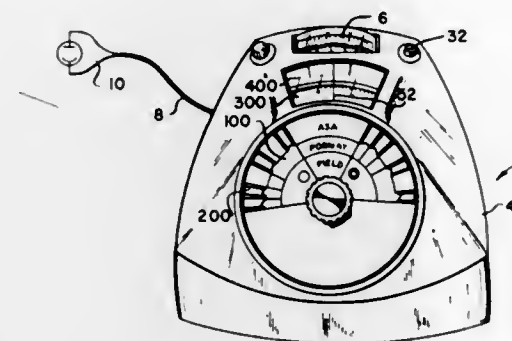
Int. Cl. G01j 1/42; G06c 3/00

U.S. Cl. 356-227

4 Claims

A photomicrographic exposure meter including a photocell to sense and register the light level of an in-focus specimen

image and transmit the same to a light-level meter. In a mechanized nomogram having four scales, the independent parameters of film ASA rating and picture format are selected. The ASA and picture format dials are then locked into position with each other A light-level scale, which is



locked to the ASA scale, is turned to a reading corresponding to that on the light-level meter. The exposure time is then read out of the instrument on the exposure time scale. The shutter on the photomicrographic camera is then set to correspond to the indicated exposure time.

3,658,432

DEVICE FOR RATIONALLY APPLYING VARIOUS FLUID PRODUCTS

Marie Marguerite Lanusse, 50 rue Pierre Charron, 75 Paris 8, France

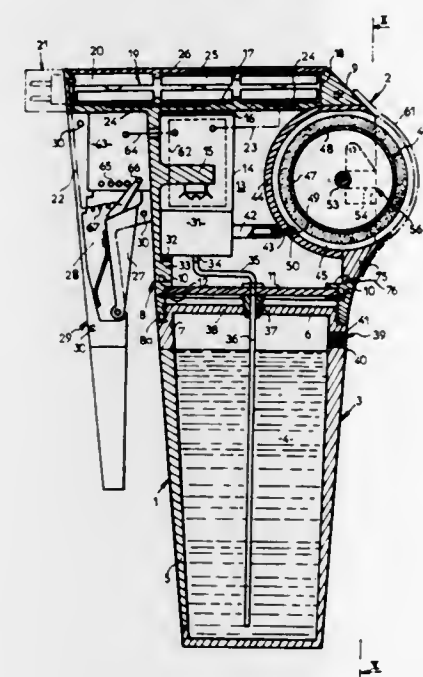
Filed Sept. 15, 1970, Ser. No. 72,481

Claims priority, application France, Jan. 23, 1970, 7002508

Int. Cl. B44d 3/28, 3/00

U.S. Cl. 401-219

8 Claims



A spreader for applying make-up, paint or like fluid product is comprised of a detachable container for said product secured to a body including a source of electrical energy for feeding an electrical motor driving a pump, a handle carrying a control means for said motor, and a working head enclosing partially a freely rotatable roller provided with an absorbent lining which receives said product from an internally disposed sprinkling ramp fed by said pump.

3,658,433

DRAWER WITH CARD RETAINING ROD

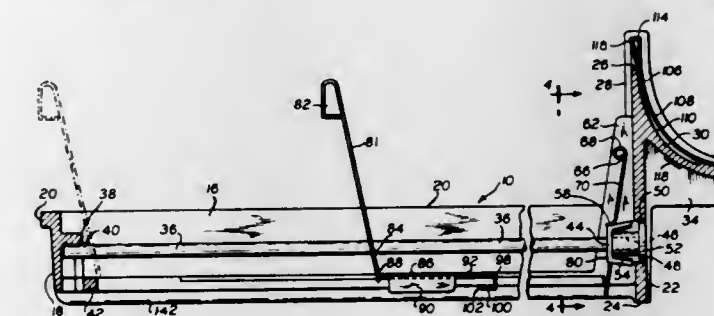
Charles M. Huck, New Brunswick, N.J., assignor to Estey Corporation, Red Bank, N.J.

Filed Sept. 25, 1968, Ser. No. 762,556

Int. Cl. B42f 13/14

U.S. Cl. 402-61

4 Claims



A drawer for filing cards which includes a retaining rod for holding file cards and a release knob which is normally recessed in the front panel of the drawer to block tampering. The rod and knob are normally held in position by a pair of metal wings secured to the rod which block withdrawal through a hole in the panel. A release plate can be pressed toward the panel to compress the wings and push the knob to a position where it may be grasped and withdrawn.

3,658,434

ANTI-CHATTER GUIDES FOR SPADE DRILL

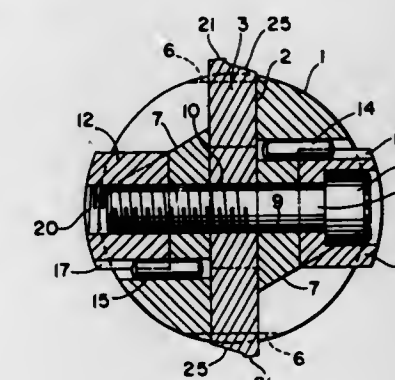
Milton L. Benjamin, and David D. Walker, both of Chagrin Falls, Ohio, assignors to Erickson Tool Company, Solon, Ohio

Filed Apr. 3, 1970, Ser. No. 25,382

Int. Cl. B23b 51/00

U.S. Cl. 408-200

6 Claims



Anti-chatter guides for a spade drill which are perpendicular to the side faces of the spade blade and which have an end to end dimension (diameter) wholly forwardly of the rear portion of the blade corresponding to the width of the blade so as to engage the wall of the hole drilled by the blade thus to prevent chatter of the spade drill during drilling and after the cutting edges break through the workpiece. In one form of the invention, the guides constitute a portion of the clamping means by which the spade blade is mounted in the slotted end of a holder, and in another form of the invention, the guides are on the blade itself forwardly of the holder.

3,658,435

COMPRESSION HOLDER

Louis A. Kubicek, Ypsilanti, Mich., assignor to Burr-Ban Tool Service Company, Detroit, Mich.

Filed Dec. 22, 1969, Ser. No. 887,059

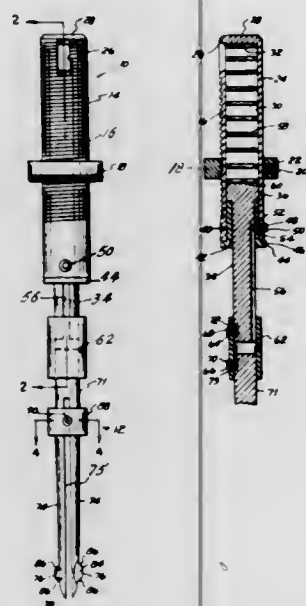
Int. Cl. B23b 51/16

U.S. Cl. 408-239

6 Claims

A tool holder having a cylindrical outer housing adapted to be inserted into a chuck of a rotary drive mechanism. A tool

supporting rod is axially slidably mounted in a bore formed in the housing for rotation about its axis of elongation. A coil spring disposed within the bore between the inner end of the tool supporting rod and the closed end of the bore biases the rod toward an extended position. During the feed-in of the



machine chuck in the deburring of holes, the coil spring can be compressed to permit the tool to be retracted when the deburring tool engages an unfinished hole resulting from drill breakage to thereby prevent the deburring tool from being forced into the unfinished hole and thereby broken.

3,658,436

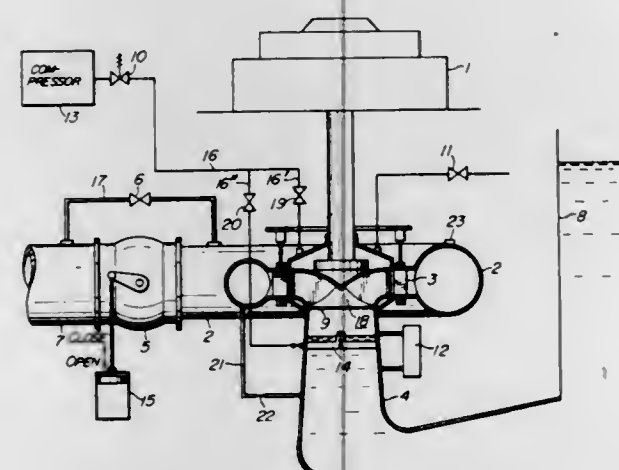
WATER TURBINE OPERATION METHOD AND SYSTEM
Asao Oishi; Takao Doi, and Yoshimasa Ueno, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 6, 1970, Ser. No. 17,206

Claims priority, application Japan, Mar. 10, 1969, 44/18455
Int. Cl. F01d 17/00

U.S. Cl. 415-1

2 Claims



When a water turbine is shifted from phase modifier operation to electric power generator operation, a guide vane is opened to a predetermined limited extent after a by-pass valve is wide opened and thereafter a main valve is opened while the guide vane is opened following the opening of the main valve by detecting the hydraulic pressure within a casing.

3,658,437 DIFFUSER INCLUDING VANELESS AND VANED SECTIONS

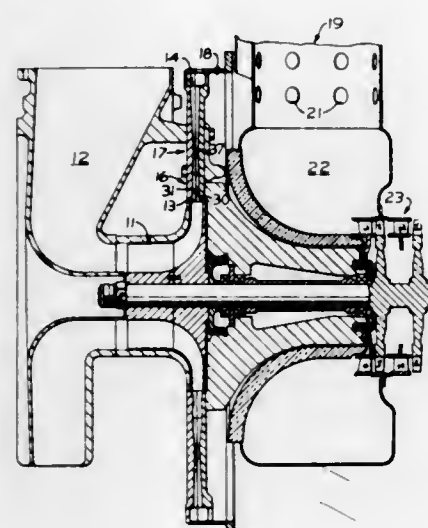
Shao L. Soo, Urbana, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Mar. 27, 1970, Ser. No. 23,321

Int. Cl. F04d 29/40, 17/08

U.S. Cl. 415-181

2 Claims



A diffuser for use in turbomachinery to improve overall efficiency, the diffuser including a vaneless diffuser section for reducing supersonic fluid flow to subsonic speed and a multi-channel diffuser section for achieving maximum pressure recovery and delivering the fluid to a suitable collector, one of the diffuser sections providing a flow path of decreasing and then increasing cross section configured to minimize boundary layer losses.

3,658,438

SEGMENTED SEATING PLATES AND ANCHORING MEANS FOR A TURBINE POWER PLANT

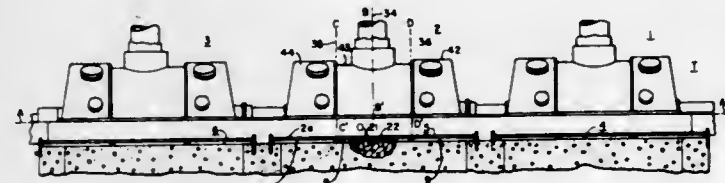
William H. Coleman, Broomall; Robert C. Quinn, Glen Mills; Howard L. Novak, Broomall; Jack J. Kalbach, West Chester, all of Pa., and Seward L. Jones, Claymont, Del., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 3, 1970, Ser. No. 94,847

Int. Cl. F04d 29/00; F16f 15/00; F01d 25/24

U.S. Cl. 415-219

15 Claims



The invention relates to a segmented seating plate construction for providing a positive anchor for tandem-connected low pressure turbines of a turbine-generator power plant. Rectangularly arranged seating plate segments, which are not interconnected, are provided for each low pressure turbine.

In both of the opposite central seating plate segments for the central low pressure turbine, located in a tandem arrangement between two other low pressure turbines having segmented seating plates, there is provided a keyway for restraining axial movements, such as those due to thermal expansion of the turbines. Each of the central seating plate segments is securely held in position by a vertically extending anchor embedded in the concrete foundation and connected to such segment by an eccentric bushing structure.

3,658,439 METERING OF LIQUID COOLANT IN OPEN-CIRCUIT LIQUID-COOLED GAS TURBINES

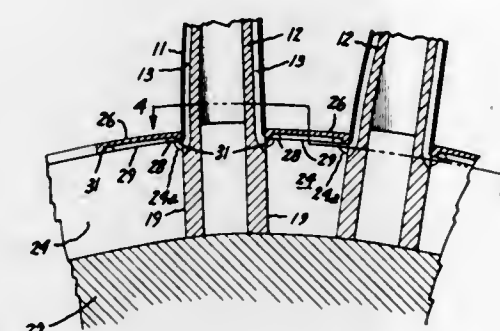
Paul H. Kydd, Scotia, N.Y., assignor to General Electric Company

Filed Nov. 27, 1970, Ser. No. 93,056

Int. Cl. F01d 5/18

U.S. Cl. 416-97

4 Claims



Weir construction precisely located relative to the shaft axis of a liquid-cooled gas turbine is employed to meter coolant flow to the cooling channels in turbine buckets.

3,658,440

DUAL-ELEMENT CENTRIFUGAL PUMP PRESSURE RESPONSIVE FLOW REGULATOR MEANS

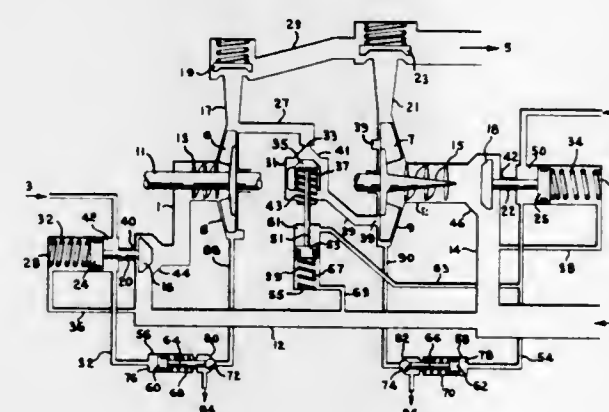
Clive G. B. Jackson, Clayville, N.Y., assignor to The Bendix Corporation

Filed Jan. 28, 1970, Ser. No. 6,626

Int. Cl. F04b 23/04

U.S. Cl. 417-62

9 Claims



A pumping system utilizing at least one high flow capacity impeller and one low flow capacity impeller to meet the flow delivery requirements of a widely variable flow range. A control means for selecting only the low flow capacity impeller for low flow requirements and, at greater flow demands, operate to concurrently activate the high flow capacity impeller and divert the flow of the low flow impeller through the high flow impeller in a series relationship.

3,658,441

FLUID LINE RELEASER AND WASHER

Lloyd F. Bender, Route 5, Hayward, Wis.

Filed Dec. 30, 1970, Ser. No. 102,781

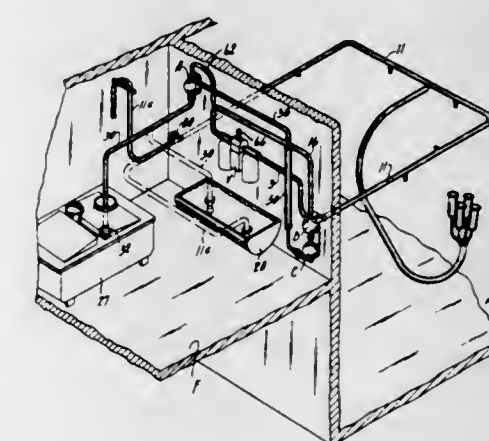
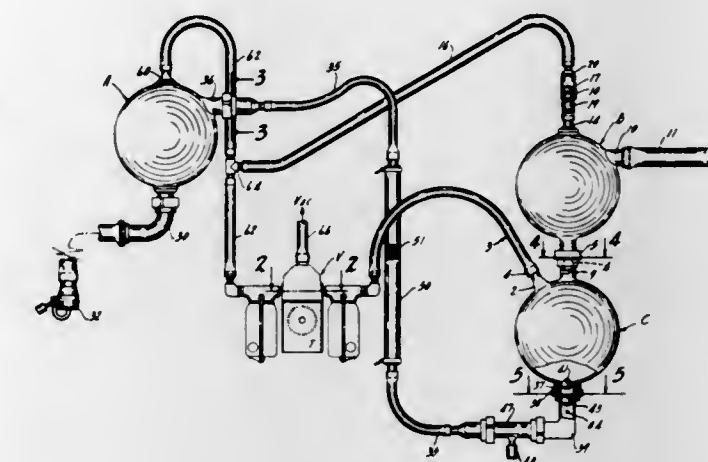
Int. Cl. A01j 3/00, 5/10; F04f 1/06

U.S. Cl. 417-121

4 Claims

Fluid line releaser and washing apparatus for milk lines or the like and by means of which the system pumps milk from the milking area into a storage tank and furthermore the system may be cleaned in place without disassembling any of the parts. The system includes three separate vessels inter-

connected together and finds particular use when connected to a milk line and providing continuous vacuum thereto, the



milk line being located at a relatively low elevation as compared to the milk storage tank or the like.

3,658,442

COMPRESSOR

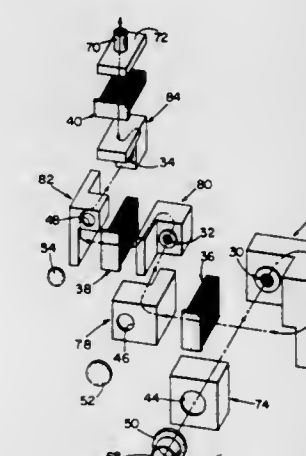
Arnold M. Helmann, Swampscott, and Robert O. Chambers, Medford, both of Mass., assignors to Northern Research and Engineering Corporation, Cambridge, Mass.

Filed June 8, 1970, Ser. No. 44,131

Int. Cl. F04b 23/00

U.S. Cl. 417-243

16 Claims



A centrifugal compressor system has a compressor housing partitioned into a plurality of chambers and a gear chamber that has a common wall with the compressor housing. A compressor module support structure is mounted in each chamber on the common wall and receives a compressor module that has a pinion gear that extends past the common wall for engagement with a bull gear mounted for rotation in the gear chamber. Each compressor module has an inlet

shroud that is supported on an intermediate partition of the compressor housing and a large plenum chamber is defined in front of each compressor module in part by that intermediate partition.

3,658,443

PRESSURE ALTERNATING DEVICE FOR AUTOMATIC LUNGS VENTILATOR ACTUATION

Giovanni Fumagalli, 11, Via delle Primule, 20146 Milan, Italy

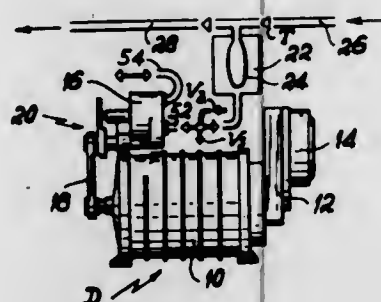
Filed Nov. 20, 1970, Ser. No. 91,250

Claims priority, application Italy, Nov. 21, 1969, 880025

Int. Cl. F04b 9/12, 35/02, 43/10, 45/00

U.S. Cl. 417-384

11 Claims



The device is designed for alternately supplying air at superatmospheric and respectively at subatmospheric pressure into a variable pressure chamber of a lungs ventilator for pulsingly and meteredly supplying fresh gas into a patient's lungs. The device comprises a pump having a rotary piston adapted to unidirectionally and pulsingly feeding air at a rate whose variation in each pulse is substantially defined by the function of "sin² alpha" ("alpha" being the amplitude of the rotational motion), and a negative pressure limiting valve including a valve member electromagnetically biased by a biasing force which decreases with the second power of the displacement of said member, to provide a venting passage the cross-sectional area of which varies concurrently with the speed of air through said passage for levelling the variable resistance encountered by said air traversing said passage at different speeds.

3,658,444

HOLLEY FUEL PUMP

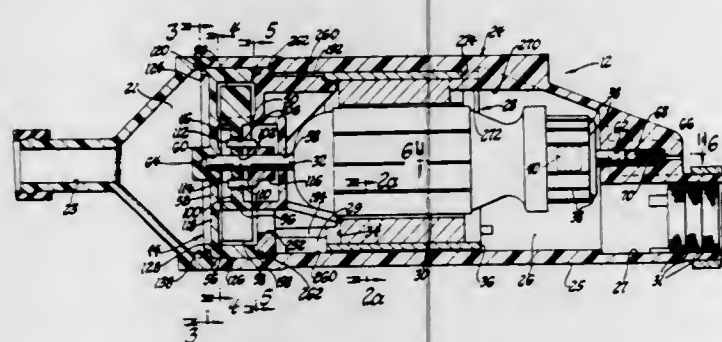
Gerald P. Rhodes, Berkley; Jerome J. Frankowski, Warren, and Kenneth C. Bier, Bloomfield Hills, all of Mich., assignors to Holley Carburetor Company, Warren, Mich.

Filed May 20, 1970, Ser. No. 39,112

Int. Cl. F04b 17/00, 35/04; F04d 5/00

U.S. Cl. 417-423

9 Claims



A vehicular fuel supply system includes a fuel tank within which is situated a fuel pump and electric motor assembly. The fuel pump assembly has an impeller driven by a permanent magnet type of motor provided with a drum type commutator. The entire fuel pump and motor assembly is contained within a housing which provides inlet and outlet passage means disposed on opposite sides of the pump and

motor as well as fluid passage means about the motor assembly for permitting the fuel to flow from the housing inlet to the housing outlet.

3,658,445

PUMPS

Prockter T. Pulman, and Geoffrey D. S. Horsfall, both of Rainbow Valve Company Limited, Upthorpe Road, Staton, Bury St. Edmunds, Suffolk, England

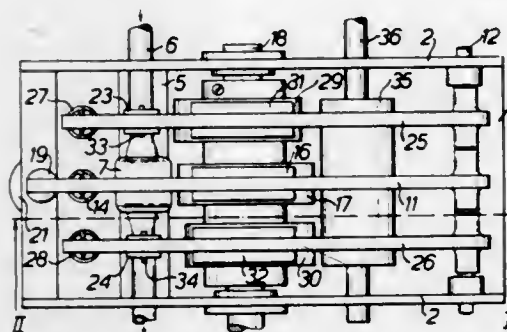
Filed June 11, 1970, Ser. No. 45,488

Claims priority, application Great Britain, June 12, 1969, 29,714/69

Int. Cl. F04b 43/08, 43/12, 45/06

U.S. Cl. 417-474

13 Claims



A peristaltic type pump comprises a reciprocating pumping element which alternately pinches and releases a flexible-walled tube, and, on either side of the pumping element, reciprocating inlet and outlet closure elements respectively. When the pumping element pinches the tube during a pumping stroke the inlet closure element pinches the tube to close it while the outlet closure member releases the tube, and during induction strokes, as the pumping element releases the tube, the inlet closure element is open, while the outlet element is closed. Synchronised operation of the elements is conveniently effected by respective cams.

3,658,446

FORCE COMPENSATING MEANS FOR FLUID TRANSLATING DEVICE

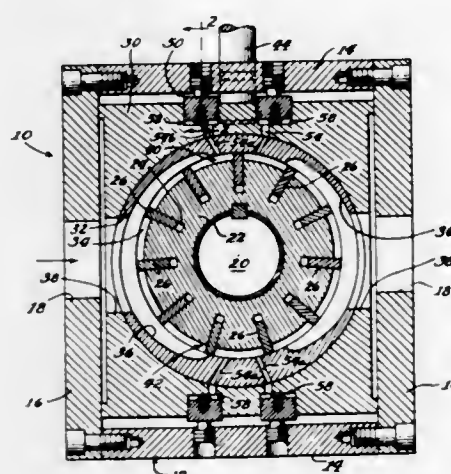
Birger Fredrik Jansson, Racine, Wis., assignor to J. I. Case Company

Filed Apr. 13, 1970, Ser. No. 27,866

Int. Cl. F01c 2/116; F03c 3/00; F04c 15/04

U.S. Cl. 418-31

2 Claims



A fluid translating device including a housing adjustably supporting a camblock which has a bore communicating with inlet and outlet ports formed in the housing. The bore has a rotor rotatably supported therein with the rotor having the vanes slidably supported in slots, the free ends of which engage the surface of the bore. The bore and rotor cooperate to

define a sealing zone between the ports in a manner that the pressure of fluid is increased as it is transmitted between the ports.

The fluid translating device incorporates force compensating means which counteract the forces developed by the pressured fluid on the camblock. The force compensating means includes plungers slidably supported in counterbores formed in the camblock and cooperating to define pressure cavities that are in communication with the sealing zone. Thus, pressured fluid is received from the sealing zone into the cavities and produces a counterbalancing force. Adjustable abutments extend from the housing and engage the free end of the plungers while the plunger is maintained in engagement with the abutments through springs located within the cavity.

3,658,447

PRESSURE SEALING ASSEMBLIES FOR ROTARY VANE PISTON DEVICES

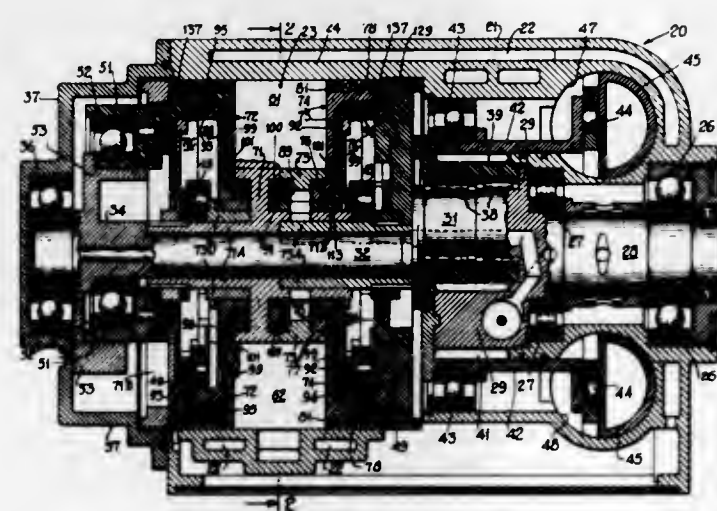
Charles Bancroft, 178 Ferris Hill Road, New Canaan, Conn.

Filed Apr. 9, 1970, Ser. No. 26,827

Int. Cl. F01c 1/00; F03c 3/00; F04c 27/00

U.S. Cl. 418-33

15 Claims



Pressure sealing assemblies for the annular chambers of rotary vane piston motors, pumps or gas generators employing rotating sets of vane pistons moving in an annular chamber and alternately accelerating and decelerating while moving around the annular chamber. Dual sidewall units formed of interfitting sidewall assemblies relatively movable over short axial distances are employed to provide self-balancing pressure-sealing sliding contact with central, hub-type piston support members. Pressurized gas escaping radially inward from the annular chamber is conducted into flat, annular disk-shaped spaces between the dual sidewalls at each end of the piston chamber, urging the innermost sidewall of each sidewall unit into sliding, pressure-sealing engagement with the central, hub-type piston support members. Interfitting, spoked, stepped-bridged hub-type assemblies are employed to anchor together as integral sub-assemblies the outer chamber sidewall at each end of the annular piston chamber with the inner chamber sidewall at the opposite end of the piston chamber. The radically outermost peripheral portions of each of these sidewall units flanking the piston chamber along its outer annular periphery are provided with conventional sealing rings and with a single toothed annular sealing ring mounted in a ring groove behind toothed flanges, next to the annular chamber, isolating the sector spaces between each vane piston and the next adjacent vane piston, and providing a highly effective pressure-sealing assembly for such rotary piston devices.

3,658,448

ROTARY AND AXIALLY COMPRESSIBLE VALVE SYSTEM MEANS

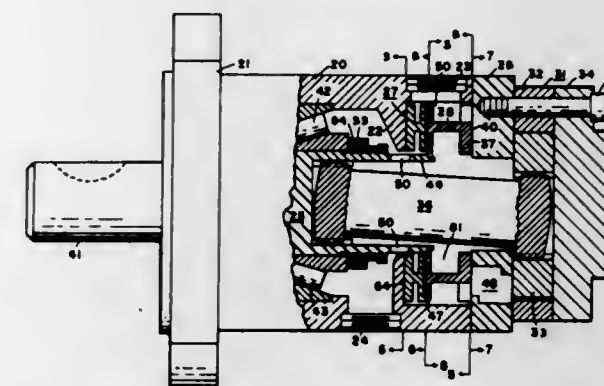
George V. Woodling, 22077 West Lake Road, Rocky River, Ohio

Filed Nov. 27, 1970, Ser. No. 93,227

Int. Cl. F01c 1/02; F03c 3/00; F16k 25/00

U.S. Cl. 418-61

10 Claims



Rotary and axially compressible valve system means comprising rotary valve means and compression means is operatively mounted between stationary valve means and reaction wall means, wherein said rotary valve means has a rotary valve face constrained against said stationary valve means by said compression means for providing minimum valve leakage therebetween. Said rotary valve means has engageable face wall means and said compression means has annular face wall means. The engageable face wall means and the annular face wall means confrontingly engage each other. One of said face wall means has an annular portion axially spaced from the other and is resiliently flexible relative thereto in an axial direction for constraining the rotary valve face against the stationary valve means.

3,658,449

ORBITAL FLUID PRESSURE DEVICE FOR EXERTING A FORCE

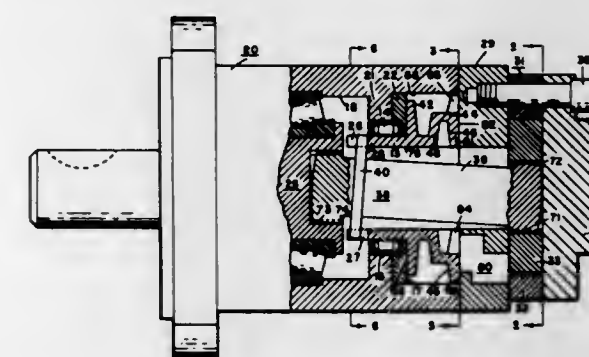
George V. Woodling, 22077 West Lake Road, Rocky River, Ohio

Continuation of application Ser. No. 797,223, Feb. 6, 1969, now Patent No. 3,552,892. This application Oct. 16, 1970, Ser. No. 81,433

Int. Cl. F01c 1/02; F03c 3/00; F16d 3/18

U.S. Cl. 418-61

2 Claims



Force is exerted between internal and external wall means. The external wall means is actuated by fluid pressure operating means and is disposed for orbital movement in said internal wall means. The device has first and second fluid port means to which and from which fluid flows for actuating the fluid pressure operating means. The internal wall means has a plurality of internal engagement exerting wall means disposed at circumferentially spaced regional locations therearound with substantially equal intervals therebetween.

The external wall means has a plurality of circumferentially disposed external engagement exerting wall means with substantially equal intervals therebetween. The internal and external engagement exerting wall means have a relative orbital movement therebetween defining a clearance circle. The internal and external engagement exerting wall means respectively engage and clear each other in successive order at the regional locations in response to said relative orbital movement. One of said engagement exerting wall means comprises a female wall. Said female wall includes at least a portion of a true female circle and said male wall includes at least a portion of a true male circle. The female circle has a diameter equal to that of said male circle plus the diameter of said clearance circle.

3,658,450

BALANCED FLUID PRESSURE VALVE MEANS

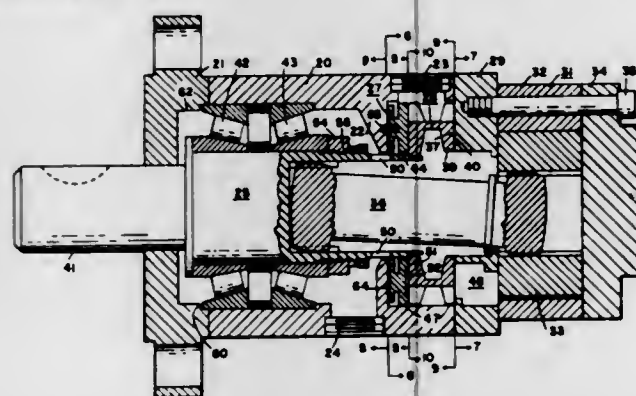
George V. Woodling, 22077 West Lake Road, Rocky River, Ohio

Filed Feb. 16, 1970, Ser. No. 11,488

Int. Cl. F01c 1/02; F03c 3/00; F16k 25/00

U.S. Cl. 418-61

33 Claims



Stationary valve means and rotary body means are provided with bushing means including pressure balancing pattern means. The rotary body means has first and second opposed body sides. The first opposed body side constitutes rotary valve means confrontingly engaging the stationary valve means. The second opposed body side constitutes rotary pattern means having a rotary pattern face axially spaced from and facing a stationary reaction wall. The bushing means is non-rotatively mounted between the stationary reaction wall and the rotary pattern face and has first and second end portions. Said first end portion includes a self-prevailing resilient flange confrontingly engaging the stationary reaction wall. The second end portion constitutes non-rotative pattern wall means having a non-rotative pattern face confrontingly engaging said rotary pattern face of said rotary body means. The resilient flange is under axial restraint and transmits an axial thrust to constrain said rotary valve face against said stationary valve face. The bushing means also has pressure responsive means for transmitting an axial fluid force to the rotary body means. Said non-rotative pattern wall means and said rotary pattern means constitute said pressure balancing pattern means to substantially balance said rotary body means between said stationary valve face and said non-rotative pattern face.

3,658,451

APEX SEAL FOR ROTARY PISTON ENGINE

Nobuyasu Gomada, Hiroshima, Japan, assignor to Toyo Kogyo Company Limited, Aki-gun, Hiroshima-ken, Japan and Yoshiwa Kogyo Kabushiki Kaisha, Aki-gun, Hiroshima-ken, Japan

Filed Sept. 14, 1970, Ser. No. 71,752

Claims priority, application Japan, Sept. 13, 1969, 44/72912; 44/72913

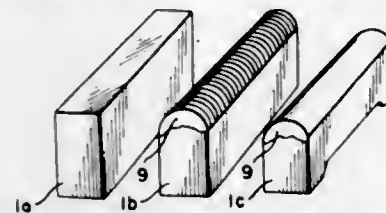
Int. Cl. F04c 1/500

U.S. Cl. 418-178

2 Claims

An apex seal for a rotary piston engine, the apex seal being made of cast iron and having an elongated shape, a roundish

sliding surface, the upper portion (including the sliding surface) with a chilled structure containing a large proportion of



cementite and the lower portion with at least one-third of the height of the seal and with no chilled structure; and a method of producing the same.

3,658,452

GEAR PUMP OR MOTOR

Yasuo Kita, Kyoto, Japan, assignor to Shimadzu Seisakusho, Ltd., Kyoto, Japan

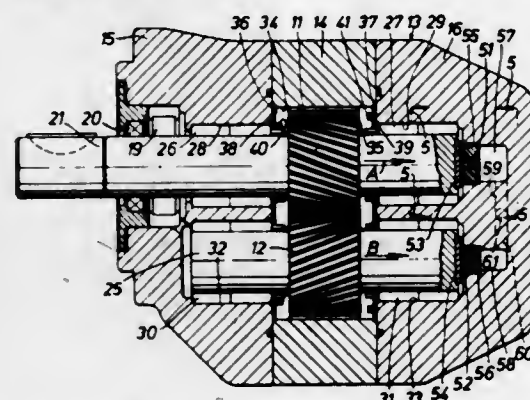
Filed Mar. 31, 1970, Ser. No. 24,215

Claims priority, application Japan, Nov. 18, 1969, 44/92382

Int. Cl. F01c 1/16; F03c 3/00; F04c 1/10

U.S. Cl. 418-203

5 Claims



In the gear pump or motor including a pair of intermeshing single-helical pump gears, the thrust acting on the intermeshing gears is balanced with liquid pressure from the higher pressure side of the pump or motor which is applied to one end of the respective gear shafts.

3,658,453

METHOD AND APPARATUS FOR FLAME WORKING MINERAL BODIES

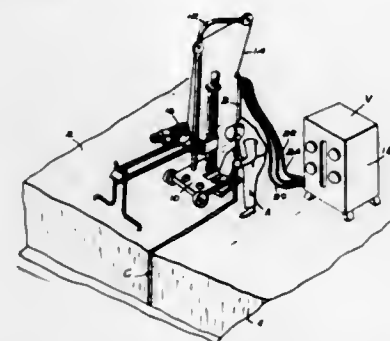
John F. Vassel, deceased, late of Nabnasset, Mass. (by Herbert F. Vessel, administrator, Westford, Mass., assignor to H. E. Fletcher Co.

Original application Apr. 21, 1969, Ser. No. 818,203, now Patent No. 3,608,967. Divided and this application Apr. 24, 1970, Ser. No. 31,806

Int. Cl. F23r 1/02

U.S. Cl. 431-158

2 Claims



Flame cutting mineral bodies with an improved form of flame jet to produce spalling is employed to carry out a channelling operation wherein a vertical channel is cut in an exposed vertical face of granite in a quarry. Emission of a stream of products of combustion from a burner at superatmospheric pressure is controlled by means of a specially formed exit orifice in a flame jet nozzle to provide a jet flame which is distorted out of the normally conical shaped configuration so as to provide a fan shaped flame operative over a relatively extended area of impingement on a vertical face of stone with more efficient utilization of flame energy being realized in spalling.

CHEMICAL

3,658,454

DYEING KERATINOUS MATERIAL WITH N-CARBAMOYLETHYL AMINES

Albert Peter Paul, Teaneck, N.J., assignor to American Cyanamid Company, Stamford, Conn.

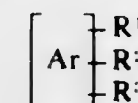
Filed May 16, 1969, Ser. No. 825,428

Int. Cl. D06p 3/04, 3/08

U.S. Cl. 8-10

7 Claims

Method of dyeing keratinaceous material such as hair or fur by contacting same with an N-carbamoyl ethyl aromatic amine of the formula



where Ar is benzene, biphenyl or naphthalene; R¹ is 2-carbamoyl ethylamino or bis(2-carbamoyl ethyl)amino; R² is amino, nitro, hydroxy or R¹; and R³ is amino, nitro, hydrogen, halo, lower alkyl, lower alkoxy or R¹; or acid addition salts thereof. The invention also includes compositions containing the N-carbamoyl ethyl aromatic amines.

3,658,455

DYEING HAIR WITH AQUEOUS SOLUTION OF PHENYL-TOLUYL-OR PYRIDYL AMINO BASE COMPOUND AND BENZIMIDAZOLE COUPLER

Gregoire Kalopissis, Paris, and Andree Bugaut, Boulogne sur Seine, both of France, assignors to Societe Anonyme dite: L'Oreal, Paris, France

Filed June 12, 1969, Ser. No. 832,867

Claims priority, application Luxembourg, June 14, 1968, 56271

Int. Cl. D06p 1/32

U.S. Cl. 8-11

6 Claims

A composition for dyeing keratinic fibers comprises a mixture of a base compound having an aromatic nucleus substituted by (1) either two amino groups or (2) by an amino group and a hydroxyl group, the substituents being in the ortho or para position relative to each other, and, as a coupler, a benzimidazole derivative. The weight ratio of the base to the coupler in the composition generally ranges between 1:1 to 1:30. The composition is applied to the hair, preferably at a pH of 8-10 in amounts sufficient to dye the hair and in the presence of an oxidizing agent such as hydrogen peroxide.

3,658,456

SCARCELY DUSTING COMPOSITION CONSISTING OF ICE-COLOR COUPLING COMPONENT AND AN ETHYLENE OXIDE ADDITION PRODUCT

Hasso Hertel, Muhlheim, Main, Germany, assignor to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt/Main, Germany

Filed Dec. 9, 1969, Ser. No. 883,604

Claims priority, application Germany, Dec. 24, 1968, P 18 16 984.1

Int. Cl. C09b 27/00, 43/16

U.S. Cl. 8-44

3 Claims

Scarcely dusting ice color coupling components are obtained by admixture of 0.5 to 15 percent by weight of an addition product of 2 to 5 mols of ethylene oxide to a lower alcohol, the resulting polyether having a molecular weight of about 150 to about 280. Optionally surfactants, complex-forming agents and inorganic salts are added.

3,658,457

POLYVINYLPIRROLIDONE FOR IMPROVED OPTICAL BRIGHTENER ABSORPTION FOR DURABLE PRESS CELLULOSIC FABRICS

Eugene J. Blanchard, New Orleans; Robert J. Harper, Jr.; Gloria A. Gautreaux, both of Metairie, and John D. Reid, New Orleans, all of La., assignors to The United States of America as represented by the Secretary of Agriculture

Filed Jan. 7, 1971, Ser. No. 104,783

Int. Cl. D06m 15/58, 15/36

U.S. Cl. 8-100

1 Claim

Durable press fabrics possessing the improved ability to absorb optical brighteners during laundering have been prepared. Repeated launderings with detergents which contain these optical brighteners increase the whiteness with each laundering. This quality is imparted to cotton and other cellulosic fabrics when polyvinylpyrrolidone is incorporated in a crosslinking formulation.

3,658,458

MULTI-STEP REACTION OF TEXTILE MATERIALS WITH MULTI-FUNCTIONAL GROUPS REACTIVE UNDER DIFFERENT CATALYTIC CONDITIONS

Donald J. Gale, Spartanburg, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C.

Continuation of application Ser. No. 244,273, Dec. 13, 1962, now abandoned. This application Dec. 18, 1967, Ser. No. 694,022

Int. Cl. D06m 15/54, 15/72

U.S. Cl. 8-116.3

8 Claims

Cellulosic fabrics are modified in two steps with compounds containing at least one group reactive under conditions of acid catalysis and at least one group reactive under conditions of alkaline catalysis, e.g., N-methylol acrylamides. In conducting the process, either the acid or the alkaline catalyzed reaction may be run first; the fabric may be formed into a garment subsequent to the first reaction but prior to the second reaction and an alkaline catalyst may be used which is substantially neutral on the fabric at ambient temperatures but becomes strongly alkaline at elevated temperatures.

3,658,459

ABSORBENT FOR PURIFYING DRY-CLEANING SOLVENTS

John A. Gartlan, Glen Mills, Pa., assignor to Pursol Chemical Corp., Philadelphia, Pa.

Filed Mar. 6, 1968, Ser. No. 710,735

Int. Cl. D06l 1/00

U.S. Cl. 8-142

8 Claims

A solvent-permeable fibrous container containing attapulgite for use in dry-cleaning operations to remove objectionable color and odor and other materials from the cleaning solvent. A process for cleaning such solvents by the use of attapulgite. A special type of attapulgite sorptive clay is of particular value in this process.

3,658,460

PROCESS FOR DYEING SYNTHETIC POLYAMIDE TEXTILES IN THE PRESENCE OF ORGANIC SULPHONIC ACIDS AND BASIC NITROGEN COMPOUNDS

Adam Mikula, Basle, Switzerland, assignor to Sandog Ltd., Basle, Switzerland

Filed Apr. 18, 1969, Ser. No. 817,568

Claims priority, application Switzerland, Apr. 26, 1968, 6293/68

Int. Cl. D06p 5/06

U.S. Cl. 8-172

7 Claims

A level dyeing is obtained on fabric of synthetic polyamide fibers having a variable dyestuff affinity by treating the fabric at a temperature of from 70° to 130° C. in a liquor of which

the pH value throughout is maintained between 3 and 5, said dye liquor containing an aqueous solution of a surface active compound containing sulphonic acid groups or a surface active sulphuric acid ester, e.g. a sulphated oil constituted by a high molecular weight fatty acid subjected to a high degree or an ester thereof, to which liquor there is then sequentially added, without cooling or going outside the stated pH value range, (i) a basic nitrogen containing compound, or a quaternized derivative thereof, which is an addition product of 20 to 200 mols of ethylene oxide to certain long chain non-cyclic amines defined hereinafter, and (ii), simultaneously or subsequently, an anionic dye which would normally dye said fabric giving a stripy appearance, e.g. a so-called milling acid dye, dyeing being then affected in the usual way.

3,658,461

PROCESS OF LEVEL DYEING OF FIBROUS POLY-ACRYLONITRILE TEXTILES WITH CATIONIC DYE STUFFS

Udo Mayer, and Herbert Fleischer, both of Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

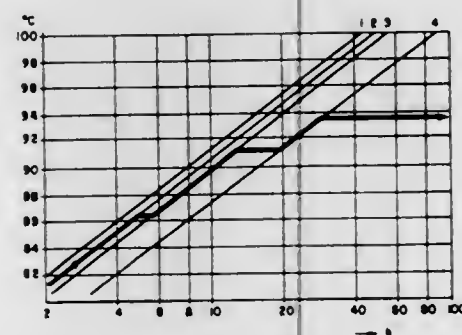
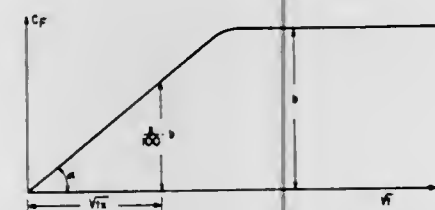
Filed Dec. 6, 1968, Ser. No. 781,818

Claims priority, application Germany, Dec. 8, 1967, P 16 19 376.3

Int. Cl. D06p 3/70

U.S. Cl. 8—177 AB

3 Claims



A method of dyeing a fibrous textile material composed of an acrylonitrile polymer in level shades with a cationic dye from an aqueous liquor by carrying out the dyeing at a predetermined temperature T which is dependent upon definite liquor exhaustion rates, a constant a which denotes the change in temperature which halves or doubles the liquor exhaustion rate measured at a dyeing temperature of 100°C and a constant b which denotes the depth of color to be achieved in milligrams of dye per gram of fibrous material.

3,658,462

LIQUID-GAS ABSORPTION PROCESS

Robert W. Van Scoy, Walnut Creek, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Mar. 5, 1970, Ser. No. 16,800

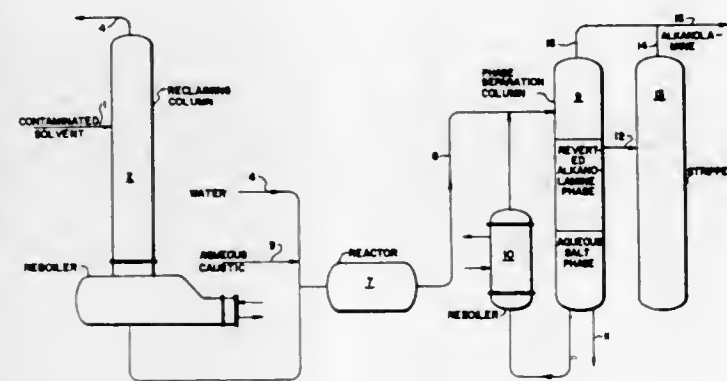
Int. Cl. B01d 53/34

U.S. Cl. 23—2 A

6 Claims

Stable alkanolamine-acid gas reaction products formed during the absorption of acidic gases from gas mixtures by

means of an alkanolamine-containing absorbent liquid are reverted to free alkanolamines by treatment with caustic and



water. The alkanolamines thus formed are recovered from a two phase system and reused in the absorption process.

3,658,463

SOLVENT ABSORPTION OF CARBON MONOXIDE

William G. Billings, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Oct. 6, 1969, Ser. No. 864,208

Int. Cl. B01d 53/34, 53/16

U.S. Cl. 23—2 R

11 Claims

A process for the selective removal of carbon monoxide from gaseous streams employing an absorbent comprising cuprous chloride in an organic medium such as formamide, an ether, an amine, a nitrile, a nitroparaffin, a nitroaromatic, pyridine, olefins and methyl cellosolve and combinations thereof.

3,658,464

MOLYBDENUM OXIDE REFINING PROCESS

Henry F. Barry, Calvin J. Hallada, and Jerry D. Baker, all of Ann Arbor, Mich., assignors to American Metal Climax, Inc., New York, N.Y.

Filed May 15, 1970, Ser. No. 37,674

Int. Cl. C22b 59/00

U.S. Cl. 23—15 W

7 Claims

A process for effecting the economical removal of various impurities from roasted molybdenite concentrates by extracting the molybdenum trioxide content in an aqueous ammonium hydroxide solution and effecting further conversion and extraction of the molybdenum value in the insoluble solid residue, thereby producing a molybdenum trioxide product of greater than 99 percent purity and effecting a recovery of substantially all of the molybdenum values in the original crude material.

3,658,465

PRESSURE OXIDATION PROCESS

James L. Drobnick, Lakewood; Albert E. Erhard, Denver, and Ellsworth W. Daugherty, Golden, all of Colo., assignors to Molybdenum Corporation of America, New York, N.Y.

Filed Sept. 11, 1969, Ser. No. 857,181

Int. Cl. C22b 59/00

U.S. Cl. 23—15 W

10 Claims

The present invention is concerned with a novel process for the oxidation of metal-sulfur-containing compositions. The invention is particularly concerned with the oxidation of refractory metal-sulfur-containing compositions.

3,658,466

PROCESS FOR THE SEPARATION OF ZIRCONIUM AND HAFNIUM

Takeshi Otsuka, Tokyo, Japan, assignor to Nippon Mining Co., Ltd., Tokyo, Japan

Filed Aug. 15, 1968, Ser. No. 752,754

Claims priority, application Japan, Aug. 16, 1967, 42/52248, 42/52249, 42/52250

Int. Cl. C22b 59/00; C01g 25/00, 27/00

U.S. Cl. 23—22

10 Claims

The separation of zirconium and hafnium is carried out by contacting countercurrently a kerosene solution of a water insoluble tertiary amine and a monohydroxyl alcohol having a dielectric constant of less than 15 with an acidified aqueous solution of zirconium and hafnium containing sulfate ion whereby substantially all of the zirconium contained in the aqueous solution is extracted preferentially into the kerosene solution and then back-extracting the kerosene solution thus loaded with zirconium and also containing a small amount of hafnium is then extracted with a dilute aqueous sulfuric acid to solution to remove the hafnium from the kerosene solution. Zirconium is recovered by contacting the kerosene solution with an aqueous solution containing carbonate.

3,658,467

SYSTEM FOR TOTAL IODINE RETENTION

William J. Maeck, Idaho Falls, Idaho, assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed July 28, 1969, Ser. No. 845,485

Int. Cl. B01d 53/34, 53/16

U.S. Cl. 23—25

4 Claims

A method of absorbing and retaining air-borne inorganic iodine and organic iodine species by passing a gaseous stream containing these iodines through a filter bed of synthetic zeolite in a metal ion-exchanged form, which metal is reactive with iodine.

3,658,468

MANUFACTURE OF COMPOSITE FERRITES

Frederick Claud Coward, and George Ord, both of Ilford, England, assignors to The Plessey Company Limited, Ilford, England

Continuation-in-part of application Ser. No. 746,233, July 19, 1968, now abandoned, which is a continuation-in-part of application Ser. No. 719,878, Apr. 9, 1968, now abandoned.

This application Nov. 13, 1970, Ser. No. 89,337

Int. Cl. C01g 49/00; C04b 35/26

U.S. Cl. 23—51

3 Claims

Ferrite powder of consistent good quality and homogeneity is obtained by using nitric acid to form solutions of the nitrate of each of the metals involved, mixing the solutions in the requisite proportions, and decomposing the mixture by spray deposition on the hot surface of an agitated bed of granular material identical with the decomposition product while avoiding any accumulation of liquid, and then calcining the obtained oxide mixture to obtain ferrite powder with a desired proportion of ready-formed ferrite. The nitrous gases formed during solution and decomposition are used for the reconstitution of nitric acid, the tail gas of the reconstitution system being preferably contacted with an aqueous suspension of a basic oxide of a constituent metal of the ferrite, whereafter nitric acid is added to form the required nitrate solution of the constituent metal.

3,658,469

CONTINUOUS PRODUCTION OF ALUMINA WHISKERS

Robert H. Kelsey, 8 Ticonderoga Road, West Acton, Mass.

Continuation-in-part of application Ser. No. 620,746, Mar. 6, 1967, now abandoned. This application Oct. 16, 1969, Ser. No. 867,056

Int. Cl. C01s 7/30

U.S. Cl. 23—142

8 Claims

A method and apparatus for making single crystal alumina in the form of whiskers of width and thickness

generally of 0.100–100 microns. Whiskers are grown in a continuous process within the apparatus described which utilizes oxygen and hydrogen in the reaction zone for the transformation.

3,658,470

METAL ION RECOVERY SYSTEM

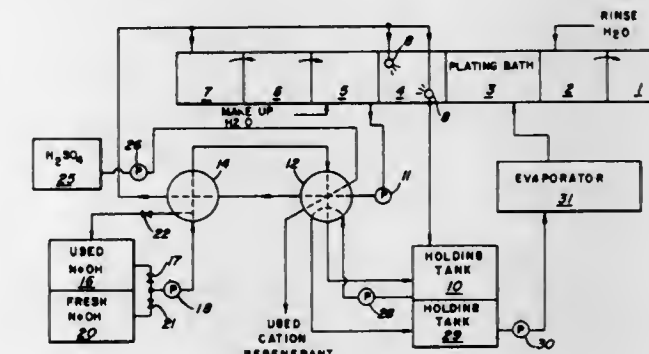
James F. Zievers; Clay W. Riley, and Richard W. Crain, all of La Grange, Ill., assignors to Industrial Filter & Pump Mfg. Co., Cicero, Ill.

Filed June 16, 1969, Ser. No. 833,312

Int. Cl. B01k 3/00; C23b 5/06; C01g 37/02

U.S. Cl. 23—145

9 Claims



gas content being left to pause in an oxidation space between each contacting operation.

3,658,473

METHOD FOR THE MANUFACTURE OF MAGNESIUM HYDROXIDE

Kiyoaki Sese, Tokyo, Japan, assignor to Asahi Glass Co., Ltd., Tokyo, Japan

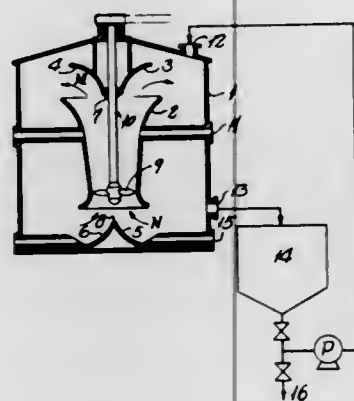
Filed Jan. 23, 1970, Ser. No. 5,348

Claims priority, application Japan, June 15, 1966, 41/38201

Int. Cl. C01f 5/14; B01d 9/02

U.S. Cl. 23—201

2 Claims



Magnesium salt-containing solution, calcium hydroxide, and 4 to 20 gms. calculated in the form of MgO of magnesium hydroxide seed, per liter of said magnesium salt-containing solution, are introduced into a reactor equipped with an internal recirculation tube and the concentration of magnesium ion contained in the magnesium salt-containing solution is diluted 10 to 70-fold with a mother liquor of magnesium hydroxide and said magnesium salt-containing solution and calcium hydroxide are put into reaction.

3,658,474

PROCESS FOR CLARIFICATION OF AN IMPURE ACIDIC TITANIUM SULPHATE LIQUOR AND/OR THE MANUFACTURE OF TITANIUM DIOXIDE THEREFROM

Eric Rothwell, Bradford, England, assignor to Allied Colloids Manufacturing Company Limited, Bradford, Yorkshire, England

Continuation-in-part of application Ser. No. 719,710, Apr. 8, 1968, now abandoned. This application July 16, 1970, Ser. No. 55,587

Int. Cl. C01g 23/04

U.S. Cl. 23—202 R

8 Claims

The present invention relates to the manufacture of titanium dioxide wherein titanium sulphate liquor is produced containing colloidal and suspended impurities which are flocculated and removed from the liquor before the titanium dioxide is obtained by hydrolysis. More particularly it relates to the improvement of such manufacture comprising mixing the liquor, prior to hydrolysis, with a solution of (a) a polymer of an acrylic acid ester of the general formula:



wherein x is 2, 3 or 4, R¹ and R² are each selected from the group consisting of hydrogen and alkyl groups containing up to eight carbon atoms and R² is a member selected from the group consisting of hydrogen and methyl, or (b) a water-soluble salt of said ester or (c) a copolymer of said ester with an ethylenically unsaturated comonomer, or (d) a copolymer of a water-soluble salt of said ester with an ethylenically unsaturated comonomer; the polymer or copolymer having a molecular weight such that the viscosity of a 1 percent by weight aqueous solution thereof as measured in a No. 3

Suspended Level Viscometer at 25° C. is at least 40 centistokes, the comonomer being either water-soluble and present to the extent of not more than 40 percent by weight of the copolymer or water-insoluble and present to the extent of not more than 15 percent by weight of the copolymer.

3,658,475

METHOD OF PREPARING PURE NICKEL CARBONYL FROM IMPURE NICKEL COMPOUNDS

Charles Edward O'Neill, Glen Head, N.Y., and Frank Otto Theubert, Clarkson, Ontario, Canada, assignors to The International Nickel Company, Inc., New York, N.Y.

Filed Mar. 12, 1970, Ser. No. 19,071

Claims priority, application Canada, Mar. 27, 1969, 047,061

Int. Cl. C01g 53/02

U.S. Cl. 23—203 C

30 Claims

Directed to a process for recovering nickel from an impure reducible nickel compound wherein an aqueous bath containing the compound, either dissolved or undissolved, is treated with a water-soluble sulfide and a reducing agent which may be carbon monoxide, hydrogen, sponge iron, iron carbonyl, zinc powder or aluminum powder, then heating the aqueous bath having a pH no lower than that of an aqueous solution saturated with carbon dioxide under carbonylation conditions to a temperature between about 100° C. and 200° C. under a carbon monoxide partial pressure of more than about 30 atmospheres to form substantially pure nickel carbonyl which is then recovered.

3,658,476

METHOD FOR PRODUCING A GRAPHITE ARTICLE

Robert B. Trask, Model City, N.J., and Mark J. Smith, Wilton, N.Y., assignors to Airco, Inc., New York, N.Y.

Continuation of application Ser. No. 796,295, Jan. 22, 1969, now abandoned, which is a continuation of application Ser. No. 544,364, Apr. 22, 1966, now abandoned. This application

May 19, 1970, Ser. No. 37,480

Int. Cl. C01b 31/04

U.S. Cl. 23—209.1

2 Claims

Graphite articles are produced by mixing a carbonaceous filler material and a binder of pitch with 5 to 50 percent by weight of the pitch of a chlorinated biphenyl or a chlorinated terphenyl, forming the raw batch composition thus obtained into an article, baking the article to carbonize the binder, and firing the thus baked article to graphitize it.

3,658,477

PROCESS FOR PURIFYING A GAS CONTAINING HYDROGEN SULFIDE WITH PRODUCTION OF SULFUR

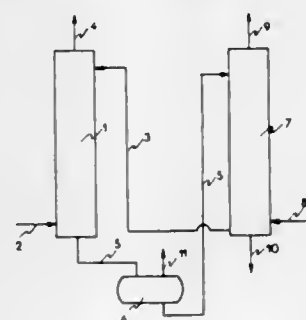
Philippe Renault, Neuilly-sur-Seine, and Henri Grubler, Chatillon sur Bagneux, both of France, assignors to Institut Français Du Pétrole Des Carburants Et Lubrifiants, Rueil-Malmaison, Hauts de Seine, France

Filed Sept. 5, 1968, Ser. No. 757,736

Int. Cl. C01b 17/04

U.S. Cl. 23—225 K

8 Claims



A process for purifying a gas containing hydrogen sulfide as the impurity, with the production of sulfur as a by-product which comprises contacting a gas containing hydrogen sul-

3,658,480

COAGULATION TIMING APPARATUS, AND METHOD

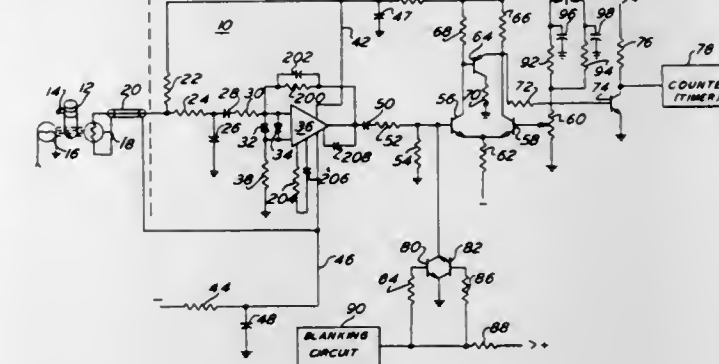
Gerald J. Kane, North Wales, and Eugene J. Weatherby, Perkasie, both of Pa., assignors to Bio/Data Corporation, Norristown, Pa.

Filed Apr. 13, 1970, Ser. No. 27,582

Int. Cl. G01n 33/16

U.S. Cl. 23—230 B

10 Claims



Apparatus for determining various blood coagulation times removes inaccuracies of prior apparatus by blanking first derivative signal for part of the coagulation time and then only comparing a component of said signal to a preset level to determine the clotting time.

3,658,481

FLAME IONIZATION DETECTOR ASSEMBLY

Claude Guillemain, Paris, and Jean-Claude Badin, Bondy, both of France, assignors to Produits Chimiques Pechiney-Saint-Gobain, Neuilly-sur-Seine, France

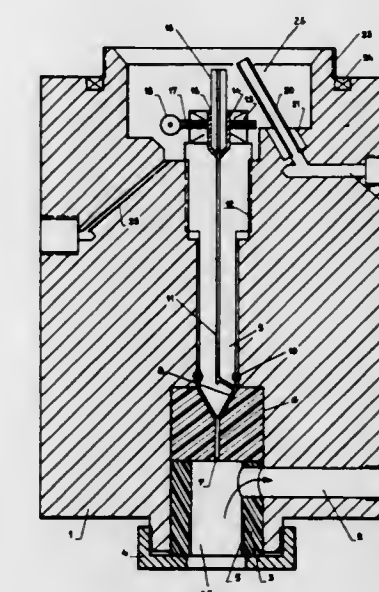
Filed Apr. 6, 1970, Ser. No. 25,759

Claims priority, application France, Apr. 11, 1969, 6911175

Int. Cl. G01n 31/00, 31/12, 27/62

U.S. Cl. 23—254 E

15 Claims



A flame ionization detector assembly for use in gas chromatography including a detector and a gas sampling assembly comprising a housing defining primary passage means for gaseous effluent from a chromatography column, a needle and a valve seat, both of which are received in recesses defined by the housing and both of which define passages communicating with the primary passage means whereby a small portion of the gaseous effluent from the chromatography column passes from the primary passage means through the passages defined by the valve seat and the needle to a combustion zone.

3,658,479

DEVICE FOR MEASURING THE PRESSURE OF A GAS

Leopold Heijne, and Nicolaas Marinus Beekmans, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

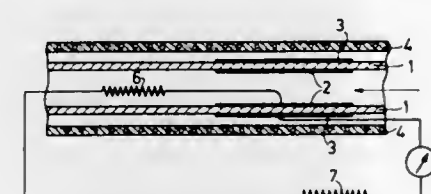
Filed Jan. 16, 1970, Ser. No. 3,423

Claims priority, application Netherlands, Jan. 22, 1969, 6901021

Int. Cl. G01n 7/10

U.S. Cl. 23—254 E

5 Claims



A device for measuring the partial or absolute pressure of a gas, which device includes a partition comprising a substance which shows a reversible reaction with the gas molecules and is then ion-permeable, the measurement being effected on the current which flows through a resistor between electrodes on either side of the wall, the value of the resistor being proportional to the absolute temperature.

3,658,482

AFTERBURNER

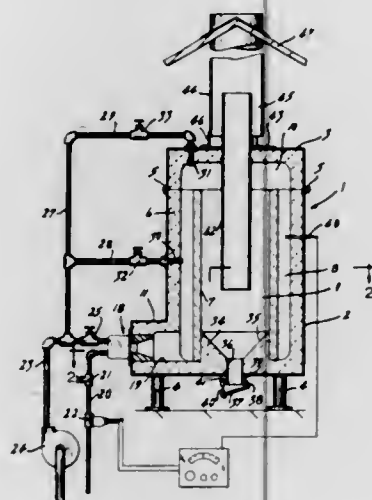
Marvin Evans, Bayside, and David H. Miller, Whitefish Bay, both of Wis., assignors to College Research Corp., Milwaukee, Wis.

Filed Sept. 8, 1970, Ser. No. 70,015

Int. Cl. F23j 5/06

U.S. Cl. 23-277 C

14 Claims



An afterburner to be associated with an incinerator or furnace, or other processing equipment for providing complete combustion of the combustible materials in the exhaust gases or process fumes and vapors. The afterburner comprises an outer closed refractory casing, and an inner cylindrical refractory member is spaced inwardly from the outer casing to provide an outer annular chamber therebetween. The upper end of the inner member is spaced from the top of the casing to provide an upper chamber that establishes communication between the outer annular chamber and the interior of the inner member. The exhaust gases from the incinerator or furnace are introduced tangentially into the lower end of the outer chamber and pass upwardly with a swirling motion to the upper chamber and then downwardly into the interior of the inner member. The gases are discharged from the inner member through a vertical stack assembly which is located centrally of the inner member. Fuel and air are introduced into the lower end of the outer chamber along with the exhaust gases and ignited to burn the combustible products in the gases. To provide complete combustion of the combustible products, the stack assembly includes an outer stack which is spaced outwardly from the inner stack to provide an air passage therebetween. Air passing within the passage is heated and merges with the exhaust gases to provide a secondary stage of combustion for the combustible products.

3,658,483

APPARATUS FOR THE PRODUCTION OF CONCENTRATED HYDROHALOGEN ACIDS AND METAL OXIDES

Rainer Lienau, Planegg, and Friedrich Hofmann, Saarbrücken, both of Germany, assignors to Sud-Chemie Aktiengesellschaft, Munich, Germany

Filed May 18, 1970, Ser. No. 38,185

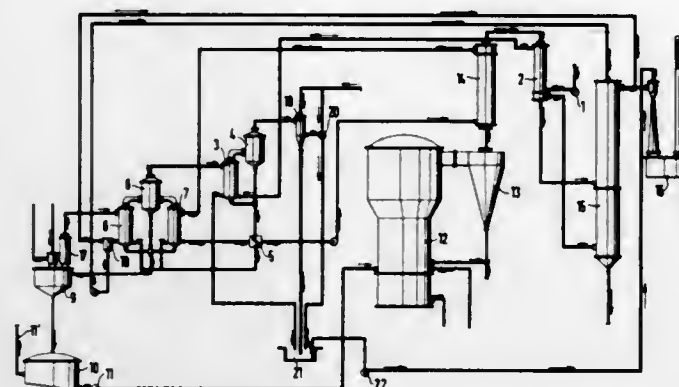
Int. Cl. C01b 7/00; B01d 3/00

U.S. Cl. 23-263

13 Claims

Highly concentrated aqueous hydrohalogen acids and metal oxides are produced from aqueous solutions of the halides of divalent and/or polyvalent metals by pre-concentrating the aqueous starting solution, evaporating the pre-concentrated solution to a solids content of about 40 to 60 percent by weight by direct contact with a fluid heat carrier and then directly introducing the concentrate into a decomposi-

tion unit having a stationary reaction chamber wherein the metal halides are decomposed at elevated temperatures in



the presence of water vapor to form the hydrogen halide and the corresponding metal oxides.

3,658,484

COUNTERCURRENT CONTACT APPARATUS

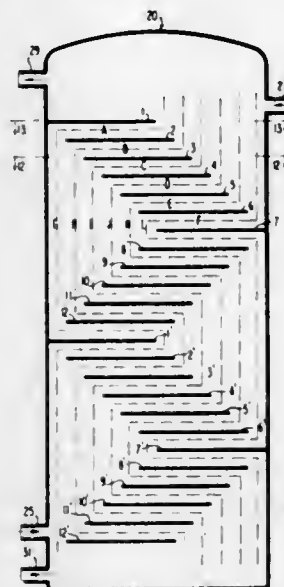
Arthur W. Bright, P.O. Box 3242, Kingsport, Tenn.

Filed Oct. 24, 1969, Ser. No. 868,985

Int. Cl. B01d 11/00

U.S. Cl. 23-270.5

6 Claims



An apparatus comprising a vertical shell, first means at one end of said shell for introducing a first fluid, second means at the other end of said shell for introducing a second fluid, at least one contact stage disposed in said shell between said first and second means, said contact stage comprising a head baffle, a set of baffles disposed above said head baffle and a set of baffles disposed below said head baffle, the baffles in each of said sets being disposed one above the other and one below the other, respectively, in a staggered relationship to each other in a direction away from the head baffle, baffles in said set of baffles above said head baffle having an edge in vertical alignment with an edge of a corresponding baffle in said set of baffles below said head baffle.

3,658,485

GAS PURIFYING APPARATUS

Gottfried Gramer, Nurnberg, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Original application Mar. 18, 1964, Ser. No. 352,859, now abandoned. Divided and this application Apr. 22, 1969, Ser. No. 843,877

Claims priority, application Germany, Mar. 20, 1963, S 84243

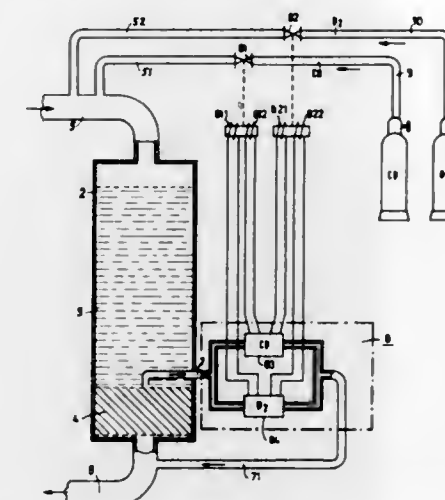
Int. Cl. B01j 1/00; C01b 1/28; G01n 33/00

U.S. Cl. 23-284

7 Claims

In a closed coolant loop of a nuclear reactor there is provided an apparatus for purifying contaminated nuclear reac-

tor coolant gas of nuclear decomposition products, comprising filtering means for filtering a uniform flow of contaminated gas to be purified, the filtering means having components consisting at least partly of copper, gas removing means for removing a test quantity of the contaminated gas flowing through the filtering means, gas testing means con-



nected to the gas removing means for receiving the test quantity and for analyzing the contaminating content of the test quantity, and means for selectively adding quantities of reducing and oxidizing gases to the contaminated gas so as to simultaneously regenerate the components of the filtering means as the contaminated gas is being purified.

3,658,486

PROCESS FOR THE PURIFICATION OF YTTRIUM BY SOLVENT EXTRACTION

Totaro Goto, Tokyo, Japan, assignor to Agency of Industrial Science of Technology, Tokyo, Japan

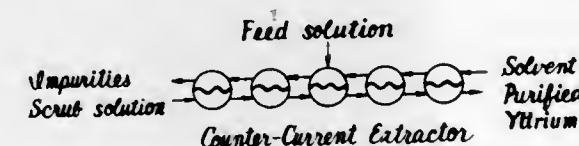
Filed Aug. 26, 1969, Ser. No. 853,030

Claims priority, application Japan, Aug. 27, 1968, 43/60912

Int. Cl. B01d 11/00; C01g 57/00

U.S. Cl. 23-312 ME

2 Claims



This invention relates to a process for the purification of yttrium which comprises adding ammonium thiocyanate to an impure aqueous solution of yttrium containing as contaminants mainly heavy rare earth elements as impurities, further adding to the resulting mixture, as a solvent, a quaternary ammonium salt containing cyclohexyl radicals, straight chain alkyl radicals and at least one methyl radical but containing no aryl radical, or a composite solvent system consisting of a quaternary ammonium salt and a trialkylphosphine oxide or a triarylphosphine oxide, and extracting the heavy rare earth elements in said aqueous solution into the solvent phase thereby leaving the yttrium in the aqueous phase.

3,658,487

PRODUCTION OF PHOSPHONITRILIC CHLORIDES

Gerd Wunsch, Speyer; Richard Schiedermaier, and Karl Wintersberger, both of Ludwigshafen, all of Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Apr. 10, 1970, Ser. No. 27,442

Claims priority, application Germany, Apr. 15, 1969, P 19 18 947.0

Int. Cl. C01b 21/52, 25/00

U.S. Cl. 23-357

8 Claims

Phosphonitrilic chlorides having the formula $(\text{PNCl}_2)_n$, where n denotes an integer of at least 3, are obtained by

reacting chlorine and ammonia simultaneously with elementary phosphorus in an inert solvent.

3,658,488

ELECTRODEPOSITED PLAIN BEARING LINERS

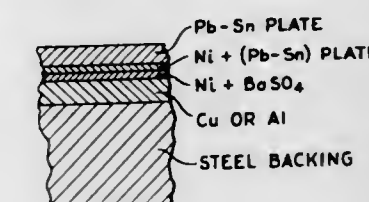
Henry Brown, Huntington Woods, and Thaddeus W. Tomaszewski, Dearborn, both of Mich., assignors to Udyllite Corporation, Warren, Mich.

Filed July 27, 1970, Ser. No. 58,322

Int. Cl. B32b 15/00

U.S. Cl. 29-195

16 Claims



A method for the manufacture of bearing metal liners, such as those suitable for connecting rod and main bearings, which comprises the electrodeposition of a composite electroplate of one or more of the metals of the group consisting of copper, nickel, cobalt, iron or their alloys containing densely codeposited fine non-metallic insulator particles, followed by a thin electroplate of copper, silver, nickel, cobalt, iron or their alloys that will have dense vertical porosity by virtue of having been deposited on the metallic surface containing the densely codeposited non-metallic insulator particles. The highly porous plate is then overlaid with a final lead-tin alloy electrodeposit, which by plating into the dense porosity of the underlying metal, produces in effect a copper-lead; a nickel-lead; a cobalt-lead; a silver-lead; or the like "alloy" plate with an overlayer of lead alloy plate.

3,658,489

LAMINATED ELECTRODE FOR A SEMICONDUCTOR DEVICE

Massaki Ishikawa, and Daizaburo Shinoda, both of Tokyo, Japan, assignors to Nippon Electric Company, Limited, Tokyo, Japan

Filed July 30, 1969, Ser. No. 846,139

Claims priority, application Japan, Aug. 9, 1968, 43/56990

Int. Cl. B32b 15/04; H01L 1/14

U.S. Cl. 29-195

1 Claim



In the process of forming electrodes for semiconductor devices wherein a platinum layer is to be photo mask etched, the process is improved by replacing the platinum layer with a layer of platinum-nickel alloy containing 1 to 20 atomic percent nickel.

3,658,490

ANTICORROSION COATED STEEL PIPE

Naomi Kubo, Nagoya, Japan, assignor to Usui Kokusai Sangyo Kabushiki Kaisha, Shizuoka, Japan

Filed Feb. 6, 1970, Ser. No. 9,432

Int. Cl. B32b 15/00

U.S. Cl. 29-196.6

3 Claims

This invention is to provide a novel anticorrosion coated steel material exhibiting surprising anticorrosion and obtained by providing a coating layer having Pb as a base on

the surface of a steel material and fusing an Sn-Cd series alloy against the surface of said coating layer.

3,658,491

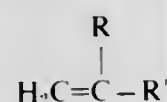
INCREASING VISCOSITY OF NORMALLY LIQUID HYDROCARBONS AND GELS PRODUCED

Peter J. Canterino, Bartlesville, Okla., assignor to Phillips Petroleum Company
Filed June 20, 1955, Ser. No. 516,780
Int. Cl. C101 7/02

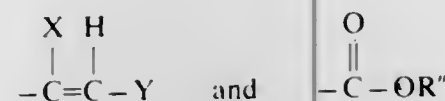
U.S. Cl. 44-7 D

21 Claims

1. The production of a gel which comprises incorporating into a normally liquid hydrocarbon a small proportion effective to form a gel of at least one liquid hydrocarbon dispersible copolymer selected from the group consisting of rubbery and solid copolymers compound represented by the formula



wherein R is selected from the group consisting of hydrogen, alkyl and alkoxy; and R' is selected from the group consisting of



wherein X is selected from the group consisting of hydrogen, alkyl and a halogen, Y is selected from the group consisting of hydrogen, alkyl and aryl; wherein R'' is selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl, and aralkyl; the total of the carbon atoms in R and R' when R' does not contain R'' is two to eight; and wherein when R'' is present the total of the carbon atoms in R and R' is two to thirteen and a copolymerizable compound containing a basic tertiary amine group selected from the group consisting of vinylpyridines, vinylquinolines and their nuclear-alkyl-substituted derivatives containing not more than a total of 12 carbon atoms in the nuclear-substituted groups, said copolymerizable compound containing not more than a total of 12 carbon atoms in the hydrocarbon groups attached to the nitrogen atom, said copolymer having been prepared using 0.25-8 parts per 100 by weight of total monomeric material.

3,658,492

DISTILLATE FUEL COLD FLOW

Steve J. Messina, Sterling Heights, Mich., assignor to Ethyl Corporation, New York, N.Y.
Original application Aug. 21, 1967, Ser. No. 661,792. Divided and this application Aug. 4, 1969, Ser. No. 847,450
Int. Cl. C101 1/20

U.S. Cl. 44-62

10 Claims

A distillate fuel having improved cold flow containing a low molecular weight product obtained on reacting an allyl halide and a C₁₀ to C₂₀ olefin using an aluminum halide as a catalyst, the molar ratio of allyl halide to olefin being from 5:1 to 1:10. This reaction product is characterized by having a molecular weight of from about 550 to about 1,200. A suitable allyl halide is allyl chloride; suitable olefins are decene, dodecene, tetradecene, heptadecene, octadecene and the like.

3,658,493

DISTILLATE FUEL OIL CONTAINING NITROGEN-CONTAINING SALTS OR AMIDES AS WAS CRYSTAL MODIFIERS

William C. Hollyday, Jr., Watchung, N.J., assignor to Esso Research and Engineering Company, Linden, N.J.
Filed Sept. 15, 1969, Ser. No. 858,180
Int. Cl. C101 1/18, 1/22

U.S. Cl. 44-62

17 Claims

Addition to distillate fuel oil of wax crystal modifying amides or salts, of limited oil solubility, formed from acids

with amines or ammonia improves the cold-flow properties of the oil.

3,658,494

FUEL COMPOSITIONS COMPRISING A COMBINATION OF MONOETHER AND ASHLESS DISPERSANTS

Casper J. Dorer, Jr., Lyndhurst, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
Continuation-in-part of application Ser. No. 749,948, Aug. 5, 1968, now abandoned. This application Jan. 21, 1969, Ser. No. 792,745
Int. Cl. C101 1/22

U.S. Cl. 44-63

18 Claims

Fuel compositions containing an additive combination comprising an oxy compound and a dispersant. The oxy compounds are the monoethers of glycols and polyglycols. The dispersants are the esters, amides, imides, amidines, amine salts, and mixtures thereof of carboxylic acids characterized by the presence of at least about 30 aliphatic carbon atoms in the acyl moiety. Solutions of such additive combinations are also disclosed. The fuels and solutions can be used to clean fuel systems in liquid-fuel burning devices such as internal combustion engines.

3,658,495

FUEL COMPOSITIONS COMPRISING A COMBINATION OF OXY COMPOUNDS AND ASHLESS DISPERSANTS

Casper J. Dorer, Jr., Lyndhurst, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio
Continuation-in-part of application Ser. No. 749,948, Aug. 5, 1968, now abandoned. This application Jan. 21, 1969, Ser. No. 792,746
Int. Cl. C101 1/22

U.S. Cl. 44-63

18 Claims

Fuel compositions containing an additive combination comprising an oxy compound and a dispersant. Oxy compounds include glycol, polyglycols, and carboxylic acid esters thereof and carboxylic acid esters of monoethers of glycols and polyglycols. The dispersants are the esters, amides, imides, amidines, amine salts, and mixtures thereof of carboxylic acids characterized by the presence of at least about 30, but preferably at least 50, aliphatic carbon atoms in the acyl moiety. Solutions of such additive combinations are also disclosed. The fuels and solutions can be used to clean fuel systems in liquid-fuel burning devices such as internal combustion engines.

3,658,496

THERMALLY STABLE FUEL COMPOSITION

Jerzy J. Bialy, Lagrangeville, and George W. Eckert, Wappingers Falls, both of N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Apr. 3, 1968, Ser. No. 718,345. The portion of the term of the patent subsequent to Dec. 17, 1985, has been disclaimed.

U.S. Cl. 44-66
Int. Cl. C101 1/18, 1/22

U.S. Cl. 44-66

6 Claims

Thermally stable middle distillate or jet fuel composition containing in combination a Mannich base (alkyl-phenol-sulfide-formaldehyde-alkylene diamine reaction product) polymeric acid and metal deactivator.

3,658,497

MIXTURES OF ALKOXYLATED DIPHENYL MONOHALO PHOSPHATES PHENYL, DIHALO PHOSPHATES, AND TRIPHENYL PHOSPHATES AS MOTOR FUEL ADDITIVES

Rodney L. Sung, Fishkill; Kenneth L. Dille, and Stanley R. Newman, both of Wappingers Falls, all of N.Y., assignors to Texaco Inc., New York, N.Y.
Filed Apr. 27, 1970, Ser. No. 32,338
Int. Cl. C101 1/26, 1/30

U.S. Cl. 44-69

3 Claims

Reaction mixtures of alkoxyated diphenyl monohalo phosphates and alkoxyated phenyl dihalo phosphates are

used as additives, particularly as surface ignition suppressors in motor fuels. The mixtures are especially useful since they can be used in the unresolved form.

3,658,498

METHOD AND APPARATUS FOR PRODUCING ETHYLENE AND SYNTHESIS GAS BY THERMAL CRACKING

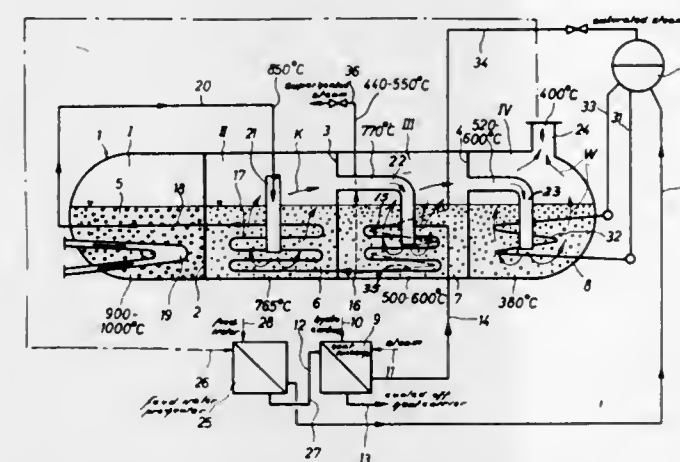
Frohmut Vollhardt, Siegen, Germany, assignor to Siegenger Aktiengesellschaft Gelsweld, Huttental-Gelsweld, Germany
Filed May 28, 1970, Ser. No. 41,264

Claims priority, application Germany, June 3, 1969, P 19 28 091.2

Int. Cl. C01b 2/00; C10g 9/34

U.S. Cl. 48-92

8 Claims



Method of and apparatus for producing ethylene and synthesis gas by thermal cracking, according to which at least one component of the cracked gas is used for preheating the gas to be cracked.

3,658,499

METHOD OF DILUTING LIQUEFIED GASES

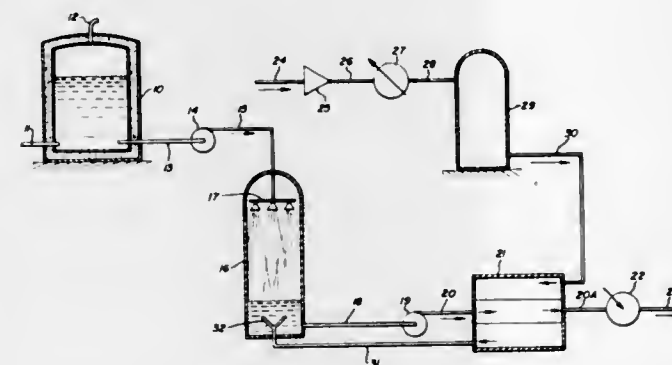
Terry Wayne Delahanty, La Grange, Ill., assignor to Chicago Bridge & Iron Company, Oak Brook, Ill.

Filed Oct. 28, 1970, Ser. No. 84,761

Int. Cl. F25j 3/00

U.S. Cl. 48-196 R

18 Claims



A method in which a controlled amount of a gas of lower potential heating capacity is dissolved in an oxidizable liquefied gas to dilute the oxidizable liquefied gas and thereafter the dilute liquefied gas is vaporized. Addition of the gas of lower potential heating capacity is controlled to avoid vaporization of the oxidizable liquefied gas until after dilution. Air is used to dilute liquefied natural gas.

Apparatus having a storage tank for a liquefied oxidizable gas, a first conduit from the storage tank to a first pump for removing liquefied oxidizable gas, a second conduit from the pump to a diluting tank for delivering liquefied oxidizable gas thereto, a third conduit communicating with a second pump and the diluting tank for supplying a diluting gas to the liquefied oxidizable gas, and a fourth conduit from the diluting tank to a vaporizer for removing diluted liquefied oxidizable gas from the diluting tank and vaporizing it.

3,658,500

METHOD FOR PRODUCING GLASS BEADS FOR ELECTROSTATOGRAPHIC DEVELOPERS

Robert J. Hagenbach, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Oct. 23, 1969, Ser. No. 868,903

Int. Cl. C03b 37/00

U.S. Cl. 65-21

4 Claims

Spherical glass beads are produced by isolating individual glass particles on a non-wetting ceramic block and heating the glass to a temperature at which the glass particles are drawn-up into spherical beads. The spherical beads, either coated or uncoated, may be employed as the carrier in an electrostatographic developer. The carriers are characterized by more uniform sizing and greater approximation to a spherical shape.

3,658,501

METHOD AND APPARATUS FOR MANUFACTURE OF FLOAT GLASS

Jack Lawrenson, Windle, St. Helens, and Albert Sidney Robinson, Birkdale, Southport, both of England, assignors to Pilkington Brothers Limited, Liverpool, England

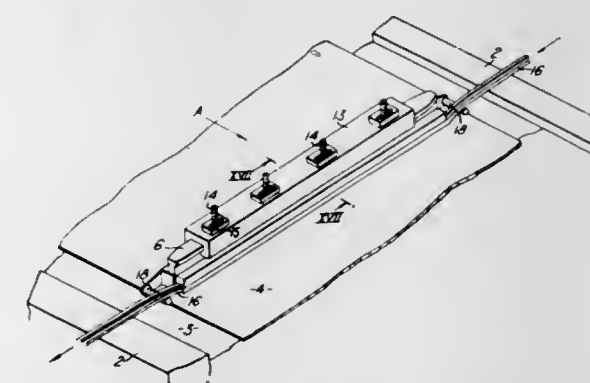
Filed Mar. 25, 1969, Ser. No. 810,248

Claims priority, application Great Britain, Apr. 9, 1968, 17,077/68

Int. Cl. C03c 17/00; C03b 19/02

U.S. Cl. 65-30

10 Claims



Float glass is manufactured with predetermined characteristics imparted to the glass by a body of molten material which contacts a surface of the glass and the length of the body of molten material, in the direction of relative movement between the glass and the body, is maintained constant in any section through the body in that direction. This is accomplished by forming the downstream portion of the locating member as an element which is movable with respect to an upstream portion of the locating member to compensate for different rates of erosion thereof. Alternatively, the downstream portion is formed of a material which is more erosion resistant than upstream portions of the locating member. In a further embodiment, the entire lower surface of the locating member is made movable with respect to the upper portion so as to enable the entire lower surface to be renewed.

3,658,502

METHOD OF FORMING WELDED MULTIPLE GLAZING UNITS

Gerald Shepherd, St. Helens, England, assignor to Pilkington Brothers, Limited, Liverpool, England

Filed Sept. 8, 1969, Ser. No. 855,873

Claims priority, application Great Britain, Sept. 9, 1968, 42,851/68

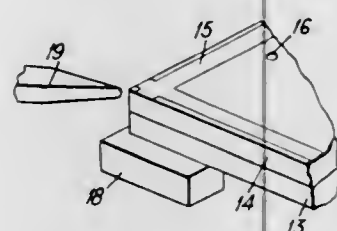
Int. Cl. C03b 23/24

U.S. Cl. 65-58

3 Claims

The invention relates to the manufacture of a welded multiple glazing unit. The margins of an assembly of glass sheets

are first united by a peripheral weld. The peripheral weld is ing the metal with a body of material which dissolves alkali metal oxide and connecting a D.C. source across the body to



then force cooled to a temperature in the region of the annealing temperature of the glass.

3,658,503

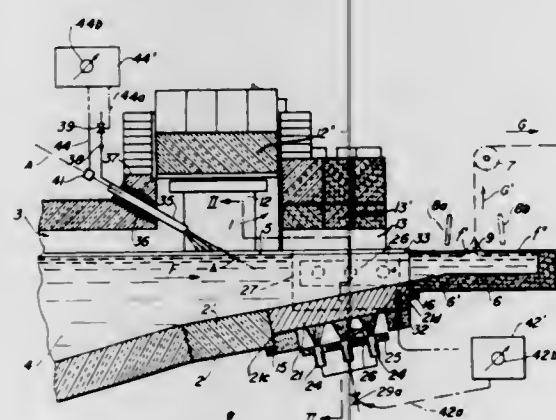
APPARATUS FOR THE DRAWING OF CONTINUOUS SHEETS OF GLASS INCLUDING GLASS MELT HEATING AND COOLING MEANS

Georges Prislán, Boussols-sur-Sambre, France, assignor to Societe Boussois-Souchon-Neuvesel, Paris, France
Continuation of application Ser. No. 526,903, Feb. 11, 1966, now abandoned. This application Feb. 18, 1970, Ser. No. 12,450

Claims priority, application France, Feb. 12, 1965, 5325
Int. Cl. C03b 5/22

U.S. Cl. 65—162

6 Claims



In drawing sheet glass from a drawing pot of a tank furnace, the flow of molten glass toward the drawing pot is subjected to forced cooling by air nozzles directed onto its upper surface and is simultaneously reheated in its lower reaches, at a location between the cooling zone and the drawing pot, through an ascending bottom surface formed by a floor portion of thermally conductive material.

3,658,504

FLOAT GLASS MANUFACTURE APPARATUS

David Gordon Loukes, Prescott, and Alan Edwards, Widnes, both of England, assignors to Pilkington Brothers Limited, Liverpool, England

Filed Mar. 13, 1969, Ser. No. 807,058

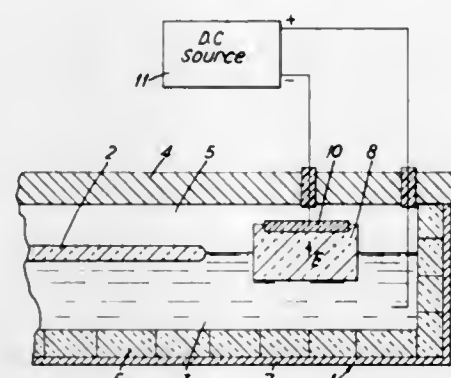
Claims priority, application Great Britain, Mar. 21, 1968, 13,789/68

Int. Cl. C03b 18/00

U.S. Cl. 65—182

5 Claims

In the float process for the manufacture of glass, an alkali metal is removed from the bath of molten metal by contact-



establish a field therein such that alkali metal ions are drawn into the body.

ERRATUM

For Class 65—185 see:
Patent No. 3,659,028

3,658,505

GLASS MELTING FURNACE

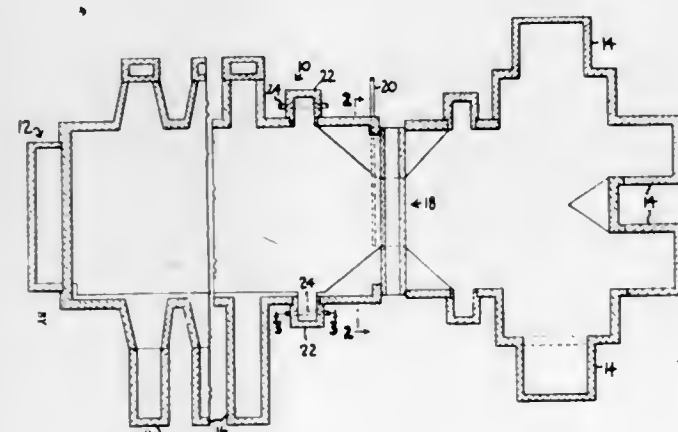
Gerald E. Kunkle, New Kensington, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 22, 1969, Ser. No. 826,861

Int. Cl. C03b 5/22

U.S. Cl. 65—337

6 Claims



A glass melting tank having side compartments with coolers disposed therein to increase the convection current mixing flow of the glass melt in the glass melting tank.

3,658,506

HERBICIDAL ORGANOPHOSPHORUS-NITROGEN

Joseph P. Kleiman, Birmingham, Mich., and Robert L. Mack, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 658,322, Aug. 4, 1967, now Patent No. 3,511,633. This application Feb. 16, 1970, Ser. No. 11,833

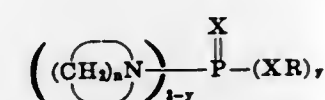
Int. Cl. A01n 9/36

U.S. Cl. 71—87

1 Claim

Organophosphorus-nitrogen compounds having herbicidal properties are used to control undesirable vegetation or in plant defoliation without killing the plant itself. Formulations

containing as the active ingredient a compound of general formula:



wherein R is a hydrocarbon group having up to about 12 carbon atoms or a hydrocarbon group containing various substituents, both being selected from alkyl, alkenyl, aryl, alkaryl, aralkyl, and alicyclic groups, X is oxygen or sulfur, n is an integer from 2 to 9, and y is an integer from 1 to 2. For example, di-n-butyl piperidinophosphonate and S-n-butyl-dipiperidinophosphinothioate are preferred.

3,658,507

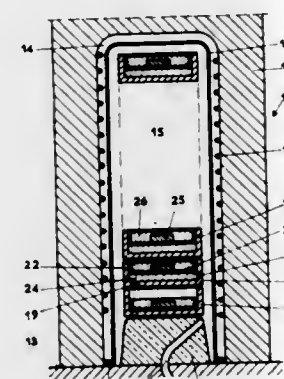
PROCESS FOR THE MANUFACTURE OF CHROME POWDER

Gilles M. Gohin, and Andre R. Hivert, both of Pontoise, France, assignors to Office National D'Etudes Et De Recherches Aerospatiales, Chatillon-sous-Bagneux, France
Original application Feb. 26, 1968, Ser. No. 715,114, now Patent No. 3,536,309, dated Oct. 27, 1970. Divided and this application Feb. 3, 1970, Ser. No. 8,347

Int. Cl. C22b 5/04; B22f 9/00; C22b 39/00

U.S. Cl. 75—0.5 B

4 Claims



A method for the industrial manufacture of chromium powder from chromium oxide powder by reducing the latter with magnesium vapor, including the steps of preparing chromium oxide powder masses of between one and about 10 kilograms, imbedding in each of said masses a magnesium ingot, thermally insulating the masses from each other, and heating the masses to react the magnesium vapor produced by the magnesium ingots with the chromium oxide powder.

3,658,508

PROCESS FOR CONTROLLED REDUCTION ROASTING OF NICKELIFEROUS IRON OXIDE ORES

Donald Robert Welr, and Safdar Wallullah, both of Saskatchewan, Alberta, Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada

Filed Feb. 11, 1970, Ser. No. 10,577

Int. Cl. C21b 1/02, 15/00; C22b 3/00

U.S. Cl. 75—26

7 Claims

Nickeliferous iron bearing oxidic ores are treated to convert contained nickel values to a leachable form with a minimum accompanying conversion of contained iron values to metallic form. Ore particles are suspended in a moving gas stream and are heated, in contact with a gaseous reductant, e.g. hydrogen, in a confined reaction zone, for a period of time not more than about 15 seconds and preferably not more than about 7 seconds.

3,658,509

PROCESS FOR THE METALLOTHERMIC PRODUCTION OF MAGNESIUM

Julian M. Avery, 47 Old Orchard Road, Chestnut Hill, Mass.
Continuation-in-part of application Ser. No. 648,856, June 26, 1967, now Patent No. 3,579,326, dated May 18, 1971.

This application Feb. 3, 1969, Ser. No. 796,214

Int. Cl. C22b 45/00

U.S. Cl. 75—67

12 Claims

A method of producing magnesium by the reduction of magnesium oxide by means of a metallic reducing agent, in the presence of a molten oxidic slag, wherein the system contains an inert gas to obviate at least in part the need of a high vacuum.

3,658,510

RECOVERY OF SILVER FROM ELECTROLYTIC COPPER REFINERY SLIMES

James E. Hoffmann, Plainfield, and Runyon G. Ernst, Woodbridge, both of N.J., assignors to American Metal Climax, Inc., New York, N.Y.

Filed Apr. 14, 1970, Ser. No. 28,370

Int. Cl. C22b 15/08

U.S. Cl. 75—99

9 Claims

Silver is recovered from electrolytic copper refinery slimes containing, in addition to silver, one or more of the elements Se, Te, Pb, Sb, Sn, As, Bi, Zn, Cu, Au, Ni, Fe, among others. A slurry is formed of the slimes in a hydrochloric acid solution which is agitated, during which excess chlorine gas is added to solubilize substantially all of the elements present, the silver being substantially quantitatively converted to silver chloride to form a silver-enriched residue. The residue is thereafter separated from the solution and the silver then recovered from the residue.

3,658,511

UPGRADING THE TANTALUM AND COLUMBIUM CONTENTS OF OXIDIC METALLURGICAL PRODUCTS

Robert A. Gustison, Reading, Pa., assignor to Kawecky Berylco Industries, Inc., New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,424

Int. Cl. C22b 51/00

U.S. Cl. 75—101 R

4 Claims

The mineral acid leaching of a tin slag or other metallurgical product containing tantalum and columbium oxides as well as a significant amount of silica is improved, with resulting increase in the total content of tantalum and columbium oxides in the leached product obtained by filtration, by adding a controlled amount of hydrofluoric acid prior to the filtration.

3,658,512

METAL EXTRACTION

George C. Blytas, Kensington, Calif., assignor to Shell Oil Company, New York, N.Y.

Filed Jan. 15, 1970, Ser. No. 3,154

Int. Cl. C22b 15/10, 23/04

U.S. Cl. 75—103

9 Claims

Selective extractions of copper and cobalt values from alkaline solutions containing ammonium ions employ dialkanoylmethanes as the extracting compound.

3,658,513

PRECIPITATION-HARDENABLE STAINLESS STEEL

William C. Clarke, Jr., Baltimore, Md., assignor to Armco Steel Corporation, Middletown, Ohio

Filed Mar. 6, 1969, Ser. No. 805,039

Int. Cl. C22c 39/20

U.S. Cl. 75—124

13 Claims

Martensitic chromium-nickel stainless steel of great strength in the age-hardened condition, and of good ductility

and toughness. The steel contains about 10.5 percent to about 13.25 percent chromium, about 7.5 percent to about 9.5 percent nickel, about 1 percent to about 2.5 percent molybdenum, about 1 percent to about 2.5 percent copper, about 1 percent to about 2 percent aluminum, and remainder substantially iron. The carbon and nitrogen contents are maintained in critically low amount, the former not exceeding about 0.05 percent and the latter not exceeding 0.015 percent. Cobalt up to about 2 percent may be partially substituted for nickel. There may be added columbium up to about 0.3 percent and/or titanium up to about 0.15 percent.

3,658,514

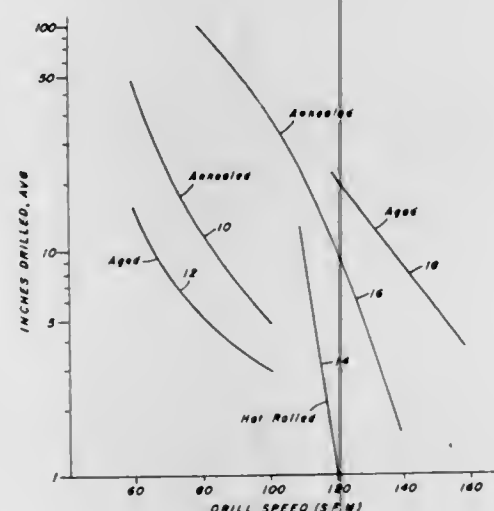
MARTENSITIC STEEL

Remus A. Lula, New Kensington; George Aggen, Sarver, both of Pa., and Charles M. Hammond, Alliance, Ohio, assignors to Allegheny Ludlum Steel Corporation, Brackenridge, Pa. Continuation-in-part of application Ser. No. 316,011, Oct. 14, 1963, now abandoned. This application Oct. 8, 1968, Ser. No. 765,766

Int. Cl. C22c 39/20

U.S. Cl. 75—128 T

3 Claims



Martensitic, age hardenable stainless steel substantially free of delta ferrite, containing traces to about 0.07 percent carbon, traces to about 0.35 percent silicon, traces to about 0.6 percent manganese, from about 14 percent to about 17.5 percent chromium, from about 4.75 percent to about 7 percent nickel, from about 0.3 percent to about 1.3 percent titanium, and the balance essentially iron with residuals and residual impurities and in which the steel is characterized by exhibiting a ratio of notch tensile strength to smooth tensile strength of at least 1.

3,658,515

HARD WEAR-RESISTANT FERROUS ALLOY

Gilbert A. Saltzman, Plainfield, N.J., assignor to Xaloy Incorporated, New Brunswick, N.J.

Filed June 22, 1970, Ser. No. 48,527

Int. Cl. C22c 39/20

U.S. Cl. 75—128 F

7 Claims

A hard, wear-resistant ferrous alloy of from 3.30 to 3.90 weight percent carbon, 0.75 to 1.25 weight percent boron, 1.20 to 1.60 weight percent manganese, 0.65 to 1.10 weight percent silicon, 4.10 to 5.00 weight percent nickel, 0.90 to 1.40 weight percent chromium, up to 0.50 weight percent molybdenum, and the balance essentially iron. The alloy is centrifugally cast into linings for extruders or injection molders for plastic materials, which linings possess improved hardness characteristics.

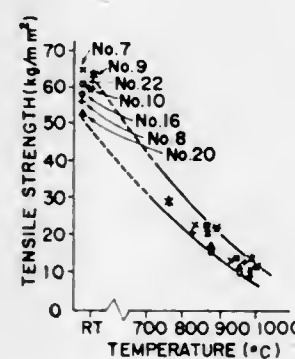
3,658,516
AUSTENITIC CAST STEEL OF HIGH STRENGTH AND EXCELLENT DUCTILITY AT HIGH TEMPERATURES
Mikio Hachisu; Eisuke Niiyama, both of Katsuta-shi; Ryochi Sasaki, Hitachi-shi; Humio Hataya, Hitachi-shi, and Yutaka Fukui, Hitachi-shi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 5, 1969, Ser. No. 855,716

Int. Cl. C22c 39/20

U.S. Cl. 75—128 E

19 Claims



An austenitic cast steel having high strength and excellent ductility at temperatures higher than, for example, 700° C. consisting essentially of C in the range from 0.30 to 0.55 percent, Si in the range from 0.2 to 2.0 percent, Mn in the range from 0.5 to 3.0 percent, Ni in the range from 15 to 40 percent, Cr in the range from 20 to 30 percent, Ti in the range from 0.05 to 0.6 percent, a rare earth metal alloy containing Ce and La as the main components in the range from 0.05 to 0.5 percent (as the additive amount) and the balance substantially iron. The steel may further contain from 0.07 to 0.7 percent by weight of Nb.

3,658,517

PRODUCTION OF STRIP FROM POWDERED METAL
Idwal Davies, Killay, Swansea; Thomas Arthur Canning, Newton, Swansea, and Alan G. Harris, Tycosh, Swansea, all of Wales, assignors to The British Iron and Steel Research Association, London, England

Filed July 1, 1969, Ser. No. 838,325

Claims priority, application Great Britain, July 10, 1968,

32,957/68

Int. Cl. B22f 1/00

U.S. Cl. 75—200

11 Claims

A process is provided for rolling metal strip particularly iron or iron alloy strip, directly from powdered metal using a technique in which a self-supporting metal powder/binder strip is formed on a support surface from a slurry containing the metal and binder composition, the support surface being precoated with a release agent. Typical release agents are mono-basic fatty acids, such as steric and oleic acids.

3,658,518

THREE-LAYERED REFLEX ELECTROPHOTOGRAPHIC RECORDING ELEMENT

Evan S. Baltazzi, Brookfield, Ill., assignor to Addressograph-Multigraph Corporation, Mt. Prospect, Ill.

Filed Apr. 4, 1969, Ser. No. 813,418

Int. Cl. G03g 1/00, 5/00

U.S. Cl. 96—1.4

7 Claims

A three layer photoelectrostatic recording member comprising a first insulating base support layer which is a polymeric film, a second layer of a conductive polymeric material, bonded to said base support layer and a third layer of an organic photoconductive material bonded to said second conductive layer.

3,658,519
IMAGE TRANSFER PROCESS FROM CONDUCTIVE SUBSTRATES

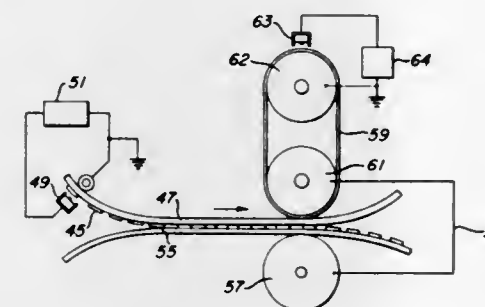
Elsie L. Menz, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 24, 1969, Ser. No. 887,805

Int. Cl. G03g 13/22

U.S. Cl. 96—1.4

13 Claims



A method of transferring dielectric imaging material containing a static charge from an electrically conductive image bearing surface to an image receiving surface by means of coulombic attraction and the rearrangement of electrical charges.

3,658,520

PHOTOCONDUCTIVE ELEMENTS CONTAINING AS PHOTOCONDUCTORS TRIARYLAMINES SUBSTITUTED BY ACTIVE HYDROGEN-CONTAINING GROUPS

Thomas B. Brantly; Lawrence E. Contois, and Charles J. Fox, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 20, 1968, Ser. No. 706,780

Int. Cl. G03g 5/00, 7/00

U.S. Cl. 96—1.6

18 Claims

Triarylamines having at least one of the aryl radicals substituted by an active hydrogen-containing group are good organic photoconductors in electrophotographic systems.

3,658,521

1-AMINOPYRIDINIUM DYES AS SENSITIZERS IN ELECTROPHOTOGRAPHIC LAYERS

Lawrence Edward Contois, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 3, 1969, Ser. No. 870,485

Int. Cl. G03g 5/06, 5/08

U.S. Cl. 96—1.6

10 Claims

1-Aminopyridinium dyes are useful for sensitizing photoconductive compositions used in electrophotographic layers. The dyes are heat and light bleachable so that undesirable color imparted to background areas of the image bearing element by the dyes is easily removable. Such bleaching increases the visual contrast of the reproduction.

3,658,522

MEROCYANINE-SENSITIZED ZINC OXIDE PHOTOCONDUCTIVE ELEMENT

Katutoshi Endo, Yokoyama-shi, and Isao Tashiro, Tokyo, both of Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed May 12, 1969, Ser. No. 823,815

Claims priority, application Japan, May 15, 1968, 43/32229

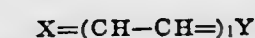
Int. Cl. G03g 7/00

U.S. Cl. 96—1.7

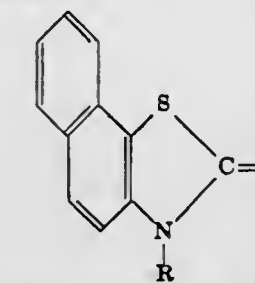
2 Claims

An electrophotographic copying material comprising a support and a photoconductive layer which is formed on one surface of said support and consisting substantially of an electrically insulating resinous binder having suspended

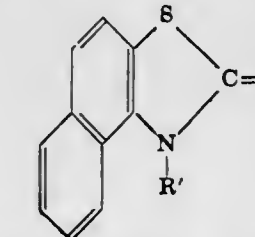
therein a finely divided photoconductive substance and a merocyanine dye as a sensitizer, said dye being expressed by the formula:



wherein X= represents a divalent radical selected from the group consisting of

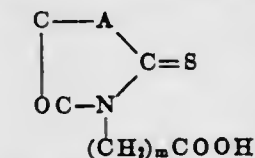


(which means β -naphthothiazole radical and R represents a monovalent radical selected from the group consisting of methyl, ethyl, propyl, butyl and amyl radicals), and

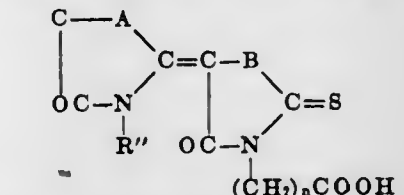


(which means α -naphthothiazole radical, and R' represents a radical identical with that of said R),

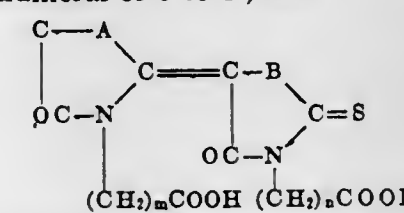
Y represents a divalent radical selected from the group consisting of



(A represents a radical selected from the group consisting of oxygen and sulfur, and m is a numeral of 0 to 3.)



(R' represents a radical identical with that of said R, B represents a radical identical with that of said A, and n is a numeral of 0 to 3.) and



and l represents a numeral of 0 to 4.

3,658,523

PHOTOCONDUCTIVE RECORDING MEMBER UTILIZING A MIXTURE OF ZINC OXIDE AND CADMIUM SULPHIDE-CADMIUM SELENIDE

Robert Joseph Noe, Mortsel, Belgium, assignor to Gevaert-Agfa N.V., Mortsel, Belgium

Filed Apr. 25, 1969, Ser. No. 819,453

Claims priority, application Great Britain, Apr. 26, 1968, 19,888/68

Int. Cl. G03g 5/00, 7/00

U.S. Cl. 96—1.8

16 Claims

A photoconductive recording material is superadditively sensitized to visible light by a mixture of 95-50 percent of photoconductive zinc oxide and 5-50 percent of photoconductive crystalline mixed cadmium sulphide-cadmium selenide.

3,658,524

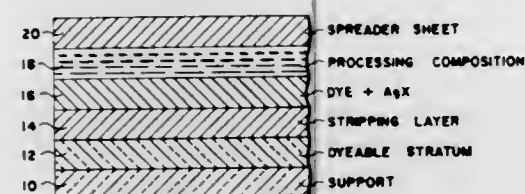
PHOTOGRAPHIC FILM UNIT COMPRISING SILVER HALIDE AND A DYEABLE STRATUM CONTAINED ON A COMMON SUPPORT AND PROCESS EMPLOYING SAME
Joel M. Plesach, Hudson, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sept. 29, 1969, Ser. No. 861,768

Int. Cl. G03c 5/54

U.S. Cl. 96—3

10 Claims



Novel systems for preparing dye images utilizing novel film units including a layer of a light-sensitive silver halide, a color-providing material disposed in this layer or in an adjacent layer, which color-providing material is non-diffusible, but, upon oxidation, can release a diffusible color-providing moiety for transfer, said film unit further including a dyeable stratum separable from the aforementioned layer or layers.

3,658,525

REVERSAL COLOR PHOTOGRAPHIC PROCESSES
Richard L. Bent, and Rowland G. Mowrey, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 3, 1970, Ser. No. 94,992

Int. Cl. G03c 7/30, 7/32; C07c 87/58

U.S. Cl. 96—22

16 Claims

Color reversal processes comprising a negative silver development step, followed by reversal color development with an aqueous alkaline color developing composition containing a 3-alkyl-N-alkyl-N-alkoxyalkyl-p-phenylenediamine or a 3-alkoxy-N-alkyl-N-alkoxyalkyl-p-phenylenediamine color developing agent advantageously produce color image reproductions that are superior to those produced by prior art processes by enhancing interlayer and intralayer interimage effects produced in the negative development step, thus giving more complete correction for unwanted absorptions of the dyes, as well as (1) reducing color contamination of dye images caused by color fog, (2) increasing the dye yield per unit of silver, (3) forming dyes of superior light stability, and (4) providing processes that are less sensitive to pH changes.

3,658,526

HOLOGRAM RECORDING IN PHOTOPOLYMERIZABLE LAYERS

Eugene Frederick Haugh, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 25, 1969, Ser. No. 852,927

Int. Cl. G03c 5/04

U.S. Cl. 96—27

18 Claims

High-resolution holograms, stable to exposure to actinic light, are made from photopolymerizable materials by a single-step process wherein a permanent image is obtained by a single imagewise exposure of a photopolymerizable layer to actinic radiation bearing holographic information. Diffraction gratings and copies of holograms can be made rapidly in accordance with the invention.

3,658,527

OXIDATION INHIBITORS FOR PHOTOGRAPHIC MATERIALS

Patrick Kunz; Maurice Edgar Pfaff, and Pierre Amedee Roman, all of Vincennes, France, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 17, 1967, Ser. No. 661,210

Claims priority, application France, Aug. 30, 1966, 74582

Int. Cl. G03c 5/54

U.S. Cl. 96—29

22 Claims

Photographic developers containing (1) a 3-pyrazolidone, (2) either an ascorbic acid or a mixture of an ascorbic acid with a polyhydroxybenzene compound, and (3) an alkali metal or ammonium salt of a hydroxylated polybasic organic acid as an oxidation inhibitor. Photographic elements containing the developer are also described as well as a chemical transfer process utilizing such photographic elements.

3,658,528

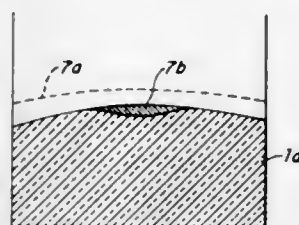
PHOTOCHEMICAL FIGURING OF OPTICAL ELEMENTS
Elliot Berman, Quincy; Gerald L. McLeod, Lexington; Charles H. C. Pian, Burlington; Samuel H. Stein, Lexington, and Juliette F. Pian, Burlington, all of Mass., assignors to Itek Corporation, Lexington, Mass.

Filed Sept. 22, 1969, Ser. No. 859,913

Int. Cl. G03c 5/00, 1/100

U.S. Cl. 96—35.1

9 Claims



A method and means for correcting irregularities and properly contouring optical components by coating the surface to be contoured with a layer of photopolymerizable or photodepolymerizable material and using light to selectively operate on the layer to achieve the proper contour. In the case when a polymerized coating is used, the layer is deposited on the optical surface and light or similar radiant energy is selectively directed onto the outer surface of the polymer, to photodepolymerize the outer portions in accordance with the desired figuring. The resulting depolymerization products are then removed by dissolving with a suitable solvent or are distilled away in vacuo, leaving a polymerized coating in the contour desired. In the alternate case, a layer of polymerizable material is deposited on the surface to be figured and a selective pattern of light or similar radiation is directed through the optical component, causing polymerization at the component-layer interface. The unaffected components of the layer are dissolved away with a suitable solvent, leaving the required polymerized surface on the component. The selective radiation is produced in response to digitally encoded signals obtained from a comparison of the desired contour with a contour map of the actual surface of the optical component.

3,658,529

PHOTOGRAPHIC PROCESS

Leon Yeshin, Toronto, Ontario, Canada, assignor to W. R. Grace & Co., New York, N.Y.

Filed Nov. 28, 1969, Ser. No. 880,904

Int. Cl. G03c 5/00, 1/68

U.S. Cl. 96—35.1

4 Claims

Photographs are obtained from an element containing a photocurable composition. The element consists of a liquid photocurable composition absorbed (impregnated) into and

onto a porous essentially transparent support layer. The process includes, for example, exposing the photocurable element to actinic or U.V. radiation through a line or halftone negative image, and separating the sheets. The unexposed photocurable composition is leached out of the porous support layer, thereby exposing the surface of the support layer. The support layer containing the photocured composition is, in effect, a photograph in that the support layer surface is visually distinguishable from the photocured composition. The liquid photocurable composition contains at least a polyene, a polythiol and a photocuring rate accelerator, and a coloring agent when the visual effects or differences must be enhanced to produce a photograph.

3,658,530

PROCESS FOR FORMING AN OPAQUE INTERSTITIAL WEB IN A COLOR CRT SCREEN STRUCTURE

Robert A. Hedler, and Jerry F. Janssen, both of Seneca Falls, N.Y., assignors to Sylvania Electric Products, Inc.

Filed May 28, 1970, Ser. No. 41,536

Int. Cl. G03c 5/00

U.S. Cl. 96—36.1

5 Claims

An improved process for forming an opaque interstitial web pattern for a color cathode ray tube screen structure on the interior of the viewing panel. A pattern of substantially clear polymerized PVA dots is formed on the subsequently occupied phosphor areas, and an opaque graphite coating applied thereover. A chemical agent is employed to degrade the dots and loosen the contiguous opaque coating thereon. Removal of these loosened materials provides an opaque interstitial web defining multitudinous bare glass window areas wherein the phosphor pattern elements are subsequently disposed. The improvement comprises using a hydrazo-reducing agent as the chemical agent.

3,658,531

METHOD OF MAKING FLEXIBLE PRINTING PLATES

Donald M. Kurtz, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y.

Filed Oct. 29, 1970, Ser. No. 85,256

Int. Cl. G03c 5/00; G03f 7/00

U.S. Cl. 96—36.3

7 Claims

Soluble, sulfur-curable polyetherurethanes, reaction products of organic diisocyanates and polyalkyleneether glycols, which are chain extended with an active hydrogen bearing compound such as a nonpolymeric glycol, with either main chain unsaturation or side chains containing terminal $-\text{CH}=\text{CH}_2$ groups present in any of the active hydrogen bearing reactants, are sensitized with aromatic ketones and insolubilized by exposure to U.V. light ($3,100^\circ - 4,300^\circ \text{A}$). Plates for flexographic printing are prepared from these materials.

3,658,532

RELIEF OR INTAGLIO PLASTIC PLATE AND METHOD OF MANUFACTURE THEREOF

Joseph Edward Gilligan, 68 Lindberg Avenue, West Newton, Mass.

Filed July 1, 1969, Ser. No. 838,262

Int. Cl. G03c 5/00; G03f 7/00

U.S. Cl. 96—36.3

7 Claims

Disclosed is a relief or intaglio plastic plate and the method of manufacture thereof whereby an image-bearing transparency of the indicia the plate is to print is permanently bonded to a base plate and thereafter selected areas of the transparency corresponding to the image together with areas of the base plate underlying the selected areas are removed to desired depths.

3,658,533
COPYING PROCESS

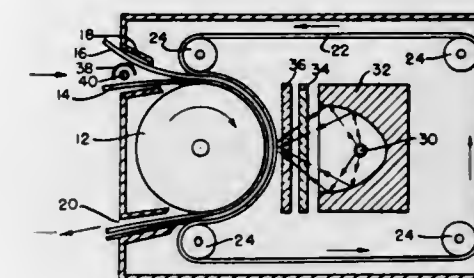
Richard A. Fotland, Lyndhurst; Virgil E. Straughan, Euclid, and John Cameron, Cleveland, all of Ohio, assignors to Horizons Incorporated, a Division of Horizons Research Incorporated

Filed June 11, 1969, Ser. No. 832,143

Int. Cl. G03c 5/24, 1/100, 1/92

U.S. Cl. 96—48

7 Claims



A photosensitive non-silver free radical film is placed in physical contact with copy material to be duplicated and on exposing the film to radiation from a powerful red light, either positive copy or negative copy is obtained.

3,658,534

PHOTOSENSITIVE POLYMERIC MATERIAL AND METHOD FOR THE PREPARATION THEREOF

Akira Ishitani, and Kenkichi Nukada, both of Kamakura-shi, Japan, assignors to Toray Industries, Inc.

Filed Sept. 12, 1969, Ser. No. 857,534

Claims priority, application Japan, Sept. 16, 1968, 43/66223;

Oct. 30, 1968, 43/78536

Int. Cl. G03c 1/64, 5/24

U.S. Cl. 96—48 R

15 Claims

A photosensitive polymeric material comprising an oxygen, sulfur, phosphorus, nitrogen, halogen or coordination compound forming aromatic nucleus-containing polymer bonded by coordination bonding to an organic or inorganic salt of a metal from Groups IB, IIB, VIB, VIIIB, and VIIIIB of the Periodic Table. Typically, nylon or a polyester film is immersed in a solution of a metal salt, such as cupric halide, to effect molecular dispersion thereof on said polymer and formation of a coordination bonded complex therebetween. Numerous other polymers, metal compounds and dispersion-bonding methods are also disclosed. Color or absorptivity change is then produced by irradiation. Some of the complexed polymer materials are heat sensitive and/or reversible in their photo and heat sensitivity. Color changes may be fixed in some materials after irradiation by other treatment steps. Selective treatment with chemical reagents or dyestuffs is also possible following irradiation.

3,658,535

PHOTOGRAPHY

Jozef Frans Willems, Wilrijk, Belgium, assignor to Gevaert-AGFA NV, Mortsel, Belgium

Filed Nov. 27, 1968, Ser. No. 779,656

Claims priority, application Great Britain, Dec. 27, 1967, 58,656/67

Int. Cl. G03c 5/50, 5/32

U.S. Cl. 96—59

30 Claims

The method of rendering silver halides developable in photographic elements by treating the elements with a processing liquid comprising a tin(II)chelate of a (poly)amino(poly)carboxylic acid in acid form or in the form of a water-soluble salt is described. The aforesaid tin(II)chelates have good chemical fogging action forming developable specks in a light-sensitive silver halide material and remain stable in alkaline solutions permitting their incorporation in a developer solution eliminating need of an independent processing bath.

3,658,536

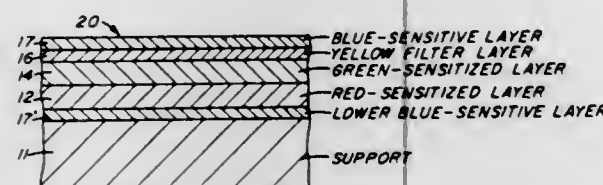
MULTILAYERED COLOR FILM OF INCREASED SHARPNESS

Wilfred L. Wolf, Kodak Park Works, 1669 Lake Avenue, Rochester, N.Y.

Filed July 13, 1970, Ser. No. 54,539
Int. Cl. G03c 1/76

U.S. Cl. 96—69

5 Claims



In a multilayered color film having a double-coated blue-sensitive emulsion a layer of the blue-sensitive emulsion is placed below the green- or red-sensitized emulsion to yield images with increased sharpness.

3,658,537

COLOR PHOTOGRAPHIC MATERIAL COMPRISING A BLUE-GREEN COLOR COUPLER

Hans-Heinrich Credner, Munich; Hans Glockner, Pullach; Fritz Muller, Munich, and Friedrich Wilhelm Kunitz, Leverkusen, all of Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

Filed Nov. 18, 1968, Ser. No. 776,747

Claims priority, application Germany, Nov. 18, 1967, P 15 97 499.9

Int. Cl. G03c 1/40

U.S. Cl. 96—74

16 Claims

A blue-green color coupler comprising a 1-hydroxy-2-benzoyl or -naphthoyl amino-substituted acid wherein the amino group is attached to the ring-attached carbonyl group through one or more amino acids, and color-photographic material comprising said coupler.

3,658,538

SENSITIZED PAPER PLATES FOR PRODUCING PLANOGRAPHIC PRINTING FORMS

Aloysius Henricus Jacobus Hilhorst, Helden, Netherlands, assignor to Van der Grinten N.V., Venlo, Netherlands

Filed Jan. 9, 1969, Ser. No. 790,174

Claims priority, application Netherlands, Jan. 12, 1968, 68,00539

Int. Cl. G03c 1/52; G03f 7/02

U.S. Cl. 96—75

14 Claims

Inexpensive positive-imaging sensitized plates, easily convertible into good and durable planographic printing forms by imagewise exposure and development with an aqueous buffered phloroglucinol solution at a pH of 4 to 8, are provided by forming on a paper support a planographic coating consisting essentially of a finely divided inorganic filler and, as a hydrophilic organic binder, water-insolubilized polyvinyl alcohol having a degree of hydrolysis greater than 98 percent, and sensitizing this coating with a benzene diazonium salt of high coupling activity. The coating is formed from an aqueous dispersion containing a cross linking agent for insolubilizing the polyvinyl alcohol, and is dried and hardened to a Cobb-test water absorbing capacity of less than 6. The plates give extremely long-running offset printing forms when exposed through a transparent original, and even when the original is a typewritten translucent sheet.

3,658,539

METHOD FOR THE PREPARATION OF PHOTOREACTIVE TITANIUM DIOXIDE COMPOSITION

Horace Frank Dantro, Toms River, N.J., assignor to N L Industries, Inc.

Original application May 22, 1968, Ser. No. 731,326, now Patent No. 3,561,968. Divided and this application Mar. 6, 1970, Ser. No. 24,958

Int. Cl. G03c 1/00; C01g 23/04; C09c 1/36

U.S. Cl. 96—88

5 Claims

This invention relates in general to a method for the preparation of a titanium dioxide composition which possesses photosensitive properties useful in commercial systems designed to respond to exposure to light i.e., photographic emulsions, copy paper and the like.

3,658,540

PRODUCTION OF PHOTOGRAPHIC MATERIALS WITH PHOTOSENSITIVE COMPOUNDS OTHER THAN SILVER HALIDES

Jordan P. Malinowski, Sofia, Bulgaria, assignor to Institut po Fizikohimia pri Bulgarska Akademiya na Naukite, Sofia, Bulgaria

Filed Sept. 12, 1967, Ser. No. 667,080

Claims priority, application Bulgaria, Dec. 31, 1966, 1567

Int. Cl. G03c 1/00

U.S. Cl. 96—88

5 Claims

A method of making a photographic material in which a photosensitive semiconductor layer is applied to the substrate and a thin, radiation-permeable layer is deposited thereon to stabilize the image formed upon radiation of the material.

3,658,541

PHOTOGRAPHIC SUBBING MATERIALS

Frederick J. Jacoby, Frederick L. Hamb, and Lewis C. Trent, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 9, 1969, Ser. No. 865,184

Int. Cl. G03c 1/80

U.S. Cl. 96—87

2 Claims

Solvent soluble carboxylated polyester subbing materials for photographic elements. An organic solvent soluble polyester is carboxylated by treatment, during the latter stages of polymerization, with an organic dianhydride to produce an organic solvent soluble carboxylated polyester. The solvent soluble carboxylated polyester is effectively used in subbing compositions, desirably containing attack solvent, e.g., coated onto a polyester photographic film support and has excellent adhesion both to support and to conventional gelatin-cellulose ester subbing layers used to adhere a gelatin silver halide emulsion to the support.

3,658,542

DUAL RESPONSE PHOTOSENSITIVE COMPOSITION CONTAINING ALKYL BENZENESULFONIC ACID AND ARENE SULFONAMIDE

Cyrus P. Henry, Jr., and John R. Jeffrey, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 18, 1970, Ser. No. 99,511

Int. Cl. G03c 1/52

U.S. Cl. 96—90

21 Claims

Improved photosensitive compositions comprising
A. an acid salt of a leuco aminotriarylmethane such as tris (4-N,N-diethylamino-o-tolyl)methane;

B. a hexaarylbiimidazole such as a 2,2'-bis(o-chloro-phenyl)-4,4',5,5'-tetraphenylbiimidazole; and

C. a redox couple containing (1) as an oxidant a polynuclear quinone absorbing principally in the 400–550 nm region such as 1,6-pyrenequinone, and (2) as a reductant an acyl ester of

triethanolamine such as triethanolamine triacetate, a lower alkyl ester of a nitrilotrialkanoic acid such as 3,3',4'-nitrilotripropionic acid, trimethyl ester or their mixtures,

are obtained with the use of an alkylbenzenesulfonic acid to form the salt of the triarylmethane and an alkyl arenesulfonamide plasticizer. The improved compositions are effective color forming compositions useful in a variety of applications.

3,658,543

DUAL RESPONSE PHOTOSENSITIVE COMPOSITION CONTAINING ACYL ESTER OF TRIETHANOLAMINE

Howard G. Gerlach, Jr., West Chester, Pa., and Catharine E. Looney, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 18, 1970, Ser. No. 99,512

Int. Cl. G03c 1/52

U.S. Cl. 96—90

20 Claims

Improved photosensitive compositions comprising
A. an acid salt of a leuco aminotriarylmethane such as tris (4-N,N-diethylamino-o-tolyl)methane;

B. a hexaarylbiimidazole such as a 2,2'-bis(o-chloro-phenyl)-4,4',5,5'-tetraphenylbiimidazole; and

C. a redox couple containing (1) as an oxidant a polynuclear quinone absorbing principally in the 400–550 nm region such as 1,6-pyrenequinone, and (2) as a reductant an acyl ester of triethanolamine such as triethanolamine triacetate optionally mixed with a lower alkyl ester of a nitrilotrialkanoic acid such as 3,3',3''-nitrilotripropionic acid, trimethyl ester are effective color forming compositions useful in a variety of applications.

3,658,544

LIGHT-SENSITIVE SILVER HALIDE COLOR- PHOTOGRAPHIC EMULSIONS

Masakuni Iwama; Isaburo Inoue; Teruo Hanzawa; Kenro Sakamoto, and Takaya Endo, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Chuo-ku, Tokyo, Japan

Filed Aug. 6, 1969, Ser. No. 848,069

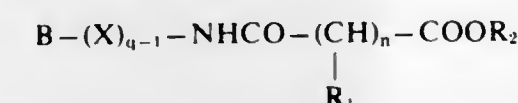
Claims priority, application Japan, Aug. 12, 1968, 43/56727

Int. Cl. G03c 1/40

U.S. Cl. 96—100

8 Claims

A light-sensitive silver halide color-photographic emulsion which contains as protected coupler, a compound of the general formula



wherein B is a coupler residue;

nR₁ are hydrogen atoms, or at most one of nR₁ is a C₁ to C₄-aliphatic hydrocarbon radical, attached to the terminal carbon of the alkylene chain and the remaining (n-1)R₁ are hydrogen;

R₂ is a C₇ to C₁₈-aliphatic hydrocarbon radical; X is a group capable of bonding the coupler residue with an acylamino group;

n is 2 or 3; and

q is 1 or 2.

3,658,545

LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL CONTAINING CYAN COUPLERS

Masakuni Iwama; Mitsuto Fujiwara; Tamotsu Kojima; Hiroyuki Imamura, and Toshihiko Yamamoto, all of Tokyo, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Chuo-ku, Tokyo, Japan

Filed Dec. 19, 1969, Ser. No. 886,779

Claims priority, application Japan, Dec. 20, 1968, 43/93070

Int. Cl. G03c 1/40

U.S. Cl. 96—100

2 Claims

New colored cyan couplers useful in color photography can be obtained by substitution of a cyan coupler of the 1-hydroxy-2-naphthamide type at its 4-position with a particular new arylazo group. These colored cyan couplers provide light-sensitive silver halide color-photographic material, which exhibits high photographic speed and which is free from color tone deviation over a wide pH range.

3,658,546

METHOD OF INCORPORATING PHOTOGRAPHIC INGREDIENTS INTO PHOTOGRAPHIC COLLOID COMPOSITIONS

Marcel Karel Van Doorselaer, 'S-Gravenwezel; Gaston Jacob Benoy, Edegem; Jaak Pieter Van Vugt, Antwerp, and Raphael Karel Van Poucke, Berchem, all of Belgium, assignors to Gevaert-AGFA N.V., Mortsel, Belgium

Filed Mar. 20, 1970, Ser. No. 21,470

Claims priority, application Great Britain, Mar. 20, 1969, 14,763/69

Int. Cl. G03c 1/40

U.S. Cl. 96—100

12 Claims

A substantially water-insoluble photographic ingredient is incorporated into a hydrophilic colloid coating composition, used for instance in coating a photographic material such as a light-sensitive emulsion composition or the like, by dissolving such ingredient in at least one substantially water-immiscible organic solvent for the ingredient, admixing the organic solvent solution with water in the presence of a dispersing agent and in the absence of any hydrophilic colloid, removing from this admixture substantially all of the water-immiscible organic solvent used in dissolving the ingredient, and incorporating the aqueous dispersion obtained following such solvent removal in the desired hydrophilic colloid composition.

3,658,547

SILVER HALIDE PHOTOGRAPHIC EMULSIONS

Kelsuke Shiba; Reichi Ohl; Masatoshi Sugiyama; Azusa Ohhashi, and Motohiko Tsubota, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigum, Kanagawa, Japan

Filed Mar. 6, 1970, Ser. No. 17,316

Claims priority, application Japan, Mar. 7, 1969, 44/17259

Int. Cl. G03c 1/36

U.S. Cl. 96—101

5 Claims

Photographic silver halide emulsion and photographic elements containing same, said elements containing certain phenazine desensitizing dyes. The dyes of this invention selectively desensitize the silver halide emulsion to visible light, as contrasted with X-rays.

3,658,548

ANIMAL FOOD PRODUCTS

Gerhard J. Haas, Woodcliff Lake, N.J., assignor to General Foods Corporation, White Plains, N.Y.

Filed June 2, 1969, Ser. No. 829,720

Int. Cl. A23k 3/00, 1/10

U.S. Cl. 99—2 R

8 Claims

This invention relates to the use of caproic and caprylic acids as antimicrobics or preservatives to preserve meat and

meat-like animal foods which are characterized by high degrees of palatability, nutrition and caloric value.

3,658,549

CALCIUM SODIUM PHOSPHATE FEED SUPPLEMENTS
Karl Geiersberger, Deutz-Kolker Str. 66, Cologne-Deutz, and Gerhard Grams, Eiserfelder Str. 3, Cologne-Brueck, both of Germany

Filed July 22, 1969, Ser. No. 843,830

Claims priority, application Germany, July 23, 1968, P 17 92 109.4

Int. Cl. A23k 1/175

U.S. Cl. 99—2 CD

6 Claims

The synthesis of certain calcium sodium phosphates such as CaNaPO_4 , and their use as mineral food supplements for mammals such as cows and pigs.

3,658,550

METHOD FOR PRODUCING AN ARTIFICIAL ADIPOSE TISSUE

Robert L. Hawley, Webster Groves, Mo., assignor to Ralston Purina Company, St. Louis, Mo.

Filed Oct. 16, 1969, Ser. No. 867,069

Int. Cl. A23j 3/00

U.S. Cl. 99—17

4 Claims

A method is presented for producing artificial adipose tissue material which is capable of being cooked itself or incorporated into simulated meat products to give the appearance and cooking behavior of natural meat products, as well as impart a natural fatty flavor to the simulated meat product. The artificial adipose tissue is produced by reacting an aqueous solution of an alkali salt of alginic acid and a retarding agent with a fat dispersion of an alkaline earth metal salt to form an alginate gel matrix with the fat entrapped therein in small discrete droplets or globules, which are then slowly released by rupture of the walls enclosing these droplets during cooking to slowly baste the simulated meat as well as be somewhat retained within the gel matrix to impart a natural juicy taste to the simulated meat product.

3,658,551

MINK FEED

Robert H. Bundus, Riverside, and Robert J. Bingham, Arlington Heights, both of Ill., assignors to Beatrice Foods Co., Chicago, Ill.

Filed Nov. 27, 1968, Ser. No. 779,634

Int. Cl. A23k 1/10, 3/00

U.S. Cl. 99—2 R

9 Claims

A feed for carnivorous animals is provided by cooking a meat product to pasteurize the same, cooling under vacuum while reducing the water to 10–30 percent and then adding an acid as a preservative to give a pH 3.5 to 4.5 and packaging to give a stable product. The preferred meats are fish and chicken or chicken parts and the product is particularly adapted for feeding mink.

3,658,552

CLOUDING AGENT

Paul O. Carlson, Hickory Corners, Mich.; Allan N. Cohan, Cedarhurst, and Jack C. Gray, Port Washington, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed May 22, 1969, Ser. No. 827,026

Int. Cl. A23l 1/27

U.S. Cl. 99—78

6 Claims

A clouding agent for incorporation into a dry beverage mix is prepared by forming a dispersion in an aqueous matrix of gum of melted plastic fat and finely ground particles of an inorganic whitening pigment. The mixture is emulsified and dried to a solid having a moisture content of less than 10 percent by weight of the cloud material. The plastic fat com-

prises a minor proportion and the gum a major proportion based on the total weight of the clouding agent. The preferred inorganic whitening pigment is titanium dioxide.

3,658,553

DIETARY DRY CAKE MIX

Sol B. Radlove, 6125 North Seeley, Chicago, Ill.

Filed Jan. 14, 1969, Ser. No. 791,187

Int. Cl. A21d 1/10; A23l 13/08

U.S. Cl. 99—94

7 Claims

A dietary dry cake mixture which is free of sugar and which has a sorbitol to flour ratio of about 55 percent to about 110 percent. The cake mixture has a shortening portion including a minor amount of emulsifiers and a major amount of liquid vegetable oil or plastic shortening. An emulsion enhancer is combined with the emulsifier in the shortening portion.

3,658,554

METHOD OF MAKING CONFECTIONED MUSHROOMS

Sadaichi Hirota, 78 Motomachidori, 3-chome, Ikuta-ku, Kobe Japan

Filed Dec. 17, 1969, Ser. No. 885,968

Claims priority, application Japan, Mar. 8, 1969, 44/17729

Int. Cl. A23b 7/08; A23g 3/00

U.S. Cl. 99—102

12 Claims

Process of producing confectioned mushrooms by soaking a bundle of mushrooms in one or more tankfuls of a boiling organic acid solution, all at once or in successive tanks, and then sequentially soaking the mushrooms in ever-increasing concentrations of syrup. The obtained soaked mushrooms are then heated, coated with a layer of syrup and dried.

3,658,555

SPREADABLE FATS

Hans-Udo Menz, Hamburg-Schenefeld; Johannes Erich Rost, Hamburg, and Theophil Wieske, Hamburg, all of Germany, assignors to Lever Brothers Company, New York, N.Y.

Filed Mar. 7, 1969, Ser. No. 805,352

Int. Cl. A23d 3/00

Claims priority, application Germany, Mar. 7, 1968, P 16 92 541.0

U.S. Cl. 99—122 R

11 Claims

A novel mixture of C_8 and C_{10} glycerides in a specified crystalline form may be used in margarine and other fat compositions. The compositions may be used as the sole or principal fat in food spreads suitable for consumers whose ordinary fat metabolism may be impaired, as an additive to confer a marked cooling effect to conventional edible fat blends, and as a component in other fat compositions which is more resistant to the deterioration commonly met in unsaturated fats.

3,658,556

CANNED JEL DESSERT

Ralph Arthur Klein, Liverpool, and Angelo Cerchia, Syracuse, both of N.Y., assignors to Borden, Inc., New York, N.Y.

Filed Apr. 28, 1970, Ser. No. 32,713

Int. Cl. A23b 7/00; A23l 1/04

U.S. Cl. 99—131

8 Claims

This invention relates to an edible gel dessert composition containing fruit particles uniformly distributed therein made by a process which comprises the steps of (a) packaging a dessert mix comprising water, particles of fruit of suitable size and a gelling agent comprising locust bean gum and carageenan gum in a container and sealing said container; (b) heating the packaged dessert mix to a sterilizing temperature for a sufficient time to effect sterilization; (c) cooling said dessert mix rapidly to a temperature of about 140° to 155° F. within 2 to 5 minutes while concurrently rotating the container; (d) further cooling said dessert mixture to a temperature of about 105° to 115° F. while using a cooling liquid

such as water at a temperature of about 100° to 110° F. preferably 105° F. and while concurrently rotating the container along its longitudinal axis for a sufficient time to cause the rotating gel mix to become viscous enough, or so structured, that there is no relative movement or change in position of the fruit particles with respect to each other in the gel without allowing the container walls to be chilled below about 100° to 110° F.; and (e) still further cooling to a temperature below the gel point of the dessert mix.

3,658,557

PROCESS FOR PREPARING COLORING AGENTS FOR FOOD AND BEVERAGES

Hirotschl Samejima; Yuji Nagano; Shigenori Ota, all of Machida-shi; Yasushi Kanzaki; Hideo Matsuo, both of Tokyo, and Keizo Kuroda, Kashiwa-shi, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Chiyoda-ku, Tokyo, Japan

Filed Sept. 23, 1969, Ser. No. 860,437

Claims priority, application Japan, Sept. 24, 1968, 43/68257

Int. Cl. A23l 1/26, 1/27

U.S. Cl. 99—148

14 Claims

A coloring agent for foods and beverages having anti-oxidizing, oxygen-absorbing and lipoxidase-inhibiting properties is prepared by heating an alkaline aqueous mixture of a saccharide and an amino acid to generate the coloring agent, and then dealkalizing the reaction solution by neutralization with an acid or by treatment on an acidic cation exchange resin. The pH of the aqueous mixture must be at least 11, preferably 11–13, in order to obtain the desired properties.

3,658,558

PREPARATION OF WHOLE EGG MAGMA PRODUCT

Alan B. Rogers, Palos Park; Michael Sebring, Westmont, and Ralph W. Kline, Glen Ellyn, all of Ill., assignors to Armour and Company, Chicago, Ill.

Continuation-in-part of application Ser. No. 566,240, July 19, 1966, now Patent No. 3,471,302. This application May 27, 1969, Ser. No. 828,349. The portion of the term of the patent subsequent to Oct. 7, 1986, has been disclaimed.

Int. Cl. A23b 5/00; B65b 55/00

U.S. Cl. 99—161

1 Claim

Whole egg magma is treated to free it of viable Salmonella organisms by heating the magma in the temperature range of about 130°–150° F. (preferably 134°–136° F.) in the presence of about 0.025–0.15 weight percent of hydrogen peroxide for at least 10 seconds to pasteurize the egg magma.

3,658,559

PROCESS OF PRESERVING POTATOES IN CLOSED PACKAGES

Franz Mohwinkel, Ahlfen über Soltau, Germany, assignor to Plasco Limited Company, Vaduz, Liechtenstein

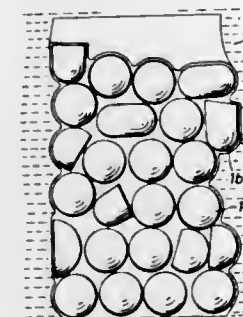
Continuation-in-part of application Ser. No. 804,694, Mar. 5, 1969. This application Nov. 20, 1969, Ser. No. 878,418

Claims priority, application Germany, June 28, 1969, P 19 32 900.1

Int. Cl. B65b 31/02; 23l 1/12

U.S. Cl. 99—171

6 Claims



A process for preserving foodstuffs such as potatoes in closed packages of foil packing material wherein the peeled,

raw and if required sliced or diced potatoes are vacuum-packed without any included liquid and cooked or steamed and then cooled at a external pressure exceeding the internal pressure in the packing and controlled independently of the temperature, and wherein during the vacuum-packing process each potato or piece of potato is brought into direct contact with the inside of the packing material through at least a part of its surface area, preferably a third.

3,658,560

EASILY PEELED SYNTHETIC CASING

Henry J. Rose, and Albin F. Turbak, both of Danville, Ill., assignors to Tee-Pak, Inc., Chicago, Ill.

Filed Aug. 20, 1969, Ser. No. 851,760

Int. Cl. A22c 13/00

U.S. Cl. 99—176

3 Claims

Sausages, such as frankfurters and bolognas, formed in synthetic casings are more easily peeled by soaking the casings, either at the time of manufacture or after stuffing with sausage emulsion, with a soluble non-toxic quaternary ammonium salt which will interact with components of the sausage emulsion to modify the surface characteristics of the sausage. The quaternary ammonium salts are preferably applied to frankfurter sausage casings at the time of manufacture just prior to drying the casing. The quaternary ammonium salts may also be applied to the soak water for larger casings of the types used in the manufacture of bolognas. The quaternary ammonium salts may also be applied as an external soak bath to the casing before stuffing or to the stuffing sausages, both the frankfurter and bologna types, to saturate the casing and provide a uniform application of the quaternary ammonium salt to interact with sausage emulsion components at the surface contacting the casing. The use of casing soaked or impregnated with these quaternary ammonium salts facilitates removal of the casing from the smoked and/or cooked sausages at a time when the untreated casing could not be peeled from the sausages.

3,658,561

TREATMENT OF SAUSAGE CASING FOR EASY PEELING

Henry J. Rose, 5 Logan Terrace, and Albin F. Turbak, 215 Denvalle, both of Danville, Ill.

Filed Sept. 22, 1969, Ser. No. 860,096

Int. Cl. H22c 13/00

U.S. Cl. 99—176

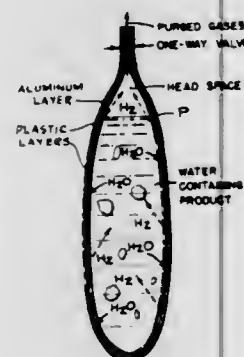
7 Claims

Sausages, such as frankfurters and bolognas, formed in synthetic casings are more easily peeled by soaking the casings, either prior to or after stuffing with a sausage emulsion, with a soluble non-toxic quaternary ammonium salt which will interact with components of the sausage emulsion to modify the surface characteristics of the sausage. The quaternary ammonium salt may be applied as an aqueous solution to frankfurter sausage casings at the time of manufacture just prior to drying the casing. The quaternary ammonium salt, however, may be applied more generally as a solution to all types of casing either just prior to or at some point after stuffing of the casing with sausage paste or emulsion. In the case of larger casings of a type used for bolognas the quaternary ammonium compounds may be applied to the soak water. These quaternary ammonium compounds may also be applied as an external soak bath for the stuffed sausages, both of the frankfurter and bologna types, or in the shower applied to soak the casings prior to peeling, to saturate the casing and provide a uniform application of the quaternary ammonium salt to interact with the sausage paste or emulsion components at the surface contacting the casing. The use of casings soaked or impregnated with these quaternary ammonium salts facilitates removal of the casing from the smoked and/or cooked sausages at a time when the untreated casing could not be peeled from the sausage.

3,658,562

METHOD OF PURGING AIR FROM CONTAINERS
Donald C. Wilson, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Nov. 20, 1969, Ser. No. 878,504
Int. Cl. A231 3/02; B65b 31/00, 55/02
U.S. Cl. 99—215 9 Claims



Method for purging air from plastic-aluminum containers such as pouches filled with a water containing food product by forming one-way valve in each pouch and thereafter immersing each pouch and moving the pouch through a heating medium at a sufficient temperature and for a sufficient period to form hydrogen within each pouch. The headspace is first reduced by immersing of the pouches and thereafter hydrogen purges the remaining air and gases out of the one-way valve leaving a hydrogen rich gas therein. Each pouch is thereafter sealed.

3,658,563

PRODUCTION OF REFRACTORY BODY

Shigeaki Washio, Kakogawa, and Masaharu Inoue, Takamachi, both of Japan, assignors to Taki Fertilizer Manufacturing Co., Ltd., Befucho, Kakogawa, Japan
Filed July 24, 1970, Ser. No. 58,206

Claims priority, application Japan, July 26, 1969, 44/59166
Int. Cl. C04b 35/04

U.S. Cl. 106—55

11 Claims

The present invention relates to a method for providing a refractory body characterized by the use as a binder or aggregate thereof, of an aqueous solution of phosphoric acid and/or acid phosphate and an alkanolamine. This composition containing the aforementioned binder is stable for a long period of time, has excellent adhesion at normal temperature and exhibits an excellent bonding effect and strength at high temperatures.

3,658,564

WATER-INSENSITIVE BONDED PERLITE STRUCTURES
Stephen A. Gerow, Glen Mills, Pa., and Verne Wesley Weldman, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed June 1, 1970, Ser. No. 42,556
Int. Cl. C04b 35/16, 43/04

U.S. Cl. 106—84

5 Claims

Water-insensitive insulating structures of expanded perlite bonded by an in situ-produced water-insoluble crystalline reaction product of perlite and sodium or potassium silicate. Structures are obtained by mixing the perlite with an aqueous solution of the silicate to make a damp granular powder, compacting the powder into a coherent article, and curing the article under controlled temperature and humidity conditions so as to maintain a water level in the article of at least about 10 weight percent based on solids for a period of time sufficient to produce the crystalline binder. After curing, the structures are dried, if necessary, to a water content below about 20 percent, based on solids.

3,658,565

PARTING COMPOUND CONTAINING CHROMIUM OXIDE MANGANESE DIOXIDE AND A LIQUID INORGANIC CARRIER

James J. McGlynn, Paoli, Pa., assignor to Lukens Steel Company, Coatesville, Pa.

Filed Jan. 29, 1969, Ser. No. 795,044
Int. Cl. C08h 17/24

U.S. Cl. 106—286

3 Claims

A parting composition, including a mixture of manganese dioxide and an oxide of chromium, can be applied to the contacting surfaces of metal sheets and plates in assemblies to be hot worked. The parting composition prevents adhesion between those surfaces to which it is applied. After hot working, the composition can be easily removed from the treated surfaces with an acid pickling solution.

3,658,566

TITANIUM OXIDE PIGMENTS

Gerard Martin Sheehan; George Leathwhite Roberts, Jr., both of Lynchburg, Va., and Paul Montgomery Dupree, Basking Ridge, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of application Ser. No. 625,618, Mar. 24, 1967. This application Aug. 7, 1969, Ser. No. 848,353
Int. Cl. C09c 1/36

U.S. Cl. 106—300

4 Claims

The production of pigmentary TiO₂ of improved properties by treatment of TiO₂ with combined oxides of silicon and aluminum, the oxides being used in a weight ratio of 5-6 and in a concentration such that the pigment will have at least 0.5 percent by weight of oxide coating.

3,658,567

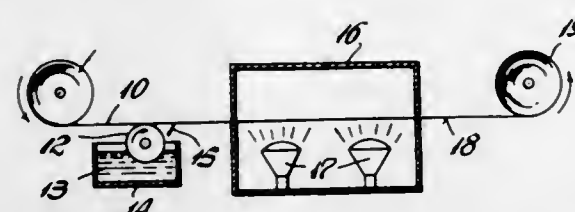
PROCESS OF MAKING PRESSURE-SENSITIVE TRANSFER ELEMENTS

Douglas A. Newman, Glen Cove; Alfred M. Vogel, Malverne, and Albert E. Brown, Glen Cove, all of N.Y., assignors to Columbia Ribbon and Carbon Manufacturing Co., Inc., Glen Cove, N.Y.

Filed Dec. 15, 1969, Ser. No. 885,141
Int. Cl. B41m 5/10

U.S. Cl. 117—36.1

7 Claims



Preparation of pressure-sensitive transfer sheets based upon synthetic resinous film-forming binder materials in the absence of volatile solvents which comprises mixing a liquid polymerizable acrylic ester monomer, ink paste comprising oily material and colorant, and a polymerization catalyst, applying the composition as a thin layer and heating in an inert atmosphere to induce polymerization of said monomer to form a solid pressure-sensitive transfer layer.

3,658,568

METHOD OF FORMING METAL OXIDE COATINGS ON REFRACTORY SUBSTRATES

Harold E. Donley, Monroeville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 11, 1969, Ser. No. 849,172
Int. Cl. C03c 17/22

U.S. Cl. 117—46

10 Claims

Metal oxide films are formed on refractory substrates by contacting a hot refractory substrate at a temperature suffi-

3,658,572

PYROLYTIC COATINGS OF MOLYBDENUM SULFIDE BY PLASMA JET TECHNIQUE

Ting Li Chu, Dallas, Tex., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application Aug. 30, 1965, Ser. No. 483,670, now abandoned. Divided and this application Nov. 5, 1968, Ser. No. 773,537

Int. Cl. B05b 7/22

U.S. Cl. 117—93.1 PF

1 Claim

A plasma-forming fluid consisting of a monatomic gas and at least one other gas having a diatomic molecule is employed to pyrolytically produce chemical elements and chemical compounds, such, for example, as pyrolytic carbon and refractory carbides. Pyrolytic carbon having a density of from 2.1 to 2.25 grams per cubic centimeter and an impurity content of less than 20 parts per million is made from a reactant material comprising aliphatic halides of carbon introduced into the plasma-forming fluid.

3,658,569

SELECTIVE NICKEL DEPOSITION

Warren H. Philipp, North Olmsted; Stanley J. Marsik, Fairview Park, and Charles E. May, Rocky River, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Nov. 13, 1969, Ser. No. 876,588
Int. Cl. B41m 5/00; C03c 17/10

U.S. Cl. 117—47 R

9 Claims

A process for selectively depositing nickel by irradiating selected portions of a substrate coated with an irradiation sensitive compound. Immersing the irradiated substrate in a developer deposits controlled amounts of nickel in the selected portions.

3,658,570

IMPARTING A SATIN LIKE FINISH TO ONE SIDE OF A FABRIC

Larry L. Crooks, Route 4, P. O. Box 365 F.E., Orangeburg, S.C., and Walter Stump, 2010 Eastmeade Avenue S.E., Decatur, Ala.

Continuation of application Ser. No. 548,394, May 9, 1966, now abandoned. This application Dec. 9, 1969, Ser. No. 880,477

Int. Cl. B44d 1/44; D06c 29/00; B32b 27/04

U.S. Cl. 117—64

7 Claims

A satin-like finish is applied to one side of a fabric by contacting that side of the fabric with an aqueous emulsion comprised of an acrylic resin, and, without first allowing the acrylic resin to dry, calendering the fabric at a temperature above about 250° F.

3,658,571

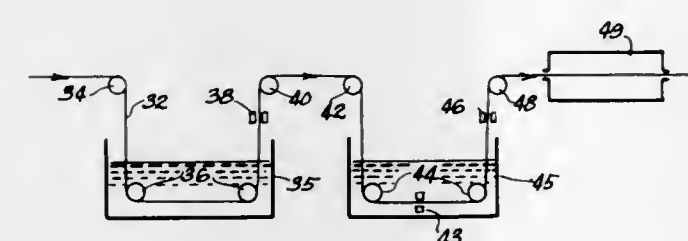
GLASS FIBER REINFORCED ELASTOMERS

Alfred Marzocchi, Cumberland, R.I., assignor to Owens-Corning Fiberglass Corporation

Filed Apr. 29, 1970, Ser. No. 32,974
Int. Cl. C03c 25/02

U.S. Cl. 117—65.2

10 Claims



Glass fibers for use in glass fiber-reinforced elastomeric materials and method for preparing same wherein a glass fiber bundle is first impregnated with an elastomer or resinous polymer and then is coated with an elastomer compatible material to form an impregnated glass fiber bundle having an inner coating comprising an elastomer or resinous polymer and an outer coating of the elastomer compatible material.

3,658,574

ADHESIVE TAPE AND METHOD OF MAKING SAME
Clement David Izzi, Somerville, and Charles Roland Youngman, South Plainfield, both of N.J., assignors to Nashua Corporation, Nashua, N.H.

Continuation of application Ser. No. 572,349, Aug. 15, 1966, now abandoned. This application May 23, 1969, Ser. No. 828,444

Int. Cl. C03c 25/02; C09j 7/04

U.S. Cl. 117—76

2 Claims

A pressure sensitive adhesive tape having good electrical properties comprising a liquid permeable backing tape of cotton, glass fibers, rayon acetate, or the like, sufficiently impregnated with polyvinyl carhamate as a release agent that the opposite side of the strip are coated therewith, and any conventional thermoplastic adhesive material as a layer on at least one side of the backing tape.

3,658,575

METHOD AND COMPOSITIONS FOR TREATING FLEXIBLE SUBSTRATES

Theodore E. Tabor; Hugh A. Farber, and Thomas A. Vivlan, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sept. 29, 1969, Ser. No. 862,031

Int. Cl. B05c 11/10, 3/18

U.S. Cl. 117—102 R

5 Claims

A process for applying water-soluble chemicals to flexible substrates, e.g., textile fibers, yarns, non-woven, loomed, tufted woven and knit materials, paper and the like, which employs a readily removable carrier formulation at lower temperatures under ambient pressures consisting of preparing an aqueous-oil emulsion of the chemical and its attendant assistants, catalysts or reactive or non-reactive co-chemicals, surface active agent(s) in 1 to 35 percent by weight water and 98 to 40 percent by weight of a halogenated hydrocarbon solvent boiling between about 40° to about 165° C., applying the emulsion to a flexible substrate by dipping, immersing, flooding, doctoring, spraying or the like, introducing the so-wetted substrate into a zone filled with the vapors of the halogenated solvent which is at a temperature at or above the boiling point of the solvent of the emulsion, maintaining the substrate in said vapors for a time sufficient to remove the water and solvent from the substrate, and removing the substrate from said zone in a dry condition retaining the chemical(s) thereon or in.

3,658,576

FRICTION ELEMENTS OF MACHINES SUBJECTED TO HEAVY LOADS

Jacques Jean Caubet, Saint-Etienne, France, assignor to Automobiles M. Berliet, Lyon, France and Hydromecanique Et Frottement, Saint-Etienne (Loire), France

Filed May 1, 1968, Ser. No. 725,900

Int. Cl. C23c 7/00; F16c 17/12

U.S. Cl. 117—105

8 Claims

Metallic friction elements of machines sliding one against the other, one of which has a friction surface coated with a layer of molybdenum applied by metallization, the friction surface of the other element being coated with a layer of copper, characterized by the fact that the layer of copper is also effected by metallization.

3,658,577

VAPOR PHASE DEPOSITION OF SILICIDE REFRACTORY COATINGS

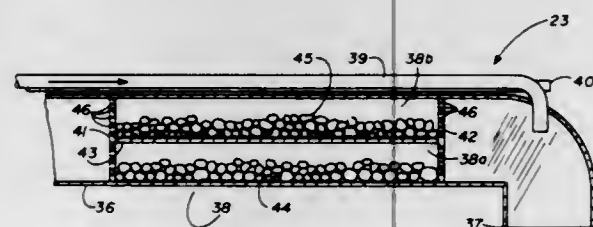
Gene F. Wakefield, 406 Tyler, Richardson, Tex.

Filed Oct. 1, 1969, Ser. No. 862,813

Int. Cl. C23c 11/00, 13/00

U.S. Cl. 117—106 R

2 Claims



Refractory coatings are formed upon the periphery of objects by passing a vaporous reactant stream in contact with the objects which are tumbled in a rotary deposition zone. In addition, reactant vapors are passed through a reactant generating zone positioned adjacent and preferably enclosed within the rotary deposition zone which is heated to the reaction temperature to thereby generate at least a portion of the reactant vapors utilized in the deposition of the refractory coating. For example, titanium tetrachloride vapors are passed over chromium and titanium metal chips positioned

within the generation zone to produce chromium dichloride and titanium trichloride reactant vapors. A suitable apparatus is also provided for generating at least a portion of the vaporous reactants and combining them with other vaporous reactants and directing them onto tumbling objects to be coated within a rotary deposition chamber.

3,658,578

DUST-RETENTIVE ARTICLE

Richard J. Bennett, Bartlesville, Okla., assignor to Phillips Petroleum Company

Continuation-in-part of application Ser. No. 673,300, Oct. 6, 1967, now abandoned. This application July 22, 1970, Ser. No. 57,306

Int. Cl. C09j 7/04

U.S. Cl. 117—122 R

5 Claims

Dust-retentive articles, such as tack cloths, dust cloths, air filters, etc., comprise a porous web or sheet which is impregnated up to about 10 weight per cent with amorphous polypropylene of molecular weight in the range of up to about 10,000 and then dried at ambient temperature.

3,658,579

FLAME-RETARDANT, BONDED NONWOVEN FIBROUS PRODUCT EMPLOYING A BINDER COMPRISING AN ETHYLENE/VINYL CHLORIDE INTERPOLYMER AND AN AMMONIUM POLYPHOSPHATE

August F. Ottinger, St. Louis; Morris V. Merchant, Florissant, and Paul R. Graham, Ballwin, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Apr. 15, 1970, Ser. No. 28,946

Int. Cl. B32b 5/02, 17/04, 27/02

U.S. Cl. 117—137

28 Claims

Flame-retardant, bonded nonwoven fibrous products employing an ethylene/vinyl chloride interpolpolymer bonding agent having incorporated therein a phosphorus and nitrogen flame retardant.

3,658,580

CARBAMATE-MELAMINE TEXTILE FINISH

Philip B. Roth, Bridgewater Township, Somerset County, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Sept. 15, 1969, Ser. No. 858,151

Int. Cl. D06m 15/54

U.S. Cl. 117—139.4

5 Claims

Wrinkle-resistant finishes for cellulosic textile materials. More particularly, it relates to aqueous textile finishes containing polymethylol hydroxyethyl carbamate and a methylated, highly methylolated melamine; to the method of applying the finishes to cellulosic textiles; and to the treated textile materials.

3,658,581

COATING FOR CONDENSER SURFACES

Roy D. Paul, Windsor, and Edwin W. Blocker, Warehouse Point, both of Conn., assignors to United Aircraft Corporation, East Hartford, Conn.

Filed Aug. 1, 1969, Ser. No. 846,918

Int. Cl. C03c 7/00

U.S. Cl. 117—169 R

13 Claims

Coatings for the heat transfer surfaces of condensers are formulated to provide wetting of the surfaces by the condensate and wicking thereon and, thus, to effect the condensation process, including condensate collection, with a minimum pressure loss. The coatings are passive in nature and include particulate silica or calcium silicate dispersed in water insoluble, non-crystalline glassy binders, particularly insolubilized potassium silicate or lead borosilicate glass.

3,658,582

COMPOSITES, OF IIB-VIA BINARY FILM COMPOUNDS ON IIA-VIIA BINARY COMPOUND SUBSTRATE CRYSTALS AND PROCESS THEREFOR

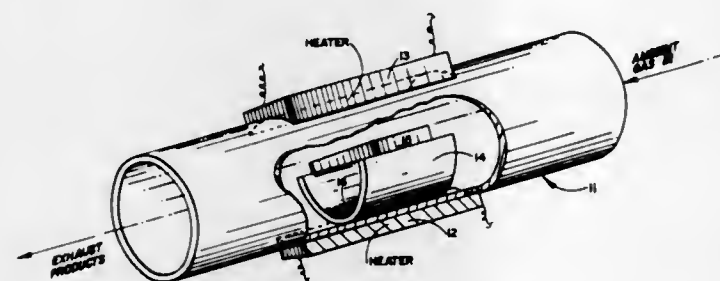
Jesse E. Coker, Orange County, and Guido Galli, Alameda County, both of Calif., assignors to North American Rockwell Corporation

Filed Apr. 13, 1970, Ser. No. 27,579

Int. Cl. H01l 3/00, 7/34

U.S. Cl. 117—201

7 Claims



A composite of a substrate crystal is disclosed having a compound of the JQ type formulation where J is at least one element of group Ila and Q is at least one element of group VIIa having a film compound formed on the substrate which is of the JQ type formulation where J is at least one element of the group IIb and Q is at least one element of the group VIa. The process for making these composites shows simple and easily controllable steps and provides criteria for obtaining desired film thickness at relatively rapid deposition rates.

3,658,583

METHOD FOR PRODUCING SEMI-CONDUCTING GLAZE COMPOSITIONS FOR ELECTRIC INSULATORS

Yutaka Ogawa, Nagoya; Takayuki Ogasawara, Kohnan, and Shoji Seike, Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Nagoya City, Japan

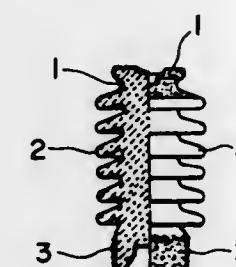
Filed Sept. 8, 1970, Ser. No. 70,404

Claims priority, application Japan, Oct. 11, 1969, 44/81014

Int. Cl. H01b 3/10

U.S. Cl. 117—201

4 Claims



A semi-conducting glaze composition is prepared by calcining a mixture of 85 - 94 mol percent, calculated as SnO₂, of tin oxide and 6 - 15 mol percent, calculated as Sb₂O₃, of antimony oxide at a temperature of 1,000° - 1,300° C under an oxidizing atmosphere; mixing 25 - 45 percent by weight of the calcined material with 55 - 75 percent by weight of a conventional ceramic glaze composition; melting the resulting mixture at a temperature of 1,200° - 1,400° C under an oxidizing atmosphere and pulverizing the melt to prepare a fritted material; and mixing again not less than 70 percent by weight of the resulting fritted material with not more than 30 percent by weight of at least one member selected from the group consisting of clay, kaolin, bentonite and conventional ceramic glaze composition. By applying the above-mentioned semi-conducting glaze composition on a prepared insulator body, the surface electrical stress distributions of a heavy duty suspension and a solid core insulators, which require the firing under a reducing atmosphere, can be improved.

3,658,584

SEMICONDUCTOR DOPING COMPOSITIONS

John G. Schmidt, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Filed Sept. 21, 1970, Ser. No. 74,204

Int. Cl. H01l 3/00

U.S. Cl. 117—201

20 Claims

The disclosure herein relates to semiconductor doping compositions and to methods for their preparation and use. More particularly, the disclosure relates to liquid silica-based doping compositions which may be applied to a surface of a semiconductor substrate and, upon heating, an impurity is diffused from a film of the doping composition into the substrate to form a region therein having the desired electrical properties.

3,658,585

METHOD OF PRECIPITATING LAYERS OF SEMICONDUCTING OR INSULATING MATERIAL FROM A FLOWING REACTION GAS OR FROM A FLOWING DOPANT GAS UPON HEATED SEMICONDUCTOR CRYSTALS

Eduard Folkmann, and Erich Pammer, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Berlin, Germany

Filed Feb. 26, 1970, Ser. No. 14,437

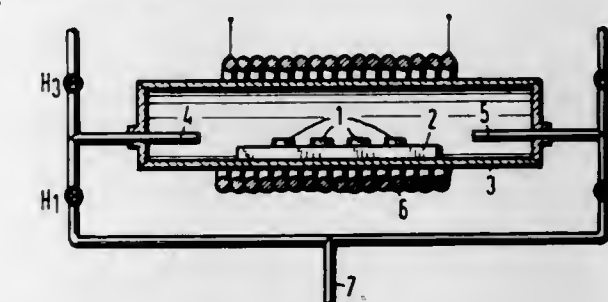
Claims priority, application Germany, Mar. 18, 1969, P 19

13 676.6

Int. Cl. C01b 33/02

U.S. Cl. 117—201

2 Claims



Method of precipitating layers of semiconducting or insulating material from a flowing reaction gas, upon heated semiconductor crystals, or for doping such crystals from a flowing dopant gas, wherein totally constant or only gradually changing operational conditions are maintained. The method is characterized by the fact that all working phases are so carried out with constant operational conditions. During one-half of the time required therefor, the reaction gas is transported approximately tangentially from one side over the semiconductor crystals to be processed. During the other half of the required period the reaction gas is transported approximately tangentially from the opposite side over the semiconductor crystals to be processed.

3,658,586

EPITAXIAL SILICON ON HYDROGEN MAGNESIUM ALUMINATE SPINEL SINGLE CRYSTALS

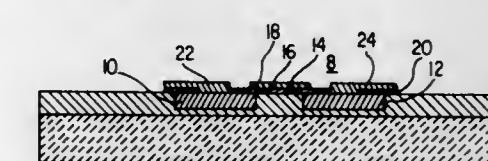
Chih Chun Wang, Hightstown, N.J., assignor to RCA Corporation

Filed Apr. 11, 1969, Ser. No. 815,391

Int. Cl. C23c 11/00; H01l 7/62; C01l 7/02

U.S. Cl. 117—201

1 Claim



An improvement in the manufacture of integrated electronic circuits of the type including an insulating substrate

and components occupying isolated portions of an epitaxial layer of a semiconductor material on the substrate, wherein the substrate consists of a plate of single-crystal magnesium aluminate spinel having the formula $MgO \cdot x Al_2O_3$ where $x = 1.5$ to 2.5 and in which the method includes a step of annealing the substrate surface at a temperature of about 900° – $1,400^\circ$ C. The invention also includes an improved unit from which the circuit is made, comprising a single-crystal substrate body of magnesium aluminate spinel having the formula given above, where the spinel crystal contains about 0.00001 to 0.1 percent by weight of included hydrogen, and an epitaxial layer of silicon united to the substrate.

3,658,587

ELECTRICAL INSULATION COATING SATURATED WITH MAGNESIUM AND/OR CALCIUM IONS

Clarence L. Miller, Jr., Pittsburgh, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Jan. 2, 1970, Ser. No. 436

Int. Cl. H01b 3/02

U.S. Cl. 117—230

21 Claims

A composition for providing an electrically insulative coating on electrical alloys having a high permeability and a low core loss which consists essentially of an aqueous solution containing ammonium ions, phosphate ions, chromate ions and a substantially saturated level of Group II A metal ions from at least one metal in Group II A of the periodic table, which are at least in part provided as the oxide, hydroxide, carbonate, bicarbonate and/or chromate of the Group II A metal or metals.

A method for providing an electrically insulative coating on an electrical alloy having a high permeability and a low core loss comprising the steps of coating the alloy with the composition of this invention and curing the coating.

A composite article comprising at least one layer of an electrical alloy having a high permeability and a low core loss and at least one layer of a substantially water insoluble, electrically insulative coating which is comprised of a saturated level of Group II A metal cations and anionic polymeric chains of chromium, oxygen and phosphorus atoms.

3,658,588

PREPARATION OF STARCH FROM CELLULOSE TREATED WITH PHOSPHORIC ACID

James R. Harvey, 320 Elliot Rd., Monroeville, Pa.

Filed Feb. 4, 1970, Ser. No. 8,705

Int. Cl. C08b 15/00

U.S. Cl. 127—36

2 Claims

Method of preparing an edible starch from a cellulose, such as cotton, by treating the cellulose with phosphoric acid.

3,658,589

CATCH BASIN AND SEWER PIPE CLEANER

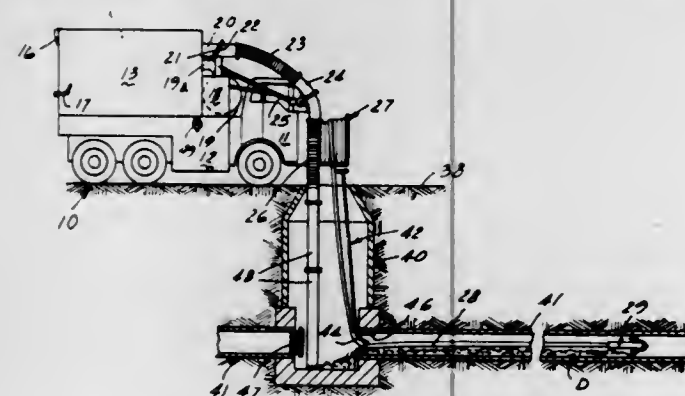
Roland E. Shaddock, Streator, Ill., assignor to Myers-Sherman Company, Streator, Ill.

Filed Sept. 12, 1969, Ser. No. 857,424

Int. Cl. B08b 3/02, 9/04

U.S. Cl. 134—10

8 Claims



A method and apparatus for the cleaning of catch basins and sewer pipes including a single vehicle equipped to con-

vey debris from the catch basin or manhole by means of the carrying power of air into a sealed dump body from which air is continuously pulled, to water jet propel a hose with a nozzle on the leading end thereof through a sewer pipe opening into the catch basin or manhole area and to retract the hose and nozzle for backwashing the sewer pipe debris into the catch basin. The vehicle carries a variable flow high pressure tandem piston pump reciprocated by pressurized oil from a vehicle engine driven hydraulic pump to surge water at high pressure from a vehicle tank or other source through the hose and nozzle to create a jumping action or jack-hammer driving of the nozzle forcing it through and around obstructions in the sewer pipe and also preventing snagging during the backwashing operation. Liquids sucked from the catch basin are drained from the sealed dump body back to the catch basin and the solid debris is hauled away by the vehicle to be discharged at a dumping area.

3,658,590

AUTOMATIC VEHICLE WASHING APPARATUS

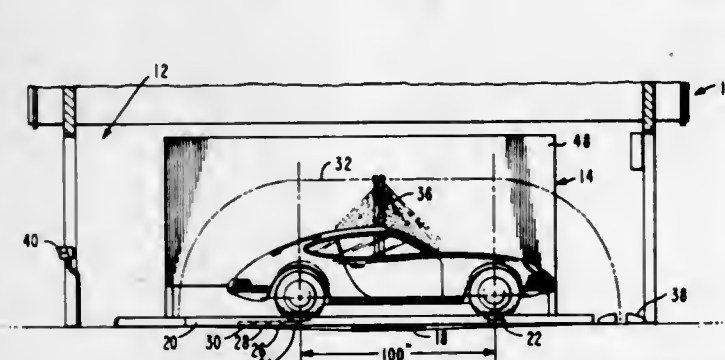
James A. Huebner, 2525 North Bourbon Street, Orange, Calif., and Robert J. Wrighton, 7003 Encinita Street, San Gabriel, Calif.

Filed Feb. 27, 1970, Ser. No. 15,087

Int. Cl. B08b 3/02

U.S. Cl. 134—32

9 Claims



A vehicle washing apparatus mounted in a filling station bay, comprising a pneumatically operated system of a moving truck which carries a spray bar and travels parallel to the vehicle a distance equal to the vehicle's wheelbase, and causes the spray bar to rotate downwardly at the end of each traverse of the vehicle wheelbase. The front pivot station for the rotation of the spray bar is fixed at one location, and the rear pivot station is determined by the location of the vehicle's rear wheel on a series of rear wheel trip plates. The washing fluids are expelled from the spray bar under the urging of compressed air in the fluid reservoirs.

3,658,591

SEALED TYPE CELL

Masatomo Fukuda, Takatsuki, and Takashi Iijima, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of application Ser. No. 762,778, Sept. 26, 1969, now abandoned. This application Dec. 7, 1970, Ser. No. 95,869

Claims priority, application Japan, Oct. 2, 1967, 42/64391; Nov. 17, 1967, 43/74862

Int. Cl. H01m 35/00

U.S. Cl. 136—3

10 Claims

A sealed type cell which has disposed in the case thereof an electrochemical element so designed as to enable ionization of oxygen and generation of oxygen caused by overcharging to take place cyclically and whose internal resistance depends upon the pressure of oxygen, said electrochemical element including an oxygen ionizing electrode whose terminal is connected to the negative electrode of the cell and an oxygen generating electrode whose terminal is connected to the positive electrode of the cell, and which can be charged with a large current in a short period of time and is free from degradation of the large current discharge characteristics.

3,658,592

LITHIUM-METAL CHROMATE ORGANIC ELECTROLYTE CELL

Arabinda N. Dey, Needham, Mass., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind.

Filed July 15, 1970, Ser. No. 55,167

Int. Cl. H01m 35/00

U.S. Cl. 136—6

11 Claims

This invention relates to high energy density cells comprising positive electrodes composed of any of the chromates of silver, copper, iron, cobalt, nickel, mercury, thallium, lead and bismuth, and their mixtures; negative electrodes composed of any of the light metals such as Li, Na, K, Ca, Be, Mg, and Al, said electrodes being disposed in an electrolyte comprising an organic solvent selected from the group consisting of tetrahydrofuran, N-nitrosodimethylamine, dimethyl sulfite, propylene carbonate, gamma-butyrolactone, dimethyl carbonate, dimethoxy ethane, acetonitrile, dimethyl sulfoxide, dimethyl formamide and the mixtures thereof; and having dissolved therein soluble salts of the light metals, for example, the perchlorates, hexafluorophosphates, tetrafluoroborates, tetrachloroaluminates, hexafluoroarsenates of lithium.

3,658,593

ELECTROCHEMICAL CELLS WITH LITHIUM NEGATIVE ELECTRODES

Amedee Jean-Claude Calola; Henry Robert Guy, both of Grenoble, and Jean-Claude Sohm, Meylan, all of France, assignors to Societe des Accumulateurs Fixes et de Fraction (Societe Anonyme), Romainville (Seine Saint-Denis), France

Filed Oct. 2, 1969, Ser. No. 863,202

Claims priority, application France, Oct. 4, 1968, 168904

Int. Cl. H01m 43/06

U.S. Cl. 136—6

7 Claims

Electrochemical cells utilizing lithium negative electrodes capable of discharge at high rate in which the lithium electrode operates in substantially insoluble manner utilizing a non-aqueous electrolyte in which lithium and its oxidation products formed during discharge are insoluble, in which the lithium is not corroded and which has acceptable conductivity and in which excessive electrode polarization and passivation is prevented. The composition of the non-aqueous electrolyte comprises at least a solution of a tetrabutylammonium salt in propylene carbonate and advantageously a solution of tetrabutylammonium chloride (C_4H_9)₄NCl in propylene carbonate mixed with tetrabutylammonium perchlorate. The concentration of tetrabutylammonium salts in propylene carbonate is preferably in the range of 0.5 to 1 mole per liter and advantageously the ratio of tetrabutylammonium perchlorate concentration to tetrabutylammonium chloride concentration expressed in moles per liter does not exceed 10.

3,658,594

LEAD-ACID STORAGE BATTERY HAVING OXIDATION RESISTANT NEGATIVE ELECTRODE

Otto Jache, Thiergarten, Bidingen, Oberhessen, Germany

Filed Sept. 8, 1970, Ser. No. 70,245

Claims priority, application Germany, Sept. 12, 1969, P 19

46 398.0

Int. Cl. H01m 39/00

U.S. Cl. 136—26

4 Claims

A lead-acid storage battery of the dry-charged type is disclosed in which the dry-charged negative electrodes are provided with a coating of a silicone containing anion-active emulsifying agent.

3,658,595

FUEL CELL WITH ANODE CONTAINING A CATALYST COMPOSITION OF IRIIDIUM AND RUTHENIUM

John S. Batzold, Westfield, N.J., assignor to Esso Research and Engineering Company

Continuation of application Ser. No. 381,899, July 10, 1964.

This application July 16, 1969, Ser. No. 847,500

Int. Cl. H01m 27/04, 13/06

U.S. Cl. 136—86 D

4 Claims

1. In a fuel cell comprising an anode, a cathode and an electrolyte positioned between and communicating with said anode and cathode, the improvement wherein said anode comprises a catalyst composition consisting essentially of co-reduced iridium and ruthenium where the atom ratio of each component to the total catalyst is in the range of from 25 to 75 percent.

3,658,596

FLEXIBLE SOLAR CELL MODULAR ASSEMBLY

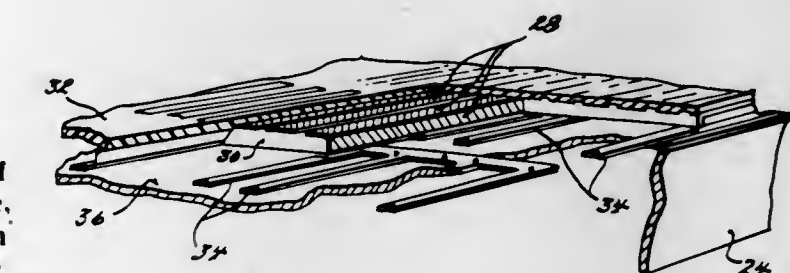
Bodwell D. Osborne, Atherton, Calif., assignor to Lockheed Missiles & Space Company, Sunnyvale, Calif.

Filed Sept. 21, 1970, Ser. No. 73,819

Int. Cl. H01l 15/02

U.S. Cl. 136—89

2 Claims



A module for a solar cell panel with silicon photovoltaic cells fused between two sheets of FEP Teflon. The plastic is mounted on an aluminum frame with two side members adapted to interlock with similar modules. The side frame members also act as current carrying bass members.

3,658,597

METHOD OF MAKING FUEL CELL ELECTROLYTE MATRIX

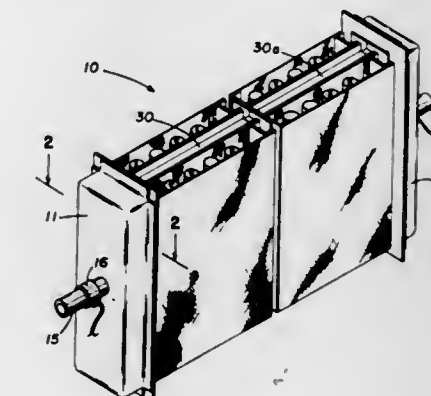
Foster L. Gray, Dallas, Tex., assignor to Texas Instrument Incorporated, Dallas, Tex.

Filed Mar. 13, 1969, Ser. No. 806,901

Int. Cl. H01m 3/02

U.S. Cl. 136—148

6 Claims



A heat resistant porous fuel cell matrix for holding liquid electrolyte in fuel cells which can be subjected to extreme temperature conditions without cracking and permanently

deforming is made from a ceramic metal oxide such as magnesia, a binder such as an alkali metal phosphate, and a liquid phase sintering agent for the metal oxides such as lithium fluoride. To form the matrix, the matrix molding composition is formed containing a thoroughly mixed composition of a major portion of the ceramic metal oxide, and minor portions of the binder and liquid phase sintering agent. The composition is molded into suitable matrix form, and the binding agent is activated such as by heating to form a porous green matrix which has structural integrity at room temperature. The porous green matrix is then heated to a temperature above the melting point of the liquid phase sintering agent to cause substantial sintering between the metallic oxide particles and yield a thermal resistant porous fuel cell matrix.

3,658,598

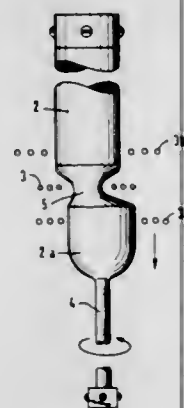
METHOD OF CRUCIBLE-FREE ZONE MELTING CRYSTALLINE RODS, ESPECIALLY OF SEMICONDUCTOR MATERIAL

Wolfgang Keller, and Gunther Berger, both of Pretzfeld, Germany, assignors to Siemens Aktiengesellschaft, Erlangen, Germany

Continuation of application Ser. No. 570,503, Aug. 5, 1966, now abandoned. This application Aug. 19, 1969, Ser. No. 853,596

Claims priority, application Germany, Aug. 7, 1965, S 98712 Int. Cl. B01J 17/02; B01D 9/00 U.S. Cl. 148—1.6

6 Claims



Method of zone melting a semiconductor rod includes displacing an end holder of the vertically held rod transversely to the rod axis, continuously displacing the other end holder vertically so as to feed a rod portion, having a diameter greater than the inner diameter of an annular heating device surrounding the rod and forming a melting zone therein, into the melting zone, forming a diametrical constriction in the melting zone, displacing the one end holder vertically and rotating it until the rod portion located between it and the melting zone is formed to a specific diameter larger than the inner diameter of the heating device and, after forming the rod portion to the specific cross section, vertically displacing the end holders relative to the heating device.

3,658,599

METHOD AND APPARATUS FOR INITIATING GAS SCARFING

Sven Erik Svensson, Gavle, and Per-Lennart Lonngren, Stockholm, both of Sweden, assignors to AGA Aktiebolag, Lidings, Sweden

Filed May 14, 1969, Ser. No. 824,602

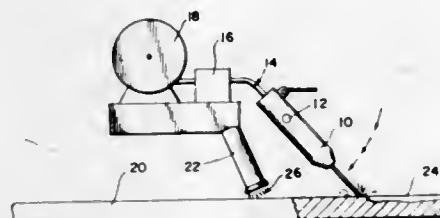
Claims priority, application Sweden, May 16, 1968, 6631/68 Int. Cl. B23k 7/00, 7/06

U.S. Cl. 148—9.5

6 Claims

A method for initiating the gas scarfing process during the high velocity movement of the workpiece to be scarfed relative to the scarfing machine wherein a consumable metal electrode is melted as it is fed toward the workpiece to form

a deposit of the metal at a selected position along the workpiece. The electrode is also rotated toward the workpiece at a speed approximately equal to the speed at which the rela-



tive movement between the workpiece and the scarfing machine takes place so as to control the formation of the metal deposit.

3,658,600

METHOD OF MAKING COMPOSITE CABLE SHEATHING

Michael J. Pryor, and William H. Anthony, both of Hamden, Conn., assignors to Olin Mathieson Chemical Corporation Original application Oct. 25, 1967, Ser. No. 677,955, now Patent No. 3,579,313, dated May 18, 1971. Divided and this application June 22, 1970, Ser. No. 59,824

Int. Cl. C22f 1/04; C23p 11/00

U.S. Cl. 148—11.5 A

2 Claims

This invention relates to a novel high strength Al-Zn-B alloy metallurgically bonded to steel and heat treating processes therefore, for use in both serial and underground cable sheathing.

3,658,601

TREATMENT OF ALLOYS

John Britton, and Bernard Lawrence Danell, both of Guildford, England, assignors to The Spring Research Association, Sheffield, England

Filed Jan. 20, 1970, Ser. No. 4,424

Claims priority, application Great Britain, Nov. 23, 1969, 3,771/69

Int. Cl. C21d 1/46; C22f 1/08

U.S. Cl. 148—12.7

6 Claims

A process for the treatment of a beryllium-copper alloy to reduce or eliminate the distortion which occurs on precipitation treatment is provided in which the alloy is quenched in a medium providing a heat transfer coefficient of 150–750 B.Th.U./ft²h°F, said quenching being below the normal precipitation treatment temperature of said alloy.

The invention has utility in the production of an alloy which has little or no distortion on precipitation treatment as well as a predictable contraction.

3,658,602

METHOD FOR QUENCHING STEEL RAILS IN A FLUIDIZED POWDER MEDIUM

Jacques Pomey, Paris, France, assignor to Union Siderurgique du Nord et de L'Est de La France par Abreviation "Usinor", Paris, France

Filed May 15, 1969, Ser. No. 825,043

Claims priority, application France, Dec. 30, 1968, 182073

Int. Cl. C21d 1/56, 9/04

U.S. Cl. 148—14

13 Claims

Process for quenching steel and rails, in a fluidized powder medium. The fluidized medium is formed by mixing a powder of chromium, iron, nickel, molybdenum or tungsten, or alloys of these metals, with a pure steam or a gas comprising essentially steam.

3,658,603

SURFACE FINISHING

Charles D. Boyer, Natrona Heights, Pa., assignor to Allegheny Ludlum Steel Corporation, Pittsburgh, Pa.

Filed Jan. 2, 1970, Ser. No. 437

Int. Cl. C23f 7/10, 7/13

U.S. Cl. 148—6.16

24 Claims

A method of providing a decorative exposed metallic surface with protection from marring, marking and staining, comprising the steps of coating the surface with an aqueous solution which contains ions of magnesium, ammonium, chromate and phosphate and curing said coating.

A composite article comprising a layer of metal having a decorative exposed surface and at least one layer of a substantially water insoluble, transparent, cured coating which offers protection from marring, marking and staining. The cured coating being comprised of magnesium cations and anionic polymeric chains of chromium, oxygen and phosphorus atoms.

3,658,604

METHOD OF MAKING A HIGH-SPEED TOOL STEEL Thomas E. Hale, Warren, Mich., assignor to General Electric Company

Filed Dec. 29, 1969, Ser. No. 888,859

Int. Cl. B22f 3/24

U.S. Cl. 148—126

3 Claims

High-speed tool steels are prepared by a powder metallurgical process comprising pressing to shape a powdered mixture of 15–75 weight percent tungsten monocarbide and a matrix of cobalt and iron, the cobalt-to-iron ratio ranging from 0.65 to 2.0. The pressed mixture is then sintered to full density by partially liquefying the ferrous phase of the alloy. The sintered compact is then hardened by heat treatment to transform the ferrous matrix to martensite.

3,658,605

METHOD OF INDUCTION HARDENING FOR IMPROVING FATIGUE STRENGTH OF BOUNDARY OF HEATED ZONE

Katsunobu Tomita; Kentaro Ishii, both of Tokyo; Yoshito Tanaka, Nara, and Takao Saito, Nishinomiya, all of Japan, assignors to Japanese National Railways, Tokyo, Japan and Sumitomo Metal Industries Limited, Osaka City, Japan

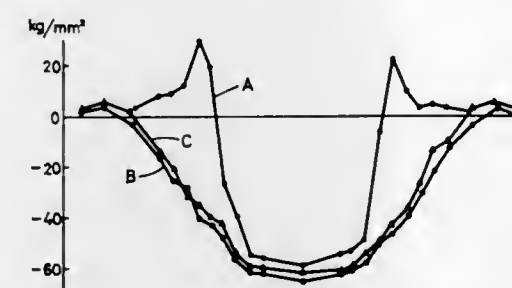
Filed Sept. 17, 1969, Ser. No. 858,811

Claims priority, application Japan, Sept. 18, 1968, 43/67741

Int. Cl. C21d 1/10, 1/66

U.S. Cl. 148—154

2 Claims



This invention provides a method for reducing the residual tensile stresses generated at the boundaries of the hardened zone of a locally case-hardened steel object by inducing a quantity of eddy currents in the boundaries which gradually decreases in a direction outwardly away from the hardened zone and toward non-hardened zones.

3,658,606

DIFFUSION SOURCE AND METHOD OF PRODUCING SAME

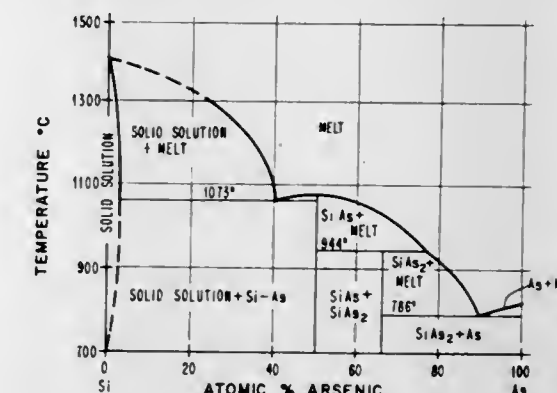
Vincent J. Lyons, Poughkeepsie, and Jagtar S. Sandhu, Fishkill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 1, 1969, Ser. No. 811,931

Int. Cl. H01L 7/36, 7/44

U.S. Cl. 148—187

7 Claims



A homogeneous diffusion source and method of producing wherein a semiconductor dopant material and a finely divided semiconductor material are introduced into a capsule in spaced relation, the capsule evacuated, and the capsule introduced into a multiple-zone furnace. The temperature of the semiconductor material and the dopant material are maintained until equilibrium is substantially achieved.

3,658,607

HIGH ENERGY EXPLOSIVE COMPOSITIONS AND METHOD OF PREPARATION

Melvin A. Cook, and Lex L. Udy, both of Salt Lake City, Utah, assignors to Intermountain Research & Engineering Company, Inc.

Filed Apr. 25, 1969, Ser. No. 819,248

Int. Cl. C06b 19/00

U.S. Cl. 149—2

7 Claims

A dense explosive composition of extremely high energy and relatively high detonation velocity, with relatively long sustained application of high disruptive force, comprises a concentrated solution of ammonium nitrate, high proportions of finely divided aluminum, relatively small proportions of water, and a small amount of special combinations of cross-linking and thermally stable thickeners. The composition is prepared at elevated temperature, mixed very briefly, and delivered or packaged by pumping from mixer to receptacle where it sets up quickly. Density and sensitivity may be controlled by incorporating gas or porous inert filler material.

3,658,608

HYDRAZINIUM NITROFORMATE PROPELLANT STABILIZED WITH NITROGUANIDINE

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of, and Vernon E. Haury, 5059 Alta Street, Santa Susan, Calif.

Filed Sept. 23, 1970, Ser. No. 74,861

Int. Cl. C06d 5/06

U.S. Cl. 149—19

9 Claims

The stability of solid propellant compositions containing unsaturated carboxyl terminated hydrocarbon binders and hydrazinium nitroformate as an oxidizer will have improved shelf life and stability through the incorporation of nitroguanidine in the mixture.

3,658,609

LOW FREEZING HYDRAZINE BASED FUELS

Andrew F. Lum, Dover, and Stanley Tannenbaum, Morristown, both of N.J., assignors to The United States of America as represented by the Secretary of the Navy
 Filed Dec. 28, 1961, Ser. No. 163,000
 Int. Cl. C06d 5/08

U.S. Cl. 149—36

2 Claims

A rocket fuel having a freezing point below -65° F. consisting essentially of at least 23 percent by weight of hydrazine; 45 percent by weight of an alkyl hydrazine one from the group consisting of monomethyl hydrazine, symmetrical dimethylhydrazine and unsymmetrical dimethylhydrazine; and the balance being one from the group consisting of hydrazine nitrate, ammonium nitrate, ammonium perchlorate and carbon tetranitrite.

3,658,610

MANUFACTURING METHOD OF SEMICONDUCTOR DEVICE

Shigeru Arita, Sakai-shi; Ichizo Kamei, Kobe, and Tomisaburo Okumura, Kyoto, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Mar. 20, 1967, Ser. No. 624,467

Claims priority, application Japan, Mar. 23, 1966, 41/18370
 Int. Cl. H01L 7/00, 7/50

U.S. Cl. 156—11

4 Claims



A method of pattern-etching a passivation layer on the surface of a semiconductor body by means of the photoresist technique, said passivation layer consisting of laminated two layers, of which the solving speed of the upper layer in an etchant is higher than that of the lower layer; in which the lower layer is formed first, followed by etching into the desired pattern, the upper layer is next formed over the whole surface, then a photoresist film is applied in the identical pattern to the lower one, and finally the area or areas of the upper layer exposed at an opening or openings are etched away, whereby the defect that the upper layer having higher solubility is exclusively side-etched at the periphery of the pattern can be avoided.

3,658,611

PROCESS FOR DECORATING A GLASS SURFACE

Don N. Gray, Sylvania, Ohio, assignor to Owens-Illinois, Inc.
 Original application July 13, 1967, Ser. No. 653,020. Divided and this application Jan. 19, 1970, Ser. No. 4,095
 Int. Cl. B44c 1/16; B41m 3/12

U.S. Cl. 156—89

8 Claims

This invention relates to a decorative decal comprising a pyrolyzable film base containing a decorative organic-base ink or coating. The decal is conveniently applied to a suitable surface, e.g., a glass surface, and subjected to radiation sufficient to pyrolyze the film and cure, but not degrade, the ink, such that the ink adheres to the surface.

3,658,612

METHOD OF FABRICATING CELLULAR FOAM CORE STRUCTURE ASSEMBLY

Luke H. Corzine, Lakewood, Calif., assignor to Unifor Inc., Paramount, Calif.

Original application Apr. 28, 1969, Ser. No. 819,796, which is a continuation-in-part of application Ser. No. 383,390, July 17, 1964, now abandoned. Divided and this application Oct. 24, 1969, Ser. No. 869,073

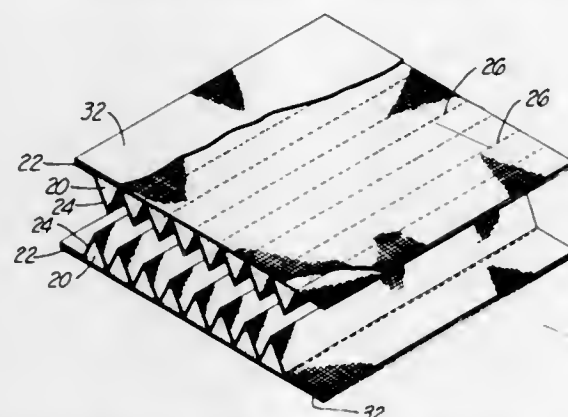
Int. Cl. B32b 7/08

U.S. Cl. 156—93

10 Claims

A series of preformed, elongated foam cores are positioned generally longitudinally parallel and transversely aligned and

are covered with primary base and covering layers of a relatively flexible fabric, such as fiber glass. In the assembly, the primary base layer extends continuously along common lower base sides of the foam cores, while the primary covering layer extends continuously upwardly over and downwardly transversely between the foam cores, the primary layers being stitched at the transverse extremities of each of the foam cores. Depending on the transverse cross sectional configurations of the foam cores, the stitched primary



layer and core assemblies may be used separately or with one inverted and assembled interfitting with another, and may be shaped in various configurations and sandwiched between continuous secondary covering layers of fabric, in all cases all of the fabric layers and stitching being completely covered and impregnated with resin cured to rigidify the overall assembly. Still further, such assemblies may be incorporated with the rigid, thickened face layer of various materials and configurations at one or both sides thereof, for instance, a thickened face layer of cured resin.

3,658,613

ABSORBENT PRODUCTS FROM WET CROSS-LINKED WOOD PULPBOARD AND METHODS OF MAKING THE SAME

Fred H. Steiger, East Brunswick, N.J., assignor to Personal Products Company

Filed June 17, 1970, Ser. No. 47,131

Int. Cl. B32b 31/00

U.S. Cl. 156—153

4 Claims

A method of making a fibrous, cellulosic absorbent product from sheets of pulpboard which comprises: wet cross-linking sheets of pulpboard; grinding the wet cross-linked sheets of pulpboard to form a pulp fluff therefrom having improved wet resilience, increased fluid absorption and retention capacity, and low knot content; and forming an absorbent product utilizing the pulp fluff as a fluid absorption and retention material therein.

3,658,614

METHOD FOR WRAPPING MOLDED PIPE INSULATION

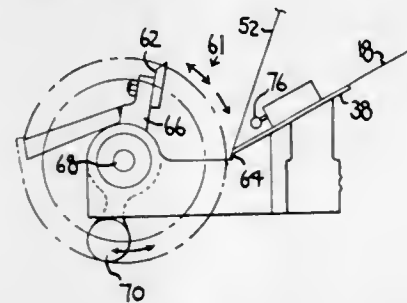
Carl A. Beck, Bala-Cynwyd, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 22, 1969, Ser. No. 887,197

Int. Cl. B65h 81/02

U.S. Cl. 156—187

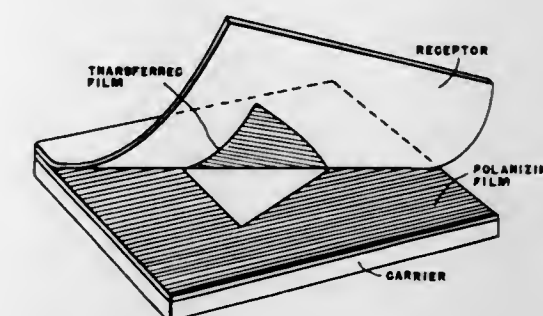
3 Claims



Selected lengths of a first and second sheet material are advanced from their respective sources to a location and in

such sequence where one of the materials is above a portion of the other. The upper material has an adhesive side opposed to the lower material. The selected lengths are severed simultaneously, which severing step also at least initially adheres the material together. Glue strips are placed on selected portions of the composite and registry is then made with a length of molded pipe insulation. The insulation is wrapped with the composite covering, the portion having the second strip being part of a flap for subsequent use in securing the insulation around the pipe.

of a dichroic dye, from a carrier therefor to define all or a portion of said areas. Selective removal may be by destruc-



3,658,615

TWO-PIECE PLASTIC CONTAINERS HAVING FOAMED THERMOPLASTIC SIDE WALL AND METHOD OF MAKING SAME

Stephen W. Amberg, St. James, N.Y., assignor to Owens-Illinois, Inc., Toledo, Ohio

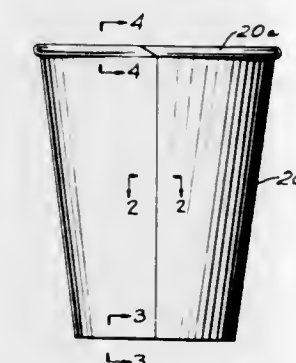
Original application May 9, 1967, Ser. No. 637,304, now

Patent No. 3,468,467. Divided and this application Mar. 28,

1969, Ser. No. 835,836

Int. Cl. B29d 23/10

U.S. Cl. 156—218



A two-piece plastic container is fabricated by selecting a sheet of expanded plastic material having an integral skin, the skin having a density approaching that of the basic unfocused plastic, while the intermediate body of foamed plastic has a relatively low density of the order of 11-14 lbs./cu.ft. and a cell size of from about 0.2 to about 0.3 mm., the overall thickness of the sheet being about 0.030 inch to about 0.050 inch. Blanks are cut from the aforesaid sheet, treated with a solvent along the margins at the bottom end, and folded around a mandrel to bring opposite ends into overlapping position with the solvent therebetween whereupon the overlapped ends are pressed together to form a seam. A bottom member is solvent sealed to the bottom edge of the side wall blank.

3,658,616

METHOD OF MAKING LIGHT POLARIZING PATTERNS

John F. Dreyer, Cincinnati, Ohio, assignor to Polacoat, Inc., Blue Ash, Ohio

Original application Mar. 1, 1968, Ser. No. 709,803, now

Patent No. 3,520,752, dated July 14, 1970, which is a

continuation-in-part of application Ser. No. 404,138, Oct. 15, 1964. Divided and this application Sept. 17, 1969, Ser. No.

858,868

Int. Cl. B44c 1/16

U.S. Cl. 156—234

3 Claims

Methods for making patterns comprising areas different with respect to their light polarizing properties by selective removal of portions of a continuous polarizing film, such as

tive removal of the dye film from the carrier, or by transfer of portions thereof to a receptor surface.

3,658,617

METHOD FOR FORMING A LAMINATED FLOOR COVERING

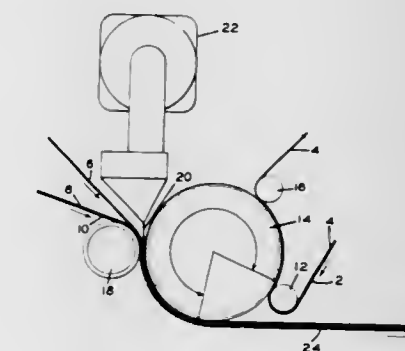
Edgar C. Fearnow, and William E. Martin, both of Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed July 17, 1970, Ser. No. 55,671

Int. Cl. B44c 1/18, 3/02

U.S. Cl. 156—235

1 Claim



The method involves the steps of forming a decorative wear layer on an expendable, strippable backing, removing the strippable backing from the wear layer while maintaining the wear layer in a stable state, and passing the wear layer into the nip of a roll structure along with an extruded adhesive, a reinforcing member and a foam or other permanent backing so that there is formed a laminated structure consisting of the wear layer, a reinforcing structure and a permanent backing all adhesively bonded to each other.

3,658,618

METHOD OF PROVIDING INDIVIDUAL BODIES ON A BASIC BODY

Wolfgang Gramann, Nd.-Gemunden, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm/Donau, Germany

Filed Oct. 21, 1969, Ser. No. 868,062

Claims priority, application Germany, Oct. 25, 1968, P 18 05

174.6

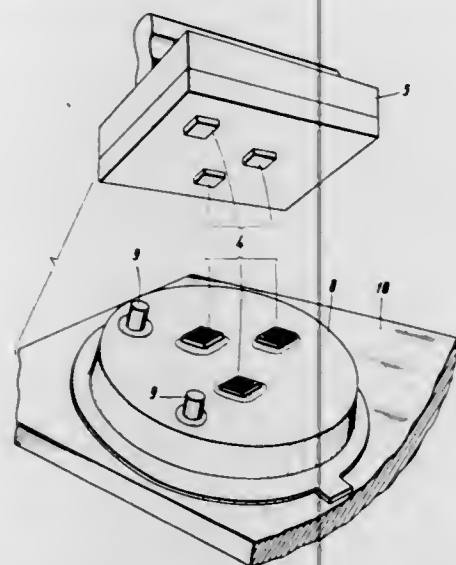
Int. Cl. B44c

U.S. Cl. 156—235

5 Claims

A method of providing individual bodies on a basic body by firstly laying the individual bodies on a common support picking them up and transferring them, by means of a carrier member with an adhesive surface, to the basic body and

holding them on the basic body until they are secured by suitable means such as glueing or soldering. Carrier members



and support members are provided for carrying out the method.

3,658,619

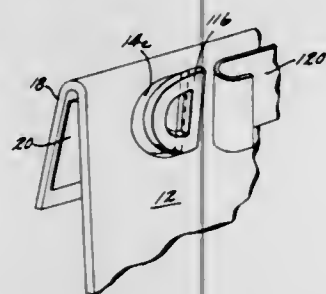
METHOD OF MAKING TRIM LETTERS AND THE LIKE
Gerald V. Jakeway, Grand Rapids, Mich., assignor to Keeler Brass Company, Grand Rapids, Mich.

Original application Nov. 8, 1967, Ser. No. 687,081, now Patent No. 3,541,712, dated Nov. 24, 1970. Divided and this application July 27, 1970, Ser. No. 58,366

Int. Cl. B32b 3/118

U.S. Cl. 156—250

7 Claims



A method for precisely cutting and applying a backing stock such as an adhesive backing to trim objects, in which the backing has substantially the same dimensions as the objects, wherein a sheet of the backing is exposed and positioned, a trim object is positioned on one side of the backing, and a female die having a shape and dimensions which match those of the trim object is positioned on the other side thereof, after which the trim object is pressed into contact with and through the sheet of backing material into the die to thereby sever a portion from the backing material which closely duplicates the shape of the object itself.

3,658,620

IRRADIATION LAMINATION PROCESS FOR AIR-INHIBITED POLYMERS

Roger P. Hall, Mayfield Heights, Ohio, assignor to SCM Corporation, Cleveland, Ohio

Continuation-in-part of application Ser. No. 682,140, Nov. 13, 1967. This application June 17, 1968, Ser. No. 737,576

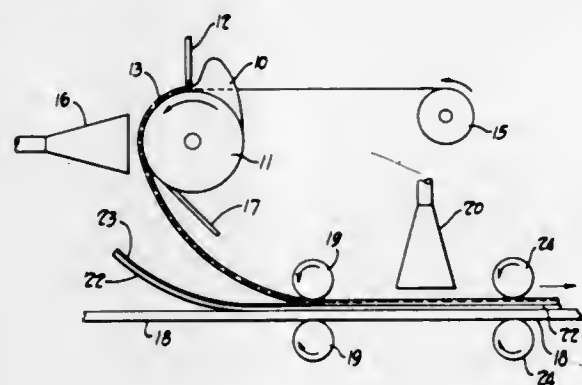
Int. Cl. B32b 27/16; C09J 5/02

U.S. Cl. 156—272

13 Claims

A process for preparing a laminable sheet from a substantially catalyst-free system containing a polymerizable organic unsaturated resin susceptible to free-radical one comprising assembling a film or the like of the resin in contacting substantially coplanar relation with a membrane, and then ex-

posing the resulting assembly while overlying a substrate to high energy radiation. This action cures a depthwise segment of the assembly contiguous to the substrate and provides a non-tacky, mar-resistant undersurface to the film while leaving at least the upper exposed surface of the assembly in a relatively tacky, mar-susceptible condition. The latter surface thereby defines an interface of a resulting laminable sheet adapted for subsequent adherence to another lamina.



Preferably, the process includes the ultimate step of lamination as well. In this embodiment, the described assembly is first passed through onm treating zone effective to impart mass integrity and thereby define a sheet, and is then passed in juxtaposition with a cooperating lamina through another treating zone effective substantially to complete the cure of the resin and simultaneously laminate the sheet to the cooperating lamina, one of the treating zones comprising exposure to high energy radiation.

3,658,621

METHOD FOR ASSEMBLING GROUPS OF FLAT MODULAR PIECES

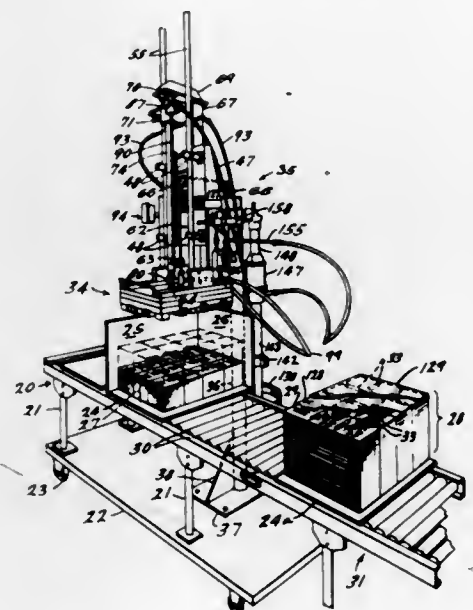
Robert C. Jackson, Florence, Ala., assignor to Stylon Corporation, Florence, Ala.

Filed Apr. 14, 1969, Ser. No. 815,647

Int. Cl. E04f 13/08; B32b 7/14

U.S. Cl. 156—289

8 Claims



A method for assembling groups of generally flat modular pieces such as ceramic tile into structurally unitary multi-unit assemblies. The pieces are arranged in groups each having a desired configuration and orientation of desired area and shape with desired inter-piece spacing. The group of pieces is placed on an assembly plane with their rear faces turned upwardly. A plurality of discrete masses of binding medium is placed on the adjacent edges of the pairs of pieces in the group and overlying the inter-piece spaces. The masses of binding medium are pressed flat in a direction normal to the

plane of the front faces of the pieces to squeeze some of the binding medium into the inter-piece spaces and against the edges of the backs of adjacent pieces. The binding medium is then set up to bond the pieces to each other and to form a unitary multi-piece assembly.

3,658,622

PROCESS FOR MAKING WOOD LAMINATE

Frederick Horowitz, Coos Bay, and Joseph B. Dede, Jr., North Bend, both of Oreg., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Filed Apr. 9, 1969, Ser. No. 814,827

Int. Cl. C09J 1/00

U.S. Cl. 156—331

10 Claims

A plywood adhesive especially useful for bonding hardwood overlays to softwood plywood cores which comprises a urea-formaldehyde adhesive modified with a phenol-formaldehyde resin.

3,658,623

PROCESS FOR BONDING NON-POROUS MATERIALS BY MEANS OF POLYFUNCTIONAL AROMATIC CYANIC ACID ESTERS

Ernst Grigat; Heinz Schultheis, both of Koeln-Stammheim; Eugen Bock, Leverkusen, and Manfred Dollhausen, Hildorf, all of Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation-in-part of application Ser. No. 824,248, May 13, 1969, now abandoned. This application July 14, 1969, Ser.

No. 841,543

Int. Cl. C09J 3/16

U.S. Cl. 156—331

4 Claims

Non-porous materials are bonded by introducing between the surfaces to be bonded monomeric polyfunctional aromatic cyanic acid esters resp. their prepolymers obtained by heat treatment of the monomeric compounds, fixing the surfaces to be bonded in the required position under intimate contact and heating the bond for a sufficient period of time up to 250° C.

3,658,624

BONDING METHOD EMPLOYING A TWO PART ANAEROBICALLY CURING ADHESIVE COMPOSITION
William Arthur Lees, Chandlers Ford, England, assignor to Borden Inc., New York, N.Y.

Filed Sept. 29, 1969, Ser. No. 862,065

Int. Cl. C09J 5/00

U.S. Cl. 156—332

13 Claims

A method for producing a rapid and effective bond between two surfaces which comprises applying to a first surface to be bonded a composition which is stable for an extended period in the presence of oxygen and comprises a major proportion of a monomer having anaerobic curing properties and a minor proportion of a first accelerator moiety, separately applying to a second surface to be bonded, or to the first surface immediately before bonding, a second composition, also stable for an extended period in the presence of oxygen and comprising a major proportion of a monomer having anaerobic curing properties and a minor proportion of a second accelerator moiety complementary to the first and bringing the first and second surfaces together to allow the said compositions to combine anaerobically, the accelerator moieties in the compositions being so chosen that they act synergistically when combined.

3,658,625

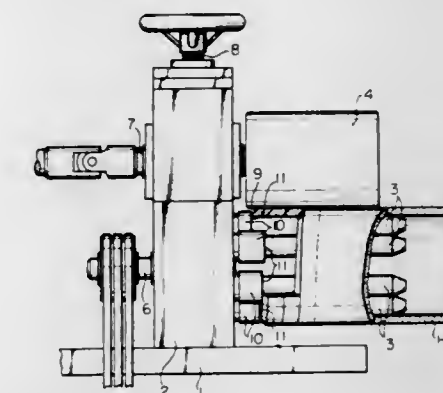
APPARATUS FOR CONTINUOUSLY MAKING A HOSE
Hajime Ishikawa, 5-25, 2-chome, Wakakusa-cho, Nishinomiya-shi; Youichi, Akedo, 1-6, Shariji-cho, Ikuno-ku, Osaka-shi, Osaka-fu, and Toshio, Kominami, 5-22, 2-chome, Higashinari-cho, Nishinomiya-shi, all of Japan

Filed Jan. 26, 1970, Ser. No. 5,482

Claims priority, application Japan, Feb. 4, 1969, 44/9834
Int. Cl. B65h 8/100

U.S. Cl. 156—429

2 Claims



An apparatus for continuously making a hose which is easy and economical to construct because use is made of cantilever type shaping rolls having no guide means such as spiral grooves or the like formed thereon, and a pressing roll provided with an enlarged annular portion having a sloped tape guiding surface formed at the rear end of the pressing roll, whereby a continuous hose can be produced very smoothly.

3,658,626

MEANS FOR MANUFACTURING STAPLE FIBER FILTER ELEMENTS

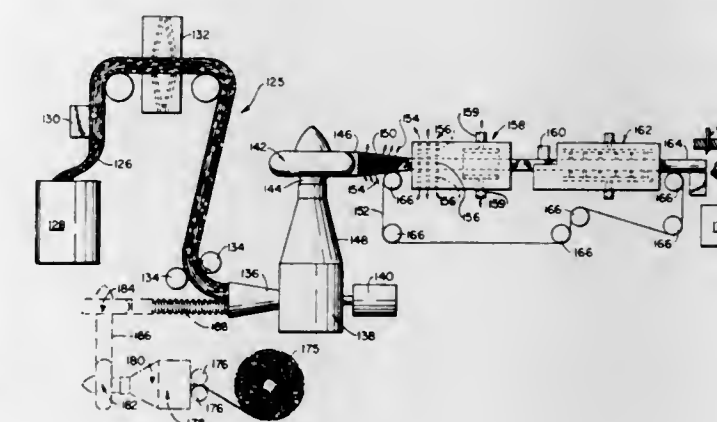
Richard M. Berger, and Reavis C. Sproull, both of Richmond, Va., assignors to American Filtrona Corporation, Richmond, Va.

Original application June 8, 1967, Ser. No. 644,614, now Patent No. 3,552,400. Divided and this application Mar. 25, 1970, Ser. No. 25,611

Int. Cl. B29h 9/02

U.S. Cl. 156—441

5 Claims



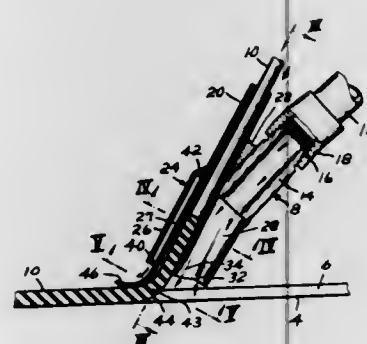
The production of staple fiber smoke filter elements and the like directly from a continuous filamentary tow. The products have functional and physical characteristics comparable to prior art filter elements, but require 20 - 30 percent less material. The continuous filamentary tow is chopped into staple fibers, dispersed in a turbulent air stream and blown into a forming means preferably comprising a porous belt which shapes and carries the staple fibers while processing fluids such as steam and cooling air are blown through the belt and into the staple fibers. The product can be supplemented by various additive materials.

3,658,627 PLASTIC WELDING TOOL

Stanley J. Kaminsky, 619 Neponset Street, Norwood, Mass.
Continuation-in-part of application Ser. No. 594,052, Nov. 14, 1966, now abandoned. This application Oct. 29, 1969, Ser. No. 871,480
Int. Cl. C09j 5/06

U.S. Cl. 156—497

11 Claims



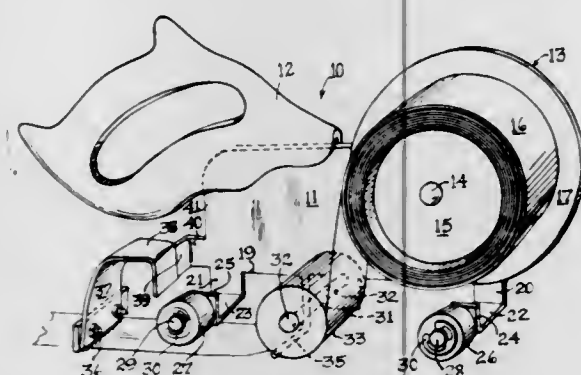
A tool heated by hot air for use in welding thermoplastic materials.

3,658,628 TAPE DISPENSER

Michael Zenter, 1845 West Waveland Avenue, Chicago, Ill.
Filed May 25, 1970, Ser. No. 40,101
Int. Cl. B32b 31/08

U.S. Cl. 156—527

4 Claims



A hand-held tape dispenser having a guide roller, a pressure roller, and a dispenser roller, all positioned beneath a tape spool and all of which project laterally to one side of the device so that the same may be operated as closely as possible to an adjacent surface, such as a wall, when the device is utilized for applying masking tape to woodwork and/or framing members abutting the wall surface to be painted, and a tape severing blade extending parallel to the rollers, rearwardly of the pressure roller, and which, upon elevating movement of the device upon said pressure roller, will cut the tape.

3,658,629 PHOTOPOLYMER RESIST SHEET LAMINATOR

Lawrence P. Cramer, Endwell, N.Y.; Harold B. Irons, Yokohama, Japan; Harold Koha, Endwell, and John P. Mathis, Endicott, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., by said Cramer

Filed Feb. 27, 1970, Ser. No. 15,165
Int. Cl. B32b 31/10, 31/20

U.S. Cl. 156—552

5 Claims

The resist laminator receives a panel between two identical drums and a sheet of photo resist material is placed on opposite sides of the panel simultaneously prior to feeding the laminated assembly to curing rollers. When the panel is

received between the drums the resist material is secured only at the leading edge to prevent the formation of wrinkles or other defects during the curing operation. The sheets of

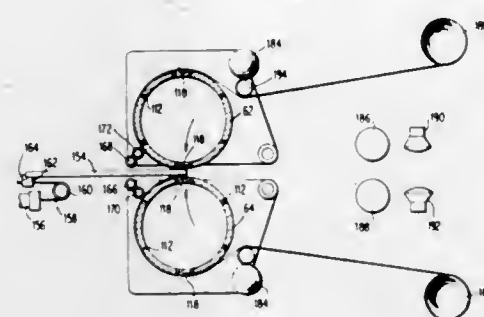


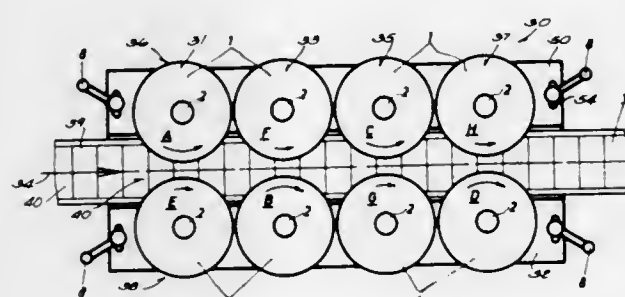
photo resist material are pre-cut to the exact size of the panel and held on the surface of the drums by means of a vacuum applied interiorly of the drum.

3,658,630 LABELING MACHINE WITH LABEL ON-ROLLING DEVICE

Kurt Stauber, Barbing, Germany, assignor to Hermann Kronseeder, Neutraubling, Germany
Filed Nov. 4, 1969, Ser. No. 873,832
Claims priority, application Germany, Nov. 8, 1968, P 18 07 753

Int. Cl. B65c 9/36, 9/34
U.S. Cl. 156—566

7 Claims



A label on-rolling apparatus for a labeling machine includes a battery or succession of pairs of spaced soft, spongy and resilient rollers, with the rollers in each pair located on opposite margins of the conveyor and separated by a gap which defines a feed path. The rollers in each pair rotate in opposite directions and at different speeds, and the adjacent rollers along the same margin also rotate at different speeds. The speed differential between the rollers in each pair and the speed differential between adjacent rollers on each margin causes sequential counter rotation or rotary oscillation of containers as they move along the feed path through the adjacent pairs of rollers, causing firm pressure to be applied to the surface of the label to firmly affix the label to the container. A modified embodiment of the invention includes one longitudinal row of rollers located along one margin of the conveyor with adjacent rollers in the row rotating at different speeds, and an endless belt having a run located over the opposite margin of the conveyor and driven in a direction common with the conveyor and at a different speed than some of the rollers.

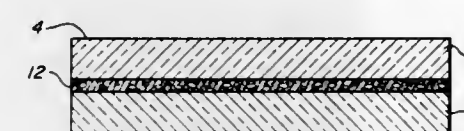
3,658,631 TRANSPARENT NON-WETTABLE SURFACE

Robert H. Shaw, Concord, and Jerrold Zimmerman, Randolph, both of Mass., assignors to Itek Corporation, Lexington, Mass.

Continuation-in-part of application Ser. No. 717,550, Apr. 1, 1968, now abandoned. This application Sept. 19, 1969, Ser. No. 864,261

U.S. Cl. 161—4

6 Claims



An optical laminate structure is disclosed comprising a transparent substrate and a transparent layer of a non-wettable material bonded to said substrate and formed from a refractory metal oxide. These laminates are particularly useful in applications where it is important to maintain clear vision through the optical surface after it has been subjected to water such as with automobile windshields, periscopes and eyeglasses.

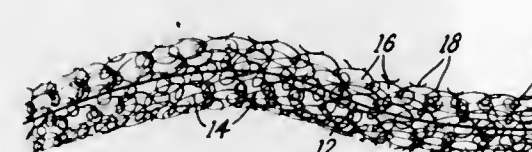
3,658,632 ADHESIVE STRIPS

Edmond A. Chandler, Winchester; Ralph E. Pearsall, Gloucester; Kenelm W. Winslow, Chestnut Hill, and Walter W. Yarrison, Beverly, all of Mass., assignors to USM Corporation, Boston, Mass.

Continuation-in-part of application Ser. No. 704,680, Feb. 12, 1968, now Patent No. 3,522,343, dated July 28, 1970. This application June 1, 1970, Ser. No. 42,164

Int. Cl. D04h 1/04
U.S. Cl. 161—150

7 Claims



An adhesive article for locating solid heat activatable adhesive in a predetermined path including a strip of a readily extensible open network of small cross section elements and a substantially inextensible member is joined to the strip to aid in applying the strip while maintaining uniform density of the thin cross section elements adjacent the substantially inextensible member.

3,658,633 AGGREGATES OF MINERAL FIBERS AND THERMOPLASTIC MATERIALS USEFUL PARTICULARLY AS UNDERLAYERS FOR STRUCTURAL SHEATHINGS FOR ACOUSTIC INSULATION

Claude Jumentier, La Celle Saint Cloud; Alain Bonnet, Clermont, and Claude Boiteau, Nogent sur Oise, all of France, assignors to Compagnie De Saint-Gobain, Neuilly-sur-Seine (Seine), France

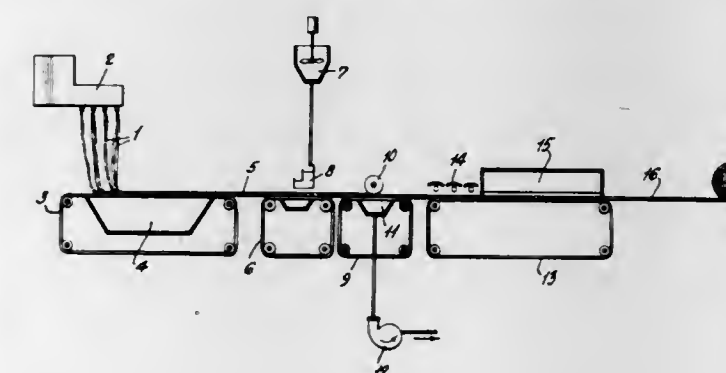
Filed July 25, 1968, Ser. No. 747,583
Claims priority, application France, Aug. 8, 1967, 117218
Int. Cl. B32b 17/00, 19/00

U.S. Cl. 161—156

9 Claims

The production of structural sheathings or facings having an underlayer affixed thereto, to serve as an acoustical insulating structural member, said underlayer being formed by the combination of mineral fibers, particularly glass fibers of relatively long length in interlaced condition, which is per-

meated with thermoplastic compositions comprising mixtures of one or more elastomers such as natural or artificial latex, and one or more adjuvants for promoting a chemical bond between the mineral fibers and elastomer component. This underlayer is prepared by forming a mat by the deposition of the mineral fibers in successive layers, which is followed by the thorough impregnation of the fibers with an aqueous dispersion of said thermoplastic composition, the withdrawal of the excess of the latter from the impregnated mat, and the drying of the mat and the final heating thereof to attain an effective reticulation of plastic composition amongst the glass fibers before the mat is accumulated on a storage roller. The final production step of gluing of the underlayers to a



sheathing or other support is rendered more secure and satisfactory by partially or completely clogging the pores at one or both faces of the underlayer with a special filling layer before the glue is applied thereto. Furthermore, the appearance of the underlayer on its support is improved, especially when the latter is a vinyl plastic, by removing the folds therefrom which are caused by the rolling up of the former on a reel in the course of its preparation. The elimination of these folds is attained by heating the mat immediately prior to its fixing on its support to relieve slightly the binding of the layers of fibers by the thermoplastic material, which gives rise to a re-arrangement of the stratification of fibers adjacent to the surfaces of the underlayer.

3,658,634 FIRE-RETARDANT SHEATH AND CORE TYPE CONJUGATE FIBER

Masana Yanagi; Itaru Nakamura, both of Mishima; Masayuki Ohosugi; Kiyosi Takizawa, both of Sunto-gun; Masanori Kakinami, and Chikara Sano, both of Mishima, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Filed Aug. 20, 1970, Ser. No. 65,392
Int. Cl. D02g 3/02; D06m 13/00

U.S. Cl. 161—175
The present invention relates to a sheath and core type conjugate fiber obtained by providing a core composed of polymer prepared by blending a specific halogen substituted aromatic compound and phosphorus compound in predetermined amounts and by wrapping said core component with a sheath component.

The fire-retardancy of the sheath and core type conjugate fiber of this invention is remarkably high because a polymer having a high halogen concentration is used as the core component of the conjugate fiber.

3,658,635 ADHESIVE INTERLAYER SUITABLE FOR CONSTRAINED LAYER VIBRATION DAMPING

Albert L. Eustice, 1205 McKennon's Church Road, Wilmington, Del.

U.S. Cl. 161—190

14 Claims

An interlayer which is self-adherent to a base panel and a constraining sheet to form a constrained layer damped structure is provided, the interlayer being a dispersion of visco-

elastic polymer having a loss tangent of at least 0.5 in a continuous phase of acidic copolymer, e.g., ethylene/methacrylic acid, with the carboxylic acid groups being neutralized from 0 to 50 percent with metal ions, e.g., sodium. When the visco-elastic polymer is polyurethane, the peel strength of the



interlayer is increased, which makes the inter layer useful in a system primarily for adhesive purposes. In another constrained layer damped structure, the interlayer is a composite of a layer of the visco-elastic polymer sandwiched between films of the acidic copolymers.

3,658,636

LAMINATED SAFETY GLASS AND LAMINATED BULLET-PROOF GLASS

Rolf Beckmann, Siegburg, and Johannes Schneider, Troisdorf both of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
Continuation-in-part of application Ser. No. 709,185, Feb. 29, 1968, now abandoned. This application July 1, 1970, Ser. No. 51,695

Claims priority, application Germany, Mar. 6, 1968, D 52 441
Int. Cl. B32b 17/10, 27/34

U.S. Cl. 161-199

6 Claims

Safety or bullet-proof glass composed of at least one layer of silicate glass, amorphous polyamide sheeting and polyvinyl butyral as the adhesive between the polyamide layers and the silicate glass with the silicate glass being at least one of the outside layers. Multiple layers of polyamide and/or silicate glass on each side of the polyvinyl butyral may be used.

3,658,637

DIALKYL OXALATE STABILIZATION OF POLYESTER FIBER-RUBBER LAMINATE AGAINST HEAT AND CHEMICAL DEGRADATION

Arthur C. Danielson, Royal Oak, Mich., assignor to Uniroyal, Inc., New York, N.Y.

Filed Mar. 17, 1969, Ser. No. 807,911

Int. Cl. B32b 27/36, 31/00; C08c 13/08, 15/00; C08f 45/58; C08g 39/10

U.S. Cl. 161-231

4 Claims

Polyester cord reinforcement in rubber (e.g. in tires) is rendered more resistant to deterioration upon heat aging if the rubber stock contains certain deterioration preventing substances which include certain aldehydes, esters (e.g. diethyl oxalate), lactones, lactides, ketones, keto esters, halides, salts, orthosilicates, orthoformates, silanes, sulfites, isocyanates, epoxides, and anhydrides, as well as polymers of such substances.

3,658,638

PLYWOOD PROCESS AND PRODUCT WHEREIN THE ADHESIVE COMPRISES A LIGNOSULFONATE-PHENOL-FORMALDEHYDE REACTION PRODUCT

Charles H. Ludwig, and Albert W. Stout, both of Bellingham, Wash., assignors to Georgia-Pacific Corporation, Portland, Oreg.

Original application July 30, 1969, Ser. No. 846,217. Divided and this application Dec. 2, 1970, Ser. No. 94,592
Int. Cl. B32b 27/42

U.S. Cl. 161-262

11 Claims

An adhesive resin composition prepared by pre-reacting lignosulfonate with phenol under alkaline conditions and sub-

sequently reacting the lignosulfonate-phenol product with formaldehyde under alkaline conditions.

3,658,639

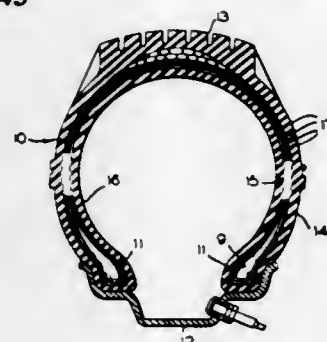
LAMINATED ARTICLES FROM SULFUR VULCANIZABLE ELASTOMERIC BLENDS COMPRISING DIOLEFIN RUBBER AND EPDM TERPOLYMERS

Kenneth H. Wirth, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation
Original application May 9, 1966, Ser. No. 548,614, now Patent No. 3,492,370. Divided and this application Nov. 21, 1969, Ser. No. 877,558

Int. Cl. B32b 25/00; B60c 1/00

U.S. Cl. 161-243

7 Claims



This invention relates to laminates comprising sulfur vulcanizable blends prepared from a diolefin rubber and an interpolymer comprising ethylene, at least one straight chain monoolefin containing three to 16 carbon atoms and a polyunsaturated bridged ring hydrocarbon containing at least one ethylenic double bond in one of the bridged rings.

3,658,640

PULPING OF WET STRENGTH BROKE CONTAINING POLYVINYLAMIDE-GLYOXAL RESIN

Anthony Thomas Coscia, South Norwalk, and Laurence Lyman Williams, Stamford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of application Ser. No. 745,486, July 17, 1968, now Patent No. 3,556,932, which is a continuation-in-part of application Ser. No. 471,463, July 12, 1965, now abandoned. This application Apr. 29, 1970, Ser. No. 33,068.

The portion of the term of the patent subsequent to Jan. 19, 1968, has been disclaimed.

Int. Cl. D21h 3/52

U.S. Cl. 162-4

7 Claims

Wet strength paper broke composed of fibers bonded together by a wet strength polyvinylamide-glyoxal resin in thermoset state is pulped by contacting the broke with an aqueous medium substantially free from oxidizing agent having a pH between 5 and 10 and a temperature above 100° F. and subjecting the broke to mechanical pulping.

3,658,641

POLYMERIZATION PRODUCT OF UREA, EPICHLOROHYDRIN AND ALKYLENIMINE AND METHOD OF PREPARING SAME

Kwan-Ting Shen, Lakewood, N.J., assignor to Ciba Corporation, Summit, N.J.

Continuation-in-part of application Ser. No. 810,837, Mar. 26, 1969, now abandoned. This application Dec. 29, 1969, Ser. No. 888,960. The portion of the term of the patent subsequent to Sept. 17, 1987, has been disclaimed.

Int. Cl. D21h 3/36

U.S. Cl. 162-164

9 Claims

Polymerization products are provided which are obtained by initially preparing a condensate of 1-2 molar equivalents of urea and 1-2 molar equivalents of epichlorohydrin. The polymerization product is then obtained by polymerizing 2-30 percent by weight of the condensate with 98-70 percent by weight of an alkylenimine having one to four carbon

atoms such as ethylenimine. The polymerization products of this invention are especially useful as retention aids for particulate materials, as dye fixatives, and as drainage aids in paper manufacture.

3,658,642

METHOD OF REDUCING CURL IN MAKING A CONTINUOUS WEB OF PAPER

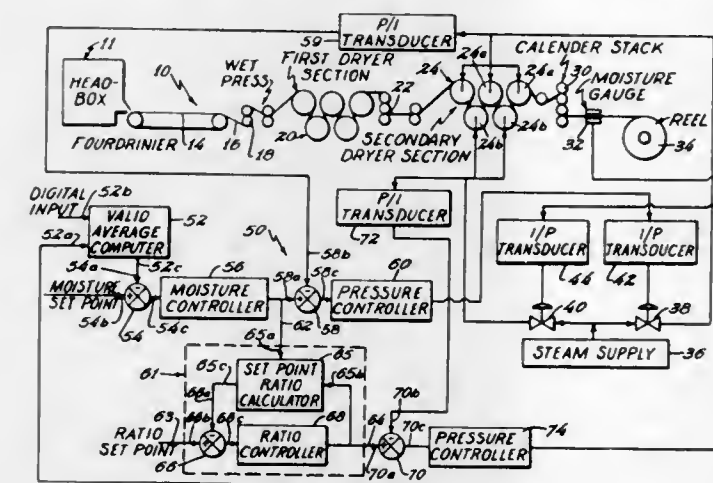
Marion A. Keyes, IV, South Beloit, Ill., and John A. Gudaz, Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.
Original application Dec. 18, 1968, Ser. No. 784,665, now Patent No. 3,564,724, dated Feb. 23, 1971. Divided and this application Aug. 27, 1970, Ser. No. 67,519

Int. Cl. D21f 5/06

U.S. Cl. 162-197

6 Claims

U.S. Cl. 176-18



The method involves the use of upper and lower drying sections, each comprising a plurality of steam-heated drying rolls, which are employed in the drying of the paper web as it passes therebetween. A first control loop is associated with the upper section and a second control loop is associated with the lower section. These dryer loops determine the respective amounts of steam delivered to the two sections. A moisture control loop outputs a set point to the first dryer loop and a second set point is provided for the second dryer loop, and the second set point being modified so that the rate of steam flow to the second dryer section is maintained in a preferred relationship to the rate supplied by the first dryer section so that the curl of the web is minimized.

3,658,643

FAST-BREEDER NUCLEAR REACTOR

Hans Spence, Erlangen, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany.

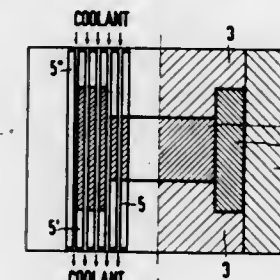
Continuation-in-part of application Ser. No. 696,434, Jan. 8, 1968. This application Apr. 22, 1969, Ser. No. 820,038

Claims priority, application Germany, Jan. 11, 1967, S 107,812; Apr. 27, 1968, P 17 64 235.2

Int. Cl. G21c 1/02

U.S. Cl. 176-17

10 Claims



Fast-breeder nuclear reactor includes a generally cylindrical reactor core having axial end zone of breeder material and a center zone of fissionable fuel, and means for cooling the zones with fluid coolant, the fissionable fuel zone having end surfaces located in opposite axial directions of the cylin-

drical core symmetrical to a transverse plane through the core bisecting the fissionable fuel zone, the fissionable fuel zone having a thickness in the axial direction of the core reducing in radial direction toward the axis of the core, the fissionable fuel therein having a uniform degree of enrichment.

3,658,644

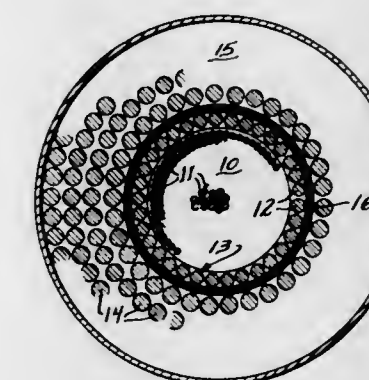
FAST BREEDER REACTOR

Linton W. Lang, Richland, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 6, 1970, Ser. No. 9,298

Int. Cl. G21c 1/02, 15/00

1 Claim



A fast breeder reactor consists of a core, an inner blanket consisting of a single ring of blanket elements surrounding the core, an outer blanket surrounding the inner blanket and a partition containing a moderating material and, preferably, a material which absorbs thermal neutrons separating the inner blanket from the outer blanket. Lithium can be used as both the moderating and absorbing material, tritium being formed therein as a useful byproduct.

3,658,645

NUCLEAR REACTORS

Alan Thomas Hooper, Weymouth, Dorset, England, assignor to United Kingdom Atomic Energy Authority, London, England

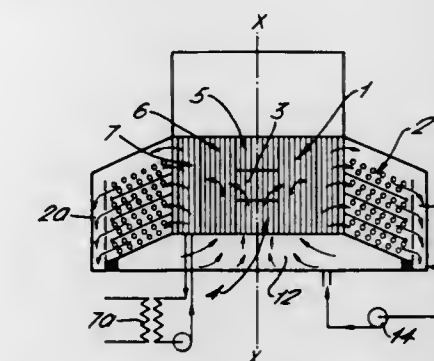
Filed Feb. 6, 1969, Ser. No. 796,950

Claims priority, application Great Britain, Feb. 7, 1968, 6,170/68

Int. Cl. G21c 19/28, 11/08, 15/02

U.S. Cl. 176-61

6 Claims



In a nuclear reactor fuelled with porous fuel and having a fluid coolant, the coolant enters the core axially and traverses the porous fuel in a radial sense before leaving the core in a continuing radial direction. Pressure drop between inlet and outlet passages is reduced by avoiding the need for the coolant to pick up axial momentum on leaving the fuel.

3,658,646

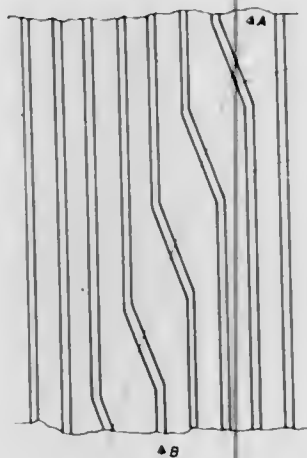
FUEL ELEMENT BUNDLE FOR NUCLEAR REACTORS

Richard Arno Mueller, Neuthard, Germany, assignor to Gesellschaft Fur Kernforschung, Karlsruhe, Germany
Continuation of application Ser. No. 627,162, Mar. 30, 1967, now abandoned. This application Oct. 7, 1968, Ser. No. 781,663

Claims priority, application Germany, Apr. 3, 1966, G 46 493
Int. Cl. G21c 3/32

U.S. Cl. 176-78

4 Claims



Nuclear reactor fuel element bundle having a multiplicity of rod-type fuel elements therein surrounded by a common shroud with coolant within the shroud surrounding the rods wherein the fuel elements are so constructed as to have eccentric portions which provide at least one helical path which offers lesser resistance to the flow of coolant therethrough among the rods.

3,658,647

METHOD FOR THE CULTIVATION OF YEASTS IN A NUTRITIVE MEDIUM CONTAINING A NONIONIC SURFACE ACTIVE AGENT

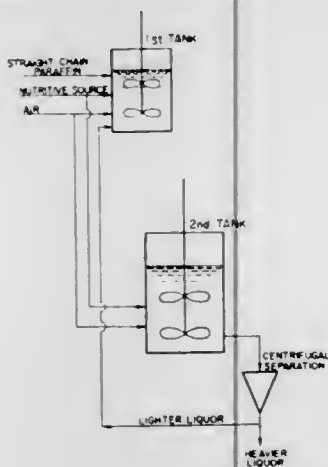
Isao Takeda, Ohi-machi; Takashi Iguchi, Tokyo; Katsuaki Tsuzuki, Nobeoka-shi, and Tooru Nakano, Tokyo, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 14, 1970, Ser. No. 2,741

Claims priority, application Japan, Feb. 26, 1969, 44/13946
Int. Cl. A23j 1/18; C12c 1/108

U.S. Cl. 195-28 R

7 Claims



Method for the cultivation of yeasts by a continuous fermentation process which comprises (a) cultivating *Torulopsis petrophilum*, *Candida petrophilum* or *Brettanomyces petrophilum*, a species of yeast capable of consuming hydrocarbons as the carbon source in a medium containing a hydrocarbon fraction boiling at temperatures in a range of 200° to 360° C.; (b) conducting said cultivation in an apparatus consisting of (1) an emulsification tank mainly for forming emulsion of said hydrocarbon and an aqueous solu-

tion and (2) a main fermentation tank for effecting cell formation or fermentative production of useful substances, said tank being connected in series; (c) using as the medium in said emulsification tank a medium containing said hydrocarbon at a high concentration, the fermentation waste liquor from the main fermentation tank and a small amount of nonionic surface active agent; and (d) using as the medium in said main fermentation tank the emulsified fermentation liquor obtained in said emulsification tank.

3,658,648

METHOD FOR THE PRODUCTION OF COENZYME Q
Yoshio Nakao, Ibaraki; Mitsuo Kuno, Saita; Saburo Yamatodani, Minoo; Isuke Imada, Ibaraki, and Hiroshi Morimoto, Kobe, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

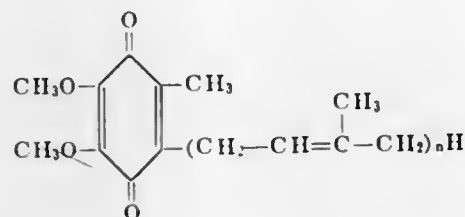
Filed Sept. 18, 1967, Ser. No. 668,694

Claims priority, application Japan, Sept. 17, 1966, 41/61555
Int. Cl. C12b 1/00

U.S. Cl. 195-28 R

8 Claims

Coenzyme Q of the formula



wherein n is an integer from 5 to 10 inclusive, is produced in good yield by incubating hydrocarbon-assimilating microorganism in a culture medium comprising a carbon source consisting mainly of hydrocarbons containing not less than 10 percent (volume/volume) of normal paraffins of nine to 23 carbon atoms, inclusive, and recovering the coenzyme Q accumulated in the culture broth.

3,658,649

CEPHALOSPORIN DERIVATIVES

Benjamin Harry Arnold, Slough; Robert Anthony Fildes, Chesham, and David Arthur Gilbert, Slough, all of England, assignors to Glaxo Laboratories Limited, Greenford, England

Filed Aug. 1, 1969, Ser. No. 846,963

Claims priority, application Great Britain, Aug. 2, 1968,
37,113/68

Int. Cl. C12d 9/00

U.S. Cl. 195-29

13 Claims

A process is disclosed for the preparation of a 7 β -(4-carboxybutanamide) ceph-3-3em-4-carboxylic acid or a 7 β -(5-carboxy-5-oxopentamido) ceph-3-em-4-carboxylic acid by subjecting a 7 β -(D-5-amino-5-carboxypentamido) ceph-2-em-4-carboxylic acid to the action of a cell-free fungal D-amino acid oxidase. The modified cephalosporin compounds produced exhibit antimicrobial activity and are useful as precursors in the synthesis of 7-aminocephalosporanic acid and 7 β -acylamido analogues of cephalosporin C.

3,658,650

CELL WALL LYTIC ENZYME AND PROCESS FOR THE PRODUCTION THEREOF

Hiroshi Okazaki, Sayama, Japan, assignor to Chugai Seiyaku Kabushiki Kaisha and Hiroshi Iizuka, Tokyo, Japan

Filed Mar. 6, 1970, Ser. No. 17,308

Claims priority, application Japan, Mar. 12, 1969, 44/18312
Int. Cl. C07g 7/02

U.S. Cl. 195-62

9 Claims

A cell wall lytic enzyme which possesses an ability to lyse the cell wall of *Chlorella*, yeasts, etc. is produced by aerobi-

cally culturing a microorganism belonging to Genus *Micropolyspora* which produces a cell wall lytic enzyme in a medium containing assimilable carbon sources, assimilable nitrogen sources and essential inorganic salts and organic nutrients until a substantial amount of the enzyme is accumulated in said medium and isolating said enzyme from the medium, and, if desired, subjecting the thus obtained crude enzyme to the purification step of salting out or dialysis to obtain a purified enzyme solution and further subjecting the enzyme solution to freeze-drying to obtain a powder preparation of said enzyme.

3,658,651

ION EXCHANGE TREATMENT OF BROMELAIN

David R. V. Golding, Kaneohe, Hawaii, assignor to Castle & Cooke Inc., Honolulu, Hawaii

Filed Apr. 28, 1970, Ser. No. 32,784

Int. Cl. C07g 7/022

U.S. Cl. 195-66 R

5 Claims

Bromelain-containing juice extracted from pineapple plant stems is purified prior to precipitation of the enzyme by passing the juice in ion exchange relation with an anion exchanger in the bicarbonate form, a cation exchanger having weak acid functional groups in the H⁺ or NH₄⁺ form, and a second anion exchanger in the bicarbonate form.

3,658,652

COPPER IONS IN CARBOMYCIN A FERMENTATION
Joseph L. Sardinas, Gales Ferry, Conn., assignor to Chas. Pfizer & Co., Inc., New York, N.Y.

Filed Mar. 6, 1969, Ser. No. 805,018

Int. Cl. C12d 9/00

U.S. Cl. 195-80

4 Claims

Addition of copper ions to carbomycin A-producing fermentation media gives rise to an increased yield of the antibiotic.

3,658,653

PROCESS FOR THE PREPARATION OF ERGOTAMINE AND ERGOCRYPTINE

Alba-Maria Amici, Anacleto Minghetti, Tullio Scotti, and Celestino Spalla, all of Milan, Italy, assignors to Societa Farmaceutica Italia, Milan, Italy

Filed July 17, 1968, Ser. No. 745,344

Claims priority, application Italy, July 19, 1967, 18542 A/67
Int. Cl. C12d 13/02

U.S. Cl. 195-81

1 Claim

Described is a microbiological process for the preparation of ergotamine and ergocryptine. The process is characterized in that *Claviceps purpurea* F1 32/17 is cultivated under aerobic conditions in submerged culture in a liquid nutrient medium containing an assimilable source of carbon, an assimilable source of nitrogen and mineral salts. The cultivation is carried out at from 20° to 35° C. with a pH of from 4.5 to 6.5. *Claviceps purpurea* F1 32/17 has been given the index number ATCC 20102 by the American Type Culture Collection, Rockville, Maryland.

3,658,654

SCREW-CONVEYING RETORTING APPARATUS WITH HYDROGENATION MEANS

Louis C. Gutberlet, Crown Point, Md., assignor to Standard Oil Company, Chicago, Ill.

Filed Apr. 16, 1969, Ser. No. 816,695

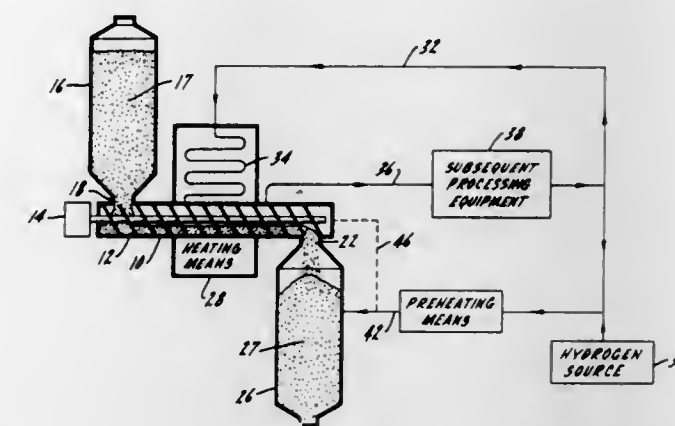
Int. Cl. C10b 1/06, 7/10, 47/20

U.S. Cl. 202-118

8 Claims

Apparatus for the pyrolysis of solids containing carbonaceous materials including a cylindrical substantially horizontal pyrolysis vessel together with solids input and removal means communicating with the vessel. Solids are conveyed through the pyrolysis vessel by means of an auger-type conveyor. Heating means are provided for heating solids

between the input and removal means. Gas input and withdrawal means permit the input and removal of gas from the pyrolysis vessel, and gas delivery means are provided for delivering gas to subsequent processing equipment. The gas



is recycled back to the gas input means via gas recycle means. Stripping gas delivery means are also provided to deliver a stripping gas to the pyrolysis vessel downstream of the gas withdrawal means.

3,658,655

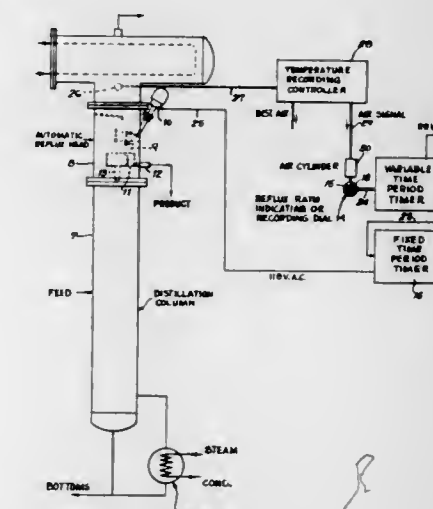
DIRECT READING REFLEX RATIO CONTROLLER FOR A DISTILLATION APPARATUS

Peter N. Heere, 16 Fair Fax Drive, Livingston, N.J.
Substitute for application Ser. No. 461,391, June 4, 1965, now abandoned. This application Sept. 19, 1969, Ser. No. 871,398. The portion of the term of the patent subsequent to Dec. 15, 1986, has been disclaimed.

Int. Cl. B01d 3/42

U.S. Cl. 202-160

4 Claims



A direct reading time ratio controller for use with distillation apparatus for controlling its reflux ratio. The controller controlling means for alternately effecting product delivery and reflux return, comprising alternately operable associated fixed period and variable period timers for controlling the means and readable means operatively associated with the variable period timer to change and set its operating time and directly indicating the reflux ratio.

3,658,656

PURIFICATION OF XYLENE ORGANIC DIISOCYANATE BY FRACTIONAL DISTILLATION IN THE PRESENCE OF AN INERT GAS OR SUPERHEATED VAPOR OF AN ORGANIC SOLVENT

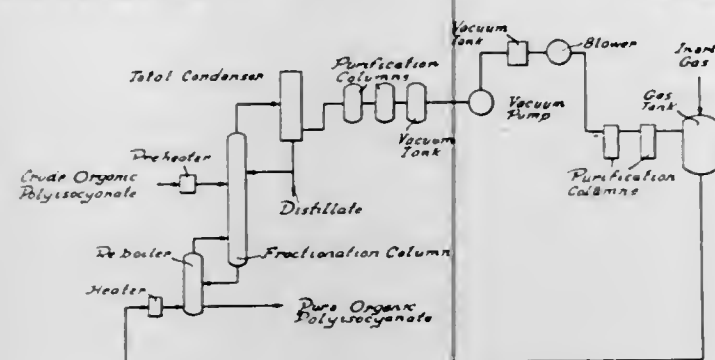
Osamu Adica; Kenji Naito, both of Toyonaka; Katsuhiko Ogino, Minoo, and Hiroyuki Kuroda, Suita, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation-in-part of application Ser. No. 636,353, May 5, 1967, now Patent No. 3,549,504. This application Nov. 7, 1968, Ser. No. 774,195. The portion of the term of the patent subsequent to Dec. 22, 1987, has been disclaimed.

Int. Cl. B01d 3/34; C07c 69/00

U.S. Cl. 203—49

4 Claims



Crude organic polyisocyanate is fractionated at a low temperature in the presence, in the fractionation column, of an inert gas (nitrogen gas, natural gas, carbon dioxide gas) and purified organic polyisocyanate is obtained in a high yield.

In one important aspect, crude xylenediisocyanate is fractionated in the presence of an organic solvent having a boiling point of -20° to 150° C. at the pressure of 200 mmHg in the fractionation column under low temperature, whereby purified xylenediisocyanate is obtained in a high yield.

3,658,657

SEPARATION AND RECOVERY OF 1,1,1-TRICHLOROETHANE BY EXTRACTIVE DISTILLATION

Kenneth F. Bursack, Wichita, and Earnest L. Johnston, Clearwater, both of Kans., assignors to Vulcan Materials Company, Birmingham, Ala.

Continuation-in-part of application Ser. No. 862,950, Oct. 1, 1969. This application July 23, 1970, Ser. No. 57,804

Int. Cl. B01d 3/40

U.S. Cl. 203—51

9 Claims

1,1,1-Trichloroethane containing chlorohydrocarbon contaminants, principally 1,2-dichloroethane, is purified by extractive distillation, employing as an extraction solvent anisole, isobutyl acetate, epichlorohydrin, a nitroalkane such as nitroethane or 1-nitropropane, or any of the foregoing compounds in compatible, mutually non-reactive mixture with any other of the foregoing compounds or with tetrahydrofurfuryl alcohol or n-butyronitrile.

3,658,658

SEPARATION AND RECOVERY OF 1,1,1-TRICHLOROETHANE BY EXTRACTIVE DISTILLATION

Kenneth F. Bursack, Wichita, and Earnest L. Johnston, Clearwater, both of Kans., assignors to Vulcan Materials Company, Birmingham, Ala.

Filed Oct. 1, 1969, Ser. No. 862,950

Int. Cl. B01d 3/34

U.S. Cl. 203—58

6 Claims

1,1,1-Trichloroethane containing chlorohydrocarbon contaminants, principally 1,2-dichloroethane, is purified by extractive distillation, employing as an extraction solvent either n-butyronitrile, or tetrahydrofurfuryl alcohol.

3,658,659

SEPARATING P-DICHLOROBENZENE FROM N-METHYL PYRROLIDONE BY STEAM DISTILLATION

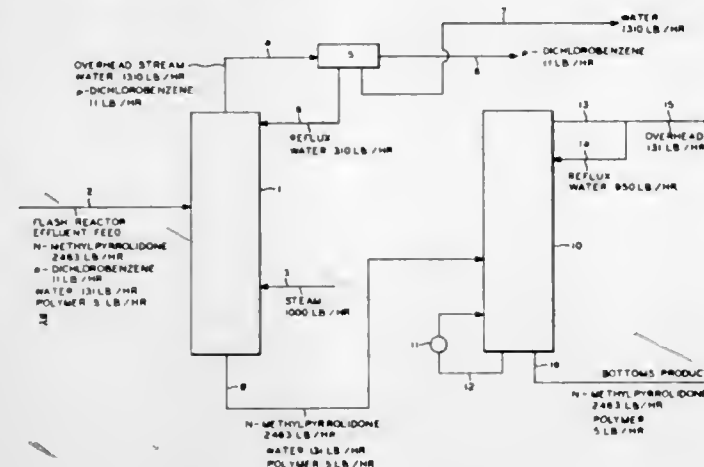
John E. Cottle, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Sept. 24, 1969, Ser. No. 860,811

Int. Cl. B01d 3/38

U.S. Cl. 203—76

10 Claims



A process for the recovery of p-dichlorobenzene and N-methylpyrrolidone from the reactor effluent from the production of polyphenylene sulfide from which the polyphenylene sulfide has been separated involving a steam distillation step to recover the p-dichlorobenzene and a fractionation step to recover the N-methylpyrrolidone.

3,658,660

ARTICLES SUCH AS ELECTROFORMS AND METHOD OF MAKING SAME

Herbert Fernyhough Maddock, 26 Garth Drive, Chester, England

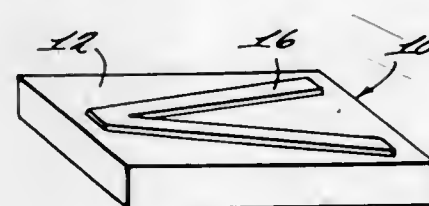
Filed Aug. 29, 1969, Ser. No. 854,207

Claims priority, application Great Britain, Aug. 30, 1968, 41,442/68

Int. Cl. C23b 7/00, 7/08

U.S. Cl. 204—4

10 Claims



Electroforms are produced by depositing a metal or alloy on a mold or mandrel of a metal or alloy having a melting point lower than the metal deposited in the disclosed method. A tin/zinc alloy of 92 percent tin and 8 percent zinc is coated with a metal such as copper or nickel, then the mold is immersed in a liquid maintained at a temperature sufficient to melt away the mold leaving the electroformed article.

3,658,661

METAL PLATING OF SUBSTRATES

Alfred O. Minkiel, Kenmore, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y.

Original application Mar. 15, 1967, Ser. No. 623,210, now Patent No. 3,523,875. Divided and this application Nov. 12, 1969, Ser. No. 871,272

Int. Cl. C23b 5/62; B44d 1/092

U.S. Cl. 204—30

2 Claims

Various substrates, including polymers that contain an aromatic nucleus, particularly phenolic resins, are plated with

metals by pretreatment of the substrate surface with an alkali metal sulfide, followed by contacting the treated surface with a metal salt. The resulting treated surface is readily electroplated by conventional techniques. The metal salt treatment of the pre-treated surface can be performed by a metal salt solution in a conventional electroplating bath.

3,658,662

CORROSION RESISTANT METALLIC PLATES PARTICULARLY USEFUL AS SUPPORT MEMBERS FOR PHOTO-LITHOGRAPHIC PLATES AND THE LIKE

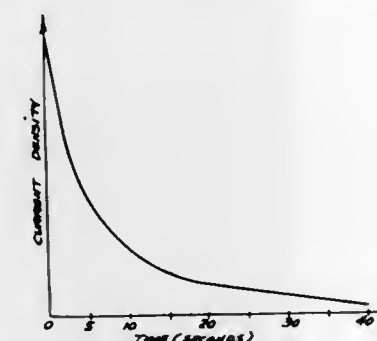
Edward A. Casson, Jr., Easton, Md.; Albino T. Gaul, Matawan, N.J.; Eugene L. Langlais, Detroit, Mich.; Gerald Shadlen, Arnold, Md., and Eugene L. Vanaver, Dallas, Tex., assignors to Durolith Corporation, Easton, Md.

Filed Jan. 21, 1969, Ser. No. 811,267

Int. Cl. C23b 9/00

U.S. Cl. 204—58

5 Claims



A process for electrolytically forming on a metallic element a protective layer or film in an electrolyte consisting of an aqueous solution of preferably sodium silicate or alternately of other salts rendering the electrolyte substantially basic, the metallic element constituting the anode in the process. The processed metallic element has particular usefulness as a support member for photolithographic printing plate, the electrolytically formed film acting as a barrier layer preventing deterioration of the light sensitive diazo resin, or the like, utilized as a photosensitive coating on lithographic plates.

3,658,663

METHOD FOR EFFECTING PARTIAL METAL PLATING

Hirotaka Fukunuma, Tokyo; Kenji Fujita, and Kenji Kashlura, both of Sakama, all of Japan, assignors to Japan Electro Plating Company, Kawaguchi, Saitama, Japan

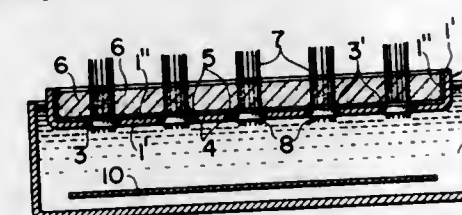
Filed Jan. 25, 1971, Ser. No. 109,385

Claims priority, application Japan, Mar. 3, 1970, 45/18399

Int. Cl. C23b 5/48, 5/70

U.S. Cl. 204—15

1 Claim



By the use of an apparatus comprising a supporting and partitioning base having a plurality of spaced openings each having an inner peripheral end edge of a V-shaped cross section for tightly linearly contacting the circumference of the article to be plated when the latter is inserted in place in said opening, and by establishing electric conduction between the terminal of an electrode and the conductive portion in that region of the article located on the inner side of said supporting and partitioning base and not requiring plating via a conductive powder or particles filled on said inner side of the

3,658,664

ELECTROTINNING PROCESS

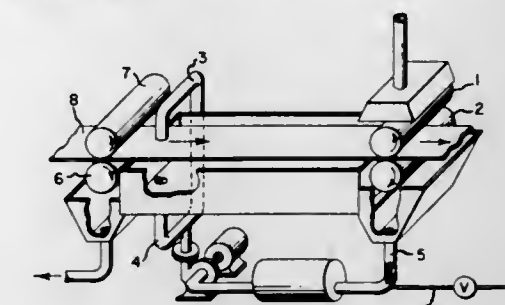
Donald Arthur Swalheim, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 8, 1969, Ser. No. 883,191

Int. Cl. C23b 5/14, 5/58; C22d 3/02

U.S. Cl. 204—54 R

7 Claims



In the process of reducing oxidation in stannous tin plating baths, particularly halogen tin baths, by sparging the bath with an inert gas such as nitrogen to displace dissolved and entrained oxygen, deposition of salt at the sparger outlets is minimized or avoided by the improvement of introducing water into the inert gas stream.

3,658,665

ELECTROLYTIC METHOD FOR PRODUCING A COLORED ANODIZED LAYER ON ALUMINUM AND ALLOYS OF ALUMINUM

Roland Chretien, Paris, and Henri Richaud, Le Mans, both of France, assignors to Pechiney, Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France

Continuation-in-part of application Ser. No. 495,708, Oct. 13, 1965, now abandoned, Continuation-in-part of application Ser. No. 651,971, July 10, 1967, now abandoned. This

application Apr. 15, 1969, Ser. No. 816,420

Claims priority, application France, July 13, 1966, 69304

Int. Cl. C23b 9/02

U.S. Cl. 204—58

25 Claims

The invention is addressed to the coloring of aluminum and alloys of aluminum by anodization wherein the aluminum article is immersed as the anode in an electrolytic bath formulated of an aqueous solution of a naphthalene sulphonic acid or alkali metal salt thereof and sulphuric acid, with or without an aliphatic acid of carbon atoms.

3,658,666

PROCESS FOR ADDING ON COMPOUNDS CONTAINING CARBON ANIONS

Hans Schaefer, Eddigehausen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen am Rhine, Germany

Filed Oct. 22, 1969, Ser. No. 868,620

Claims priority, application Germany, Oct. 29, 1968, P 18 05 764.2

Int. Cl. B01k 3/00

U.S. Cl. 204—59

5 Claims

A process for adding on compounds containing carbon anions to olefinic compounds in which the double bond is not activated, which comprises the anodic oxidation of compounds containing carbon anions in the presence of both an olefinic compound in which the double bond is not activated and a polar solvent. The products are suitable for further synthesis and for the production of biologically active substances.

3,658,667

ELECTROLYTE REDUCTION OF OZONOLYSIS PRODUCTS

Raymond L. Cobb, Bartlesville, Okla., and David P. Pearson, Portland, Oreg., assignors to Phillips Petroleum Company
Filed Feb. 5, 1970, Ser. No. 9,082

Int. Cl. C07c 47/12; C07b 24/06; C07c 45/00

U.S. Cl. 204—73

4 Claims

An oxygen-containing product, e.g., an alkoxyhydroperoxide, from the ozonolysis of an olefin, e.g., cyclododecene, is electrochemically reduced to a product in which the oxygen is present in aldehydic and/or ketonic form, e.g., alpha, omega-dialdehyde.

3,658,668

METHOD PREPARING PHOSPHONIC ACID DERIVATIVES

John M. Chemerda, Watchung, and William C. Lumma, Plainfield, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Aug. 31, 1970, Ser. No. 68,562

Int. Cl. B01j 1/10

U.S. Cl. 204—158

5 Claims

Processes for the preparation of (±)-(cis-1,2-epoxypropyl)phosphonic acid, amides, esters and salts thereof by photolytic rearrangement of 1,2-propenyl phosphates using ultraviolet radiation are disclosed. Also disclosed is the photolytic rearrangement using ultraviolet radiation and the inclusion of a photosensitizing agent. The compounds thus produced are useful as antimicrobial agents.

3,658,669

RADIATION CROSSLINKED DINORBORNENE POLYMERS

Henry Octave Colomb, Jr.; David John Trecker, both of South Charleston, and Thomas Kemper Brotherton, Charleston, all of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Sept. 13, 1968, Ser. No. 759,759

Int. Cl. B01j 1/10, 1/12; C08d 1/00

U.S. Cl. 204—159.12

24 Claims

Dinorborene compounds, many of them novel, have been found to form polymers having a ladder structure. The dinorborene compounds and dinorborene polymers with other polymers such as the polyolefins, vinyl polymers, acrylic polymers, polyesters, polyamides, polyethers, polyureas, polyurethanes, natural polymers, etc., are readily crosslinked by irradiation.

3,658,670

RADIATION CURING OF UNSATURATED AIR-INHIBITED RESINS

Donald F. Holicky, Parma, and Roger P. Hall, Mayfield Heights, both of Ohio, assignors to SCM Corporation, Cleveland, Ohio

Filed Feb. 11, 1969, Ser. No. 798,469

Int. Cl. B01j 1/00; C08d 1/00; C08f 21/00

U.S. Cl. 204—159.15

7 Claims

An improved process for curing an unsaturated air-inhibited thermosetting resin with a vinyl compound copolymerizable therewith suitably by means of radiation with a beam from electron emitting means wherein curling occurs by the addition of unsaturated molecules one to another is described. The improvement is for reducing inhibition of the resin to surface cure and comprises: substituting for at least a fraction of the unsaturated inhibited resin a copolymer comprising a linear saturated backbone having pendant therefrom through linkage selected from the group consisting of ester, ether, urethane, amine, and amide, a plurality of ethylenically unsaturated groups capable of the addition. The copolymer is characterized in having an average molecular weight of between about 5,000 and about 225,000.

3,658,671

SULFOXIDATION OF PARAFFIN

Masuzo Nagayama, Tokyo, and Terunosuke Kawana, Funabashi-shi, both of Japan, assignors to Lion Fat & Oil Co., Ltd., Tokyo, Japan

Filed Sept. 18, 1969, Ser. No. 859,118

Claims priority, application Japan, Sept. 20, 1968, 43/67547; Sept. 21, 1968, 43/68675

Int. Cl. B01j 1/10

U.S. Cl. 204—162 SA

11 Claims

A method of sulfoxidation of paraffin which comprises the steps of imparting actinic ray energy, to paraffin which contains not more than 5 weight percent of the reaction product of sulfoxidation and/or oxygen, and which contains sulfur dioxide gas dissolved therein, and subsequently blowing oxygen and sulfur dioxide gas into the thus processed paraffin.

3,658,672

METHOD OF DETECTING THE COMPLETION OF PLASMA ANODIZATION OF A METAL ON A SEMICONDUCTOR BODY

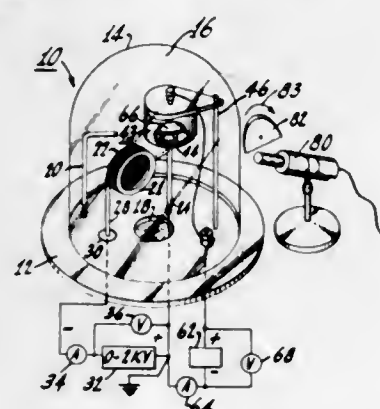
Peter Edward Norris, Princeton, N.J., assignor to RCA Corporation

Filed Dec. 1, 1970, Ser. No. 94,021

Int. Cl. C23b 11/02; B01k 1/00

U.S. Cl. 204—164

10 Claims



The method comprises (a) connecting a source of constant current in a series circuit with the plasma and the semiconductor body, (b) periodically illuminating the metal being anodized with light to produce photocurrents when the metal approaches the completion of anodization, (c) monitoring the voltage across the source of constant current, and (d) terminating the plasma anodization when the monitored voltage ceases to fluctuate as a result of the aforementioned periodic illumination.

3,658,673

PROCESS FOR CARRYING OUT CHEMICAL REACTIONS

Tibor Kugler, Sins, and Jakob Silbiger, Basle, both of Switzerland, assignors to Lonza, Ltd., Gampel/Valais (Direction: Basle), Switzerland

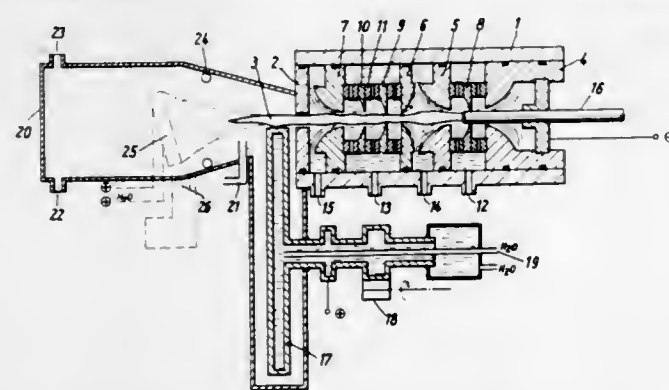
Filed Dec. 17, 1969, Ser. No. 885,929

Claims priority, application Switzerland, Dec. 24, 1968, 19,259/68; Apr. 1, 1969, 4949/69

Int. Cl. B01k 1/00; C01g 23/04

U.S. Cl. 204—164

5 Claims



Chemical reactions are carried out under the thermal ac-

tion of the plasma of an arc discharge by causing a reactant containing a metal or metalloid to swirl and form a vortex in the liquid state so as to at least partially form and stabilize a plasma, and said reactant reacts in the plasma state to form a reaction product containing at least one metal or metalloid component. Chemical reactions which may be carried out are for example reduction, cracking reactions, decomposition and recombination reactions, oxidation, carbide formation and nitride formation.

3,658,674

PROCESS FOR DEMINERALIZATION OF WATER

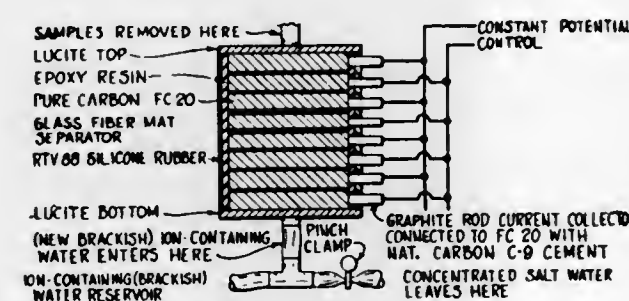
James L. Benak, Bedford, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio

Continuation of application Ser. No. 530,681, Feb. 28, 1966, now Patent No. 3,501,272. This application Feb. 13, 1970, Ser. No. 11,326

Int. Cl. C02b 1/82; B01k 3/06, 3/08

U.S. Cl. 204—180 R

2 Claims



The invention described herein is a process for the purification of carbon. That process provides for the treatment of carbon with hydrofluoric acid, or a mixture of hydrofluoric acid and nitric acid, followed in each case by treatment with hot aqueous hydrochloric acid. The carbon thus purified is notably effective for use as electrode material in a demineralization cell, i.e., one used for the demineralization of water.

3,658,675

PHOTOELECTROPHORETIC IMAGING PROCESSES USING BISAZO PIGMENTS

Freeman B. Jones, East Lansing, Mich., and Santokh S. Labana, Webster, N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Original application Feb. 1, 1967, Ser. No. 613,294, now Patent No. 3,562,248. Divided and this application Mar. 19, 1970, Ser. No. 29,315

Int. Cl. G03g 13/22

U.S. Cl. 204—181

11 Claims

Bisazo compounds are disclosed as are monochromatic and polychromatic electrophoretic imaging processes using these compounds. A typical member of this group is N,N'-bis 1-(1'-naphthylazo)-2-hydroxy-8-naphthyl adipdiamide.

3,658,676

MONITORING APPARATUS AND PROCESS FOR MONITORING CONTROLLING COMPOSITION OF AQUEOUS ELECTRODEPOSITION PAINT BATHS

Joseph M. De Vittorio, Homewood, Ill., and Raymond E. Story, Valparaiso, Ind., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Continuation of application Ser. No. 566,056, July 18, 1966, now abandoned. This application May 13, 1970, Ser. No. 37,423

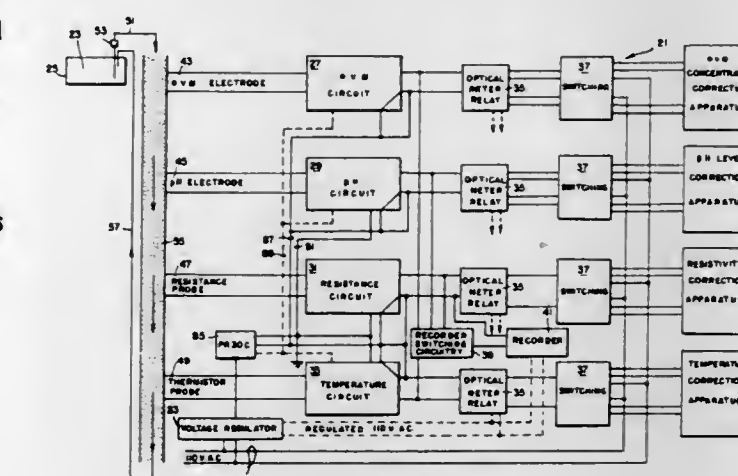
Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

6 Claims

A monitoring device is provided for indicating the characteristics of a paint bath adapted for the electrodeposition of

paint and containing finely divided solid material and non-volatile binder carried in a suitable liquid vehicle, said device comprising a conduit adapted to be connected to a receptacle containing a main body of said paint which conduit is of sufficient length that the electrical charge on the main body of paint is negligible on liquid samples of the main body of paint carried in said conduit at the point where said conduit enters said monitoring device, a plurality of test probes in said conduit within said monitoring device at spaced intervals, means for applying electrical energy to activate said probes, means for measuring the characteristics of liquid



material carried by said conduit in terms of the electrical response of the probes to said applied electrical activating energy, and means for indicating such measurements to the operator of said device.

3,658,677

ELECTROFLOW METHOD OF ELECTROCOATING

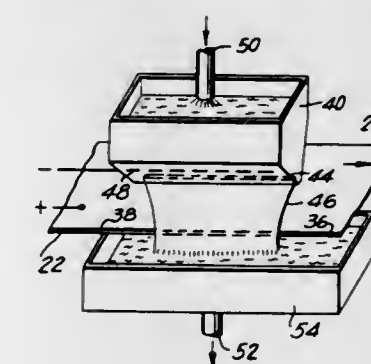
LeRoy Landauer, Crystal Lake, Ill., assignor to American Can Company, New York, N.Y.

Filed Dec. 22, 1969, Ser. No. 887,003

Int. Cl. B01k 5/02; C23b 13/00

U.S. Cl. 204—181

6 Claims



A selected, electrically conductive surface area on a metal object, such as a scoreline, scratch, cutedge, etc., may be individually coated by a dipless electroflow method of electrocoating. In the electroflow method, the metal object is moved along a straight line path of travel. A freestanding stream of coating material is aligned with and impinged onto a selected, electrically conductive surface area of the moving metal object. Simultaneously, a direct current is maintained flowing within the coating stream, in the case of an anodic coating material, between a negatively charged source of the coating material and the selected, electrically conducted surface area of the positively charged moving metal object, to individually coat the selected, electrically conductive surface area of the moving metal object. In the case of a cathodic coating material, the source of the coating material is positively charged and the moving metal object is negatively charged.

3,658,678

GLASS-ANNEALING PROCESS FOR ENCAPSULATING AND STABILIZING FET DEVICES

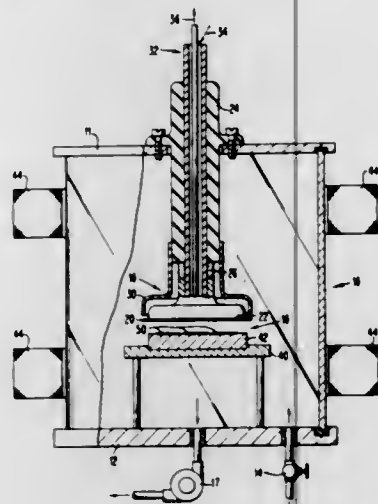
Lawrence V. Gregor, Hopewell Junction, N.Y., and Markus Zuegel, Baden, Wurttemberg, Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 26, 1969, Ser. No. 880,266

Int. Cl. C23c 15/00

U.S. Cl. 204—192

5 Claims



A process is described for passivating completed FET devices by encapsulation. High purity silicon dioxide is deposited on the completed field effect transistor (FET) device by the RF sputtering of a high purity silicon dioxide target in an inert atmosphere. The sputtered silicon dioxide layer is made approximately 1.5 times the thickness of the FET gate. Then, the device is annealed in a non-oxidizing atmosphere to restore the threshold voltage of the FET to its desired value prior to sputtering. Appropriate ranges are disclosed for the values of the temperature and the RF power density of the sputtering step and for the temperature and the time of the annealing step.

3,658,679

SYSTEM FOR DETERMINING THE HYDROGEN ION CONCENTRATION OF FLOWING LIQUIDS

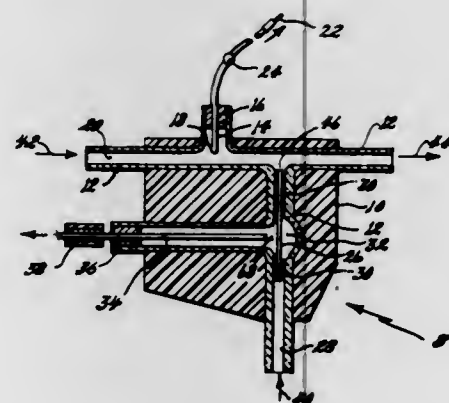
Marion J. Stansell, and Chandler S. Cheek, both of San Antonio, Tex., assignors to The United States of America as represented by the Secretary of the Air Force

Filed Apr. 14, 1969, Ser. No. 815,602

Int. Cl. G01n 27/36

U.S. Cl. 204—195 G

2 Claims



An enclosed electrode assembly for determining the pH of minute samples of continuously or intermittently flowing liquids. The assembly includes a reference electrode comprised of an elongated tube and a half-cell element positioned within the tube and immersed within a continuously flowing electrolyte. Also included is an indicating electrode comprising an ion sensitive capillary tube, an electrolyte surrounding the capillary and a half-cell element immersed in

the electrolyte. The capillary tube, containing a sample to be tested, connects to the elongated tube at an angle and forms a juncture for establishing direct electrical continuity between the flowing sample, the reference electrode, the indicating electrode and an external measuring circuit for determining pH.

3,658,680

APPARATUS FOR FORMING SILICON CARBIDE FILAMENTS

Christian Combe, St. Maur; Andre Clouet, Paris; Michel Marchal, Palaiseau; Michel Villard, Vitry sur Seine, and Pierre Grenier, Sceaux, all of France, assignors to Thomson-CSF, Paris, France

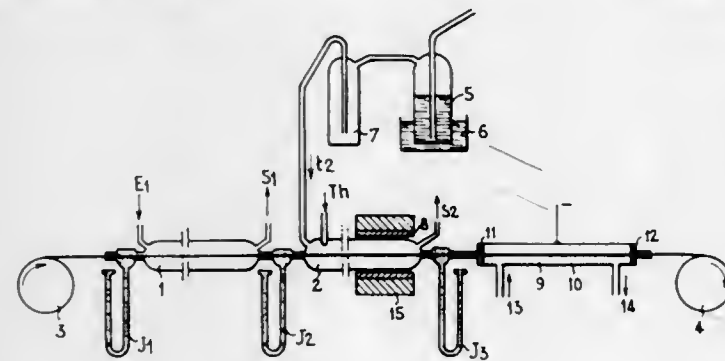
Filed Aug. 22, 1969, Ser. No. 852,410

Claims priority, application France, Sept. 4, 1968, 165067; Mar. 26, 1969, 698907

Int. Cl. B01k 3/00, 1/00; C23b 3/06

U.S. Cl. 204—206

2 Claims



Apparatus to form silicon carbide filaments which are essentially uniform throughout their cross-section, which includes a reaction chamber, a thermal screen surrounding the reaction chamber to equalize the temperature therein, a thermal gradient oven concentric with the thermal screen and surrounding the chamber, and a plurality of thermocouples located in the chamber and sensing temperature, and controlling the oven to provide for essentially uniform temperature distribution within the oven, the chamber having inlet means for the admission of organosilane so that conversion of heated tungsten to tungsten carbide is carried out essentially at uniform temperatures throughout the entire chamber; an electrolytic cell follows the chamber in the path of the filament.

3,658,681

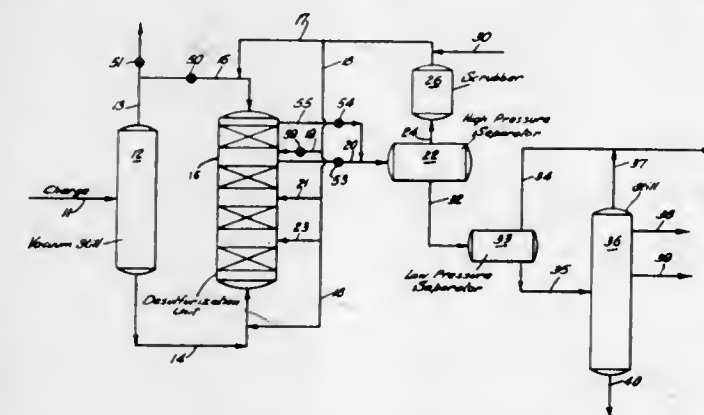
Raymond F. Wilson; Reese A. Peck, and Frank E. Guptill, Jr., all of Fishkill, N.Y., assignors to Texaco, Inc., New York, N.Y.

Filed Feb. 24, 1970, Ser. No. 13,401

Int. Cl. C10g 23/02

U.S. Cl. 208—211

8 Claims



Low sulfur fuel oil is prepared by distilling an asphalt-containing petroleum fraction to obtain a vacuum gas oil and

vacuum residuum. The vacuum gas oil is passed downwardly with hydrogen through an upper bed of desulfurization catalyst; the residuum fraction is passed upwardly through one or more lower beds of desulfurization catalyst, and the desulfurized effluents are combined. It is found advantageous to pass the distilled fraction down through the desulfurization zone with less residence time and the residual fraction up through the zone to subject it to more back-mixing and turbulence and thereby effecting a longer residence time.

3,658,682

ELECTROLYTE SUPPLY SYSTEM

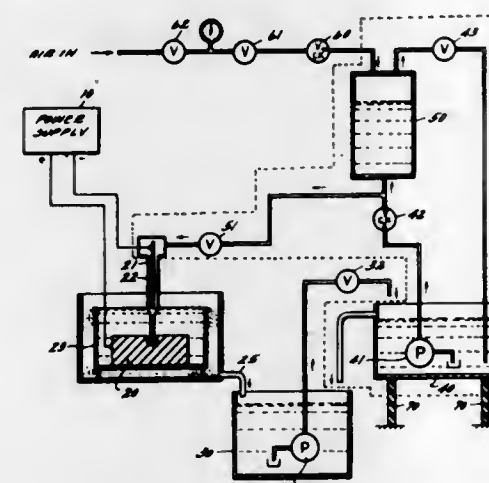
Emmet Mitchell Fulkerson; James Dair Andrews, and Kenneth Warner Stannard, all of Cincinnati, Ohio, assignors to General Electric Company

Filed July 1, 1968, Ser. No. 741,645

Int. Cl. B23p 1/02

U.S. Cl. 204—224

5 Claims



A recycling constant pressure pumping system for use in an electrochemical machining operation, where the constant pressure of the electrolyte is maintained and regulated by air pressure.

3,658,683

METAL RECOVERY APPARATUS AND METHOD

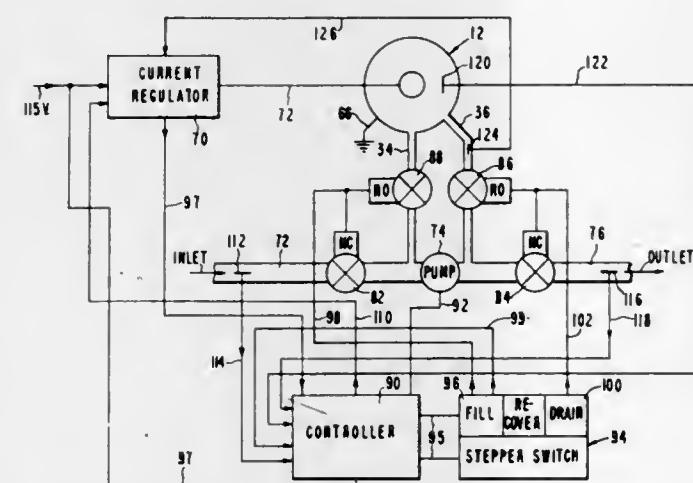
Gary G. Lagler, San Jose, and Raymond L. Fuess, Palo Alto, both of Calif., assignors to Omnific Research and Development Center, Inc., Mountain View, Calif.

Filed May 1, 1970, Ser. No. 33,760

Int. Cl. B01k 1/00; C23b 5/00

U.S. Cl. 204—272

13 Claims



Apparatus and a method for removing a metal from solutions, such as silver from a hypo solution, wherein the solution is caused to circulate in a closed fluid circuit containing a globular space across which a potential gradient is main-

tained, thus causing a current flow when the solution flows through the space, whereby metal is separated from the solution by an electrolytic action. Access to the space can be had to retrieve the recovered metal and the process can be automated to minimize manual functions.

3,658,684

ELECTROCHEMICAL MACHINING APPARATUS

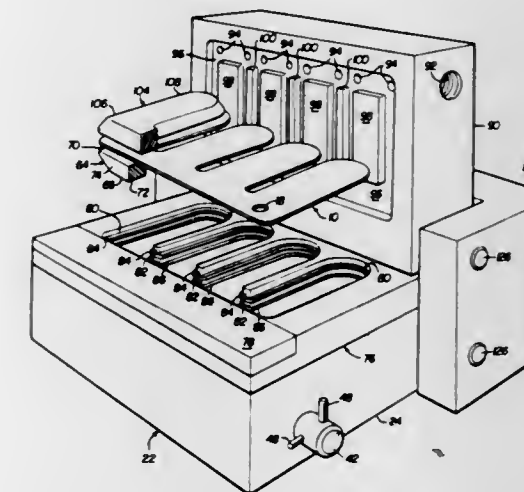
David W. Sickels, Plymouth, Mich., assignor to Electrochemics, Inc., Detroit, Mich.

Filed Oct. 13, 1969, Ser. No. 865,875

Int. Cl. B01k 3/04; B23p 1/04

U.S. Cl. 204—275

5 Claims



Electrochemical machining apparatus for a flat electroconductive workpiece having a peripheral edge to be deburred or radiused. The apparatus has a non-conductive base, and a non-conductive mask, on which the workpiece is seated, mounted on the base. An electrode rests on the base and its interior wall conforms to the shape of and surrounds the mask and the peripheral edge of the workpiece. The electrode has a pair of lips extending from the interior wall thereof which are in spaced relation from the peripheral edge of the workpiece. The electrode is connected to the negative terminal of a direct current power source.

A non-conductive cover overlies the base. The cover has a non-conductive mask, for the top side of the workpiece, mounted on the underneath side thereof. The faces of the mask on the base and the mask on the underneath side of the cover conform in shape to the workpiece and are sized slightly smaller leaving only the peripheral edge of the workpiece exposed.

Conduit means are provided in the apparatus for channeling electrolyte between the peripheral edge of the workpiece and the inner wall of the electrode surrounding the peripheral edge.

3,658,685

COMBINATION ELECTRODE

William V. Childs, Austin, Tex., and Forrest N. Ruehlen, Bartlesville, Okla., assignors to Phillips Petroleum Company

Original application Nov. 2, 1967, Ser. No. 683,092, now Patent No. 3,511,761, which is a continuation-in-part of application Ser. No. 435,268, Feb. 25, 1965, now abandoned.

Divided and this application Feb. 9, 1970, Ser. No. 9,740

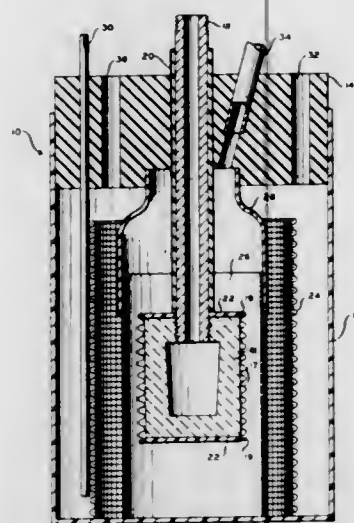
Int. Cl. B01r 3/04; C23b 5/74

U.S. Cl. 204—284

10 Claims

A combination electrode comprising a porous element,

e.g., porous carbon, and a metal element in contact with an



outer exposed surface of said porous element.

3,658,686

ELECTRODE ASSEMBLY FOR COMPENSATING THERMAL EXPANSION IN AN ELECTROLYTIC CELL
Robert Schoberle, 14 Willem van Criepestraat, Roermond, Netherlands

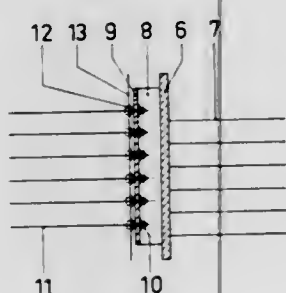
Filed Nov. 21, 1969, Ser. No. 878,705

Claims priority, application Netherlands, Nov. 22, 1968, 66463

Int. Cl. B01k 3/04

U.S. Cl. 204—286

6 Claims



An electrode assembly removably mounted between next adjacent electrolytic cells in an arrangement or a succession of individual cells capable of compensating for thermal expansion of the individual cells. The assembly comprises a rigid plate and a flexible membrane spaced in opposed relationship defining opposed walls of next adjacent cells. The rigid plate has plate electrodes secured thereon disposed vertically in spaced positions functioning as cathodes of a preceding one of next adjacent cells and the flexible membrane, which effects the thermal expansion compensation, has plate electrodes removably mounted relative thereto disposed vertically in spaced positions functioning as the anodes of the succeeding cell of the next adjacent cells and likewise supported on the rigid plate.

3,658,687

APPARATUS FOR FORMING IMAGES WITH APPLICATOR, SHEARING, SMOOTHING AND CLEANING MEANS

Raymond K. Egnaczak, Williamson, and Gino F. Squassoni, Pittsford, both of N.Y., assignors to Xerox Corporation, Rochester, N.Y.

Filed Nov. 14, 1969, Ser. No. 876,641

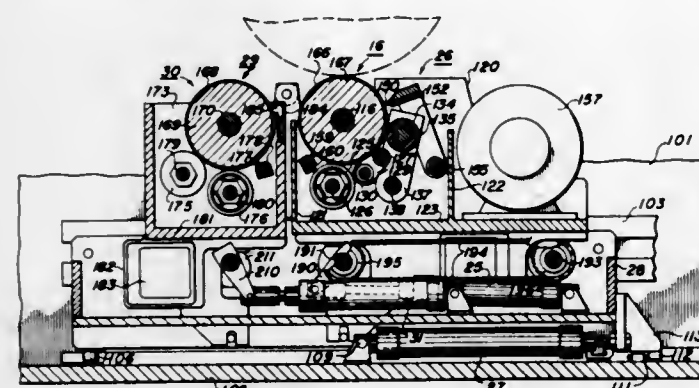
Int. Cl. B01k 5/02

U.S. Cl. 204—300

26 Claims

An imaging electrode assembly for forming photoelectrophoretic images in automated machines. Various com-

ponents surrounding the electrodes prepare them to aid in image formation. One roller electrode is driven past an imaging suspension applying and leveling apparatus, a suspension



shearing apparatus and suitable surface wipers. Another roller electrode passes cleaning brushes and wetting apparatus to remove materials picked up on its surface during its action in the photoelectrophoretic machine cycle.

3,658,688

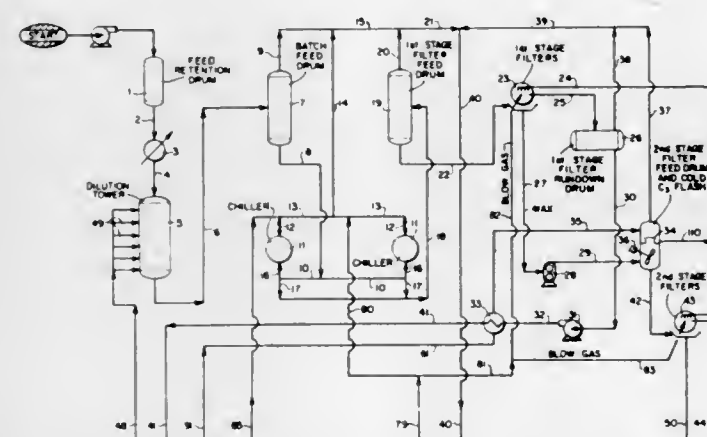
TWO-STAGE C₃ DEWAXING/DEOILING PROCESS
Frank A. Biribauer, Cranford, and James D. Bushnell, Berkeley Heights, both of N.J., assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Sept. 19, 1969, Ser. No. 859,278

Int. Cl. C10g 43/08

U.S. Cl. 208—31

10 Claims



An improved process for dewaxing and deoiling a petroleum oil stock with a liquid, normally gaseous solvent in which the oil feed is chilled prior to autorefrigeration by dilution with cold recycled filtrate from the final filtration of the wax-oil-solvent mixture.

3,658,689

ISOMERIZATION OF WAXY LUBE STREAMS AND WAXES

Ib Stelmets, New Castle, Wilmington, Del., and David S. Barmby, Media, Pa., assignors to Sun Oil Company, Philadelphia, Pa.

Filed May 28, 1969, Ser. No. 828,746

Int. Cl. C10g 41/00

U.S. Cl. 208—46

9 Claims

Way hydrocarbons, per se or in a petroleum fraction in the lubricating oil boiling range, can be converted to oily, non-waxy hydrocarbons by contacting the wax or wax-containing stream with an acidic aluminosilicate zeolite catalyst (e.g., HL, HX, HY, CeHY, GdHX, CaHX, MgHY, NiHY, NiHL, etc.) preferably in combination with a hydrogenation catalyst (e.g., Ni, Co, Mo, W, Pt, Pd, Re, Ru, etc.) at temperatures above 300° F. and at elevated hydrogen pressure. Preferably, the zeolite contains polyvalent metal cations, is virtually free

from alkali metal cations and is substantially anhydrous (containing about 1–10 percent H₂O as determined by ignition analysis at 1,800° F.). Preferably, the isomerization is conducted at a temperature below the point where substantial hydrocracking will occur (e.g., below about 675° F.). More preferably, the temperature, space velocity, hydrogen pressure and gas recycle rate are so selected as to attain significant conversion of the waxy hydrocarbons to oils in the lubricating oil boiling range and with no appreciable conversion of the waxy hydrocarbons to materials boiling below the lubricating oil boiling range. Preferably, the hydrogen pressure is in the range of 400–6,000 p.s.i. (more preferably at least 1,500 p.s.i. of hydrogen) with the hydrogen being from 50–100 percent pure.

3,658,690

GASOLINE UPGRADING

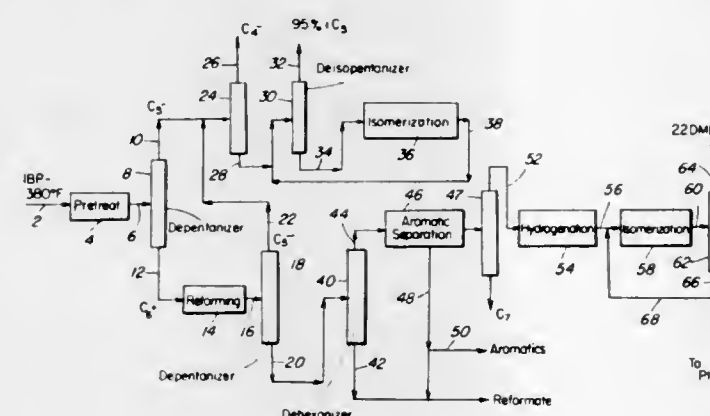
Richard G. Graven, Westmont, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Mar. 13, 1970, Ser. No. 19,377

Int. Cl. C10g 39/00

U.S. Cl. 208—62

4 Claims



A combination processing arrangement of reforming, isomerization, aromatics recovery and intervening fractionation is described which will improve upon the yield of gasoline product having a lead free octane rating above 90 by particularly upgrading C₆ hydrocarbons.

3,658,691

SERIAL REFORMING WITH PLATINUM-RHENIUM ON ACIDIC SUPPORT AND PLATINUM ON NON ACIDIC SUPPORT

Carl D. Keith, and William C. Pfefferle, both of Engelhard Minerals & Chemicals Corporation, 497 Delancy Street, Newark, N.J.

Filed Mar. 20, 1970, Ser. No. 21,516

Claims priority, application Canada, Dec. 8, 1969, 069,259

Int. Cl. C10g 35/08, 39/00

U.S. Cl. 208—65

19 Claims

The disclosure is directed to systems for the catalytic reforming of gasoline boiling range hydrocarbons to improve their octane rating. Reforming is conducted in the presence of molecular hydrogen and platinum group metal-type catalysts disposed in a plurality of fixed bed reaction zones. In an initial dehydrogenation reaction zone, the catalyst contains a platinum group metal and rhenium on a solid, acidic oxide type support while in a subsequent, paraffin dehydrocyclization part of the system, the platinum group metal is disposed on a base of relatively low acidity, e.g., alumina. In a special operation, the inlet temperatures of the reactors can be controlled with respect to the length of the total reforming cycle.

3,658,692

PREPARATION OF WHITE OILS WITH ALUMINUM-ALKYL ACTIVATED IRON GROUP METAL CATALYSTS
John B. Gilbert, and Robert Kartzmark, both of Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company, Linden, N.J.

Filed Oct. 28, 1969, Ser. No. 871,943

Int. Cl. C10g 23/02

U.S. Cl. 208—89

13 Claims

A process for upgrading and improving the color, odor and stability of petroleum oils to render the latter suitable for use in specialty applications. Raw distillates and semi-refined oils of suitable boiling range and viscosity are refined, or further refined, in a hydrogenation process, at suitable conditions, in the presence of a catalyst which comprises a support and a transition metal complexed with an organometallic compound, to yield colorless mineral oils, i.e., white oils. These highly refined oils are used in pharmaceuticals and cosmetics and similar compositions requiring oil components that meet certain high quality standards.

3,658,693

CATALYTIC CRACKING METHOD

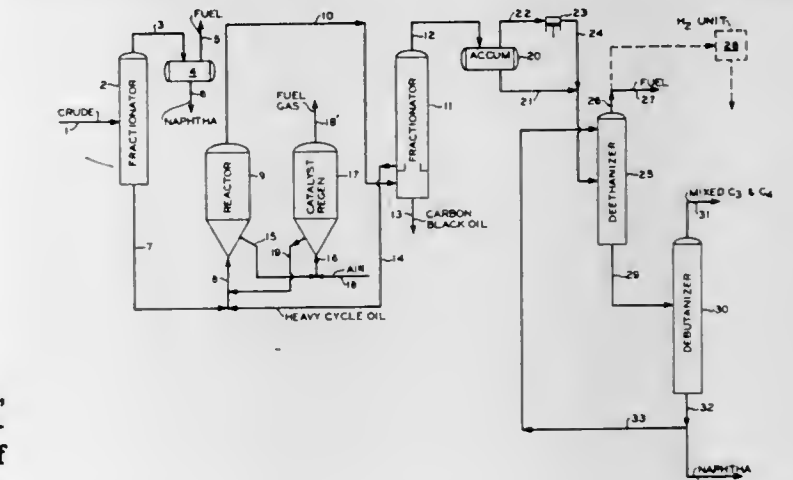
George R. Hettick, and Shelby D. Lawson, both of Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 11, 1969, Ser. No. 884,174

Int. Cl. C10g 11/18

U.S. Cl. 208—93

7 Claims



A process for increased production of naphtha from crude stocks. The crude is fractionated to recover straight run naphtha, and bottom product is cracked to produce largely naphtha and lighter, with only minor by-products production of carbon black oil and coke.

ERRATUM

For Class 208—211 see:
Patent No. 3,658,680

3,658,694

METHOD OF TREATING FLUID HYDROCARBONS CONTAINING SULFUR AND OTHER IMPURITIES IN A SOLID REAGENT HYDROCARBON TREATER AND SEPARATOR

Elmer J. McCreary, and Paul R. Hollis, Jr., both of Oklahoma City, Okla., assignors to Phillips Petroleum Company

Filed Dec. 22, 1969, Ser. No. 887,285

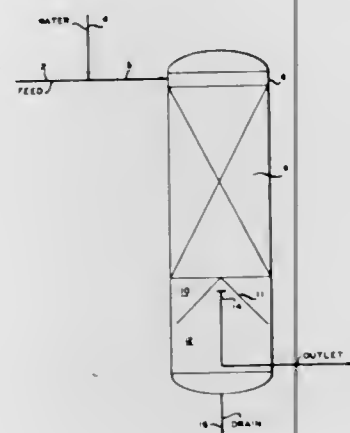
Int. Cl. C10g 19/00

U.S. Cl. 208—230

4 Claims

A method for the removal from a fluid hydrocarbon feed-

stream of sulfur, sulfur compounds, and acidic contaminants with a treating reagent and the separation of undesired, en-



trained reagent and reaction products from the hydrocarbon stream.

3,658,695

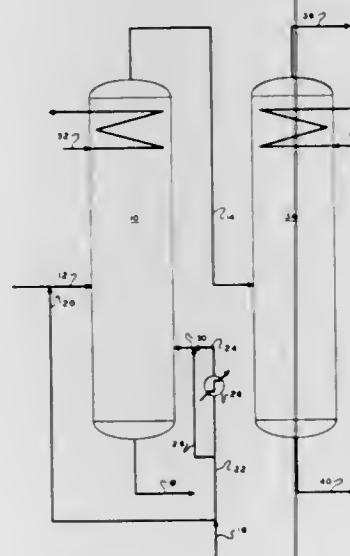
PRODUCTION OF LOW-METAL CONTENT GAS OIL FROM TOPPED CRUDE OIL

Joe VanPool, Bartlesville, Okla., assignor to Phillips Petroleum Company
Continuation-in-part of application Ser. No. 687,800, Dec. 4, 1967, now abandoned. This application Dec. 14, 1970, Ser. No. 97,705

Int. Cl. C10g 17/00

U.S. Cl. 208—251

8 Claims



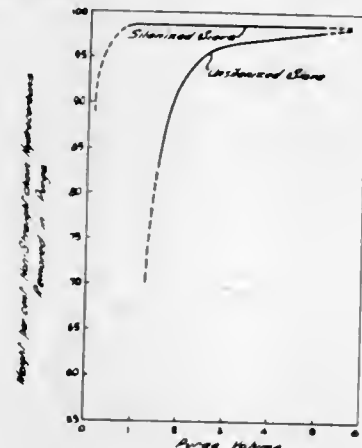
A gas oil of low metal content for catalytic cracking is produced by treating a topped crude oil with solvent in a deasphalting zone to produce a bottoms stream comprising asphalt and solvent, and an overhead stream which is essentially free of asphalt and comprising gas oil and solvent, treating the overhead stream of gas oil and solvent without the addition of more solvent in a solvent extraction zone at a slightly higher temperature than in the deasphalting zone so as to produce a minor bottoms stream of heavy gas oil containing most of the metal in the gas oil feed stream to the extraction zone and a major overhead stream of solvent and essentially asphalt-free light gas oil of substantially lower metal content than that of said feed stream.

3,658,696
SELECTED ADSORPTION WITH A SILANIZED CRYSTALLINE ALUMINO-SILICATE
Jesse H. Shively, Glenham, and Edward D. Archer, Beacon, both of N.Y., assignors to Texaco Inc., New York, N.Y.
Continuation-in-part of application Ser. No. 595,734, Nov. 21, 1966, now abandoned, Original application Mar. 19, 1969, Ser. No. 595,734, now abandoned. Divided and this application June 17, 1969, Ser. No. 850,285

Int. Cl. C07c 7/12

U.S. Cl. 208—310

7 Claims



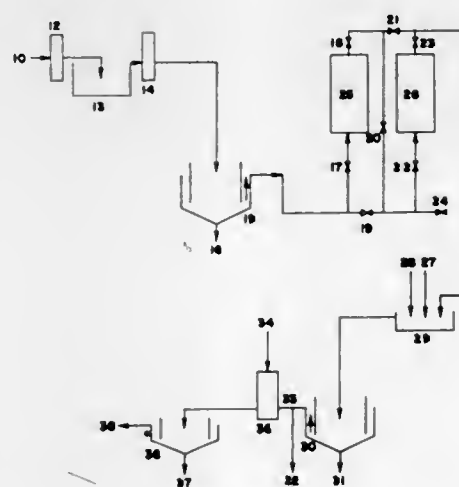
The external surfaces of crystalline aluminosilicates are treated with hydrocarbyl halosilanes or their condensation products with ammonia, primary amines, secondary amines or alcohols to modify the surface adsorptive properties of the aluminosilicates. In separation processes employing crystalline aluminosilicates wherein the surface adsorbed materials must be removed in a purging operation before the initially adsorbed materials are recovered, silanizing the external surface of the aluminosilicates greatly reduces the time or severity of the purging operation.

3,658,697
CHEMICAL COAGULATION OF CARBON TREATED WASTE WATER
Charles H. Huether, Clifton Forge, Va., assignor to Westvaco Corporation, New York, N.Y.
Filed July 31, 1970, Ser. No. 60,063

Int. Cl. C02c 5/02

U.S. Cl. 210—18

15 Claims



A process for separating water from sewage includes the steps of subjecting raw sewage to a primary treatment for removing certain suspended solids and thereafter passing the effluent up through a column containing an activated carbon bed under anerobic biological conditions with sufficient velocity to expand the activated carbon bed. Subsequent to adsorbent contacting, effluent from the activated carbon column is then treated with a mixture of chemical flocculants

to coagulate the suspended solids and bind the sulfides with a soluble salt to inhibit or prevent the escape of noxious hydrogen sulfide. Floc is allowed to form and is separated from the supernatant.

3,658,698 METHOD FOR RECHARGING AN ION EXCHANGE RESIN

David P. Young, South San Francisco, Calif., assignor to Technicraft International, Inc., San Mateo, Calif.

Filed Mar. 16, 1970, Ser. No. 20,135

Int. Cl. B01d 15/06

U.S. Cl. 210—32

4 Claims

A method for recharging and purifying an acetate group ion exchange resin which has been used to isolate thyroxine from blood serum. The method includes treatment with an aqueous concentrated acetic acid solution optionally followed by treatment with an aqueous metallic acetate solution.

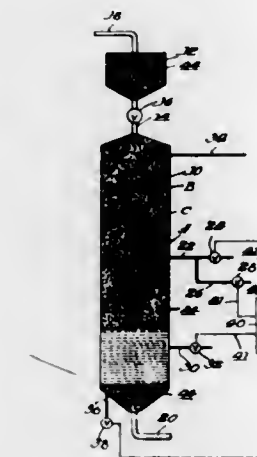
3,658,699
METHOD FOR REGENERATING ION EXCHANGE RESIN
Leo F. Ryan, Somerville, and Dennis M. O'Brien, Chatham, both of N.J., assignors to Ecodyne Corporation, Chicago, Ill.

Filed Oct. 24, 1969, Ser. No. 869,312

Int. Cl. B01d 15/06

U.S. Cl. 210—33

6 Claims



The invention provides an improved method and apparatus for upflow regeneration of ion exchange resins in a regeneration zone having a regenerant inlet and a rinse water inlet below the regenerant inlet. The carrying out the method, the introduction of regenerant and rinse water into the zone is terminated, and resin is moved downwardly within the zone while exhausted resin is introduced at the top. The introduction of regenerant and rinse water is then resumed. In accordance with the invention, the introduction of regenerant and rinse water is terminated and/or resumed at predetermined time intervals with respect to one another. The time interval is regulated to ensure that there is no substantial amount of entrained regenerant below the regenerant introduction point at the time that delivery of regenerant is resumed. The absence of entrained regenerant below the regenerant introduction point ensures that none of the resin will receive an excessive dose of regenerant when regenerant introduction is resumed.

The apparatus of the invention includes timer means for starting and stopping the flow of regenerant and rinse water at different times, and at predetermined intervals with relationship to one another.

3,658,700 METHOD FOR CONTROLLING AND INHIBITING THE FORMATION AND GROWTH OF SLIME IN INDUSTRIAL WATER SYSTEMS

Seymour J. Lederer, Fairlawn, N.J., assignor to Muck & Co., Inc., Rahway, N.J.

Filed Sept. 25, 1970, Ser. No. 75,752

Int. Cl. C02b 3/10; D21h 5/22

U.S. Cl. 210—64

6 Claims

Formation and growth of slime in paper mill water systems in controlled and inhibited by the use of benzyl bromoacetate.

3,658,701
DRILLING FLUID
Raymond E. McGlothlin, and James C. Baggett, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Dec. 9, 1968, Ser. No. 783,176

Int. Cl. C10m 1/06, 1/10

U.S. Cl. 252—8.5 P

2 Claims

Oil base drilling fluids which contain a metal oxide such as manganese oxide as a high temperature fluid loss control agent.

3,658,702
ORGANIC LOAD CARRYING ADDITIVE
Eric Simon Forbes, Knaphill, and Alan David Forbes, Woking, both of England, assignors to The British Petroleum Company Limited, London, England
Filed Nov. 26, 1969, Ser. No. 880,308

Claims priority, application Great Britain, Dec. 6, 1968, 58,084/68

Int. Cl. C10m 1/46, 1/32, 3/40

U.S. Cl. 252—49.9

4 Claims

The lipid extract prepared by solvent extraction of microorganisms when added to lubricating oils improve the load carrying, anti-oxidant, and anti-corrosion properties of the oils.

3,658,703
OVERBASING PETROLEUM SULFONATE ADDITIVES FOR LUBRICATING OILS
James T. Gragson, Bartlesville, Okla., and David W. Bosse, Joliet, Ill., assignors to Phillips Petroleum Company
Filed Oct. 7, 1969, Ser. No. 864,517

Int. Cl. C10m 1/40

U.S. Cl. 252—33

8 Claims

A method of increasing the total base number of a metal petroleum sulfonate additive which involves recontacting the once carbon dioxide-contacted mixture with carbon dioxide under substantially the same conditions employed in the original carbon dioxide contacting. The carbonation is carried out on a discontinuous liquid phase of the additive which is in admixture with an inorganic base and with methanol.

3,658,704
SYNERGISTIC GREASE STRUCTURE MODIFIERS
George G. Curtis, Westfield, N.J., assignor to Esso Research and Engineering Company
No Drawing. Filed June 5, 1969, Ser. No. 830,846

Int. Cl. C10m 5/14

U.S. Cl. 252—42

8 Claims

In a lubricating grease comprising a lubricating oil and a lithium soap of a C₁₈ hydroxy fatty acid, the improvement of using a synergistic combination of at least two different C₇-C₁₀ aliphatic polyols for structural modification.

3,658,705

STABILIZED POLYAMIDES CONTAINING SOLUBLE COPPER COMPOUNDS AND HALOGENOUS COMPOUNDS

William L. Evers, Summit, and Antony E. Champ, Martinsville, N.J., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 410,297, Nov. 10, 1964. This application June 12, 1967, Ser. No. 645,475

Int. Cl. C08g 17/60

U.S. Cl. 260—45.75 C

15 Claims

Synthetic linear polyamides are stabilized against the degradative effects of heat, oxygen and atmospheric conditions by incorporating therein a halogen compound, for example iodoform, either alone or in combination with a copper compound which is soluble in the polyamides.

3,658,706

STABILIZED LUBRICATING OIL

Bernard R. Meltsner, Royal Oak, Mich., assignor to Ethyl Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 824,690, May 14, 1969, now Patent No. 3,565,855, dated Feb. 23, 1971, which is a division of application Ser. No. 612,317, Jan. 30, 1967, now Patent No. 3,558,747, dated Jan. 26, 1971. This application Dec. 23, 1970, Ser. No. 101,101

Int. Cl. C10m 1/48, 1/46

U.S. Cl. 252—49.8

7 Claims

Dihydrocarbylhydroxyphenyl aryl or alkyl phosphonates, phosphonates, phosphates, phosphites, phosphinates, phosphinites, phosphorothionates, phosphonothionates, and phosphinothionates are antioxidants. The effectiveness of these antioxidants is enhanced by use in combination with a dihydrocarbylthiodialkanoate such as dilaurylthiodipropionate (DLTDP). The stabilizers are especially useful as polypropylene, and mineral and synthetic lubricants.

3,658,707

FUEL OIL AND LUBRICATING OIL COMPOSITIONS

David James Delafield, Abingdon, Alan H. Edwards, Wantage, and Keith Owen, Sotwell, Wallingford, England, assignors to Esso Research and Engineering Company

No Drawing. Filed Sept. 16, 1969, Ser. No. 858,505
Claims priority, application Great Britain, Sept. 19, 1968, 44,637/68

Int. Cl. C10m 1/36, 1/28; C10I 1/22

U.S. Cl. 252—51.5 A

27 Claims

Improved anticorrosion agents for lubricating oils and fuels such as gasoline consisting of a mixture of (1) carboxylic acids containing 10 to 60 carbon atoms per molecule, or esters or anhydrides of such acids and (2) esters of alkoxylated phenol-aldehyde resins.

3,658,708

COMPOSITIONS FOR ELIMINATING DEPOSITS FROM THE COMBUSTION CHAMBERS OF INTERNAL COMBUSTION ENGINES

Luigi Ratto, Milan, Italy, assignor to Rattec S.p.A., Milan, Italy

No Drawing. Filed Aug. 1, 1969, Ser. No. 846,960
Claims priority, application Italy, Aug. 26, 1968, 20,522/68; June 11, 1969, 18,047/69

Int. Cl. C10m 1/20

U.S. Cl. 252—56 R

10 Claims

Liquid composition consisting of a mixture of a bicyclic monoterpene, e.g. fenchone and thujone of a lubricating oil and of a solvent for lacquers, varnishes and sludges. The composition, after having been injected into the com-

bustion chamber of an internal combustion engine and allowed to remain for about 30 minutes when the engine is hot, causes, at the restarting of the engine, the dissolution of all the carbon and metal deposits which were present in the combustion chamber.

3,658,709

GREASE COMPOSITIONS OF PERFLUOROOLEFIN EPOXIDE POLYETHERS

John B. Christian, Yellow Springs, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed Sept. 15, 1967, Ser. No. 668,236
The portion of the term of the patent subsequent to Aug. 25, 1987, has been disclaimed

Int. Cl. C10m 7/30

U.S. Cl. 252—51.5 R

1 Claim

Grease formulations of by weight 65 to 93% perfluoroolefin epoxide polyether liquids with thickeners 19 to 24% triazine, 7 to 10% spherical boron nitride of 0.05 to 0.5 micron diameter, and 20 to 35% fluorinated ethylene propylene copolymer powder, stable at temperatures up to 600° F.

3,658,710

METHOD OF REMOVING TUBERCLES USING ORGANIC POLYMERS AND SILICA AND/OR CHROMIUM COMPOUNDS

Paul R. Puckorius, Fairview Park, and William E. Zimmie, Lakewood, Ohio, assignors to W. E. Zimmie, Inc.

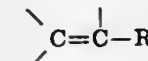
No Drawing. Filed Jan. 13, 1971, Ser. No. 106,285

Int. Cl. C02b 5/02, 5/06

U.S. Cl. 252—87

45 Claims

A method of removing tubercles of corrosion from a substrate and inhibiting further corrosion and scale formation on the substrate including the steps of providing an aqueous solution of two organic polymers and a water soluble silica containing compound and/or a water soluble chromium containing compound and applying it to the substrate. One of the polymers (1) is prepared from compounds characterized by the formula:



wherein R is selected from the group consisting of nitrile, imine, amide and carboxyl radicals, (2) has an average molecular weight ranging from about 15,000 to 15,000,000 and (3) has a weight concentration of about 0.01 to 300 parts per million parts of water. The other polymer is selected from the group consisting of polyacrylic acid, polyacrylate, organic phosphonates and mixtures thereof having an average molecular weight approximately in the range 1,000–50,000.

3,658,711

CAUSTIC ALKALI FREE OVEN CLEANING COMPOSITION

Cromwell D. Mukai, Berkeley Heights, and Frank L. Steckhahn, New Shrewsbury, N.J., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed June 3, 1970, Ser. No. 43,246

Int. Cl. C11d 17/00

U.S. Cl. 252—90

8 Claims

This application concerns non-caustic alkali water-based oven cleaning compositions comprising water, soap, inorganic cleaner and an enhancer of the formula



wherein n is a number from about 2 to about 12. The compositions may contain additional ingredients useful in oven cleaners such as thickening agents, humectants, organic solvents, foam stabilizers and abrasives. Special attention is herein directed to aerosol systems containing the above-described compositions.

3,658,712

AQUEOUS SUSPENSIONS CONTAINING SODIUM PERBORATE

Kurt Lindner, deceased, late of Berlin, Germany, by Kathe Lindner, nee Arnold, and Joachim Ebrecht, heirs, Berlin, and Elfriede Eichler, Berlin, Germany, assignors to Henkel & Cie GmbH, Dusseldorf, Germany

No Drawing. Continuation-in-part of application Ser. No. 641,466, May 26, 1967. This application Jan. 19, 1971, Ser. No. 107,820

Claims priority, application Germany, June 8, 1966, H 59,620

Int. Cl. C11d 7/58

U.S. Cl. 252—99

20 Claims

Storage stable aqueous suspensions of solid sodium perborate constituting thick liquids or pastes are disclosed in which the aqueous phase has a pH of from 3 to 11 and contains in addition to the perborate a non-oxidizable vinyl polymer containing carboxyl groups. The polymer is characterized in that a 1% aqueous solution of the polymer in the form of its sodium salt has a viscosity of at least 5000 cp. at a pH of 7 and a temperature of 20° C. The suspensions constitute oxidizing and bleaching agents and are characterized by their outstanding physical and chemical stability.

3,658,713

ALKALI METAL GENERATING AGENTS

Yorikatsu Irisaka, Yokohama-shi, and Haruo Takashio, Tokyo, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed Nov. 10, 1969, Ser. No. 875,064

Claims priority, application Japan, Nov. 12, 1968, 43/82,303

Int. Cl. H01v 39/22; C22b 27/00

U.S. Cl. 252—181.4

16 Claims

Alkali metal generating agents generally used in forming a photosensitive layer, characterized in that they consist of a mixture of alkali metal salts and niobium. The mixture is put in a vessel made of electric conductive material to form a generator. When the generator is heated both materials react with each other to allow the alkali metal to come out of the vessel and form the aforementioned layer.

3,658,714

METHOD OF DECONTAMINATING RADIOACTIVE WASTES

Jean-Louis Verot, Saint-Cyr l'Ecole, and Jean-Jacques Jaumier, Paris, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Dec. 4, 1968, Ser. No. 781,245

Claims priority, application France, Dec. 4, 1967, 130,760

Int. Cl. G21c 19/46

U.S. Cl. 252—301.1 WD

6 Claims

Liquid radioactive waste materials, including those containing radioactive ruthenium in chemical combination with other elements, are decontaminated by adjusting the pH thereof to a value between 1 and 3, percolating them over finely divided active iron at a temperature below 70° C., raising the pH to a value between 8 and 10, and then by contacting the liquid with synthetic zeolites.

3,658,715

ANTIMONY-ACTIVATED CALCIUM HALOPHOSPHATE CONTAINING BORON

Shannon Jones, South Euclid, Ohio, assignor to General Electric Company

Filed Jan. 26, 1970, Ser. No. 5,678
Int. Cl. C09k 1/36

U.S. Cl. 252—301.4 P

20 Claims

Relates to alkaline earth haloborapatite phosphors activated with antimony and useful in fluorescent lamps and other applications.

3,658,716

METHOD OF GELLING AN ORGANIC LIQUID WITH TERPOLYMER AND GELLED COMPOSITION

Henry L. Hsieh, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed May 1, 1969, Ser. No. 821,070

Int. Cl. B01j 13/00; C10I 7/02

U.S. Cl. 252—316

13 Claims

An organometallic compound and a terpolymer of an alkene oxide, a cyclic acid anhydride and a cyclic ether are used to gel an organic liquid. The formed gel is stable in air, but reverts to a fluid upon the addition of an acid.

3,658,717

SURFACTANTS FOR SOLVENT/WATER SYSTEMS AND TEXTILE TREATING COMPOSITIONS

Kenneth W. Graff, Wilmington, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

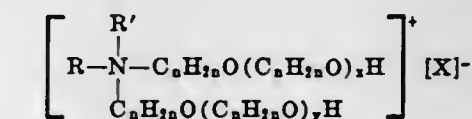
No Drawing. Filed July 7, 1969, Ser. No. 839,621

Int. Cl. B01f 17/18

U.S. Cl. 252—355

7 Claims

Disclosed are (a) novel surfactant compositions comprising a blend of a cationic surfactant represented by the formula



wherein n represents an integer from 2 to 4, x represents a number from 0 to 100, y represents a number from 0 to 100, R represents a radical selected from the group consisting of alkyl and alkenyl radicals containing from 6 to 22 carbon atoms, R' represents a radical selected from the group consisting of alkyl and hydroxyalkyl radicals containing from 1 to 5 carbon atoms, and X represents an anion, and an anionic surfactant characterized by a generalized formula selected from the group consisting of the following generalized formulae wherein identical symbols have identical signification:



and



wherein R_1 represents a radical selected from the group consisting of alkyl and alkenyl radicals containing from 6 to 22 carbon atoms, A represents an arylene radical, and Y represents a cation; (b) a fluid carrier composition for the treatment and processing of textile materials which comprise water, an organic liquid, and said novel

surfactant composition; and (c) textile treating compositions comprising said fluid carrier composition and a textile treating agent. Also disclosed is a textile treating composition comprising a blend of a textile softening agent and said novel surfactant composition.

3,658,718

CATIONIC EMULSIFIER SYSTEM

Jon Michael Clumpner, 232 Elmhurst Ave.,
Delavan, Wis. 53115

No Drawing. Filed Apr. 23, 1970, Ser. No. 31,385
Int. Cl. B01f 17/16, 17/18, 17/22

U.S. Cl. 252—357

5 Claims

An emulsifier system suitable for forming a stable oil and water emulsion which contains mixtures of difatty ethoxylated quaternized amidoamines in which the fatty acid residues are derived from soya and coconut oil.

3,658,719

SMOKE GENERATING TUBE

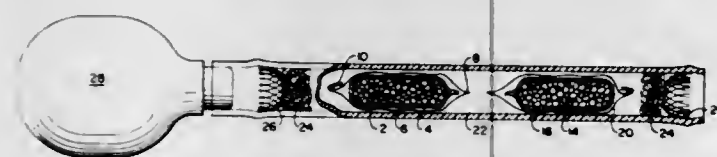
Paul W. McConaughy, Wilkesburg, Pa., assignor to
Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Oct. 9, 1969, Ser. No. 865,039

Int. Cl. B01d; B01f; B01j 13/00

U.S. Cl. 252—359 A

2 Claims



A solid acid reagent and a solid base reagent are separately contained in a breakable ampoule that is enclosed in a perforated envelope, which is in turn contained in a pliable tube. Smoke is generated by breaking the ampoules and passing air through the tube.

3,658,720

CORROSION INHIBITING COMPOSITION CONTAINING ACETYLENIC ALCOHOLS, A QUINOLINE QUATERNARY COMPOUND, AND AN ORGANIC FLUORIDE

Lee A. McDougall and James R. Looney, Houston, Tex.,
assignors to Esso Research and Engineering Company

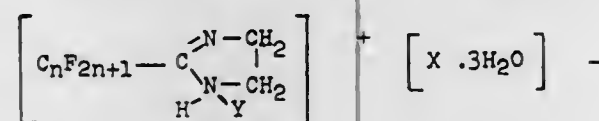
No Drawing. Filed Nov. 12, 1969, Ser. No. 876,126

Int. Cl. C23f 11/04, 11/14

U.S. Cl. 252—392

15 Claims

Corrosion of ferrous metals by corrosive acids at elevated temperatures is inhibited by adding to the corrosive acid a composition comprising effective amounts of at least 2 acetylenic alcohols, a quinoline quaternary compound and an organic fluoride having the structure:



where n is an integer from 3 to 10; X is selected from the group consisting of bromine and iodine; and Y is a glycol having 3 to 10 carbon atoms. The composition may contain a terpene alcohol, an aliphatic alcohol and a dispersing agent such as an ethoxylated oleate and the like.

3,658,721

AMMONIA SYNTHESIS CATALYST

Kenzi Tamaru and Takaharu Onishi, Kanagawa, Mitsuyuki Soma, Tokyo, and Masaru Ichikawa, Saitama, Japan, assignors to Tokyo University, Tokyo, Japan

No Drawing. Filed Feb. 6, 1970, Ser. No. 9,427

Claims priority, application Japan, Feb. 6, 1969,

44/8,941

Int. Cl. C01c 1/04

U.S. Cl. 23—198

9 Claims

Novel catalyst comprising at least one alkali or organo-alkali metal compound and at least one transition metal phthalocyanine or transition metal porphyrin are especially effective in the production of ammonia from nitrogen and hydrogen. The organo-alkali compound can be alkali metal benzophenone ketyls or alkali metal salts of aromatic hydrocarbon.

3,658,722

CATALYSTS FOR POLYMERIZATION AND PROCESS FOR THEIR PREPARATION

Andre Delboulle and Jean-Louis Derroltte, Brussels, Belgium, assignors to Solvay & Cie, Brussels, Belgium

No Drawing. Filed June 27, 1969, Ser. No. 837,367

Claims priority, application France, July 1, 1968,

157,471

Int. Cl. C08f 3/06

U.S. Cl. 252—429 C

16 Claims

Highly active catalysts for the polymerization of olefins result from the combination of an organometallic compound and a complex obtained by reacting a halogenating agent and a transition metal compound selected from the halides, oxyhalides, haloalkoxides, oxyalkoxides and alkoxides of the metals of Groups IVb, Vb and VIb of the Periodic Table with a solid support comprised of an oxygenated compound of a bivalent metal which is substantially anhydrous and is substantially free of hydroxyl groups.

3,658,723

PREPARATION OF CATALYTICALLY ACTIVE HALIDES OF TITANIUM BY REACTING TITANIUM TETRAHALIDES WITH MAGNESIUM AMALGAM

Reginald F. Roberts, Jr., Baton Rouge, La., assignor to
The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Feb. 20, 1970, Ser. No. 13,202

Int. Cl. B01j 11/78

U.S. Cl. 252—441

6 Claims

Titanium tetrahalide is contacted with a mixture of magnesium powder and mercury, so-called magnesium amalgam, in an inert system to produce a catalytically active halide of titanium which is effective in the low pressure polymerization of ethylene and other α -olefins.

3,658,724

ADSORBENT OXIDATION CATALYST

Alvin B. Stiles, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of application Ser. No. 657,700, Aug. 1, 1967, which is a continuation-in-part of application Ser. No. 379,160, June 30, 1964. This application Dec. 6, 1967, Ser. No. 688,407

Int. Cl. B01j 11/06

U.S. Cl. 252—446

4 Claims

Processes and compositions are described for the removal of undesirable components from vaporized effluents such as the removal of odorous and combustible components from the effluent gases of cooking processes. The compositions are catalytic adsorbent shapes which are made up of a porous material capable of adsorbing the undesirable, such as silica, alumina, other non-combustible

refractories of high surface area or activated carbon, having one or more catalysts interspersed therein.

A process for making low temperature oxidation adsorbent catalysts is also described. In this process a gel-forming material and a decomposable catalytic salt are mixed and permitted to set to form a rigid structure. The salt is then decomposed to produce an enormous network of voids in the structure, thus producing strong adsorptive characteristics.

3,658,725

NONLINEAR RESISTOR AND NONLINEAR RESISTOR COMPOSITION

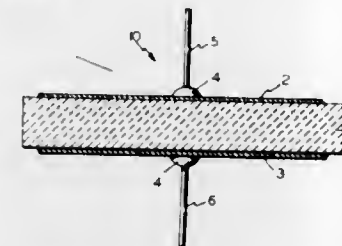
Takeshi Masuyama, Takatsuki, Michio Matsuoka, Hirakata, and Yoshio Iida, Fujishirodai, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Osaka, Japan

Filed July 24, 1970, Ser. No. 57,976

Int. Cl. H01b 1/06

U.S. Cl. 252—518

12 Claims



A resistor composition having a nonlinear voltage characteristic consisting essentially of zinc oxide and, as an additive, at least one member taken from the group consisting of lead fluoride, barium fluoride or strontium fluoride, and a nonlinear resistor made from said composition. The nonlinear resistor composition and the resistor made therefrom have the electrical properties thereof further improved by the addition of at least one member selected from the group consisting of cobalt fluoride, manganese fluoride, stannous fluoride, nickel fluoride, chromium fluoride, bismuth oxide, cobalt oxide, and manganese oxide.

3,658,726

ELECTROLYTICALLY CONDUCTIVE PASTE

Gerhard Mühl, Freiburg im Breisgau, Germany, assignor to Fritz Hellge & Co. GmbH, Breisgau, Germany

No Drawing. Filed Dec. 19, 1967, Ser. No. 691,704

Claims priority, application Germany, Dec. 31, 1966,

P 15 64 103.9

Int. Cl. H01b 1/06; B01g 1/00

U.S. Cl. 252—518

6 Claims

An electrolytically conductive paste or jelly is disclosed, for facilitating low resistance contact between a metal electrode and a biological body. The paste comprises an aqueous solution of an ionized salt as the conducting agent with a thickening agent, and includes a chelating agent to complex heavy metal ions and thereby reduce polarization effects.

3,658,727

ENZYME-CONTAINING DETERGENT COMPOSITIONS FOR NEUTRAL WASHING

Roy C. Mast, Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed May 2, 1969, Ser. No. 821,471

Int. Cl. C11d 3/065, 1/12

U.S. Cl. 252—538

7 Claims

Enzyme-containing detergent compositions especially adapted to laundry applications under neutral and near-neutral conditions of pH are disclosed. The detergent compositions consist essentially of a synthetic organic detergent characterized by solubility in water of at least 0.05% at a temperature of about 80° F. to about 130° F. efficient soil-removing and soil-dispersing properties

in water in an amount of about 0.05% and resistance to precipitation by hard water mineral ions; 0.001% to 5% of a proteolytic enzyme characterized by proteolytic activity up to about 130° F. in the pH range of 6 to 8.5; and a phosphorus-containing compound having sufficient calcium sequestration properties to reduce the calcium ion concentration of an aqueous solution containing 1.2×10^{-3} M of calcium ion to a concentration of 1.7×10^{-4} M or less when employed in an amount of up to 0.1% of the solution. The compositions of the invention have a pH of from 6 to 8.5 in aqueous solution at a concentration of 0.12%.

3,658,728

PROCESS FOR PREPARING MOLDINGS FROM POLYEPOXIDES AND POLYAMINES

Herwig Hoffmann, Frankenthal, and Oskar Lissner, Karl Merkel, and Heinrich Scholz, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed July 10, 1969, Ser. No. 840,721

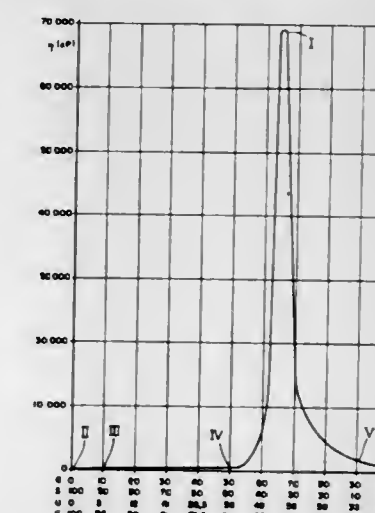
Claims priority, application Germany, July 10, 1968,

P 17 70 832.6

Int. Cl. C08g 30/14

U.S. Cl. 260—2 N

4 Claims



Production of moldings and coatings from a polyepoxide and a curing agent comprising a liquid polyamine/alkyl-phenol adduct having a molar ratio of amino groups to phenolic hydroxy groups of about 1:1.

3,658,729

REGENERATION OF ALKALINE EARTH LOADED CATIONIC EXCHANGE RESINS

David O. De Pree, Loomis, Herman H. Weyland, Folsom, and Marvin H. Gold, Sacramento, Calif., assignors to Aerojet-General Corporation, El Monte, Calif.

Filed Dec. 4, 1970, Ser. No. 95,251

Int. Cl. B01d 15/06; C02b 1/76

U.S. Cl. 260—2.2

7 Claims

A novel method for the regeneration of a weakly acidic ion exchange resin loaded with calcium or magnesium ions which comprises contacting said resin with a cycloaliphatic β -diketone in a water or organic solvent solution to remove said ions from said resin.

3,658,730

GAS PRODUCING COMPOSITIONS CONTAINING AZODICARBONAMIDE

Toshimasa Takahashi and Moriyuki Takachi, Otsu-shi, Hiroshi Makino, Kusatsu-shi, and Toshikazu Aoki, Otsu-shi, Japan, assignors to Toyo Rayon Company, Ltd., Tokyo, Japan

Filed July 9, 1969, Ser. No. 840,366

Int. Cl. C08f 47/10; C09k 3/00

U.S. Cl. 260—2.5 R

10 Claims

Gas producing compositions are provided which contain azodicarbonamide and at least one chromium containing

compound such as a chromate, dichromate or chromium alum salt of an alkali or alkaline earth metal or a chromium compound such as chromium trioxide or chromium trichloride. The compositions of this invention decompose at a lower temperature and produce a greater volume of gas than an equivalent amount of azodicarbonamide making the compositions of this invention especially useful as blowing agents in the preparation of foamed thermoplastic resin products.

3,658,731

POLYURETHANE FOAMS AND COMPOSITION
Thomas Richardson and Gerald O. Hustad, Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

No Drawing. Filed Aug. 4, 1969, Ser. No. 847,401

Int. Cl. C08g 22/46, 22/08

U.S. Cl. 260—2.5 BD

25 Claims

A foamed polyurethane produced by reaction in dimethylsulfoxide of dry whey and a polyisocyanate or of lactose and whey or yeast protein with polyisocyanate, with or without the addition of catalyst.

3,658,732

VULCANIZED ELASTOMERIC COMPOSITIONS HAVING IMPROVED RESISTANCE AGAINST AIR-OXIDATION AND METHOD FOR MAKING SAME

Giuliano Ballini and Luciano Baldi, Ferrara, Italy, assignors to The B. F. Goodrich Company, Akron, Ohio

No Drawing. Filed Oct. 10, 1969, Ser. No. 865,516

Claims priority, application Italy, Oct. 14, 1968, 22,473/68

Int. Cl. C08c 9/08; C08d 9/08

U.S. Cl. 260—5

14 Claims

Vulcanized elastomeric compositions having improved resistance against air-oxidation are prepared by:

(A) reacting (1) an ethylene/alphaolefin/diene terpolymer, wherein the diene is selected from the group consisting of 1,4-trans-hexadiene, 2-methyl-5-norbornene, 2-methylene-5-norbornene, 2-ethylidene-5-norbornene, 6-methyl-4,7,8,9-tetrahydroindene and 5,6-dimethyl-4,7,8,9-tetrahydroindene, with (2) from about 0.01 to 0.5% by weight based on said terpolymer of an organic peroxide;

(B) admixing the reacted terpolymer with an unsaturated elastomer; and

(C) subjecting this admixture to conventional vulcanizing conditions.

3,658,733

PHENOL ALDEHYDE WATER-RESISTANT STARCH-BASED ADHESIVES AND THEIR PREPARATION

Jean-Marc Billy, Outremont, Quebec, Canada, assignor to The Ogilvie Flour Mills Company, Limited, Montreal, Quebec, Canada

No Drawing. Filed Apr. 25, 1969, Ser. No. 819,464

The portion of the term of the patent subsequent to Aug. 18, 1987, has been disclaimed

Int. Cl. B32f 27/42; C08g 37/18

U.S. Cl. 260—17.2

8 Claims

A starch adhesive composition is prepared by the in situ polymerization of partially gelatinized starch granules, a phenolic compound and an aldehyde to form a water-dispersible resin. The resin is formed in a caustic aqueous slurry. The adhesive composition has a smooth and

substantially uniform consistency, and it is well-suited for use in the manufacture of laminated and corrugated paper-board.

3,658,734

GUAR GUM-POLYACRYLAMIDE COMPOSITIONS

David J. Pettitt, San Diego, Calif., assignor to Kelco Company, San Diego, Calif.

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,478

Int. Cl. C08f 45/18

U.S. Cl. 260—17.4 ST

24 Claims

A mixture of a relatively undegraded guar gum having a viscosity at a concentration of 1% by weight in water of about 500 centipoises or more with a polyacrylamide having a degree of polymerization between about 12,000 and about 250,000 with the weight ratio of guar gum to polyacrylamide ranging from about 0.5:1 to about 50:1 or higher. A process for forming a thickening composition by admixing a relatively undegraded guar gum having a 1% by weight aqueous viscosity of about 500 centipoises or higher with a polyacrylamide having a degree of polymerization between about 12,000 and about 250,000 at a weight ratio of guar gum to polyacrylamide ranging from about 0.5:1 to about 50:1 or higher. A thickened aqueous medium containing a mixture of a relatively undegraded guar gum having a 1% aqueous viscosity of about 500 centipoises or higher with a polyacrylamide having a degree of polymerization between about 12,000 and 250,000 at a weight ratio of guar gum to polyacrylamide ranging from about 0.5:1 to about 50:1 or higher with the mixture being present in an amount which is effective to synergistically increase the viscosity of the aqueous medium.

3,658,735

SOLUTION OF A GRAFT COPOLYMER OF CELLULOSE

Osakazu Nakao, Saburo Nakagawa, Juichi Hirose, Shigeyuki Yamazaki, Takashi Amano, Toshio Nakamura, and Hiroyuki Yamamoto, Shizuoka Prefecture, Japan, assignors to Tomoe-gawa Paper Manufacturing Company Limited, Chuo-ku, Tokyo, Japan

No Drawing. Filed June 11, 1969, Ser. No. 832,453

Claims priority, application Japan, June 14, 1968, 43/41,075

Int. Cl. C08c 21/32

U.S. Cl. 260—17.4 GC

2 Claims

The present invention is directed to a solution of a graft copolymer of cellulose comprising either (1) a polar organic solvent or a mixed solvent containing a polar organic solvent, sulfurous anhydride, an amine and a graft copolymer of cellulose or (2) liquid sulfurous anhydride, an amine and a graft copolymer of cellulose. Such solution is capable of dissolving cellulose and various kinds of polymers.

3,658,736

WATER-SOLUBLE COATING COMPOSITIONS

Wolfgang Daimer, Graz, and Gerfried Klitschar, Weiz, Austria, assignors to Vianova Kunstharz Aktiengesellschaft, Vienna, Austria

No Drawing. Continuation-in-part of application Ser. No. 841,619, July 14, 1969. This application Jan. 30, 1970, Ser. No. 7,215

Claims priority, application Austria, Feb. 3, 1969, A 1,042/69

Int. Cl. C08g 5/20

U.S. Cl. 260—19

9 Claims

Coating compositions characterized in that they are water-soluble upon neutralization comprising (A) car-

boxy group containing reaction products of alpha-beta ethylenically unsaturated carboxylic acids and/or dicarboxylic acids and/or anhydrides and/or semi-esters and/or semi-amides with diene polymers and unmodified and/or modified unsaturated fatty acids with more than 8 C atoms; (B) one or more heat-reactive condensation products of formaldehyde with phenol carboxylic acids, which, if desired, can be etherified and further, if desired, condensation products of formaldehyde with phenols and/or ureas and/or aminotriazines can be co-employed; and, optionally, (C) one or more polyhydroxy compounds with at least two hydroxy groups and a molecular weight of between 50 and 3000 are described. The compositions, while being quick drying, are not overly sensitive to oxidation permitting thorough drying of coatings.

3,658,737

USE OF COAL IN ELECTRODEPOSITABLE COMPOSITIONS

James Irwin, New Kensington, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Continuation-in-part of application Ser. No. 746,747, July 23, 1968, which is a continuation-in-part of application Ser. No. 635,405, May 2, 1967. This application June 23, 1969, Ser. No. 835,746

Int. Cl. B01k 5/02; C09d 5/24; C23b 13/00

U.S. Cl. 260—21

8 Claims

This invention relates to novel pigmented electrodepositable compositions. More particularly, this invention relates to the use of anthracite coal in pigmentary form to produce black, grey or dark-colored electrodepositable compositions.

3,658,738

WATER-THINNABLE PAINT BINDERS AND THE PREPARATION THEREOF

William J. van Westrenen, Delft, Netherlands, assignor to Shell Oil Company, New York, N.Y.

No Drawing. Filed June 18, 1969, Ser. No. 834,532

Claims priority, application Great Britain, Jan. 6, 1969, 795/69

Int. Cl. C08g 17/01, 17/12, 17/16

U.S. Cl. 260—22 EP

4 Claims

The disclosure describes novel condensation products which form films having superior hardness and good salt spray resistance suitable as electrodeposition paint binders which are the partially neutralized reaction product of a polyepoxide and rosin acids, said reaction product having been further esterified with an ethylenically unsaturated fatty acid and subsequently reacted with at least 4% by weight of an ethylenically unsaturated polycarboxylic acid or anhydride thereof. The disclosure also describes the process for producing the above-described novel composition.

3,658,739

HOT-MELT ADHESIVE COMPOSITION CONTAINING HYDROGENATED PINE GUM

David A. Berry and Albert R. Bunk, Columbus, Ohio, and Noah J. Halbrook, Walter H. Schuller, and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Feb. 27, 1970, Ser. No. 15,231

Int. Cl. C09j 3/26

U.S. Cl. 260—24

5 Claims

Hot-melt adhesive composition consisting essentially of a plasticized blend of low and high-molecular-weight poly-

vinyl acetate resins in which up to about 55 percent by weight of the polyvinyl acetate resin is replaced by a hydrogenated pine gum.

3,658,740

PRESSURE SENSITIVE ADHESIVES

Oren L. Marrs, Bartlesville, Okla., and Billy D. Simpson, Akron, Ohio, assignors to Phillips Petroleum Company

No Drawing. Filed Dec. 5, 1969, Ser. No. 882,697

Int. Cl. C09j 3/26

U.S. Cl. 260—27

7 Claims

Adhesive compositions are prepared by combining branched block copolymers with linear block copolymers or block copolymers, tackifiers, and organic solvents.

3,658,741

HOMOGENEOUS COPOLYMERS FROM ETHYLENE
Harry Knutson, Brookside, and John E. Dench, Mount Fern, N.J., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed Sept. 19, 1966, Ser. No. 580,196

Int. Cl. C08f 1/04, 15/00, 47/18

U.S. Cl. 260—29.6 H

32 Claims

Homogeneous copolymers of ethylene and a comonomer selected from the group consisting of unsaturated carboxylic acids and esters and salts thereof may be prepared by reacting the monomers in the presence of a chain transfer agent and a free radical catalyst in the vapor phase at a temperature between 100° C. and 300° C. and at a pressure between 100 and 1000 atmospheres, with turbulent agitation within an enclosed enlarged reaction zone, and with the feed, off-gas discharge and product withdrawal so controlled as to maintain the ratio of weight percent comonomer in the product to weight percent comonomer in the feed within the range of 0.7:1 to 1.8:1.

3,658,742

AQUEOUS TETRAFLUOROETHYLENE TELOMER DISPERSIONS

Frank H. Fish, Westwood, Irwin W. Fischbein, Canton, and Mandel E. Slater, Randolph, Mass., assignors to The Gillette Company, Boston, Mass.

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,693

Int. Cl. C08f 47/18, 47/20

U.S. Cl. 260—29.6 F

5 Claims

The present invention relates to aqueous dispersions of tetrafluoroethylene telomers and to processes for preparing such aqueous dispersions from dispersions of such telomer in trichlorotrifluoroethane mediums. In general, the processes for preparing such aqueous dispersions comprise adding a solvent which is both miscible with water and the trichlorotrifluoroethane to the trichlorotrifluoroethane dispersion, removing the trichlorotrifluoroethane, e.g., by evaporation, and mixing the resulting dispersion with water in the presence of a suitable wetting agent.

3,658,743

STABILIZATION OF UNSATURATED HYDROCARBON ELASTOMERS BY SYNERGISTIC COMBINATION OF A PHENOLIC COMPOUND AN ORGANIC SULFIDE OR THIOESTER AND AN EPOXIDE OR PHOSPHITE ESTER

Edward M. Bevilacqua, deceased, late of Allendale, N.J., by Alfred E. Sidwell, administrator, Upper Saddle River, N.J., assignor to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Apr. 30, 1970, Ser. No. 33,480

Int. Cl. C08d 11/04

U.S. Cl. 260—23.5 A

36 Claims

Hydrocarbon elastomers of low unsaturation (e.g., EPDM, butyl rubber) or high unsaturation (e.g., SBR)

are stabilized against oxidation by the use of a ternary synergistic combination of:

- (a) a phenol;
- (b) an organic sulfide or thioester; and
- (c) an epoxide or phosphite ester.

An example is ethylene-propylene-dicyclopentadiene terpolymer rubber stabilized with (a) 4,4'-isopropylidene bisphenol, (b) dilauryl thiodipropionate, and (c) epoxidized soybean oil.

3,658,744

ANTISTATIC CARPET COMPOSITION CONTAINING ALKALI METAL CARBOXYLATE AND POLYHYDRIC ALCOHOL

Gordon D. Brindell, Cheshire, and Leland E. Dannals, Waterbury, Conn., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Oct. 17, 1969, Ser. No. 867,410

Int. Cl. C09d 5/02; D03d 27/00, 27/12

U.S. Cl. 260—29.7

26 Claims

Polymer compositions are provided which are sufficiently electrically conductive so as to inhibit the build-up of electrostatic charges. The compositions contain an effective amount of an antistatic agent selected from the group consisting of alkali metal salts of organic acids or mixtures thereof with or without at least one polyhydric alcohol.

3,658,745

ACETALATED CROSS-LINKED POLYVINYL ALCOHOL HYDROGELS

Edward W. Merrill and Patrick Seck-Lai Wong, Cambridge, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

No Drawing. Filed Jan. 14, 1970, Ser. No. 2,970

Int. Cl. C08f 3/34, 29/32

U.S. Cl. 260—29.6 B

3 Claims

An acetalated cross-linked hydrogel capable of imbibing water and micromolecular water solutes and excluding macromolecular water solutes by the process of swelling upon cooling prepared by reacting a polymer containing a plurality of near neighbor hydroxyl groups or containing hydroxyl groups and ether groups, a monoaldehyde and a dialdehyde, the reagents being initially in a state of homogeneous aqueous solution.

3,658,746

SEGMENTED POLYURETHANE ELASTOMERS

Friedrich Karl Rosendahl, Leverkusen, Harald Oertel, Odenthal-Globusch, Heinrich Rinke, Leverkusen, and Wilhelm Thoma, Bergisch-Neukirchen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Jan. 8, 1970, Ser. No. 1,560

Claims priority, application Germany, Jan. 22, 1969, P 19 02 931.3

Int. Cl. C08g 22/04

U.S. Cl. 260—30.8 DS

4 Claims

The objects of the invention are segmented polyurethane elastomers, preferably elastomeric fibers, foils and solutions thereof, being prepared by reacting an NCO-polymer with a semicarbazide-alkyl-amine or -arylamine as chain extending agents—up to 45 mol percent of the total amount of chain extenders—can be used. The reaction is effected in highly polar solvents. The obtained elastomers have improved properties, especially improved heat distortion temperature and improved hydrothermal properties. A further object of the invention are new semicarbazide amino compounds.

3,658,747

SOLUBLE DYES FOR ANIONICALLY POLYMERIZED (AP) NYLON

John M. Kolyer, Convent, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 525,827, Feb. 8, 1966. This application Dec. 22, 1969, Ser. No. 887,351

Int. Cl. C08g 51/66

U.S. Cl. 260—37

16 Claims

Composition of polycapraamide and a dyestuff having a color essentially the same as the color of the precursor polymerization mixture, prepared by anionic polymerization of caprolactam in the presence of specific soluble dyes.

3,658,748

MOLDING COMPOSITION AND METHOD

Harry M. Andersen, Ballwin, and John D. Calfee, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Original application Sept. 5, 1967, Ser. No. 665,536. Divided and this application Mar. 9, 1970, Ser. No. 22,723

Int. Cl. C08g 51/10

U.S. Cl. 260—37 EP

11 Claims

A molding composition comprising grains each containing a plurality of reinforcing fibers in parallel arrangement and embedded in and bonded together by a thermosettable resin which also envelopes said plurality of bonded fibers; the method of preparing the composition by contacting an aqueous slurry of the fibers with a liquid, thermosettable resin and a curing agent therefor, advancing the resin to a solid, fusible stage, and recovering said composition from the resulting reaction mixture; the heat-curable extrudate obtained from said composition, and the method of preparing the extrudate.

3,658,749

MODIFIED OXYMETHYLENE POLYMERS

Michael E. Gordon, Wayland, Mass., assignor to Celanese Corporation, New York, N.Y.

No Drawing. Filed June 16, 1970, Ser. No. 46,821

Int. Cl. C08g 51/04

U.S. Cl. 260—37 PC

10 Claims

A modified oxymethylene polymer is disclosed and claimed which comprises an oxymethylene polymer and an hydrophobic silica. The claimed composition has improved hardness, and tensile strength over the unmodified oxymethylene polymer without a marked sacrifice of flexibility and impact strength.

3,658,750

THERMOSETTING RESIN COMPOSITION AND ELECTRICAL APPLIANCES USING THE SAME

Michio Tsukui, Yutaka Watanabe, Hiroshi Suzuki, and Masahiro Kitamura, Hitachi-shi, and Yoshisuke Mori, Shimodate-shi, Japan, assignors to Hitachi, Ltd., and Hitachi Chemical Company, Ltd., both of Tokyo, Japan

Filed Feb. 13, 1969, Ser. No. 798,904

Int. Cl. C08g 51/04

U.S. Cl. 260—38

34 Claims

A thermosetting resin composition mainly comprises a thermosetting resin and powdered inorganic filler. The powdered inorganic filler further comprises coarse powder having particle sizes of not less than 100 μ and fine powder having particle sizes of not more than 60 μ in a mixing ratio

by volume of the former to the latter being not more than 1:1.5. The resin composition has a particularly improved flow property and the cured resin composition has a low coefficient of thermal expansion and improved resistances to moisture and heat.

3,658,751

FRICTION PARTICLE FOR BRAKE LINING

Frank S. Grazen, Melvin L. Bulke, and Frank M. Bryzinsky, North Tonawanda, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y.

No Drawing. Filed Oct. 30, 1969, Ser. No. 872,753

Int. Cl. C08g 37/18, 51/10

U.S. Cl. 260—38

5 Claims

A friction particle, useful in applications where cashew nut shell oil friction particles have been used, may be prepared by the reaction at a temperature from about 225 to about 400 degrees Fahrenheit of a non-oxylated resole with resin selected from the group consisting of an oxylated resole, an alkylated resole, an alkylated novolac, an oxylated novolac, and mixtures thereof until it is insoluble, infusible, and does not soften slightly under mechanical force at temperatures below about 400 degrees Fahrenheit, and has substantially no cohesive or bonding strength.

3,658,752

METHOD OF MAKING STABLE BLENDS OF CHEMICALLY DISSIMILAR ELASTOMERS AND PLASTICS

Balbhadra Das, Mogadore, and Daniel A. Meyer, Akron, Ohio, assignors to The General Tire & Rubber Company

No Drawing. Filed July 22, 1969, Ser. No. 843,816

Int. Cl. C08c 11/18; C08d 9/08; C08g 51/04

U.S. Cl. 260—41.5 A

8 Claims

This invention concerns a method of making a stable blend of an elastomer and an incompatible plastic comprising fluxing the elastomer, the incompatible plastic, and a finely divided reinforcing particulate filler at a temperature above the softening point of the plastic and below the degradation temperature of the plastic and the elastomer.

ERRATUM

For Class 260—45.75 C see:
Patent No. 3,658,705

3,658,753

COLOR STABILIZED POLY(ARYLENE SULFIDE) RESINS

Jerry O. Reed and James S. Dix, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed July 1, 1970, Ser. No. 51,663

Int. Cl. C08g 51/58

U.S. Cl. 260—45.7 P

8 Claims

The discoloration of poly(arylene sulfide) resins is minimized or prevented by the addition of a stabilizing amount of an organic phosphite or an organophosphinic acid. Specifically, poly(phenylene sulfide) resins are color stabilized by the addition of phenylphosphinic acid or dioctylphosphite.

3,658,754

SELF-EXTINGUISHING, COLOURED MOULDED ARTICLES

Herbert Jenkner, Deutz-Kalker, Str. 66, Cologne-Deutz, Germany, and Hans-Eberhard Praetzel, An der Lenzwiese 19, Cologne-Gremberg, Germany

No Drawing. Filed Mar. 20, 1970, Ser. No. 21,505
Claims priority, application Germany, Mar. 22, 1969, P 19 14 644.2

Int. Cl. C08f 47/04; C09k 3/28

U.S. Cl. 260—45.7 R

8 Claims

The use of brominated quinones as flameproofing components for homopolymers of styrene or alpha-methylstyrene or for copolymers, the major part of which consist of styrene and/or alpha-methylstyrene.

3,658,755

HOT-MELT ADHESIVES OF POLYOLEFINS CONTAINING OXIME COMPOUNDS OR ESTERS THEREOF

Clive D. Moon and Robert K. F. Neumann, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Nov. 7, 1968, Ser. No. 774,200

Int. Cl. C08f 45/60

U.S. Cl. 260—45.9 R

12 Claims

Oxime compounds or esters thereof are admixed with polyolefins or polyamides to make a hot-melt adhesive to be applied as a coating or laminate for metal or glass.

3,658,756

THERMOPLASTIC POLYURETHANES PREPARED FROM CAPROLACTONE POLYESTERS AND METHOD OF PREPARATION

Franz Gottfried Reuter, Hannover, Germany, assignor to Elastomer AG., Chur, Switzerland

No Drawing. Continuation-in-part of application Ser. No. 814,538, Apr. 9, 1969, which is a continuation-in-part of applications Ser. No. 764,519, Oct. 2, 1968, Ser. No. 545,526, Apr. 21, 1966, Ser. No. 570,061, Aug. 3, 1966, Ser. No. 701,218, Jan. 29, 1968, Ser. No. 722,514, Mar. 18, 1968, and Ser. No. 701,739, Mar. 6, 1968. This application June 5, 1969, Ser. No. 830,860
The portion of the term of the patent subsequent to Aug. 4, 1987, has been disclaimed

Int. Cl. C08g 22/10

U.S. Cl. 260—47 CB

10 Claims

A method for making a thermoplastic polyurethane from the esterification product of a hydroxy caproic acid, a chain extender and an organic diisocyanate.

3,658,757

PROCESS FOR THE PREPARATION OF POLYESTERS FROM BISPHENOLIC COMPOUNDS AND AROMATIC SULFONIC ACIDS

André Jan Conix, Antwerp, and Urbain Leopold Laridon, Wilrijk, Belgium, assignors to Gevaert Photo-Producten N.V., Mortsel, Belgium

No Drawing. Application Feb. 24, 1965, Ser. No. 435,079, which is a continuation of application Ser. No. 62,076, Oct. 12, 1960, which in turn is a continuation-in-part of application Ser. No. 797,587, Mar. 6, 1959. Divided and this application Jan. 16, 1970, Ser. No. 3,503

Claims priority, application Belgium, Mar. 7, 1958, 37,910/58; Dec. 22, 1959, 39,450/59; Great Britain, Jan. 6, 1960, 543/60

The portion of the term of the patent subsequent to Apr. 7, 1987, has been disclaimed

Int. Cl. C08g 17/08, 17/13

U.S. Cl. 260—49

5 Claims

The present invention is concerned with the production of high molecular weight linear aromatic polyesters

by reacting aromatic sulfonic acids with bis-phenolic compounds in the presence of a catalyst of the group consisting of a quaternary ammonium compound, a quaternary arsonium compound, a quaternary phosphonium compound and a tertiary sulfonium compound.

3,658,758

FLUORINATED NOVOLAK

Stuart B. Eglin, Atlanta, Edgar W. Eisenbraun, Dunwoody, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed July 22, 1970, Ser. No. 57,839

Int. Cl. C08g 5/16

U.S. Cl. 260—53 HA

5 Claims

Unique and highly desirable properties are exhibited by a phenol-formaldehyde fluorinated novolak when the product contains a trifluoromethyl group in a position meta to the hydroxyl group in each phenyl ring in the novolak. Among the desirable properties are flame retardance, improved weatherability, resistance to hydrolysis by acids or alkalis, and resistance to thermal degradation. The novolak is prepared in an acid catalyzed reaction by condensing formaldehyde or a formaldehyde-yielding material with a phenolic compound containing a trifluoromethyl group in a position meta to the hydroxyl group on the phenyl ring. The cured novolak is useful as an impregnating resin for paper and wood to increase its moisture resistance and wet strength.

3,658,759

FLUORINATED RESOLE

Stuart B. Eglin, Atlanta, and Edgar W. Eisenbraun, Dunwoody, Ga., assignors to Lockheed Aircraft Corporation, Burbank, Calif.

No Drawing. Filed July 22, 1970, Ser. No. 57,838

Int. Cl. C08g 5/08

U.S. Cl. 260—53 H

14 Claims

Unique and highly desirable properties are exhibited by a phenol-formaldehyde condensation product when the product contains a trifluoromethyl group in a position meta to the hydroxyl group in each phenyl ring in the product. Among the desirable properties are flame retardance, improved weatherability, resistance to hydrolysis by acids or alkalis, and resistance to thermal degradation. The condensation product is prepared in a base catalyzed reaction by condensing formaldehyde or a formaldehyde-yielding material with a phenolic compound containing a trifluoromethyl group in a position meta to the hydroxyl group on the phenyl ring. The cured condensation product is useful as a matrix for reinforcing fibers in the molding of structural members.

3,658,760

MANUFACTURE OF POLYMERS

Lambert Gaston Jeurissen, Mortsel, and André Jan Conix, Antwerp, Belgium, assignors to Gevaert-Agfa N.V., Mortsel, Belgium

No Drawing. Continuation-in-part of application Ser. No. 533,265, Mar. 10, 1966. This application May 26, 1969, Ser. No. 828,007

Claims priority, application Great Britain, Mar. 11, 1965, 10,408/65

Int. Cl. C08g 17/013

U.S. Cl. 260—75 R

9 Claims

Highly polymeric film forming polyesters are obtained from an aromatic dicarboxylic acid or an ester-forming derivative thereof and a glycol by (I) forming a glycol dicarboxylate from the above-mentioned starting materials, and (II) polycondensing the glycol dicarboxylate in

the presence of a catalytic amount of a titanium compound of the formula TiR_nX_{4-n} , wherein the R's represent the same or different carbon-linked, aliphatic, aromatic, or cycloaliphatic radicals, the X's represent the same or different hydroxy, acyloxy, halide, cyanide, cyanate, thiocyanate, alkoxy, aryloxy, thioalkoxy, and thioaryloxy radicals, and n is 1, 2 or 3.

3,658,761

PROCESS FOR PREPARING HYDROLYZATES OF ACYLOXYCAPROIC ACID AND ALKYLHYDROXYCAPROATE AND POLYURETHANES MADE THEREFROM

Fritz Hostettler, Verona, and Frank G. Lombardi, Clifton, N.J., assignors to Inter-Polymer Corporation, Passaic, N.J.

No Drawing. Continuation of application Ser. No. 715,164, Mar. 22, 1968. This application Apr. 13, 1970, Ser. No. 28,174

Int. Cl. C08g 22/10, 17/017

U.S. Cl. 260—77.5 AN

7 Claims

There is disclosed a process for the production of polyurethanes from 6-acyloxycaproic acids and alkyl 6-hydroxycaproates, comprising converting the 6-acyloxycaproic acids or alkyl 6-hydroxycaproates by hydrolysis to mixtures of the corresponding 6-hydroxycaproic acids and oligomers thereof, the hydrolysis reactions being conducted in the presence of water, and preferably in the presence of a hydrogen ion containing catalyst that is readily removable from the hydrolysate; removing the acyloxy acids or alkanols, for example, formic acid or methanol, which are formed during the hydrolysis reaction, converting the acid hydrolysate to a polyester polyol by reaction with an organic polyfunctional agent and thereafter converting the polyester polyol to a polyurethane.

3,658,762

PREPARATION OF NONCELLULAR POLYURETHANE COMPOSITIONS

David Stanley Cobbledick, Kent, Ohio, assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Filed May 28, 1970, Ser. No. 41,642

Int. Cl. C08g 22/34, 51/04; C09k 3/00

U.S. Cl. 260—77.5 AB

20 Claims

Improved preparation of noncellular polyurethanes by liquid phase reaction of an organic polyisocyanate and organic polyol in the presence of a mercuric carboxylic acid salt which is devoid of mercury bound directly to carbon and which is promoted by a basic plumbous salt of a neoacid. The improved process provides polyurethanes incorporating the promoted catalyst which are stable to hot water and are useful as coatings, caulks and sealants for cloth, leather, paper and ceramics.

3,658,763

COATING COMPOSITION HAVING REACTIVE SURFACE ISOCYANATE GROUPS

Henry C. Dehm, Salt Lake City, Utah, assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Nov. 17, 1969, Ser. No. 877,473

Int. Cl. C08g 22/28

U.S. Cl. 260—77.5 CH

8 Claims

A crosslinked polymeric coating composition having a high concentration of reactive surface isocyanate groups is provided. This crosslinked polymeric composition is a chemical intermediate particularly suitable for use in providing solids with a coating which can be bonded to resinous binders.

3,658,764

CROSS-LINKED RESINS

Michel Bargain, Lyon, Andre Combet, La Mulatiere, and Pierre Grosjean, Sainte-Foye-les-Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Continuation-in-part of application Ser. No. 743,025, July 8, 1968. This application Oct. 13, 1970, Ser. No. 80,455

Claims priority, application France, July 13, 1967, 114,381

Int. Cl. C08g 20/00

U.S. Cl. 260—78 UA

4 Claims

Cross-linked resins of good thermal stability useful inter alia for making multicellular materials, for bonding metals, and for making laminates and moulded articles are made by reacting, e.g. by heating together, an unsaturated bis-imide with a diprimary diamine in a ratio of 1.2:1 to 50:1.

3,658,765

PREPARATION OF POLYAMIDE FROM ϵ,ϵ' -BIS(ϵ -CAPROLACTAM)

Antonie Veermans and Robert J. de Kock, Geleen, Netherlands, assignors to Stamcarbon N.V., Heerlen, Netherlands

No Drawing. Original application May 2, 1967, Ser. No. 635,339. Divided and this application Aug. 29, 1969, Ser. No. 871,068

Claims priority, application Netherlands, May 5, 1966, 6606079

Int. Cl. C08g 20/18

U.S. Cl. 260—78 L

3 Claims

The compound ϵ,ϵ' -bis(ϵ -caprolactam) is disclosed. ϵ,ϵ' -Bis(ϵ -caprolactam) is prepared by ultraviolet ray irradiating ϵ -caprolactam in the presence of ketone activation agents. ϵ,ϵ' -Bis(ϵ -caprolactam) can be homopolymerized to produce useful polyamides or may be copolymerized with other polyamide-forming substances, such as ϵ -caprolactam, to form useful polyamide copolymers.

3,658,766

ANTISTATIC POLYAMIDE COMPOSITION

Tatsuya Kato and Chikatsu Okagawa, Nagoya, Ataru Suwada, Hirakata, and Stoyoshi Ohno, Kyoto, Japan, assignors to Toray Industries, Inc., Tokyo, and Sanyo Chemical Industries, Ltd., Kyoto, Japan

No Drawing. Filed June 1, 1970, Ser. No. 42,497

Int. Cl. C08g 20/38

U.S. Cl. 260—78 S

8 Claims

A composition excellent in antistatic properties and shapability, capable of being shaped into a fiber and the like, which comprises a compound obtained by phosphoric esterification of an addition product of a compound containing a carbonamide group selected from the class consisting of a monomer containing in its molecule a carbonamide group and a polyamide oligomer, and a synthetic linear polyamide.

3,658,767

PRODUCTION OF α,α -DISUBSTITUTED β -PROPIOLACTONE POLYMERS

Yukio Shimosaka, Sumimichi Ueda, and Shigeru Nakajima Okayama, Japan, assignors to Japan Exlan Company Limited, Osaka, Japan

No Drawing. Filed Mar. 6, 1970, Ser. No. 17,307

Claims priority, application Japan, Mar. 6, 1969, 44/17,405

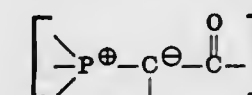
Int. Cl. C08g 17/017

U.S. Cl. 260—78.3 R

8 Claims

This invention relates to a process for producing α,α -disubstituted β -propiolactone polymers and more partic-

ularly to a process for producing at a high yield an α,α -disubstituted β -propiolactone polymer having a high molecular weight by conducting the polymerization in the presence of a catalyst selected from phosphonium-ylide compounds having the following bonding form (I):



(I)

3,658,768

PROCESS FOR POLYMERIZATION OF PIVALOLACTONE

Merlin P. Harvey, Passaic, and Douglas I. Relyea, Pompton Plains, N.J., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Apr. 24, 1970, Ser. No. 31,772

Int. Cl. C08g 17/017

U.S. Cl. 260—78.3 R

5 Claims

The invention resides in a novel catalyst system used for the polymerization of pivalolactone. These catalysts or initiators are produced from polybasic acids and quaternary ammonium salts.

3,658,769

AGE RESISTANT POLYMERIC COMPOSITIONS CONTAINING AMIDE SEGMENTARY UNITS

Richard H. Kline, Cuyahoga Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

No Drawing. Filed June 23, 1969, Ser. No. 835,741

Int. Cl. C08g 20/20; C08d 3/06

U.S. Cl. 260—78 UA

19 Claims

Amide and imide age resisters such as N-(4-anilino-phenyl) acrylamide, N-(4-anilino-phenyl) maleamic acid and N-(4-anilino-phenyl) maleimide, age resistant polymers having amide and imide age resisters physically combined therewith and age resistant polymeric compositions prepared by free radical polymerization techniques involving the use of said amides and imides as monomers.

3,658,770

UNSATURATED PARTIALLY CRYSTALLINE TERPOLYMERS OF ETHYLENE, PROPYLENE AND HYDROCARBON DIENES OR POLYENES, AND PROCESS FOR PREPARING SAID TERPOLYMERS

Paolo Longi, Alberto Valvassori, and Francesco Greco, Milan, and Ermanno Bernasconi, Caronno Varesino, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Dec. 13, 1968, Ser. No. 783,697

Claims priority, application Italy, Dec. 15, 1967, 23,915/67

Int. Cl. C08f 17/00, 15/40, 27/06

U.S. Cl. 260—79.5 P

11 Claims

There are disclosed unsaturated terpolymers of ethylene, propylene, and hydrocarbon monomers containing at least two double bonds, which terpolymers exhibit from 20% to 75% crystallinity but are vulcanizable to elastomeric materials. The terpolymers are obtained by polymerizing a mixture of ethylene, propylene and at least one of the hydrocarbon monomers containing at least two double bonds in contact with a catalyst prepared from titanium or vanadium compounds and an organometallic aluminum compound.

3,658,771

PREPARING AMMONIUM POLYACRYLATES
Henry Volk, Bay City, and Percy Jay Hamlin, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Jan. 14, 1969, Ser. No. 791,193
Int. Cl. C02b 1/20; C08d 1/04; C08f 3/46

U.S. Cl. 260—80 M 9 Claims

Polyacrylates are prepared in aqueous solution under specially controlled reaction conditions to produce efficient flocculants. Ammonium acrylate is polymerized at a monomer concentration within the range from about 10 weight percent of the polymerization system up to the monomer saturation level, in the presence of at least 0.1 weight percent of ammonium hydroxide. The upper limit on the amount of hydroxide employed will range downwardly from about 15 weight percent to approximately 5 weight percent for monomer concentrations from 10 to 40 weight percent respectively. Further improvement in polymer properties is achieved by the incorporation of at least about 1 weight percent, based on the weight of polymerization system, of an alkali metal salt.

3,658,772

ACRYLIC ACID POLYMERS
Henry Volk, Bay City, and Percy J. Hamlin, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Continuation-in-part of application Ser. No. 587,964, Oct. 20, 1966, now Patent No. 3,493,500. Divided and this application Feb. 2, 1970, Ser. No. 8,080

Int. Cl. C08f 1/08, 15/02, 15/40
U.S. Cl. 260—80.3 N 14 Claims

Water-soluble copolymers of 30 to 95 percent by weight of acrylic acid with from 70 to 5 percent by weight of acrylamide with or without additional diluent comonomers are prepared in the form of fluid, pourable, aqueous suspensions of polymer solids by carrying out the polymerization at a temperature of from just above the freezing point of the reaction mixture to about 60° C. in a solution of the monomers in an aqueous inorganic salt solution at a pH of from about 1 to about 3.2 with agitation sufficient to maintain precipitated copolymer in suspension. Said salt solution contains a predetermined concentration of alkali metal or ammonium salt of a strong inorganic acid in the range of from about 0.1 percent to 10 percent by weight of the reaction mixture, the concentration of salt being adjusted to precipitate high molecular weight copolymer of the composition employed under the particular reaction conditions of a specific polymerization. The copolymers so prepared can be readily dissolved in water, are of high molecular weight and are particularly useful as flocculants to improve the rate of raw sewage solids and of a variety of mineral solids.

3,658,773

PROCESS FOR THE PRODUCTION OF HIGH MOLECULAR WEIGHT POLYAMIDE-IMIDES AND THE PRODUCT

Wilfried Zecher, Cologne-Stammheim, and Rudolf Merten, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Apr. 4, 1969, Ser. No. 813,708
Claims priority, application Germany, Apr. 13, 1968, P 17 70 202.7

Int. Cl. C08g 20/32
U.S. Cl. 260—78 L 5 Claims

Process for the production of high molecular weight polyamide-imides by reaction of
(a) a lactam,
(b) an organic isocyanate and
(c) a cyclic dicarboxylic acid anhydride

containing at least one additional functional group capable of condensation or addition reaction. The polyamide-imides produced are suitable for use as heat resistant plastics.

3,658,774

REDUCING CATALYST PRECIPITATION DURING POLYMER ISOLATION

Andrew Tze-Chiu Liu, Beaumont, Tex., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Filed Nov. 17, 1969, Ser. No. 877,449

Int. Cl. C08f 15/40 4 Claims

A process for preparing an elastomeric polyolefin in a solvent solution, in the presence of a coordination-type catalyst having a transition metal component, wherein the polyolefin is isolated by (a) mixing the polyolefin solution with steam or water to deactivate the catalyst, and form an aqueous phase in the polyolefin solution; (b) separating the aqueous phase from the polyolefin solution; and (c) separating the polyolefin from the solvent; the precipitation of catalyst residues is practically eliminated by adding to the mixture of the polyolefin solution and the aqueous phase 5–200 mole percent of a salt of an oxyacid of sulfur from the group of bisulfites, bisulfates, or persulfates based on the moles of transition metal component of the catalyst.

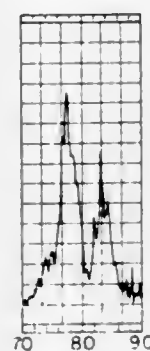
3,658,775

ALTERNATE COPOLYMER OF BUTADIENE AND ACRYLONITRILE AND A PROCESS FOR PREPARATION THEREOF

Akihiro Kawasaki, Masanobu Taniguchi, and Tsuneto Nishiyama, Chiba-ken, Japan, assignors to Maruzen Petrochemical Co., Tokyo, Japan

Filed June 26, 1969, Ser. No. 836,736
Int. Cl. C08d 1/14, 3/02

U.S. Cl. 260—82.5 9 Claims



Alternate copolymer of butadiene and acrylonitrile which is a novel product and a process for preparation thereof which comprises contacting a mixture of butadiene and acrylonitrile in liquid phase with the catalyst system formed by mixing vanadium (V) oxychloride or chromium (VI) oxychloride with a trialkylaluminum compound.

3,658,776

PROCESS FOR PREPARING POLYMERS OF CONJUGATED DIENES

Floyd E. Naylor, Bartlesville, Okla., assignor to Phillips Petroleum Co., Inc.
No Drawing. Filed Feb. 20, 1970, Ser. No. 13,192
Int. Cl. C08d 1/32, 1/36; C08f 1/28

U.S. Cl. 260—84.7 8 Claims

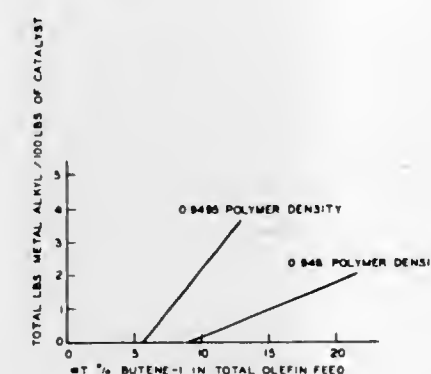
Conjugated dienes are polymerized with an organoalkali-metal polymerization initiator wherein the properties of the conjugated diene polymers are improved by the addition of an allyl amine thereto such as triallylamine, prior to deactivating the polymerization initiator.

3,658,777

CONTROLLING POLYMERIZATION OF COMONOMER IN COPOLYMERIZATION
William B. Green, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Sept. 12, 1969, Ser. No. 857,377
Int. Cl. C08f 1/66, 1/82, 15/04

U.S. Cl. 260—88.2 R 6 Claims



The polymerization of comonomer in a copolymerization as in the copolymerization of ethylene and butene-1 is controlled by increasing the metal alkyl in the reaction zone. In one embodiment the changeover time in a plant when desiring to produce a homopolymer of a 1-olefin without plant shutdown when it has been producing a 1-olefin-olefin comonomer copolymer is reduced by adding to the influent to the reaction zone, about when the comonomer flow has been discontinued, a metal alkyl which inhibits the copolymerization of the comonomer with the 1-olefin. In an embodiment the changeover is from ethylene-1-butene copolymerization to ethylene homopolymerization and the catalyst is a chromium oxide in which at least part of the chromium is in the hexavalent state and is supported on at least one material taken from silica, alumina, zirconia and thoria and the metal alkyl is diethyl zinc alone or together with triethyl borane. The amount of the additive or additive mixture is determined to inhibit substantially the copolymerization of the comonomer until the amount of it in the reactor has been reduced to an extent sufficient to permit substantially specification homopolymer to be produced. The usual rates when adding diethyl zinc to increase the shear response of the polymer being made are up to about one-three pounds per hundred pounds of the catalyst. The amount according to the invention exceeds appreciably this amount and usually is in the approximate range five-ten pounds per hundred pounds of catalyst. The invention permits a control of the proportion of comonomer entering into the copolymer being formed independently of adjustment of the portion of the comonomer in the feed to the reactor.

3,658,778

PROCESS FOR THE PREPARATION OF VINYLIDENE CHLORIDE-VINYL CHLORIDE COPOLYMERS

Yasushi Toyoda, Kunizo Kido, and Hidetora Kashio, Iwaki-shi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,836
Claims priority, application Japan, Dec. 28, 1968, 43/1,008

Int. Cl. C08f 1/88, 15/08
U.S. Cl. 260—87.7 16 Claims

Process for the suspension polymerization of vinylidene chloride and vinyl chloride in the presence of a peroxydicarbonate initiator comprising the addition to the polymerization system, at the completion of polymerization, a thiopropionic acid alkyl ester or a mixture of a thiopropionic acid alkyl ester and butylhydroxyanisole. The process provides odorless vinylidene chloride-vinyl chloride copolymers.

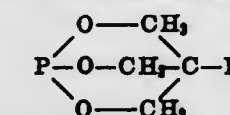
3,658,779

POLYMERIZATION PROCESS AND CATALYST
Gerald R. Kahle and Lawrence M. Fodor, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed July 14, 1970, Ser. No. 54,841
Int. Cl. C08f 1/56, 3/10

U.S. Cl. 260—93.7 6 Claims

Use of a bicyclic [2.2.2]octane adjuvant of the formula



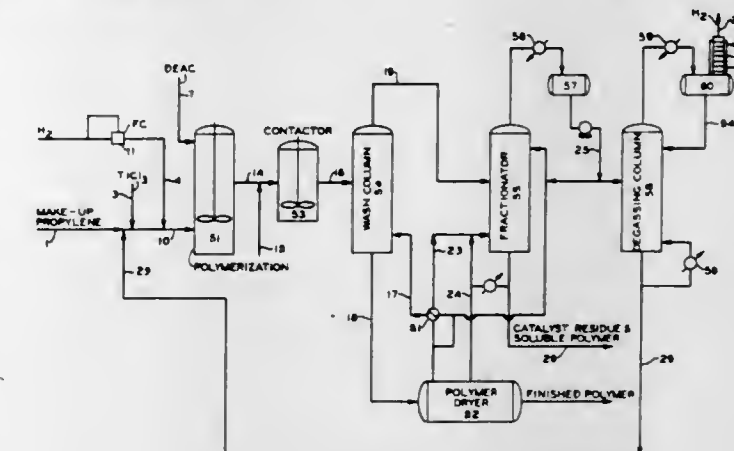
wherein R is selected from the group consisting of H, a halogen and a hydrocarbon radical having from 1 to 20 carbon atoms for a binary polymerization catalyst system containing a complex of the formula $\text{TiCl}_3 \cdot \frac{1}{2} \text{AlCl}_3$ and at least one compound of the formula $\text{R}'_n \text{AlX}_{3-n}$ wherein R' is alkyl, aryl, cycloalkyl or combinations thereof having up to 20 carbon atoms, X is a halogen, and n is 2 or 3, results in the increased production of polymers of 1-olefins having an acceptable flexural modulus and lower xylenes-solubles content.

3,658,780

POLYMERIZATION OF OLEFINS
Jack S. Scoggin, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Oct. 22, 1969, Ser. No. 868,418
Int. Cl. C08f 3/02, 3/08

U.S. Cl. 260—93.7 5 Claims



In the polymerization of an olefin, e.g., propylene, employing hydrogen as a modifier in the polymerization reaction and excess monomer as solvent to produce a desired melt index polymer, recycled unpolymerized or excess monomer is completely freed of hydrogen by fractionation of the recovered monomer stream by submitting the same to a degassing operation in which in the preferred mode of operation the stream is heated in a fractionation zone to expel hydrogen therefrom and the overhead is refrigerated to avoid undue loss of monomer and all of the modifier hydrogen is added to the polymerization reaction from a single source.

3,658,781

BASIC MONOAZO DYE STUFFS CONTAINING A HETEROCYCLIC DIAZO COMPONENT

Gert Hegar, Schoenenbuch, Switzerland, assignor to Ciba Limited, Basel, Switzerland

No Drawing. Continuation-in-part of abandoned application Ser. No. 639,008, May 17, 1967. This application Dec. 9, 1969, Ser. No. 883,629

Claims priority, application Switzerland, May 23, 1966, 7,377/66; Mar. 8, 1967, 3,390/67

Int. Cl. C09b 29/08

U.S. Cl. 260—156 11 Claims

Basic azo dyestuffs containing a heterocyclic diazo component and as radical of the coupling component a para-

alkylaminobenzene containing a heterocyclic tertiary or quaternary amine bound to the alkyl radical via its nitrogen atom.

3,658,782

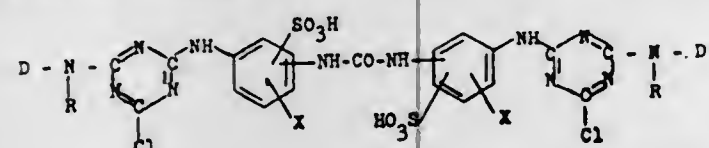
REACTIVE DISAZO TRIAZINE DYESTUFFS MADE FROM A DIAMINO DIPHENYLUREA DISULPHONIC ACID

Geoffrey Griffiths and Cecil Vivian Stead, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England
No Drawing. Filed Mar. 3, 1969, Ser. No. 803,977
Claims priority, application Great Britain, Mar. 8, 1968, 11,462/68

Int. Cl. C09b 33/12, 62/08

U.S. Cl. 260—153

Reactive dyestuffs represented by the formula:



wherein R represents a hydrogen atom or an alkyl group, X is H, CH₃ or Cl and



represents the radical of a water-soluble coloured compound. These dyestuffs are useful as reactive dyes for colouring cellulosic textiles and give an unusually high degree of fixation during dyeing and printing processes. The dyestuffs are further characterized by their outstanding light fastness.

3,658,783

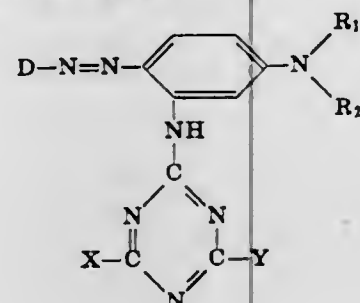
MONOAZO DYESTUFFS CONTAINING A TRI-AZINE IN THE COUPLING COMPONENT

Walter Knobloch, Cologne-Buchheim, and Edgar Siegel, Leverkusen-Steinbuechel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed May 8, 1969, Ser. No. 823,177
Claims priority, application Germany, May 15, 1968, P 17 69 366.2

Int. Cl. C09b 62/08

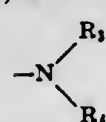
U.S. Cl. 260—153

Water-insoluble monoazo dyestuffs free from sulphonic acid groups and having the formula

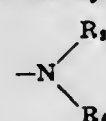


in which:

D denotes an aromatic-carbocyclic or aromatic-heterocyclic radical; R₁ and R₂ represent identical or different alkyl radicals which may be substituted; X stands for halogen, for an alkoxy group which may be further substituted, or for



where R₃ and R₄ are H or identical or different alkyl radicals which may be substituted; and Y denotes an optionally substituted alkoxy group or the radical



suitable for dyeing and printing synthetic fibers wherein the dyeings are characterized by very good fastness to light and wet processing.

3,658,784

MONOAZO DYES CONTAINING A BENZOISOTHIAZOLE

Guenther Lange, Ludwigshafen, Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed May 27, 1969, Ser. No. 828,387
Claims priority, application Germany, June 1, 1968, P 17 69 503.3

Int. Cl. C09b 29/08

U.S. Cl. 260—158

Water-insoluble p-aminoazo dyes having an acetoacetoxyalkyl group on the amino nitrogen atom which are particularly useful for dyeing cellulose esters and synthetic linear polyesters.

3,658,785

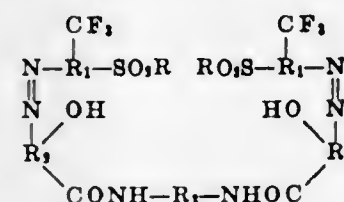
DISAZO PIGMENTS

Karl Ronco and Willy Mueller, Riehen, Switzerland, assignors to Ciba Limited, Basel, Switzerland
No Drawing. Filed Jan. 22, 1970, Ser. No. 5,145
Claims priority, application Switzerland, Jan. 27, 1969, 1,201/69; Nov. 3, 1969, 16,346/69

Int. Cl. C07c 33/16, 107/04

U.S. Cl. 260—184

Disazo dyestuffs of the formula



in which R₁ represents a benzene radical, R₂ represents a naphthalene radical in which the azo, hydroxy and—CO groups are in 1,2,3-position, R₃ represents a para-phenylene or diphenylene radical, are valuable pigments which are useful for coloring plastics and lacquers in orange to red shades of excellent fastness.

3,658,786

BRANCHED CHAIN RIBOFURANOSYL NUCLEOSIDES AND INTERMEDIATES

Hans Albrecht, Mountain View, and John G. Moffatt, Los Altos, Calif., assignors to Syntex Corporation, Panama, Panama
No Drawing. Filed June 27, 1969, Ser. No. 837,307

Int. Cl. C07c 47/18; C07d 51/52, 51/54

U.S. Cl. 260—210 R

The 3'-acylamidomethyl-3'-deoxy-β-D-ribofuranosyl nucleosides have antimicrobial activity and can be used to control metabolic processes in biological systems. Intermediates and processes for preparing these compounds are also described.

3,658,787

HALOGENATED PURINE NUCLEOSIDES AND DERIVATIVES

Alan F. Russell, Mountain View, Seymour Greenberg, Palo Alto, and John G. Moffatt, Los Altos, Calif., assignors to Syntex Corporation, Panama, Panama
No Drawing. Filed Aug. 4, 1969, Ser. No. 847,414

Int. Cl. C07d 51/54

U.S. Cl. 260—211.5 R

Reacting 9-(β-D-ribofuranosyl)-purines with a suitable α-acyloxy acyl bromide or chloride followed by hydrolysis of the acylated intermediate yields 9-(3-deoxy-3-halo-

β-D-xylofuranosyl)-purines and 9-(2-deoxy-2-halo-β-D-arabinofuranosyl)-purines. By varying the process, 9-(3-deoxy-β-D-ribofuranosyl)-purines, 9-(2-deoxy-β-D-ribofuranosyl)-purines and 9-(2,3-anhydro-β-D-ribofuranosyl)-purines can be prepared from the reaction intermediates. These compounds and disclosed derivatives thereof have antibiotic properties and are useful in controlling metabolic processes. The 2',3'-anhydro nucleosides are useful intermediates for preparing compounds having antibiotic properties.

3,658,788

AMINOXAZOLINES AND PRODUCTS THEREOF AND PROCESSES FOR SYNTHESIZING SAME

Leslie E. Orgel and Robert A. Sanchez, La Jolla, Calif., assignors to The Salk Institute for Biological Studies, San Diego, Calif.

No Drawing. Filed June 6, 1969, Ser. No. 831,201

Int. Cl. C07d 51/52

U.S. Cl. 260—211.5 R

Aminooxazolines having uses in organic chemistry, biochemical research, and biochemistry and the method for making same comprising reacting a reducing sugar having an hydroxyl group on a carbon atom adjacent the carbonyl or hemiacetal carbon atom of the sugar with cyanamide or cyanogen plus ammonia in solution to thereby form an aminooxazoline in which the carbonyl or hemiacetal carbon and the aforesaid adjacent carbon of the sugar form part of the oxazoline ring.

A method for producing glycosides, e.g., nucleosides and nucleotides of the reducing sugars, including their cyclo-derivatives, which have biochemical and pharmaceutical uses, comprising reacting the aforementioned aminooxazolines with (a) a first group of electrophilic reagents such as cyanoacetylene, methyl propiolate, dialkyl acetylenedicarboxylates, haloacrylonitriles or (b) with a second group of electrophilic reagents, comprising β-diketones and β-ketoesters.

3,658,789

DRUG GLYCEROL KETALS

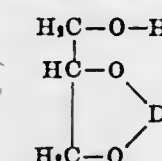
John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Jan. 19, 1970, Ser. No. 4,021

Int. Cl. C07c 173/00

U.S. Cl. 260—239.55 C

Drug glycerol ketals represented by the formula



in the formula, D₁ is the remainder of a drug moiety.

These compounds exhibit the pharmaceutical utilities of the parent drugs but have enhanced and prolonged activity when orally administered.

3,658,790

ABSORBENT FIBER PRODUCTS FROM PHOSPHORYLATED CELLULOSE FIBERS AND PROCESS THEREFOR

Leo J. Bernardin, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Apr. 22, 1970, Ser. No. 30,811

Int. Cl. C08b 5/00; D06m 11/08, 13/26

U.S. Cl. 260—219

An improved highly absorbent fiber is obtained by phosphorylating cellulose pulp fibers. A preferred form of

the product is obtained by chemically substituting phosphate groups for hydroxyls on the cellulose, hydrolytically degrading the fiber walls and then converting the partially substituted and hydrolyzed cellulose fibers to the salt form by ion exchange. Subsequent mechanical refining and solvent drying of the fibers results in a product having capillary suction forces significantly higher than conventional absorbent fiber materials.

3,658,791

PHOSPHORUS-CONTAINING COMPOUNDS

Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Wing-Kai Lee, Hackensack, and Kelvin B. Domovs, Newark, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 490,658, Sept. 27, 1965. This application Oct. 17, 1967, Ser. No. 675,790

Claims priority, application Great Britain, Feb. 21, 1967, 8,146/67

Int. Cl. C07f 9/38, 9/56

U.S. Cl. 260—239 EP

This invention describes novel water-soluble nitrogen-containing phosphonates and the methods for their preparation. The phosphonates are prepared by reacting halogenated phosphonates with nitrogen compounds whereby some of the halogen atoms are replaced with nitrogen-containing groups. The halogenated phosphonates may also be modified by reaction with trialkyl phosphites before subsequent reaction with appropriate nitrogen-containing compounds.

3,658,792

DIACYL PENICILLINS AND METHODS FOR THEIR PRODUCTION

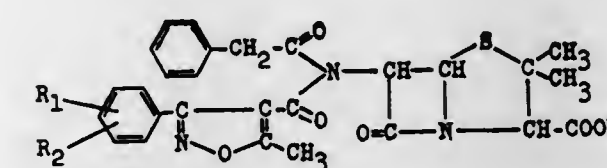
Jinnosuke Abe, Shizuoka, Tetsuo Watanabe, Kanagawa, and Teruo Take, Kentaro Fujimoto, Tadashi Fujii, Kazunari Takemura, and Kazuyoshi Nishie, Shizuoka, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Ohitocho, Shizuoka-ken, Japan

No Drawing. Filed Apr. 7, 1970, Ser. No. 26,397

Int. Cl. C07d 99/16

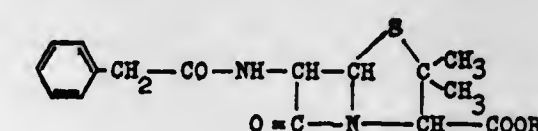
U.S. Cl. 260—239.1

Novel diacyl penicillins of the formula



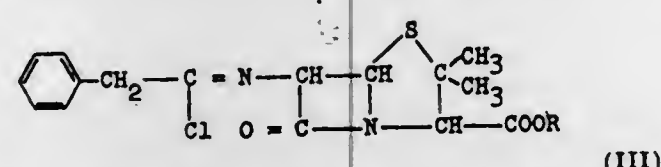
(I)

wherein R is a protective group for the carboxyl group, and R₁ and R₂ are individually hydrogen or halogen, are produced by reacting a benzyl penicillin ester of the formula

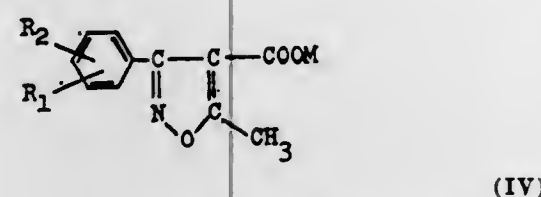


(II)

imide chloride group-incorporated compound of the formula



and then reacting the compound of the last-named formula with an isoxazol carboxylate of the formula



wherein M is a metal atom, and R₁ and R₂ are as defined above.

3,658,793

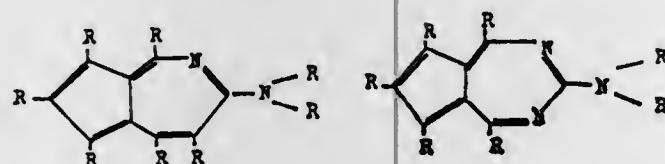
6-AMINO-5-AZA- AND -5,7-DIAZA-AZULENES AND PROCESS FOR THE PRODUCTION THEREOF
Klaus Hafner, Darmstadt, Germany, and Ulrich Muller-Westerhoff, Berkeley, Calif., assignors to Studiengesellschaft Kohle m.b.H., Mulheim an der Ruhr, Germany
No Drawing. Filed July 18, 1968, Ser. No. 745,704
Claims priority, application Germany, July 31, 1967, P 16 95 864.8

Int. Cl. C07d 41/08, 53/02

U.S. Cl. 260—239 BB

9 Claims

The present invention refers to anti-inflammatory 6-amino-5-azo and 6-amino-5,7-diaza-azulene of the general formula



and, in particular, to a simple process for the production thereof.

3,658,794

ALKYL MITOMYCINS

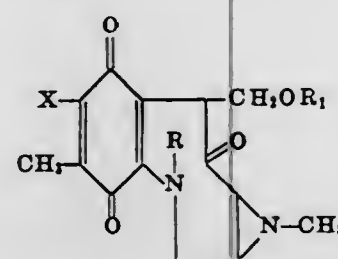
Keizo Uzu, Kinichi Nakano, and Toshinaka Takahashi, Tokyo-to, Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed July 8, 1969, Ser. No. 839,922
Claims priority, application Japan, July 12, 1968, 43/48,432, 43/49,640; July 16, 1968, 43/50,499; July 24, 1968, 43/51,867

Int. Cl. C07d 57/02

U.S. Cl. 260—239 EQ

20 Claims

Compounds of the formula



and processes for their preparation are provided wherein X is methoxy or NR₂R₃, R is lower alkyl, R₁ is hydrogen, CONH₂, COR₄ or SO₂R₅, R₂ and R₃ are each hydrogen, aliphatic or aromatic and R₄ and R₅ are each aliphatic or aromatic. These compounds are antibiotics.

WATER-SOLUBLE COATING COMPOSITIONS
Wolfgang Dalmer, Graz, Austria, assignor to Vianova Kunstharz Aktiengesellschaft, Vienna, Austria
No Drawing. Filed July 14, 1969, Ser. No. 841,619
Claims priority, application Austria, July 24, 1968, A 7,146/68

Int. Cl. C08g 37/16; B01k 5/00

U.S. Cl. 260—839

11 Claims

Coating compositions characterized in that they are water-soluble upon neutralization comprising (A) a reaction product of a diene polymer and an alpha, beta ethylenically unsaturated carboxylic acid and/or a dicarboxylic acid and/or an anhydride and/or a semi-ester and/or a semi-amide thereof containing carboxyl groups; and (B) a heat-reactive condensation product of formaldehyde with phenol carboxylic acids are described. The compositions, while being quick drying, are not overly sensitive to oxidation.

3,658,796

5-NITROFURAN DERIVATIVES

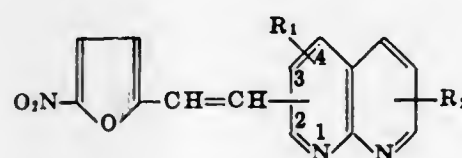
Herbert Berger, Mannheim-Kaferthal, Kurt Stach, Mannheim-Waldhof, Otto Dold, Ilvesheim Deidesheimer, Wolfgang Voemel, Mannheim, and Winfriede Sauer, Mannheim-Wallstadt, Germany, assignors to Boehringer-Mannheim GmbH, Mannheim, Germany
No Drawing. Filed Mar. 4, 1969, Ser. No. 804,299
Claims priority, application Germany, Apr. 10, 1968, P 17 70 169.8; Dec. 6, 1968, P 18 13 120.9

Int. Cl. C07d 31/42

U.S. Cl. 260—240 A

8 Claims

Novel nitrofur derivatives, their N-oxides and their physiologically acceptable salts having the formula:



wherein R₁ and R₂ each represent hydrogen, halogen, hydroxyl, azido, amino-lower alkyl, lower acyloxy, lower alkoxy, lower alkylamino, hydroxyalkylamino, lower acylamino, or sulfonylamino.

The nitrofur derivatives of the above formula constitute particularly effective antibacterial agents and are especially useful in the treatment of urinary tract infections.

3,658,797

NOVEL 5-NITROIMIDAZOLE ANTIPARASITIC AGENTS

William James Ross, Lightwater, Surrey, and William Boffey Jamieson, Woking, Surrey, England, assignors to Eli Lilly & Co., Indianapolis, Ind.
No Drawing. Filed Aug. 4, 1969, Ser. No. 847,406
Claims priority, application Great Britain, Aug. 6, 1968, 37,562/68; Sept. 9, 1968, 42,784/68; June 27, 1969, 32,703/69

Int. Cl. C07d 49/36

U.S. Cl. 260—240 D

8 Claims

1-vinyl-2-(β-arylvinyl) - 5-nitroimidazoles are active against parasites, especially trypanosomes. They can be prepared by basic condensation of an aromatic or heteroaromatic aldehyde with (1) a 1-vinyl-2-methyl-5-nitroimidazole, (2) a 1-(β-acyloxy- or sulfonyloxyalkyl)-2-methyl-5-nitroimidazole followed by heating in strong base or (3) a 1-(β-hydroxyalkyl)-2-methyl-5-nitroimidazole followed by esterification to form the corresponding acyloxy or sulfonyloxy ester and heating in strong base.

3,658,798

ANTIPARASITIC THIENYL THIAZOLES

Patrick Roffey, Camberley, Surrey, and John Pomfret Verge, Henley-on-Thames, England, assignors to Lilly Industries, Ltd., Wimbledon, London, England
No Drawing. Filed Aug. 20, 1969, Ser. No. 851,755
Claims priority, application Great Britain, Aug. 26, 1968, 40,746/68

Int. Cl. C07d 91/32

U.S. Cl. 260—240 A

9 Claims

2 - (5 - nitro - 2 - thienyl)-4-aminoalkylthiazoles and 2 - [2 - (5 - nitro - 2 - thienyl)vinyl]-4-aminoalkylthiazoles prepared from 5-nitro-2-thiocarbamylthiophene and 5 - nitro - 2 - (2-thiocarbamylvinyl)-thiophene respectively by reaction with an α-haloketone have antibacterial and antitrypanosome activity.

3,658,799

CEPHALOSPORIN COMPOUNDS

Stephen Eardley, Southport, James Kennedy, South Harrow, and Alan Gibson Long, Greenford, England, assignors to Glaxo Laboratories Limited, Greenford, England
No Drawing. Filed Aug. 13, 1968, Ser. No. 752,180
Claims priority, application Great Britain, Aug. 21, 1967, 38,494/67

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

10 Claims

7β-amino- and acylamidoceph-3-em-4-carboxylic acids having at the 3-position a halo-, formyloxy-, isothiocyanato- or haloacetoxymethyl group and salts and esters thereof. These compounds are useful as starting compounds for preparing 7β-acylamidoceph-3-em-4-carboxylic acids having a group at the 3-position, other than 3-acetoxymethyl, by reaction with a nucleophile. The compounds prepared have modified antibiotic activity.

3,658,800

HERBICIDAL DERIVATIVES OF O,O-DIALKYL-S-MORPHOLINOCARBONYLMETHYL - THIOPHOSPHATES AND DITHIOPHOSPHATES

Ernst Beriger, Neuchâtel, Switzerland, assignor to Ciba Limited, Basel, Switzerland
No Drawing. Filed Apr. 8, 1969, Ser. No. 815,522
Claims priority, application Switzerland, Apr. 16, 1968, 5,522/68

Int. Cl. C07d 87/46

U.S. Cl. 260—247.1

7 Claims

Phosphates and thiophosphates containing a special morpholino or isomorpholino residue and having insecticidal, acaricidal and herbicidal properties are disclosed.

3,658,801

TRISUBSTITUTED ISOCYANURATES

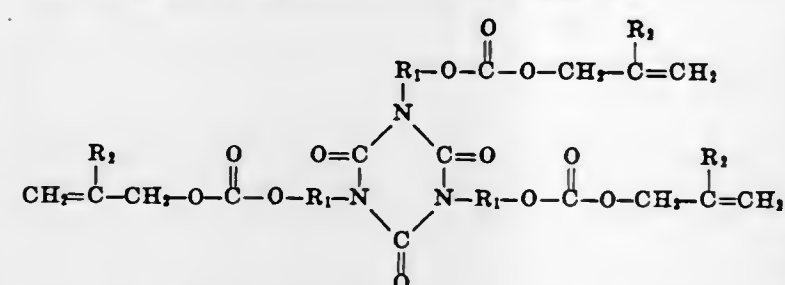
David A. Berry, Columbus, and Gilbert M. Gynn, Hilliard, Ohio, assignors to Dart Industries, Inc., Los Angeles, Calif.
No Drawing. Filed June 10, 1969, Ser. No. 832,015

Int. Cl. C07d 55/38

U.S. Cl. 260—248 NS

2 Claims

A scratch resistant thermosetting resin having excellent surface hardness is derived from a trisubstituted isocyanurate composition represented by the formula:



wherein R₁ is a lower alkyl and R₂ is H or an alkyl, aryl, aralkyl or alkaryl hydrocarbon radical.

3,658,802

CEPHALOSPORINE DERIVATIVES AND PROCESS

Rene Heymes, Romainville, Gaston Amiard, Thoiry, and Gerard Nomine, Noisy-le-Sec, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 697,589, Jan. 15, 1968. This application June 26, 1969, Ser. No. 836,988

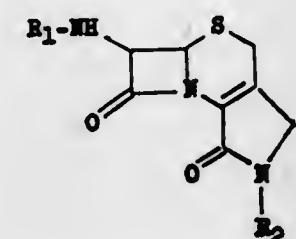
Claims priority, application France, Jan. 18, 1967, 91,612

Int. Cl. C07d 99/24

U.S. Cl. 260—243 C

10 Claims

This invention relates to a cephalosporine derivative of the formula



wherein R₁ represents the acyl of an organic acid and R₂ represents a member selected from the group consisting of hydrogen, alkyl, substituted alkyl, aryl and substituted aryl. These compounds have particularly marked antibiotic properties, particularly, a remarkable activity against staphylococci.

3,658,803

1,3-BENZOXAZINE DERIVATIVES

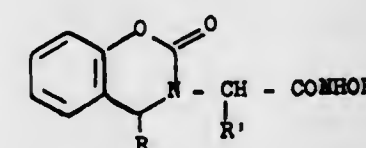
Luigi Bernardi, Severina Coda, Giselbert Karl Suchowsky, and Lorenzo Pegrassi, Milan, Italy, assignors to Società Farmaceutici Italia, Milan, Italy
No Drawing. Filed Apr. 30, 1968, Ser. No. 725,512
Claims priority, application Italy, Aug. 1, 1967, 19,067/67

Int. Cl. C07d 87/16

U.S. Cl. 260—244 R

4 Claims

Described are 1,3-benzoxazine-hydroxamic acids of the formula:



wherein R and R' are selected from the group consisting of hydrogen, a methyl and ethyl radical. The following are within the above formula: 3,4-dihydro-2-oxo-2H-1,3-benzoxazine-3-acetohydroxamic acid; 3,4-dihydro-4-methyl-2-oxo-2H-1,3-benzoxazine-3-acetohydroxamic acid; 3,4-dihydro-α-methyl-2-oxo - 2H - 1,3-benzoxazine-3-acetohydroxamic acid.

Also described is a process for preparing the compound which displays antidepressant properties.

3,658,804

PRODUCTION OF UREIDOMETHYLPHOSPHONIUM SALTS

Harro Petersen, Frankenthal, and Wolfgang Reuther, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Apr. 16, 1969, Ser. No. 816,802
Claims priority, application Germany, Apr. 24, 1968, P 17 68 276.7

Int. Cl. C07d 87/52

U.S. Cl. 260—244 R

6 Claims

Production of ureidomethylphosphonium salts by reaction of methylolureas or alkoxymethylureas with tertiary phosphines in the presence of an acid, and the new ureidomethylphosphonium salts themselves which are

flameproofing agents for textiles and starting materials for the production of textile finishing agents and pesticides.

3,658,805

CYCLIC NITRILE OXALATE COMPOUNDS

Emmett H. Burk, Jr., Glenwood, Ill., and Donald D. Carlos, Crown Point, Ind., assignors to Atlantic Richfield Company
No Drawing. Filed Nov. 7, 1966, Ser. No. 592,339
Int. Cl. C07d 87/00, 87/02

U.S. Cl. 260—246 R 18 Claims
Cyclic nitrile oxalate compounds having the structure



wherein A is an aliphatic (including cyclo-aliphatic) or an aromatic hydrocarbon radical, and n is an integer of 0 to 3, preferably 1 to 2, are disclosed. The compounds are useful as, inter alia, isocyanate generators and have the advantage that, unlike conventional isocyanates, they can be easily handled and stored.

3,658,806

CIS-DIEQUATORIAL - 6 - (3,4 - DIHYDROXY OR METHYLENE DIOXY-PHENYL)-MORPHOLINE-2-PROPIONAMIDES AND ALPHA DERIVATIVES THEREOF

Rolf Denss, Karoly Kocsis, and Alex Meisels, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of abandoned application Ser. No. 622,903, Mar. 14, 1967. This application Jan. 30, 1969, Ser. No. 795,349
Claims priority, application Switzerland, Mar. 16, 1966, 3,816/66

Int. Cl. C07d 87/42

U.S. Cl. 260—246 B 19 Claims

6-phenyl-2-morpholinepropionamide derivatives substituted in the phenyl radical by two hydroxyl groups or by a methylenedioxy group, and optionally substituted in the α-position of the propionamide moiety, are useful in the treatment of hypertension.

3,658,807

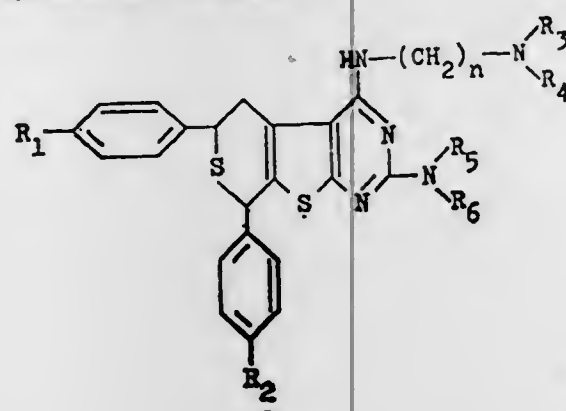
CERTAIN AMINO-SUBSTITUTED 5,6 - DIHYDRO - 8H - THIOPYRANO[4',3':4,5]THIENO-[2,3-d]PYRIMIDINES

Paul Schmidt and Kurt Eichenberger, Therwil, and Ernst Schweizer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed Dec. 9, 1970, Ser. No. 96,588
Claims priority, application Switzerland, Dec. 19, 1969, 18,992/69; Nov. 26, 1970, 17,539/70

Int. Cl. C07d 99/06

U.S. Cl. 260—247.1 16 Claims
Compounds of the formula



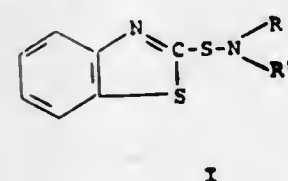
in which R₁ and R₂ denote halogen atoms or trifluoromethyl groups, n represents 3 or 2, R₃ represents hydrogen, ethyl or methyl, R₄ represents ethyl or methyl, and R₅ and R₆ represent hydrogen atoms or lower alkyl residues or together with the nitrogen atom form an optionally C-methylated pyrrolidino, piperidino, hexamethyleneimino, morpholino, thiomorpholino, N'-lower alkylpiperazino or N'-(β-hydroxyethyl)-piperazino residue, are useful as agents against malaria and as anthelmintic agents.

3,658,808

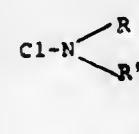
METHOD OF MAKING 2-BENZOTHAZOLE SULFENAMIDES

Robert Chalk Kinstler, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.
No Drawing. Filed Jan. 2, 1968, Ser. No. 694,834
Int. Cl. C07d 91/44

U.S. Cl. 260—247.1 9 Claims
A process for making high purity sulfenamides represented by Formula I:



wherein R can be hydrogen or lower alkyl, R' can be lower alkyl or cycloalkyl and together R and R' can form the remainder of an N-heterocycle moiety such as piperidino, morpholino and the like. The Formula I compound is obtained by reacting, in the presence of a hydrogen chloride acceptor, either 2-mercaptobenzothiazole or 2,2'-dithiobisbenzothiazole with an N-chloro-amino organic compound represented by Formula II:



wherein R and R' are as defined above. An excess of benzothiazole reactant is maintained in the reaction mixture until reaction is complete.

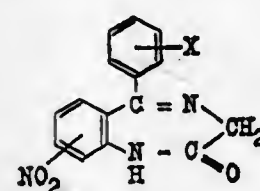
3,658,809

PROCESS FOR MANUFACTURING NITROBENZODIAZEPINE DERIVATIVES

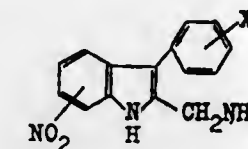
Hisao Yamamoto, Nishinomiya-shi, Shigeo Inaba, Takarazuka-shi, Tadashi Okamoto, Ashiya-shi, Toshiyuki Hirohashi, Kobe, Kikuo Ishizumi, Minoo-shi, Michihiro Yamamoto, Takarazuka-shi, Isamu Maruyama, Minoo-shi, Kazuo Mori, Kobe, and Tsuyoshi Kobayashi, Minoo-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan
No Drawing. Filed Oct. 25, 1968, Ser. No. 770,815
Claims priority, application Japan, Nov. 2, 1967, 42/70,795; 42/70,796; Dec. 1, 1967, 42/77,237; Dec. 9, 1967, 42/79,166; Dec. 14, 1967, 42/80,322; Dec. 15, 1967, 42/80,512; 42/80,513; Dec. 21, 1967, 42/82,273; Dec. 28, 1967, 43/84,961; Jan. 10, 1968, 43/1,501

Int. Cl. C07d 53/06

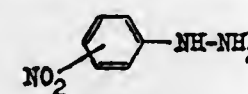
U.S. Cl. 260—239.3 42 Claims
Benzodiazepine derivatives, which have been well known as excellent tranquillizers and which have the formula,



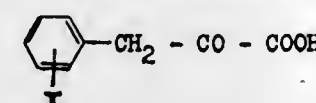
wherein X signifies a hydrogen or halogen atom, are obtained by reacting with an oxidizing agent, such as chromic acid or the like, a novel 2-aminomethylindole derivative of the formula,



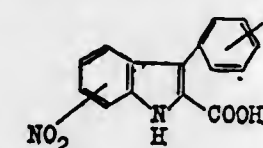
wherein X has the same significance as mentioned above. The starting 2-aminomethylindole derivatives are prepared by reacting a nitrophenylhydrazine of the formula,



with a phenylpyruvic acid derivative of the formula,



wherein X has the same significance as mentioned above, to give an indole-2-carboxylic acid derivative of the formula,



wherein X has the same significance as mentioned above, converting the indole-2-carboxylic acid derivative to a corresponding amide derivative, dehydrating the amide to a corresponding nitrile derivative, and then reducing the formed nitrile derivatives.

3,658,810

PROCESS FOR THE PREPARATION OF ε-CAPROLACTAM

Ikuzo Tanaka, Hideo Uehara, and Makoto Tanaka, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan
No Drawing. Filed Aug. 29, 1969, Ser. No. 854,263
Claims priority, application Japan, Sept. 4, 1968, 43/63,611; Sept. 30, 1968, 43/71,048

Int. Cl. C07d 41/06

U.S. Cl. 260—239.3 4 Claims
A process for the preparation of ε-caprolactam by contacting continuously with steam ε-aminocaproic acid, ε-caproamide or a mixture of the two at a temperature of 150–400° C., while discharging the steam from the reaction system. In this process a substance non-volatile and acidic under reaction conditions can be preferably used as catalyst. By this process, ε-caprolactam can be produced with high yield without formation of ammonium sulfate.

3,658,811

PROCESS FOR THE OPTICAL RESOLUTION OF MIXTURES OF L- AND D-α-AMINO-ε-CAPROLACTAM

Ikuzo Tanaka, Yasuhisa Ohno, and Tadashi Okada, Tokyo, Japan, assignors to Teijin Limited, Osaka, Japan
No Drawing. Filed Dec. 3, 1969, Ser. No. 881,881
Claims priority, application Japan, Dec. 5, 1968, 43/89,405; 43/89,406; Dec. 13, 1968, 43/91,462; Apr. 2, 1969, 44/24,787; July 22, 1969, 44/58,266; Aug. 7, 1969, 44/62,528

Int. Cl. C07d 41/06

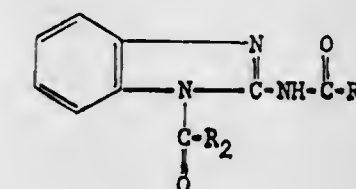
U.S. Cl. 260—239.3 8 Claims
Process for the optical resolution of a mixture of L- and D-α-amino-ε-caprolactams by treating the mixture with an optically active N-benzoyl- or N-paranitrobenzoyl-glutamic acid in an aqueous medium or alcoholic medium. In this way, L- or D-α-amino-ε-caprolactam in a pure form can be obtained at high yields.

3,658,812

CERTAIN 2-BENZIMIDAZOLE ALKYL CARBAMATES

Don R. Baker, Orinda, Julius J. Menn, Saratoga, and Ashley H. Frelberg, Santa Clara, Calif., assignors to Stauffer Chemical Company, New York, N.Y.
No Drawing. Filed Apr. 22, 1970, Ser. No. 30,984
Int. Cl. C07d 49/38

U.S. Cl. 260—240 J 4 Claims
Compounds corresponding to the formula



wherein R₁ is selected from alkoxy and alkoxyalkyl; R₂ is selected from alkyl, aryl, alkenyl, thioalkyl, alkylaryl, haloalkyl, cycloalkyl, haloalkenyl, alkoxyalkyl, alkenylaryl, furanyl and carboalkoxy. The compositions described herein are useful as fungicides and biocides.

3,658,813

1-[β-ARYL-β-(R-OXY)-ETHYL]-IMIDAZOLES

Erik Fred Godefroi and Josephus Leo L. C. M. Schuermans, Turnhout, Belgium, assignors to Janssen Pharmaceutica, N.V.
No Drawing. Filed Jan. 13, 1970, Ser. No. 2,656
Int. Cl. C07d 49/36

U.S. Cl. 260—240 K 27 Claims

The compounds are of the class of 1-[β-aryl-β-(R-oxy)-ethyl]-imidazoles, wherein R is alkyl, alkenyl, phenyl, alkenyl, halophenyl alkenyl or alkynyl, useful for their anti-fungal and anti-bacterial activity.

3,658,814

2-(ω-CHLOROALKYL)-6-ARYL SUBSTITUTED-4,5-DIHYDROPYRIDAZIN(2H)-3-ONE

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Continuation-in-part of application Ser. No. 678,528, Oct. 27, 1967, now Patent No. 3,517,004, which is a continuation-in-part of application Ser. No. 566,719, July 21, 1966. This application Mar. 17, 1970, Ser. No. 20,435

Int. Cl. C07d 51/04

U.S. Cl. 260—250 A 1 Claim
2-(ω-chloroalkyl)-6-aryl or heterocyclic substituted-4,5-dihydropyridazin(2H)-3-ones, e.g., 2-(4-chlorobutyl)-6-(2-thienyl)-4,5-dihydropyridazin(2H)-3-ones, are prepared by chlorinating the condensation product formed by condensing ω-hydrazinoalkanol with aryl or heterocyclic-γ-ketobutyric acids and are useful as intermediates in preparing anti-depressants and analgesics.

3,658,815

10-(AMINOALKYL) DIBENZO[a,d]CYCLOHEPTADIENES AND THE SALTS THEREOF

Jean Clement Louis Fouche, Bourg-la-Reine, France, assignor to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed June 14, 1965, Ser. No. 463,936
Claims priority, application France, June 18, 1964, 978,823; Apr. 16, 1965, 13,635
Int. Cl. C07c 87/28; C07d 57/36

U.S. Cl. 260—253 2 Claims

10-aminoalkyl-dibenzo [a,d] cycloheptadienes derivatives and their salts thereof which have pharmacodynamic properties such as antidepressant, neuroleptic and tranquillising properties.

3,658,816
PRODUCTION OF DIPYRIDYLUM QUATERNARY DIHALIDE DIHALOGEN COMPLEXES
 Robert M. Thomas, Fred R. Geras, and John L. Sands, West Lafayette, Ind., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.
 No Drawing. Continuation-in-part of application Ser. No. 770,082, Oct. 23, 1968. This application Aug. 17, 1970, Ser. No. 64,603

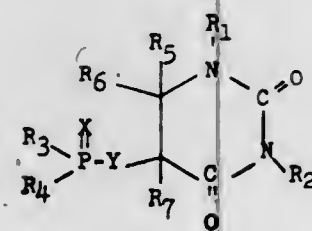
Int. Cl. C07d 51/02
 U.S. Cl. 260—250 R 16 Claims
 Production of dipyridylum quaternary dihalide halogen dicomplexes (which may also be called dihalide dihalogen complexes) using elemental halogen and alkali metal halide in water as solvent. The products are bacteriocidal and herbicidal agents and useful as defoliant and desiccants, particularly as cotton defoliant-desiccants.

3,658,817
4,4'-BIS(2-PHENYL-5-PYRIMIDINOL)
 Charles M. Orlando, Schenectady, N.Y., assignor to General Electric Company
 No Drawing. Filed Jan. 7, 1970, Ser. No. 1,317
 Int. Cl. C07d 51/38

U.S. Cl. 260—256.4 C 1 Claim
 Oxidation of 2-phenyl-5-pyrimidinol, also called 2-phenyl-5-hydroxypyrimidine, with lead dioxide or silver oxide in a benzene solution causes oxidative coupling through the 4-position to produce a dimer as a crystalline solid which under ultraviolet irradiation fluoresces with a very bright yellow color either as a solid or in solution. This compound because of its solubility in ordinary solvents can be incorporated in lacquers or polymeric compositions to impart its fluorescent properties to the composition.

3,658,818
URACIL PHOSPHATES
 Martin L. Gorbaty, Elizabeth, N.J., assignor to Esso Research and Engineering Company
 No Drawing. Filed May 8, 1970, Ser. No. 35,888
 Int. Cl. C07d 51/30

U.S. Cl. 260—260 15 Claims
 Ring phosphorylated dihydrouracil compounds characterized by the following structural formula:

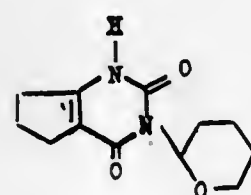


wherein R₁ is one selected from the group consisting of hydrogen, C₁-C₆ alkyl, C₂-C₆ acyl, phenyl optionally substituted by chlorine, bromine or C₁-C₆ alkyl, C₁-C₆ monoalkyl and C₂-C₆ dialkylamino, C₃-C₆ alkenyl, chloro and bromo substituted C₁-C₆ alkyl, C₁-C₄ alkylsulfonfyl, C₁-C₄ alkylsulfonfyl and C₁-C₆ alkoxyalkyl; R₂, R₅, R₆ and R₇ may be the same or different and can be one selected from the group consisting of hydrogen, C₁-C₆ alkyl, optionally substituted by chlorine and/or bromine, C₂-C₆ acyl, C₁-C₆ mono and C₂-C₆ dialkylamino, phenyl optionally substituted by chlorine, bromine, or C₁-C₆ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkoxyalkyl, C₃-C₆ alkenyl, C₂-C₄ thioalkoxyalkyl; R₃ and R₄ can be the same or different and are C₁-C₆ alkyl, C₁-C₆ alkoxy, phenyloxy, C₁-C₆ thioalkyl, C₃-C₆ alkoxyalkyl, C₁-C₆ bromo or chloroalkyl, and phenyl; X and Y can be oxygen or sulfur.

These compounds have been shown to possess insecticidal activity.

3,658,819
3-(2'-TETRAHYDROPYRANYL) - 1,2,3,4,6,7-HEXA-HYDRO - 5H - CYCLOPENTAPYRIMIDINE-2,4-DIONE
 Daniel Bertin, Montrouge, and Jacques Perronnet and Andre Teche, Paris, France, assignors to Roussel-UCLAF, Paris, France
 No Drawing. Filed Jan. 16, 1970, Ser. No. 3,499
 Claims priority, application France, Jan. 29, 1969, 6901011

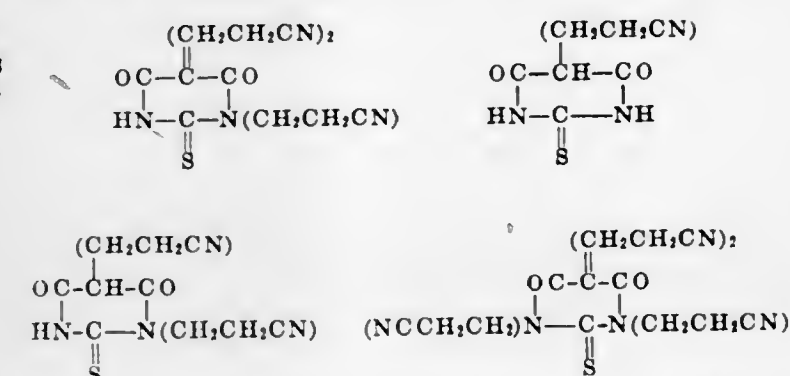
Int. Cl. C07d 51/18, 7/14 1 Claim
 U.S. Cl. 260—260
 A substituted pyrimidine, of Formula I:



compositions containing the same, process and method.
 The compound I possesses pesticidal, particularly herbicidal properties.

3,658,820
β-CYANOETHYLATED THIOBARBITURIC ACID
 Frank Passal, Detroit, Mich., assignor to M & T Chemicals, Inc., New York, N.Y.
 No Drawing. Application Apr. 17, 1967, Ser. No. 645,080, which is a division of application Ser. No. 364,278, May 1, 1964, now Patent No. 3,341,433. Divided and this application Dec. 19, 1969, Ser. No. 888,096
 Int. Cl. C07d 51/24

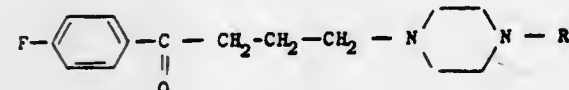
U.S. Cl. 260—260 1 Claim
 This invention relates to a β-cyanoethylated thiobarbituric acid selected from the group consisting of those of the formulae:



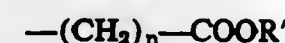
These compounds are used as primary brighteners in nickel plating.

3,658,821
1-(p-FLUOROBUTYROPHENONYL) PIPERAZINES
 Claude P. Fauran, Michel J. Turin, and Guy M. Raynaud, Paris, and Claude C. Gouret, Val Meudon, France, assignors to Delalande S.A., Courbevoile, Hauts-de-Seine, France
 No Drawing. Filed Feb. 19, 1969, Ser. No. 800,720
 Claims priority, application France, Feb. 20, 1968, 140,546; Feb. 21, 1968, 140,687
 Int. Cl. C07d 51/70

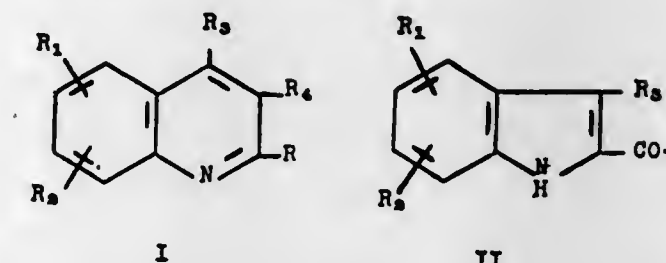
U.S. Cl. 260—268 C 2 Claims
 1-(p-fluorobutyrophenonyl) piperazines of the formula



in which R is (1) a saturated alkyl radical containing 1 to 4 carbon atoms, or (2) an aralkyl radical containing not more than 10 carbon atoms, or (3) a



radical wherein n=0, 1 or 2, and R' is an aliphatic group containing 1 to 4 carbon atoms, or a cycloaliphatic radical or an araliphatic radical. The compound is made by reacting piperazine with a halogenobutyrophenone under reflux in the presence of an organic solvent and an alkali.

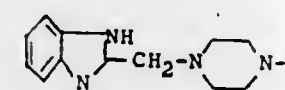


where illustratively, R is alkyl or aryl; and R₁, R₂, R₃ and R₄ are hydrogen, alkyl or aryl.

3,658,822
DERIVATIVES OF (BENZIMIDAZOLYL-2-METHYL) PIPERAZINE AND THEIR PROCESS OF PREPARATION

Claude P. Fauran, 5 rue Leboutaux, Paris 17eme, France; Guy M. Raynaud, 39 rue Saint-Georges, Paris 9eme, France; Jeannine A. Eberle, 106 Crue Leon Barbier, Chatou, France; and Janine M. Thomas, 132 rue Perronet, Neuilly-sur-Seine, France
 No Drawing. Filed June 25, 1969, Ser. No. 836,584
 Claims priority, application Great Britain, July 6, 1968, 32,384/68
 Int. Cl. C07d 51/70

U.S. Cl. 260—268 BC 1 Claim
 Compounds of the formula



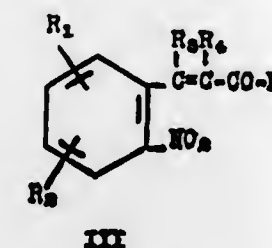
in which R is an aliphatic radical having 1 to 10 carbon atoms, which may be substituted by one or more of hydroxyl, alkoxycarbonyl, aryl, carboxyl and carbamoyl in which the nitrogen may be substituted or form part of a heterocyclic ring.

The compounds are prepared by reacting 2-chloromethyl benzimidazole with a monosubstituted piperazine in an acetonic medium in the presence of an alkali or alkaline earth metal carbonate. The compounds exhibit cardiotropic activity, analgesic activity, sedative activity and spasmolytic activity.

3,658,823
PROCESS FOR QUINOLINES AND INDOLES (RING CLOSURE OF NITRO COMPOUNDS)

Arthur Gaudens Mohan, West Orange, and Richard Keth Madison, Murray Hill, N.J., assignors to American Cyanamid Company, Stamford, Conn.
 No Drawing. Filed July 30, 1969, Ser. No. 846,245
 Int. Cl. C07d 33/18

U.S. Cl. 260—283 SY 9 Claims
 Process for preparing 2-substituted quinolines (I) and 2-acylindoles (II) by reacting carbon monoxide at elevated temperature and superatmospheric pressure in the presence of a co-catalyst composition, of which 5% palladium on carbon with a Lewis acid such as ferric chloride is representative, with an o-nitrostyryl ketone (III):



3,658,824
PROCESS FOR THE PREPARATION OF PIPERIDINE

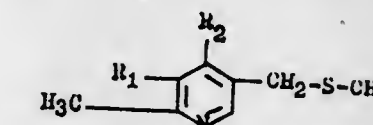
Jozef A. Thoma, Sittard, and Johannes J. M. Deumens, Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands
 No Drawing. Filed Mar. 30, 1970, Ser. No. 23,981
 Int. Cl. C07d 29/06

U.S. Cl. 260—293.52 5 Claims
 A process for the preparation of piperidine is described in which 4-cyanobutyraldehyde is hydrogenated in the presence of a suitable catalyst and ammonia.

3,658,825
THIOMETHYL DERIVATIVE OF PYRIDOXAL AND CERTAIN PYRIDOXAMINES

Gustav Schorre, Herbert Nowak, and Otto Saiko, Darmstadt, Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Germany
 No Drawing. Filed Dec. 4, 1969, Ser. No. 882,348
 Claims priority, application Germany, Dec. 5, 1968, P 18 12 794.1
 Int. Cl. C07d 31/50

U.S. Cl. 260—294.8 G 7 Claims
 5-methylthiomethyl-pyridines having electroencephalogram-modifying and anti-lipidic activity of the formula



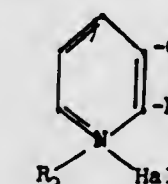
wherein R₁ is OH and R₂ is —CHO or —CH₂NR₃R₄ in which R₃ and R₄ are H or lower-alkyl or, collectively a methylene chain containing 4 or 5 carbon atoms, or R₁ and R₂ collectively are a group of the formula



in which R₅ and R₆ have the same values as R₃ and R₄ or, when R₅ is H, R₆ can be also an unsubstituted or substituted phenyl group.

3,658,826
SUBSTITUTED QUATERNARY PYRIDINIUM SALTS AND METHOD OF MANUFACTURING THEM
 John Valdemar Brammer Petersen, Farum, Denmark, assignor to Niels Clauson-Kaas, Farum, Denmark
 No Drawing. Filed May 22, 1969, Ser. No. 827,028
 Int. Cl. C07d 31/44

U.S. Cl. 260—294.9 12 Claims
 The present invention relates to a new group of substituted quaternary pyridinium salts with the general formula



in which R_2 is a lower alkyl group, especially methyl and ethyl, an aryl group, especially phenyl, or an aralkyl group, especially benzyl, in which R_1 is $-\text{CN}$ or $-\text{CONH}_2$, and in which Hal is a halogen, especially chlorine.

3,658,827 SOLUBLE BENZIMIDAZOLE DERIVATIVES USABLE AS FUNGICIDES

Louis Alain Michel Marc Bezon, Dijon, France, assignor to Compagnie Chimique Merck Sharp & Dohme, S.A.
No Drawing. Continuation of application Ser. No. 649,029, June 26, 1967. This application June 15, 1970, Ser. No. 48,894

Int. Cl. C07d 99/10

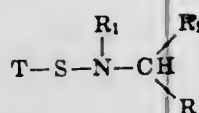
U.S. Cl. 260—302 H 2 Claims
Lactates of 2-R-benzimidazoles, in which R is an aromatic radical, a penta-atomic heterocyclic radical containing 1-3 heterocyclic atoms or a hexa-atomic heterocyclic radical or a condensed cyclic radical, are salts which are soluble in water in any proportion and which show a fungicidal activity.

3,658,828 UNSYMMETRICAL DIALKYL THIAZOLE SULFENAMIDES

John Joseph D'Amico, Akron, Ohio, assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Nov. 19, 1969, Ser. No. 878,243

Int. Cl. C07d 91/44

U.S. Cl. 260—306.6 A 5 Claims
Unsymmetrical dialkyl thiazole sulfenamides of the formula



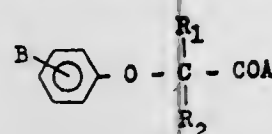
wherein T is benzothiazolyl or substituted benzothiazolyl, where the substituents are chloro, bromo, fluoro, iodo, nitro or lower alkoxy, R_1 is tertiary-alkyl of 4-12 carbon atoms, R_2 and R_3 are alkyl of 1-8 carbon atoms or together with the carbon atom to which they are attached form cycloalkyl of 5-8 carbon atoms are delayed-action accelerators.

3,658,829
PHENOXY CARBOXYLIC ACID DERIVATIVES
Yasushi Nakamura, Ibaragi-shi, Kunio Agatsuma and Yoshihiro Tanaka, Takarazuka-shi, and Shunji Aono, Toyonaka-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed July 27, 1970, Ser. No. 58,743
Claims priority, application Japan, Aug. 1, 1969, 44/61,164; Aug. 8, 1969, 44/61,871; Sept. 24, 1969, 44/76,516, 44/76,517

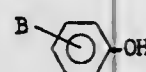
Int. Cl. C07d 85/48, 91/44

U.S. Cl. 260—304 7 Claims
Novel anti-atherosclerosis agents of the formula,



wherein R_1 and R_2 each is hydrogen or lower alkyl, A is hydroxyl or alkoxy; and B is cycloalkenyl, 2-benzothiazolyl or 2-benzoxazolyl.

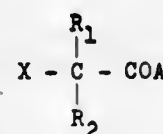
These compounds are prepared by reacting a phenol derivative of the formula,



with chloroform and a carbonyl compound of the formula,



in the presence of an alkali. Alternatively, they are produced by reacting the phenol derivative with a carboxylic acid derivative of the formula,



wherein A, B, R_1 and R_2 are the same as defined above and X is halogen or hydroxyl, and if necessary, esterifying or hydrolyzing the resulting condensation product.

3,658,830 5-(SUBSTITUTED MERCAPTO, SULFINYL, SULFONYL OR SULFAMOYL)

Kurt H. Pilgram and Richard D. Skiles, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.
No Drawing. Filed Jan. 16, 1970, Ser. No. 3,510

Int. Cl. C07d 91/32

U.S. Cl. 260—306.8 R 6 Claims
Certain novel thiazole derivatives substituted in the 2-position on the ring with urea moieties and in the 5-position on the ring with mercapto, sulfinyl, sulfonyl or sulfamoyl moieties are described as well as their preparation and use as herbicides.

3,658,831 PROCESS FOR THE PREPARATION OF N-CARBOXYLIC ACID ANHYDRIDES OF GLUTAMIC ACID- γ -ESTERS

Yasuo Fujimoto, Keizo Tatsukawa, and Masayuki Teranishi, Machida-shi, and Yoichi Koiwa, Tokyo, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

No Drawing. Filed Jan. 7, 1969, Ser. No. 789,972
Claims priority, application Japan, Jan. 12, 1968, 43/1,279

Int. Cl. C07d 85/34

U.S. Cl. 260—307 B 10 Claims
A process for the preparation of N-carboxylic acid anhydrides of glutamic acid- γ -esters which comprises suspending a glutamic acid- γ -ester in a solvent mixture of an aromatic hydrocarbon, for example, benzene, toluene or xylene, and an organic nitrile, for example, acetonitrile, propionitrile or acrylonitrile, and reacting the same with phosgene. Preferably, about 40% or less by volume of the nitrile is employed. The process provides products substantially free of halogen impurities, which products can be polymerized to polyglutamic acid- γ -esters.

3,658,832 NOVEL ANTIMICROBIAL NITROIMIDAZOLYL- 1,2,4-OXADIAZOLES

Goro Asato, Titusville, and Gerald Berkelhammer, Princeton, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Dec. 8, 1969, Ser. No. 883,236
Int. Cl. C07d 85/52

U.S. Cl. 260—307 F 7 Claims
The disclosure describes novel 5-substituted-3-(1-substituted-5-nitro-2-imidazolyl) - 1,2,4 - oxadiazoles and 5-substituted - 3 - (1 - substituted-5-nitro-2-imidazolyl) - Δ^2 -1,2,4-oxadiazolines, their method of preparation and use in treating bacterial and protozoal infections in warm-blooded animals.

3,658,833
BENZOFURANS
Guglielmo Kabas, Binningen, Basel-Land, and Hans Schlappfer, Basel, Switzerland, assignors to Ciba-Gelby AG, Basel, Switzerland

No Drawing. Filed June 15, 1970, Ser. No. 46,450
Claims priority, application Switzerland, June 27, 1969, 9,862/69

Int. Cl. C07d 99/04; C09k 1/02

U.S. Cl. 260—308 B 5 Claims
1 - (benzofur - 2 - yl) - 4 - (4',5' - disubstituted-v-triazole-2'-yl)-phenylenes are prepared by diazotising p-(benzofur-2-yl)-anilines and (a) coupling the obtained diazonium compound with a ketone, reacting the obtained hydroxylamine to an oximehydrazone, closing the v-triazole ring by oxidising and reducing the obtained v-triazole-1-oxide or (b) coupling with an aniline or naphthylamine and heating the obtained azo compound in the presence of an oxidising agent. The new benzofurans are useful as brighteners or organic high-molecular materials.

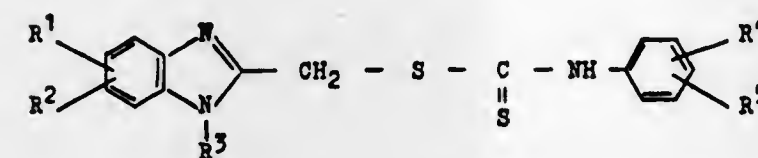
3,658,834 PHENYLDITHIOCARBAMIC ACID BENZIMIDAZOLYL-(2)-METHYL ESTERS

Manfred Schorr, Frankfurt am Main, Walter Durckheimer, Hattersheim, Main, and Dieter Duwel, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany

No Drawing. Filed Nov. 21, 1969, Ser. No. 878,933
Claims priority, application Germany, Dec. 2, 1968, P 18 12 142.1

Int. Cl. C07d 49/38

U.S. Cl. 260—309.2 8 Claims
Dithiocarbamic acid esters of the formula



in which R^1 is hydrogen, chlorine, bromine, trifluoromethyl, nitro or cyano, R^2 is hydrogen, chlorine, bromine, trifluoromethyl or nitro, R^3 is hydrogen or alkyl having 1 to 6 carbon atoms, and R^4 and R^5 each is hydrogen, chlorine, bromine, iodine, trifluoromethyl or alkyl having 1 to 6 carbon atoms, which compounds are active against helminthic diseases, and a process for preparing them.

3,658,835
1-PHENYL-5-ARYLOXYTETRAZOLES
John W. Gates and Walter J. Musliner, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
No Drawing. Original application Aug. 22, 1966, Ser. No. 573,831, now Patent No. 3,489,763, dated Jan. 13, 1970. Divided and this application May 2, 1969, Ser. No. 821,463

Int. Cl. C07d 55/06, 85/48

U.S. Cl. 260—308 D 5 Claims
New heterocyclic ether compounds are prepared by reacting a 5-halogen substituted tetrazole compound or a 2-halogen substituted benzoxazole compound with an aromatic hydroxy compound, such as phenol and naphthol compounds to convert a hydroxy group to a heterocyclic ether group. The heterocyclic ether group of the heterocyclic ether compounds can be replaced by a hydrogen atom by the hydrogenolysis of the heterocyclic ether compound over a catalyst of palladium on carbon or a platinum oxide catalyst.

3,658,836
HYDROXYBOROXIN-AMINE SALTS
Billy Dale Vineyard, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.
No Drawing. Filed Apr. 16, 1964, Ser. No. 360,411
Int. Cl. C07d 49/34

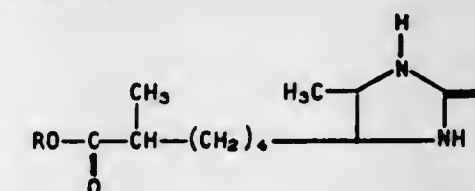
U.S. Cl. 260—309.7 6 Claims
This invention relates to hydroxyboroxin-amine salts which are prepared by reacting boric acid with an amine as described hereinafter. The compounds are useful inter alia as fungicides and additives for lubricating oils.

3,658,837
ANTIBIOTIC α -METHYLDETHIOBIOTIN,
 α -METHYLBIOITIN, AND THEIR ESTERS
Ladislav J. Hanka and David G. Martin, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 736,278, June 12, 1968. This application May 19, 1969, Ser. No. 826,008

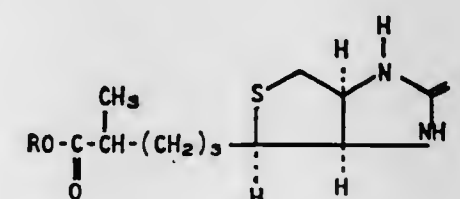
Int. Cl. C07d 49/30

U.S. Cl. 260—309.7 10 Claims
Antibiotics α -methyldethiobiotin, α -methylbiotin, and their esters. α -Methyldethiobiotin and its esters have the following formula:



wherein R is hydrogen or t-butyl, phthalimidomethyl and phenacyl.

α -Methylbiotin and its esters have the following formula:



wherein R is as defined above.

α -Methyldethiobiotin, where R is hydrogen in Formula I, and α -methylbiotin, where R is hydrogen in Formula II, are produced in a lydimycin fermentation. These compounds are active against *Mycobacterium avium* and can be used to control this microorganism which is a known producer of generalized tuberculosis in birds and rabbits.

3,658,838 PROCESS FOR THE PREPARATION OF 1,5-DI-SUBSTITUTED-4-CYANO-PYRAZOLES

Hartmut Kiehne and Siegfried Petersen, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 10, 1969, Ser. No. 875,490
Claims priority, application Germany, Nov. 16, 1968, P 18 09 386.2

Int. Cl. C07d 49/18

U.S. Cl. 260—310 R 16 Claims
Reacting a derivative of a β -keto-nitrile with a substituted hydrazine or the corresponding acid salt thereof; i.e. an enol ether or enamine of β -ketonitrile such as (alkoxy-, alkylamino- and phenylamino-methylene)-(optionally halo, trifluoromethyl, alkyl and/or alkoxy substituted-benzoyl, and furyl)-acetonitrile; with (optional-

ly hydroxy and cyano substituted-alkyl; cycloalkyl; optionally chloro, nitro, alkyl and/or dialkylsulfonamido substituted-phenyl; and phenyl-alkyl)-substituted hydrazine, or the corresponding salt thereof;

In the presence of a carboxylic acid at an elevated temperature, e.g. 40–150° C., optionally in the presence of an inert solvent;

To form the corresponding 1,5-disubstituted-4-cyano-pyrazole; i.e. 1-(optionally hydroxy and cyano substituted-alkyl; cycloalkyl; optionally chloro, nitro, alkyl and/or dialkylsulfonamido substituted-phenyl; and phenyl-alkyl)-4-cyano - 5 - (optionally halo, trifluoromethyl, alkyl and/or alkoxy substituted-phenyl, and furyl)-pyrazoles; some of which are known and all of which are fungicides and intermediates for the preparation of crop protection agents and pesticides.

3,658,839

ACARICIDALLY AND INSECTICIDALLY ACTIVE 1,5-DISUBSTITUTED-4-CYANO-PYRAZOLES

Hartmut Kiehne and Siegfried Petersen, Leverkusen, Ingelberg Hammann, Cologne, and Gunter Unterstenhofer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 10, 1969, Ser. No. 875,491

Claims priority, application Germany, Nov. 16, 1968,

P 18 09 387.3

Int. Cl. C07d 49/18

U.S. Cl. 260—310 R

12 Claims

Compositions and methods of using certain 1,5-disubstituted-4-cyano-pyrazoles, i.e. -1-(alkyl, hydroxyalkyl and cyanoalkyl)-4-cyano-5-(phenyl, chloro-substituted phenyl, fluorophenyl, alkylphenyl, alkoxyphenyl, trifluoromethylphenyl and cyanophenyl)-pyrazoles, which are new, which possess strong acaricidal and insecticidal properties, and which may be produced by particular methods.

3,658,840

THIOPHOSPHORUS ACID-N-VINYL PHTHALIMIDE ADDUCTS

Alexis A. Oswald, Mountainside, N.J., assignor to Esso Research and Engineering Company

No Drawing. Filed Jan. 2, 1969, Ser. No. 788,624

Int. Cl. C07d 27/52

U.S. Cl. 260—326 E

7 Claims

Diorgano thiophosphorus acids, such as dihydrocarbyl dithio- and monothiophosphoric acids, O-alkyl dithiophosphonic acids, dihydrocarbyl dithiophosphinic acids, etc., can be readily added to N-vinyl compounds. On addition the corresponding Markovnikov type adducts, i.e. neutral S-substituted α -aminoethyl phosphorus esters are formed in the presence and in the absence of added ionic catalysts. The adducts are useful as pesticides, particularly for the control of animal and plant pests such as insects, mites and fungi. The pesticidal effectiveness of the adducts derived from N-vinyl substituted cyclic imides and amides is surprisingly superior to structurally related known pesticides.

3,658,841

1-SUBSTITUTED-2-HALOCYCLOHEPTENE-3-OLS

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Original application Aug. 25, 1966, Ser. No. 574,926, now Patent No. 3,534,060. Divided and this application Apr. 3, 1970, Ser. No. 6,008

Int. Cl. C07d 27/04

U.S. Cl. 260—326.5 R

5 Claims

New compounds of the cycloheptenol class useful as intermediates in the preparation of bicyclo[5.1.0]octan-2-ols and in the control of fertility.

3,658,842

SUBSTITUTED α -CYCLOALKYLIDENE- α -PHENYL-CRESOL ETHERS

Daniel Lednicher, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed Feb. 11, 1969, Ser. No. 798,457

Int. Cl. C07d 27/04, 27/10

U.S. Cl. 260—326.5 M

7 Claims

Substituted α -cycloalkylidene- α -phenyl-cresol ethers, processes for the preparation thereof and novel intermediates prepared by said processes. The novel substituted cresol ethers have utility as antilipemic agents, antifungal agents and insecticides.

3,658,843

AMIDES AND IMIDES OF FLUORINATED ALKYL-AMINES AND MALEIC AND OTHER ETHYLENICALLY UNSATURATED DIBASIC ACIDS AND POLYMERS THEREOF

Eduard Karl Kleiner, New York, N.Y., assignor to Ciba-Geigy Corporation

No Drawing. Filed Apr. 30, 1969, Ser. No. 820,647

Int. Cl. C07d 27/18; C07c 103/56

U.S. Cl. 260—326.5 FM

5 Claims

Monomeric amides of fluorinated alkylamines and fumaric, maleic, citraconic, mesaconic and itaconic acids; and monomeric imides of such fluorinated alkylamines and maleic, citraconic and itaconic acids form homopolymers and copolymers with other ethylenically unsaturated comonomers. The polymers obtained have valuable soil repellent properties which are especially useful in textile finishes. Preferred compounds exemplified are N-1,1-dihydroperfluorooctylmaleimide and bis(N-1,1-dihydroperfluorooctyl)itaconamide.

3,658,844

SUBSTITUTED 1,3-DITHIAN-5-ONES

William Lindsay Mosby, North Plainfield, N.J., assignor to American Cyanamid Company, Stamford, Conn.

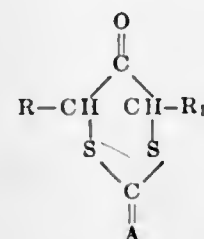
No Drawing. Filed July 2, 1970, Ser. No. 52,128

Int. Cl. C07d 73/00; A61k 27/00

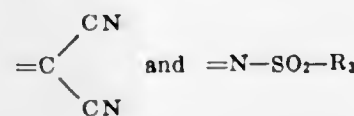
U.S. Cl. 260—327 M

7 Claims

Novel substituted 1,3-dithian-5-ones of the formula:



wherein R and R₁ are members selected from the group consisting of hydrogen and lower alkyl; A is a member of the group consisting of:



and R₂ can be the phenyl, tolyl or naphthyl radical. These compounds are useful as bactericides, fungicides and herbicides.

3,658,845

BENZOTHIOPHENE AMINOKETONES AND AMINOALCOHOLS

Klaus Posselt, Bergen-Enkheim, and Kurt Thiele, Frankfurt am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Original application Dec. 26, 1967, Ser. No. 693,138, now Patent No. 3,514,465, dated May 26, 1970. Divided and this application Mar. 10, 1970, Ser. No. 18,300

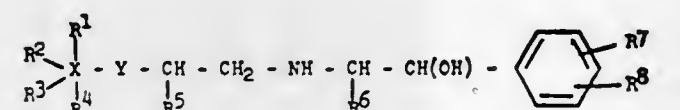
Claims priority, application Germany, Dec. 30, 1966, D 51,910, D 51,911

Int. Cl. C07d 63/22

U.S. Cl. 260—330.5

3 Claims

Compounds of the formula



their salts and quaternary ammonium compounds, as well as their optically active isomers or diastereomers wherein R¹ to R⁴ represent hydrogen, halogen, lower alkyl, aralkyl, phenyl, hydroxyl, lower alkoxy, nitro or lower carboalkoxy, R⁵ and R⁶ are hydrogen or methyl, R⁷ and R⁸ are hydrogen, halogen or lower alkoxy, X is a heterocyclic ring system, mono- or condensed bicyclic, with 1–4 hetero atoms, in which the individual rings have 5 to 6 members and can also contain 1 or more carbonyl groups, Y is —CO— or —CH(OH)—. These compounds have pharmacological activity in that they increase the coronary blood flow by simultaneously causing dilation of the coronaries and an increase in contraction strength.

3,658,846

INTERMEDIATES FOR SYNTHESIS OF VITAMIN B₆ AND RELATED COMPOUNDS

Earl M. Chamberlin and Elbert E. Harris, Westfield, and John L. Zabriskie, Jr., Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

No Drawing. Original application Mar. 19, 1969, Ser. No. 808,684, now Patent No. 3,525,749, dated Aug. 25, 1970. Divided and this application Nov. 5, 1969, Ser. No. 871,253

Int. Cl. C07d 17/00

U.S. Cl. 260—338

5 Claims

Novel intermediates which may be hydrolyzed to vitamin B₆ prepared utilizing novel dioxepins as the dienophile in a Diels-Alder condensation.

3,658,847

PRODUCTION OF UNSATURATED CARBOCYCLIC KETONES

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Continuation-in-part of applications Ser. No. 686,477, Dec. 4, 1967, now Patent No. 3,524,886, and Ser. No. 747,466, July 25, 1968. This application Nov. 4, 1968, Ser. No. 773,356

Int. Cl. C07d 15/04

U.S. Cl. 260—340.9

5 Claims

Preparation of α,β -unsaturated carbocyclic ketones by reacting a methylene phosphonium ylid or a mono-substituted methylene phosphonium ylid with an enol lactone.

3,658,848

METHOD FOR PRODUCTION OF ASCORBIC ACID-3-PHOSPHATE

Hiroaki Nomura, Minoo, Toshihiro Ishiguro, Suita, and Kihachiro Maeda, Kobe, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Oct. 31, 1968, Ser. No. 772,428

Claims priority, application Japan, Oct. 31, 1967, 42/70,136

Int. Cl. C07d 5/12

U.S. Cl. 260—343.7

8 Claims

Ascorbic acid-3-phosphate is produced by phosphorylation of ascorbic acid whose hydroxyl groups at 5- and 6-positions are either masked or unmasked. Phosphorylation is carried out in a solvent of which the dielectric constant measured at 20° C. and 10×10^3 cycles/sec. at 20° C. is not less than 23.

3,658,849

TREATMENT OF 2-SUBSTITUTED ALDEHYDES WITH LEAD DIOXIDE

John Charles Leffingwell, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

No Drawing. Filed Feb. 19, 1969, Ser. No. 800,727

Int. Cl. C07d 5/06

U.S. Cl. 260—343.6

2 Claims

A process for producing substituted γ -lactones and substituted alkenoxyalcohols from 2-substituted aldehydes using lead dioxide.

3,658,850

O-(2-AMINOETHYL)OXIMES OF ALKYL 2-(AND 3-) BENZOFURANYL KETONES

Jenkin Eric Davies and Jan van Dijk, Houtenlaan, Weesp, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

No Drawing. Filed July 16, 1969, Ser. No. 842,334

Claims priority, application Netherlands, July 18, 1968, 6810333

Int. Cl. C07d 5/42

U.S. Cl. 260—346.2

3 Claims

O-(2-aminoethyl) oxime derivatives having antidepressive activities.

3,658,851

CYCLIZATION OF CERTAIN NOPINOL COMPOUNDS TO FORM 3-OXATRICYCLO[5.2.0.0.4']NONYL COMPOUNDS

Thomas W. Gibson, Cincinnati, and William F. Erman, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Original application Dec. 16, 1966, Ser. No. 602,132. Divided and this application May 5, 1969, Ser. No. 843,253

Int. Cl. C07d 5/32

U.S. Cl. 260—346.2

6 Claims

A process for the preparation of cis- β -bergamotene involving a novel cyclization reaction is disclosed. The novel cyclization reaction can be used to form novel oxatricyclo[5.2.0.0.4'] nonyl compounds. Cis- β -bergamotene and the novel oxatricyclo[5.2.0.0.4'] nonyl compounds are useful as perfumes.

3,658,852
**PRODUCTION OF TRIMETHYL-
P-BENZOQUINONE**

Ludwig Schuster and Horst Pommer, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 5, 1969, Ser. No. 847,726
Claims priority, application Germany, Aug. 13, 1968, P 17 93 183.8
Int. Cl. C07c 49/64

U.S. Cl. 260—396 R 11 Claims
The production of trimethyl-p-benzoquinone by oxidation of 2,3,6-trimethylphenol in the presence of a cobalt complex salt and an amide bearing two substituents on the nitrogen atom. The product is a valuable starting material for the production of pharmaceutical products.

3,658,853
**17 α -(2-ALKYNYL)-11 β -METHYLESTRA-1,3,5(10)-
TRIENE-3,17 β -DIOLS AND ESTERS THEREOF**
Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed Mar. 5, 1970, Ser. No. 16,928
Int. Cl. C07c 169/08
U.S. Cl. 260—397.5 6 Claims
17 α - (2 - alkynyl) - 11 β - methylestra - 1,3,5(10)-triene - 3,17 β - diols and esters thereof exhibit useful pharmacological properties, e.g. decidualogenic, and are manufactured by reaction of the corresponding 17-keto starting materials with the appropriate 2-alkynyl organometallic reagent optionally followed by acylation of the resulting hydroxy compounds.

3,658,854
**3-ALKOXYMETHYLENOXY ETHERS OF ANDRO-
STANES AND 19-NORANDROSTANES AND
THEIR PREPARATION**

John H. Fried, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama
No Drawing. Filed Apr. 16, 1969, Ser. No. 816,837
Int. Cl. C07c 169/20
U.S. Cl. 260—397.5 14 Claims
This discloses 3-alkoxymethylenoxy ethers of the androstane and 19-norandrostane series wherein the alkoxy portion has from 1 to 4 carbon atoms, inclusive. The remainder of the androstane and 19-norandrostane steroid molecule can be optionally substituted and/or unsaturated at one or more of positions C-6, C-6,7, C-9,10, C-10, C-11,12, C-17 α , C-17 β , and C-18. These compounds are useful as anabolic and progestational agents. Also taught are methods useful for the preparation of these compounds.

3,658,855
**ESTRADIOL 3-PROPARGYL ETHER
17-TRICHLOROACETATE**
Gunther Kruger, St. Laurent, Quebec, and Robert G. Burford, Dollard des Ormeaux, Quebec, Canada, assignors to Bio-Research Laboratories Ltd., Pointe Claire, Quebec, Canada

No Drawing. Filed Dec. 2, 1969, Ser. No. 881,603
Claims priority, application Canada, Nov. 5, 1969, 66,776
Int. Cl. C07c 169/08
U.S. Cl. 260—397.5 11 Claims
There is disclosed the new compound estradiol 3-propargyl ether 17-trichloroacetate useful as a finishing agent in the poultry industry and possessing high subcutaneous estrogenic activity coupled with very low oral estrogenic activity. The novel compound may be produced from estradiol via the intermediate estradiol 3-propargyl ether.

3,658,856
**PROCESS FOR PREPARING USEFUL 17 α -HY-
DROXY-20-KETO-21-ACYLOXY PREGNANES**
Pierre Crabbe, Mexico City, Mexico, and Michel S. Biollaz, Basel, Switzerland, assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Sept. 2, 1969, Ser. No. 863,743
Int. Cl. C07c 169/32
U.S. Cl. 260—397.45 12 Claims
New process for preparing 17 α -hydroxy-20-keto-21-acyloxy pregnanes and derivatives thereof, which compounds are useful as anti-inflammatory agents. The processes utilize the steps of converting a 17-spiro-(gem-dihalocyclopropyl) steroid to the corresponding 21-halo-21-acyloxy- $\Delta^{17(20)}$ -ene steroid with a soluble silver salt in a carboxylic acid and oxidizing the 20-halo-21-acyloxy- $\Delta^{17(20)}$ -ene steroid to form the corresponding product pregnanes.

3,658,857
**PERFLUOROALKYLAMIDO-ALKYL AND ALKYL-
THIO ESTERS OF FUMARIC ACID AND OTHER
ETHYLENICALLY UNSATURATED POLYBASIC
ACIDS AND POLYMERS THEREOF**

Eduard Karl Kleiner, Dobbs Ferry, and Martin Knell, Ossining, N.Y., and Pier Luigi Pacini, San Donato, Milanese, Italy, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Filed May 27, 1968, Ser. No. 732,040
Int. Cl. C08h 9/00
U.S. Cl. 260—402.5 10 Claims
Monomeric perfluoroalkylamido-alkyl and alkylthio esters of fumaric, maleic, citraconic, mesaconic, itaconic, aconitic, and methylene malonic acid form homopolymers and form copolymers with other ethylenically unsaturated comonomers. The polymers obtained have valuable soil repellent properties and are therefore especially useful in textile finishes. A preferred compound exemplified is bis[2-(n-perfluorooctanoamido)ethyl] thiofumarate.

3,658,858
DI-(6-METHOXY-2-NAPHTHYL) CADMIUM
Ian T. Harrison, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Filed Sept. 30, 1969, Ser. No. 862,496
Int. Cl. C07f 3/02, 3/08
U.S. Cl. 260—429 R 1 Claim
2-(6-methoxy-2-naphthyl)propionic acid is prepared by reacting di-(6-methoxy-2-naphthyl)cadmium with a lower alkyl 2-halopropionate in a suitable solvent to form a lower alkyl 2-(6-methoxy-2-naphthyl)propionate, and hydrolyzing the ester group thereof. The product has anti-inflammatory, analgesic, and anti-pyretic activities.

3,658,859
**PREPARATION OF π -ALLYLIC TRANSITION
METAL COMPOUNDS**
Brian Ernest Job and Alexander Joseph Peter Pioli, Run-corn, England, assignors to Imperial Chemical Industries Limited, London, England

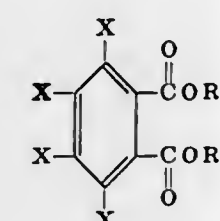
No Drawing. Filed Oct. 24, 1969, Ser. No. 869,384
Claims priority, application Great Britain, Oct. 31, 1968, 51,734/68
Int. Cl. C07f 7/00
U.S. Cl. 260—429.3 8 Claims
A process for the preparation of halogen substituted transition metal π -allylic compounds of general formula $R_{(n-x)}M(X)_x$ by reacting a compound of general formula $R_{(n-y)}M(X)_y$ with a halogenated organic compound having one or more halogen substituents (X). R is an allylic or substituted allylic group, M is a metal of Groups IV-A to VI-A, n is the valency of M, x is an integer from 1 to n-1 and y is an integer less than x and has a value from 0 to n-2. The process allows ready control of

the degree of halogenation of the product. The reaction must be carried out in the absence of moisture and oxygen, preferably in a non-reacting solvent.

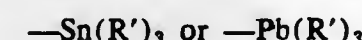
3,658,860
**TRIALKYL TIN AND LEAD (HALOGENATED)
PHTHALATES**

Hermann Otto Wirth, Bensheim-Auerbach, and Hans Helmut Friedrich and Veronika Mras, Lindenfels Odenwald, Germany, assignors to Deutsche Advance Produktion GmbH, Lautern/Odenwald, Germany
No Drawing. Filed July 20, 1970, Ser. No. 56,746
Claims priority, application Germany, July 23, 1969, P 19 37 307.0
Int. Cl. C07f 7/22, 7/24

U.S. Cl. 260—429.7 10 Claims
Compounds corresponding to the formula



wherein X is a halogen atom such as chlorine, bromine or iodine, R₁ is a straight or branched, saturated or unsaturated alkyl radical having 1 to 20 carbon atoms and maybe the same as R₁ or H when R' is phenyl and R₁ is a triorganotin or triorganolead radical of the formula



wherein R' is a lower straight or branched primary or secondary saturated alkyl radical with 2 to 5 carbon atoms, or phenyl are useful as biocides in antifouling paints, synthetic resins, and synthetic rubber, natural and synthetic fabrics, paper and paper products, impregnants, wood preservatives and the like.

3,658,861
**PROCESS FOR PREPARING PHENYL (TRIALO-
METHYL) MERCURY COMPOUNDS**

Dietmar Seyferth, Lexington, Mass., and Robert L. Lambert, Jr., Seneca Falls, N.Y., assignors to Massachusetts Institute of Technology, Cambridge, Mass.
No Drawing. Filed Sept. 8, 1969, Ser. No. 856,209
Int. Cl. C07f 3/12

U.S. Cl. 260—433 9 Claims
An aryl (halomethyl) mercury compound of the formula:



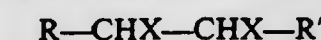
wherein R is substituted or unsubstituted aryl, X is halogen and n is 1 or 2 is obtained by reacting an aryl mercuric halide, an alkali metal alkoxide and either dihalomethane or a trihalomethane at a temperature between -80° C. and 0° C. The reaction is carried out in a highly polar ethereal solvent for the aryl mercuric halide reactant. The aryl (halomethyl) mercury compounds form dihalocarbenes in situ to react with base-sensitive or weakly nucleophilic olefins to form the respective gem-dihalocyclopropanes.

3,658,862
**PREPARATION OF HEXAARYLDILEAD
COMPOUNDS**

Louis C. Willemsens, Utrecht, Netherlands, assignor to International Lead Zinc Research Organization, Inc., New York, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 849,198, Aug. 11, 1969. This application Nov. 25, 1970, Ser. No. 92,914

Claims priority, application Netherlands, Sept. 3, 1968, 12,535
Int. Cl. C07f 7/24

U.S. Cl. 260—437 R 8 Claims
A process for preparing hexaaryldilead compounds comprises reacting a triarylplumbyl magnesium halide compound of the general formula Ar_3PbMgX , wherein Ar is a substituted or unsubstituted aryl group selected from the group consisting of phenyl, naphthyl and such groups substituted by halogen, lower alkyl and lower alkoxy and X is halogen, with a vicinal dihalogen alkane of 2-6 carbon atoms having the general formula



in which R and R' are hydrogen or aliphatic hydrocarbon radicals and X is halogen and immediately isolating the hexaaryldilead end product precipitated.

3,658,863
6-METHOXY-2-NAPHTHYL COPPER(I)

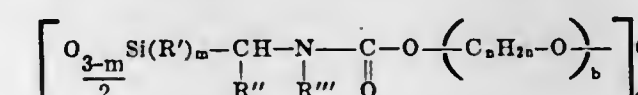
Ian T. Harrison, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama
No Drawing. Filed Sept. 30, 1969, Ser. No. 862,459
Int. Cl. C07f 1/08

U.S. Cl. 260—438.1 1 Claim
2-(6-methoxy-2-naphthyl)propionic acid is prepared by reacting 6-methoxy-2-naphthyl copper(I) with a lower alkyl 2-bromopropionate in a suitable solvent to form a lower alkyl 2-(6-methoxy-2-naphthyl)propionate, and hydrolyzing the ester group thereof. The product has anti-inflammatory, analgesic and anti-pyretic activities.

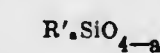
3,658,864
**SILOXANE-MODIFIED CARBAMIC ACID
DERIVATIVES**

Hans Dietrich Goltz, Cologne-Stammheim, and Walter Simmler, Odenthal-Schlinghofen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed Jan. 26, 1970, Ser. No. 5,910
Claims priority, application Germany, Feb. 1, 1969, P 19 05 101.5
Int. Cl. C07f 7/10, 7/18

U.S. Cl. 260—448.2 N 7 Claims
New organosiloxane-modified carbamic acid esters comprise at least one structural unit of the formula



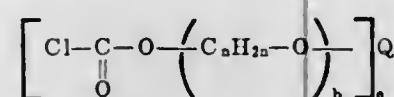
and optionally further structural units of the formula



wherein however at least one of every thousand structural units corresponds to the first of the above formulae.

In these formulae R' and R'' are monovalent hydrocarbon radicals of up to 10 carbon atoms, R'' is a hydrogen atom, a methyl radical or a phenyl radical. Q is a monovalent to hexavalent hydrocarbon radical having up to 6 carbon atoms, m is 0, 1 or 2, n is 2, 3 or 4, a is 0, 1, 2 or 3, b is zero or an integer from 1 to 200, and c is the valency number of Q.

These carbamic acid derivatives are prepared either by hydrolyzing a corresponding alkoxysilyl-substituted carbamic acid ester, optionally in admixture with hydrocarbon-substituted alkoxysilanes, or by reacting a corresponding aminomethyl-substituted polysiloxane with a chloroformic acid ester of the formula



in the presence of a tertiary amine.

The products are to be used as priming agents imparting adhesion to synthetic resins on siliceous surfaces, as surfactants and as intermediates for organo-polysiloxane resins.

3,658,865

PROCESS FOR THE ALKYLATION OF ORGANOSILICON HALIDES

Georges Bakassian, Caluire, Gilbert Marin, Sainte-Foy-les-Lyon, and Marcel Lefort, Caluire, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed June 30, 1970, Ser. No. 52,329
Claims priority, application France, July 1, 1969, 6922140

Int. Cl. C07f 7/02; C08f 11/04

U.S. Cl. 260—448.2 E

5 Claims

Compounds containing a silicon to chlorine bond are alkylated with a zinc alkyl in the presence of N-methyl pyrrolidone. These alkylated products are useful as monomers for producing rubbers, oils or organosilicon resins.

3,658,866

CATALYST FOR A HYDROSILATION REACTOR

Jiro Tsuji, Michio Hara, and Kiyotaka Ohno, Kanagawa-ken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
No Drawing. Filed Aug. 7, 1969, Ser. No. 848,333
Claims priority, application Japan, Aug. 26, 1968, 43/60,443; Sept. 21, 1968, 43/68,117; Sept. 26, 1968, 43/69,138

Int. Cl. C07f 7/08

U.S. Cl. 260—448.2 E

5 Claims

Catalysts are provided which are comprised of palladium and a trivalent phosphorus, arsenic or antimony ligand. The catalysts of this invention are highly effective as catalysts in hydrosilation reactions.

3,658,867

AMMONIUM AND TERTIARY AMINO BIS(TRIMETHYLSILOXY) SILOXANES

Bela Prokal, Mahopac, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Dec. 22, 1969, Ser. No. 887,428

Int. Cl. C07f 7/02; C07d 87/22, 29/10

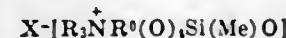
U.S. Cl. 260—448.2 N

10 Claims

Cationic bis(trimethylsiloxy) siloxanes of the formula:



wherein M is the trimethylsiloxy unit, $\text{Me}_3\text{SiO}_{1/2}$, x is an integer of 1 to 3, preferably 1, and D' is a cationic difunctional siloxy unit of the formula:



wherein R⁰ is a divalent organic group, t is 0 or 1, R is methyl or ethyl, taken individually, and a five to six member heterocyclic ring when two R groups are taken together with N of the above formula and X is an inorganic anion and, when taken individually, is preferably iodine, bromine, aryl sulfonate having 6 to 18 carbon atoms, but can be nitrate, nitrite or borate, when taken individually, sulfate, preferably, or sulfite when two X groups are taken together, or phosphate when three X groups are taken together.

Also disclosed are tertiary amino bis(trimethylsiloxy) siloxanes of the formula MD_xM wherein M and x are as defined above and D is a tertiary amino difunctional siloxy unit of the formula:



wherein R, R⁰ and t are as defined above, which are used in preparing the above cationic siloxanes.

The above cationic siloxanes are useful as emulsifiers, e.g., for water-poly(dimethylsiloxane) oil systems, bactericides, antistatic agents, wetting agents and mold release agents.

3,658,868

ALKYLSILOXY-CYANO-ALKYL COMPOUNDS AND PROCESS FOR PREPARING THE SAME

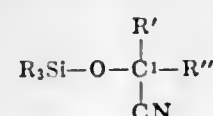
Richard Müller, Radebeul, and Hiltraud Neef, Dresden, Germany, assignors to Institut für Silikon- und Fluor-karbon-Chemie, Radebeul, Germany
No Drawing. Filed Apr. 15, 1969, Ser. No. 816,370

Int. Cl. C07f 7/04, 7/18

U.S. Cl. 260—448.8 R

21 Claims

Alkylsiloxy-cyano-alkyl compounds of the formula



wherein R is a lower alkyl radical and R' and R'', which may be the same or different, are hydrogen, or unsubstituted or substituted, alkyl, alkenyl, aryl, alkoaryl or cycloalkyl radicals including siloxy-, carboxy- or siloxy-cyano-substituted radicals, whereby the C¹-carbon atom can also be part of an aliphatic ring system. The invention also comprises a process for making said compounds. The so produced alkylsiloxy-cyanoalkanes are very useful aids in textile processing and are preferably used for rendering the textiles water-repellent.

3,658,869

PROCESS FOR PREPARING SULFUR CONTAINING ALDOXIMES

Samuel B. Soloway, Modesto, Calif., and Herbert P. Rosinger, Kent, England, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 645,511, June 12, 1967. This application Aug. 25, 1969, Ser. No. 852,899

Claims priority, application Great Britain, June 13, 1966, 26,258/66

Int. Cl. C07c 131/00

U.S. Cl. 260—453 R

9 Claims

Process for preparing 1-hydrocarbylthio-aldoximes in an aqueous reaction medium by the halogenation of an aldoxime followed by reaction with a mercaptan in the presence of a base, said 1-hydrocarbylthio-aldoximes are known compounds which are useful as oil additives, antioxidants, accelerators for curing rubber, and as chemical intermediates.

3,658,870

ALKYL 1-CARBAMOYL-N-(SUBSTITUTED-CARBAMOYLOXY)THIOFORMIMIDATES

James B. Buchanan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Application May 13, 1968, Ser. No. 728,739, now Patent No. 3,530,220, dated Sept. 22, 1970, which is a continuation-in-part of application Ser. No. 647,234, June 19, 1967. Divided and this application July 9, 1969, Ser. No. 851,531

Int. Cl. C07c 119/18

U.S. Cl. 260—453 R

7 Claims

Chemical compounds of the class alkyl 1-carbamoyl-N-(substituted carbamoyloxy)thioformimidates such as methyl 1-carbamoyl-N-(methylcarbamoyloxy)thioformimidate useful in preventing the destructive effects of pests such as insects, ticks, mites and nematodes.

3,658,871

ALKOXY-BENZYL-DITHIOCARBAMIC ACID ESTERS

Kiyoshi Matsushima, Masao Miyamoto, and Nobuo Fukazawa, Tokyo, Japan, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Continuation-in-part of application Ser. No. 840,068, Mar. 6, 1969. This application Dec. 8, 1969, Ser. No. 883,344

Claims priority, application Japan, Mar. 11, 1968, 43/15,780

Int. Cl. C07c 155/08

U.S. Cl. 260—455 A

9 Claims

Alkoxy-benzyl-dithiocarbamic acid esters, i.e. alkoxy-benzyl-N-alkyl-, -N,N-dialkyl- and piperidino-dithiocarbamic acid esters, which possess herbicidal properties, and which may be produced by conventional methods.

3,658,872

PERFLUORO-ALKYL-CONTAINING SULFONATE ESTERS

Claude I. Merrill, Lancaster, Calif., assignor to The Dow Chemical Company, Midland, Mich.
No Drawing. Filed June 20, 1967, Ser. No. 647,336

Int. Cl. C07c 143/68

U.S. Cl. 260—456 R

2 Claims

Novel haloesters and a method of their preparation are disclosed. These compounds exhibit excellent thermal stability and oxidation resistant characteristics when subjected to elevated temperatures.

3,658,873

METHYLENE-BIS(PHENYL-SULFIDE)-4-PHENYLSULFONIC ACID ESTERS

Wilhelm Sirrenberg, Sprockhoevel, Westphalia, Gunter Unterstenhofer, Opladen, and Ingeborg Hammann, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Filed June 30, 1969, Ser. No. 837,934

Claims priority, application Germany, July 5, 1968, P 17 68 833.4

Int. Cl. C07c 143/68

U.S. Cl. 260—456 P

9 Claims

Methylene-bis(phenyl-sulfide) - 4-phenylsulfonic acid esters or phenylsulfonic acid 4-(phenylmercaptomethylmercapto)-phenyl esters, i.e. methylene-bis(phenyl-sulfide)-2,3 or 4-(optionally chloro)-4'-(4''-optionally chloro and fluoro)-phenylsulfonic acid esters or 4-(optionally chloro and fluoro)-phenylsulfonic acid 4'-(4''-optionally chloro-phenylmercaptomethylmercapto)-phenyl esters, which possess acaricidal properties, and specifically the ability to kill acarids at all stages of development, including the egg stage, and which may be produced by conventional methods.

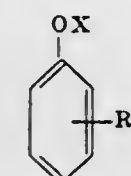
3,658,874

CARBOXYLATION OF ORGANIC NITRILES
Edwin L. Patmore, Fishkill, and William R. Siegert and Harry Chafetz, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y.
No Drawing. Filed Jan. 27, 1969, Ser. No. 794,344
Int. Cl. C07c 51/00, 121/40, 121/66

U.S. Cl. 260—465 D

5 Claims

Method of carboxylating an organic compound of the group of $\text{RC}\equiv\text{CH}$, RCH_2CN , indene or cyclopentadiene where R is hydrocarbyl comprising contacting under anhydrous conditions in an inert atmosphere and in the presence of an inert, aprotic, dipolar, liquid solvent, said compound with a carbonated metal phenoxide, the metal phenoxide of the formula:



where X is sodium or potassium, R¹ is hydrogen or alkyl, and subsequently acidifying the resultant intermediate product to form the carboxylated product.

3,658,875

PROCESS FOR PREPARING AROMATIC ALDEHYDES AND THE CORRESPONDING ALCOHOLS

Jean Claude Brunie, Michel Costantini, and Noel Crenne, Lyon, and Michel Jouffret, Villeurbanne, Rhone, France, assignors to Rhone-Poulenc S.A., Paris, France
No Drawing. Filed Mar. 13, 1969, Ser. No. 807,128
Claims priority, application France, Mar. 14, 1968, 143,796

Int. Cl. C07c 121/50, 47/52

U.S. Cl. 260—465 R

7 Claims

Mixtures of aromatic aldehydes and the corresponding alcohols are made by heating the corresponding aromatic hydroperoxide in the presence of an organic base and a chromium compound.

3,658,876

PROCESS OF PREPARING L-α-ACETAMINO-α-VANILLYLPROPIONITRILE

Donald F. Reinhold and Meyer Sletzing, North Plainfield, and John M. Chermida, Watchung, N.J., assignors to Merck & Co. Inc., Rahway, N.J.

No Drawing. Division of application Ser. No. 642,272, Apr. 10, 1967, now Patent No. 3,505,385, which is a division of application Ser. No. 309,379, Sept. 19, 1963, now Patent No. 3,366,679, which in turn is a continuation-in-part of application Ser. No. 229,961, Oct. 11, 1962. This application July 9, 1969, Ser. No. 840,479

Int. Cl. C07c 121/02, 121/66

U.S. Cl. 260—465 D

1 Claim

The process of forming L-α-acetamino-α-vanillylpropionitrile from DL-α-amino-α-vanillylpropionitrile which comprises: (a) forming and isolating L-α-amino-α-vanillylpropionitrile-d-10-camphorsulfonate contaminated with a small amount of the corresponding Dd-salt by agitating a solution of DL-α-amino-α-vanillylpropionitrile with d-10-camphorsulfonic acid and separating said optically impure more soluble Ld-salt by agitating the resulting DL, d-salt mixture in 10 to 40 parts, by volume, of dioxane containing 0 to 10% water, by volume, per part by weight of said DL, d-salt mixture and separating the less soluble Dd-salt; and (b) converting said impure Ld-salt to pure L-lower alkanoylamino vanillylpropionitrile by heating said impure salt in a reaction mixture comprising a lower

alkanoyl anhydride and pyridine to form the corresponding O,N-diacyl compound followed by basification of a solution of said O,N-diacyl compound with one equivalent of base selected from alkali metal hydroxide, alkali metal bicarbonate and ammonia in a hydroxylated solvent selected from water, lower alkanols and lower glycols to form said lower alkanoylaminonitrile contaminated with some D-enantiomorph and recrystallizing said impure nitrile from an inert solvent.

3,658,877

PROCESS FOR PREVENTION OF CATALYST HANG-UP IN AMMOXIDATION OF OLEFINS TO UNSATURATED NITRILES

James L. Callahan and Robert D. Presson, Bedford Heights, and Arthur F. Miller, Cleveland, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio. Continuation-in-part of application Ser. No. 849,554, July 22, 1969, which is a continuation of application Ser. No. 566,878, July 21, 1966. This application July 13, 1970, Ser. No. 54,445.

Int. Cl. C07c 121/02, 121/32

U.S. Cl. 260—465.3

1 Claim

Steam is used keep the quiescent zone about 200° F. cooler than the turbulent zone of a fluid-bed reactor utilized in the ammoxidation of monoolefins to unsaturated nitriles. Steam escaping from the quiescent zone into the turbulent zone prevents fusion of powdery catalyst in the presence of oxygen and the adhesion of fused catalyst to internals in the top portion of the reactor.

3,658,878

ETHYLENICALLY UNSATURATED CYANO GROUP CONTAINING COMPOUNDS

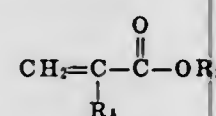
Donald Arthur Smith, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y. No Drawing. Application Aug. 22, 1968, Ser. No. 754,731, now Patent No. 3,554,987, dated Jan. 12, 1971, which is a continuation-in-part of application Ser. No. 525,272, Dec. 20, 1965, now Patent No. 3,459,790. Divided and this application Jan. 22, 1970, Ser. No. 10,676.

Int. Cl. C07c 121/30, 121/48, 121/66

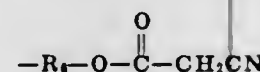
U.S. Cl. 260—465.4

2 Claims

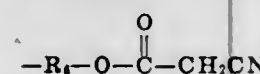
A compound having the formula:



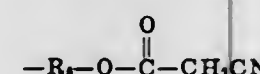
where R_1 is hydrogen, an alkyl group containing up to 12 carbon atoms or



where R_2 is an alkylene group containing up to 10 carbon atoms; and R_3 is an alkyl group containing up to 10 carbon atoms, a cycloalkyl group containing up to 10 carbon atoms, a phenyl group or



where R_4 is an alkylene group containing up to 10 carbon atoms, provided that one and only one of R_4 and R_5 is always



PROCESS FOR THE PREPARATION OF CHRYSANTHEMIC ACID

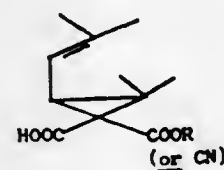
Marc Julia, Paris, France, assignor to Rhone-Poulenc, Paris, France

No Drawing. Filed Oct. 9, 1967, Ser. No. 673,929. Int. Cl. C07c 69/74, 171/48; C07f 3/02

U.S. Cl. 260—468 P

8 Claims

Chrysanthemic acid, its lower alkyl esters and nitrile are made by decarboxylating an acid of the formula:



3,658,880

4b,5,6,7,9,10-HEXAHYDRO-4-HYDROXY-2,4b-DIMETHYL-7-EXO-1-PHENANTHRENEPROPIONIC ACID

Norman A. Nelson, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

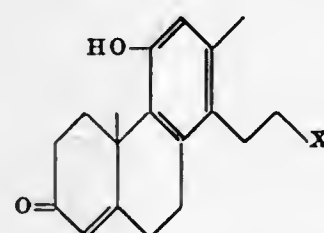
No Drawing. Filed July 28, 1969, Ser. No. 845,533

Int. Cl. C07c 65/20, 69/76

U.S. Cl. 260—468.5

6 Claims

This invention relates to novel 4-hydroxy-7-oxohexahydrophenanthrene derivatives of steroids, represented by the following formula and to processes for their preparation:



wherein X is —COOR, in which R is hydrogen or lower-alkyl;



in which R_1 and R_2 taken separately are each hydrogen or lower-alkyl, and R_1 and R_2 taken together with the nitrogen constitute a cyclic amino radical containing from 2 to 6 carbon atoms in the heterocyclic ring; —NHCOOR₃ in which R_3 is lower-alkyl; —NHCOR₃ in which R_3 is lower-alkyl; —NHSO₂R₄ in which R_4 is lower-alkyl or aryl; and the pharmacologically acceptable salts of the compounds wherein X is —COOR, in which R is hydrogen. The compounds of the above structural Formula (II) are anti-inflammatory and antimicrobial agents.

3,658,881

2,6-DIHYDROXY-3-BROMO-5-HALO-4-ALKOXY-BENZOIC ACIDS AND ALKYL ESTERS THEREOF

Shoji Maruyama, Sagami-hara-shi, and Yoshikazu Kaneko, Tokyo, Japan, assignors to Kabushiki Kaisha Ricoh, Tokyo, Japan

No Drawing. Filed Mar. 28, 1969, Ser. No. 811,606

Claims priority, application Japan, Apr. 2, 1968, 43/21,689

Int. Cl. C07c 65/04, 69/88

U.S. Cl. 260—473

4 Claims

2,6-dihydroxy-3,5-dihalo-4-alkoxybenzoic acids or alkyl esters thereof containing at least one bromine atom are disclosed and illustratively, the methyl ester of 2,6-

dihydroxy-3,5-dibromo-4-methoxybenzoic acid, 2,6-dihydroxy-3-bromo-4-methoxy-5-chloro-benzoic acid and 2,6-dihydroxy-3,5-dibromo-4-ethoxybenzoic acid. These compounds are useful as couplers for diazo-type thermal-developable sensitive materials.

3,658,882

NOVEL CARBAMATE ANTISTATIC AGENTS

Fred S. Eisman, Jr., Maplewood, N.J., assignor to GAF Corporation, New York, N.Y.

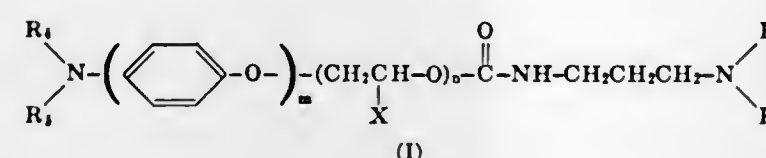
No Drawing. Filed May 18, 1970, Ser. No. 38,517

Int. Cl. C07c 125/06

U.S. Cl. 260—482 C

4 Claims

New compounds with antistatic properties are provided. The new compounds are carbamates and quaternary derivatives thereof, which in their base form are represented by the Formula I:



wherein R_1 and R_2 are alkyl; X is hydrogen, methyl or ethyl; R_1 and R_2 are individually alkyl or hydroxy-alkyl; n is an integer of from 1–10; and m is 0 to 1. The quaternary compounds are the hydroxyalkylammonium derivatives such as those obtained by heating the compounds of Formula I with an alkylene oxide in the presence of an acid. Typically, the compounds of the invention are applied by dipping an article, such as a fiber, into a solution of the carbamate in a suitable solvent. Representative antistatic agents of the present invention are prepared by the reaction of phosgene with an ethoxylated dialkylamine, giving a chlorocarbonate which is then reacted with N,N-dimethylpropylenediamine in sufficient quantities to fully replace all the chlorine.

3,658,883

METHOD OF PREPARING LOWER-ALKYL MALONALDATES

Godefridus F. Steenberg, Ter Apel, Netherlands, assignor to "Specta" Speciaal-Chemicalien Industrie Ter Apel N.V., Ter Apel, Netherlands

No Drawing. Filed Feb. 27, 1969, Ser. No. 803,051

Int. Cl. C07c 69/66

U.S. Cl. 260—484 R

7 Claims

Lower alkyl malonalates (lower-alkyl esters of formylacetic acid) are obtained in the form of their alkali metal compounds in good yields at ambient temperature and pressure when lower-alkyl formate is added to a mixture of an excess of lower-alkyl acetate with an excess of an alkali metal lower-alkoxide.

3,658,884

POLYMERISATION OF ACETYLENES

Kelth George Allum, Bracknell, and Ronald David Hancock, Weybridge, England, assignors to The British Petroleum Company Limited, London, England

No Drawing. Filed May 6, 1970, Ser. No. 35,279

Claims priority, application Great Britain, May 12, 1969, 24,003/69

Int. Cl. C07c 69/52, 5/27

U.S. Cl. 260—486

9 Claims

Acetylenes are polymerized using, as a heterogeneous catalyst, the reaction product of a nickel compound and a polymer containing phosphorus and a hydridic reducing

3,658,885

WATER-INSOLUBLE DYES

Guenter Lange, Ludwigshafen (Rhine), and Wolfgang Fabian, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Sept. 29, 1967, Ser. No. 671,581

Claims priority, application Germany, Oct. 6, 1966, P 15 69 662.5

Int. Cl. C07c 69/54, 69/34

U.S. Cl. 260—486 R

2 Claims

New valuable dyestuffs derived from N-[ω-acyloxy-alkyl]-nitroanilines.

3,658,886

PROCESS FOR THE MANUFACTURE OF ALIPHATIC ACRYLIC ACID ESTERS

Kurt Sennwald, Alfred Hauser, and Klaus Gehrmann, Knapsack, near Cologne, and Winfried Lork, Friesheim, near Lechenich, Germany, assignors to Knapsack Aktiengesellschaft, Knapsack, near Cologne, Germany

Filed Feb. 11, 1969, Ser. No. 798,329

Claims priority, application Germany, Feb. 17, 1968, P 16 68 362.8

Int. Cl. C07c 69/54

U.S. Cl. 260—486 R

17 Claims

Production of aliphatic acrylic acid esters by oxidation of propylene and/or acrolein with oxygen in the presence of steam and inert gas, at a temperature between 300 and 600° C., in contact with a catalyst. Hot acrylic acid-containing reaction gas is scrubbed with a high boiler mixture, which is obtained as a by-product during the process and substantially consists of maleic acid ester, polyacrylic acids and polyacrylic acid esters, the resulting acrylic acid-containing extract is freed by distillative treatment from the low boilers water, acetic acid, acrolein and formaldehyde, and reacted later, in the presence of acid ion exchanger resins, with an aliphatic alcohol having from 1 to 8 carbon atoms, the resulting acrylic acid ester being distilled off and the high boiler mixture being recycled for scrubbing further acrylic acid-containing reaction gas.

3,658,887

PROCESS FOR THE PREPARATION OF METHYL BUTENOATE AND ITS DERIVATIVES

Franco Montino, Casale Monferrato, Alessandria, Italy, assignor to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed July 18, 1969, Ser. No. 843,203

Claims priority, application Italy, July 22, 1968, 19,274/68

Int. Cl. C07c 69/52

U.S. Cl. 260—486 AC

4 Claims

Process for the preparation of methyl 3,4-hydrocarbyl-3-butenates by reaction of an allyl halide



wherein R, R' and R'' represent hydrogen or a hydrocarbyl having from 1 to 10 carbon atoms and X is a halide selected from Cl, Br, I, with carbon monoxide and methanol. One operates in a methanol solution in the presence of nickel-carbonyl and thiourea, at atmospheric pressure, at a temperature between 15° and 35° C., maintaining a pH ranging from 5.5 to 9, and preferably from 7.5 to 8.

3,658,888

PROCESS FOR PREPARING VINYL ACETATE
 Lothar Hornig, Frankfurt am Main, Hans Fernholz, Fischbach, Taunus, Hans-Joachim Schmidt, Frankfurt am Main, Friedrich Wunder, Florsheim (Main), and Therese Quadflieg, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
 No Drawing. Filed Mar. 21, 1968, Ser. No. 714,760
 Claims priority, application Germany, Mar. 22, 1967, F 51,902

Int. Cl. C07c 67/04

U.S. Cl. 260—497 A 4 Claims
 Vinyl acetate is prepared from ethylene, oxygen and acetic acid in the gaseous state in the presence of palladium compounds and acetates of metals of the main group 1 and/or the group 2 of the Periodic Table by additionally feeding to the reaction zone small amounts of the catalytically active acetates.

3,658,889

PROCESS FOR THE PREPARATION OF A SALT OF OPTICALLY ACTIVE LYSINE
 Geertrudes H. Suverkropp, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
 No Drawing. Filed Dec. 16, 1968, Ser. No. 784,223
 Claims priority, application Netherlands, Dec. 16, 1967, 6717184

Int. Cl. C07c 101/24

U.S. Cl. 260—501.11 2 Claims
 Lysine is optically resolved by forming a salt with phenoxycetic acid and selectively crystallizing one of the antipodes from a supersaturated solution thereof. The salt of lysine and phenoxycetic acid is a novel compound.

3,658,890

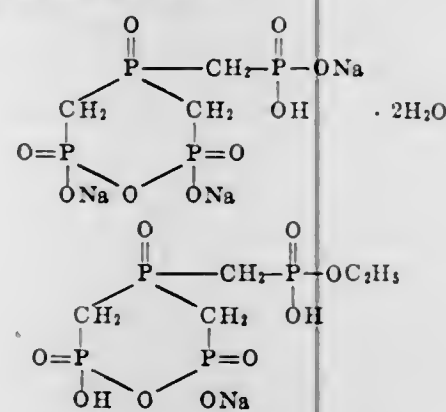
ESTERS, SALTS AND ACIDS OF PARTIAL ANHYDRIDES OF ALKYLIDENE PHOSPHONYL PHOSPHINE OXIDES

Al F. Kerst, Denver, Colo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Filed June 11, 1969, Ser. No. 832,418

Int. Cl. C07f 9/38, 9/40

U.S. Cl. 260—502.4 P 9 Claims
 This invention relates to partial anhydrides of alkylidene phosphonyl phosphine oxides and include such compounds as shown below:



3,658,891

METHOD FOR SYNTHESIZING MALEOPIMARIC ACID

George Gonis, Valdosta, Ga., and Frank B. Slezak, Trenton, N.J., assignors to Union Carbide Corporation, Wayne, N.J.

No Drawing. Continuation-in-part of abandoned application Ser. No. 719,745, Apr. 8, 1968. This application July 28, 1970, Ser. No. 59,006

Int. Cl. C07c 51/00; C09f 1/00

U.S. Cl. 260—514.5 7 Claims
 A crystalline complex in the form of a maleopimaric acid-acetic acid molecular complex in which 1 mole of maleopimaric acid and 1 mole of acetic acid make up the complex. This complex is crystallized from the re-

action mixture of maleic anhydride and rosin in glacial acetic acid which may contain up to 20% of water and which has been heated to at least 118° C. for at least 2 hours, after which the acetic acid is removed to produce a medium containing 75–150 ml. of acetic acid for each 100 grams of rosin. Pure maleopimaric acid is obtained by heating the complex under vacuum to remove the acetic acid.

3,658,892

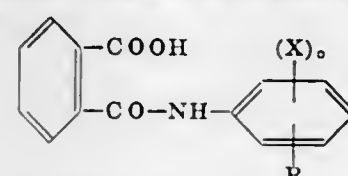
DERIVATIVES OF N-PHENYLTHALAMIDE ACID USEFUL FOR REGULATING PLANT DEVELOPMENT

Henry Martin, Basel, and Jacques Rutener, Stein, Aargau, Switzerland, and Georg Pissiotas, Lorrach, Germany, assignors to Ciba-Geigy AG, Basel, Switzerland

No Drawing. Filed Dec. 11, 1968, Ser. No. 783,133
 Claims priority, application Switzerland, Dec. 19, 1967, 17,795/67

Int. Cl. C07c 103/24

U.S. Cl. 260—518 A 9 Claims
 N-arylphthalimide acids of the general formula



and/or their salts with inorganic or organic bases are used for influencing plant growth, plant development, formation and ripening of fruit.

R represents —CF₃, —OCH₃, —SCH₃ or —SCF₃, X stands for halogen, alkyl, alkoxy, —NO₂ or —CF₃ and n is an integer from 0 to 3.

3,658,893

PRODUCTION OF o-BENZOYL BENZOIC ACID

Hans Juergen Sturm and Herbert Armbrust, Grunstadt, and Manfred Eisert and Hans-Georg Schecker, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 23, 1970, Ser. No. 22,034

Claims priority, application Germany, Mar. 26, 1969, P 19 15 385.6; July 4, 1969, P 19 34 086.4

Int. Cl. C07c 65/20

U.S. Cl. 260—517 11 Claims
 Production of o-benzoylbenzoic acid by oxidation of an indan with nitric acid and/or a chromium (VI) compound. The product is a valuable starting material for many syntheses, particularly for the production of anthraquinone.

3,658,894

PROCESS FOR PURIFYING TEREPHTHALIC ACID CONTAINING 4-CARBOXYBENZALDEHYDE AS AN IMPURITY

Omar O. Juveland, South Holland, Ill., and Edward M. Pramuk, Whiting, Ind., assignors to Standard Oil Company, Chicago, Ill.

Filed Oct. 2, 1968, Ser. No. 764,557

Int. Cl. C07c 51/42

U.S. Cl. 260—525 9 Claims
 A process for purifying terephthalic acid by reducing its 4-carboxybenzaldehyde content to below a predetermined level, e.g., 100 p.p.m. or less, to provide a product suitable for use in applications such as forming synthetic fibers comprising raising solid, impure terephthalic acid to a temperature sufficient to cause sublimation, e.g., 235° C. to 285° C. in a reaction zone, passing a gas containing molecular oxygen through the reaction zone to oxidize the 4-carboxybenzaldehyde to terephthalic acid and thereafter recovering the sublimated terephthalic acid. To reduce formation of undesirable side-products from the terephthalic acid, the oxygen-containing gas may contain water vapor.

3,658,895

PREPARATION OF CONCENTRATED ACRYLIC ACID BY TREATMENT WITH A MINERAL ACID AND DUAL STAGE DISTILLATION

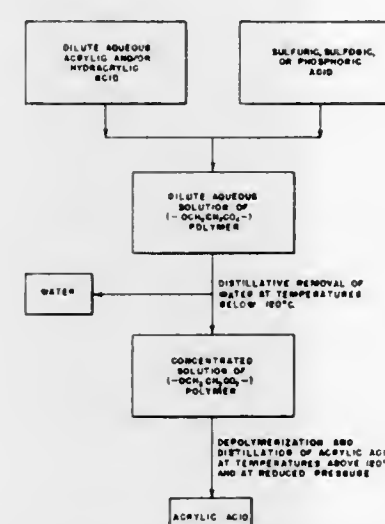
Karl Heinz Riemann, Darmstadt-Eberstadt, and Carl Theodor Kautter and Ulrich Baumann, Darmstadt, Germany, assignors to Rohm & Haas G.m.b.H., Darmstadt, Germany

Filed Sept. 17, 1968, Ser. No. 760,343

Claims priority, application Germany, Sept. 23, 1967, R 46,967

Int. Cl. B01d 3/34; C07c 51/26, 51/44

U.S. Cl. 260—530 N 8 Claims



Process for recovering acrylic acid from dilute aqueous solutions thereof by adding sulfuric acid or a phosphoric or sulfonic acid, distilling off water below 120° C., and then heating at 120° C. to 200° C. to distill off acrylic acid.

3,658,896

OLEFINIC HYDROCARBON OXIDATION PROCESS

Paul H. Washecheck, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla.

No Drawing. Filed Nov. 12, 1969, Ser. No. 876,042

Int. Cl. C07c 51/32

U.S. Cl. 260—533 R 11 Claims

A process for the catalytic oxidation of an olefinic hydrocarbon is provided wherein the cleavage of the olefinic hydrocarbon occurs at a point of unsaturation. The catalytic system employed in said process consists essentially of a minor amount of a ruthenium-containing compound and a major amount of a peracid. The olefinic hydrocarbon and ruthenium-containing compound are admixed to produce a mixture having the ruthenium compound dispersed therein. The peracid is then added to the mixture of olefinic hydrocarbon and ruthenium compound to form a resultant mixture wherein an exothermic reaction transpires. The carboxylic acid components formed during the exothermic reaction are then recovered from the mixture.

3,658,897

PROCESS FOR THE PREPARATION OF OPTICALLY ACTIVE LYSINE

Geertrudes H. Suverkropp, Geleen, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Mar. 28, 1969, Ser. No. 828,758

Claims priority, application Netherlands, May 31, 1968, 6807773

Int. Cl. C07c 101/24

U.S. Cl. 260—534 L 6 Claims

There is provided an improvement in the known process of optical resolution of mixtures of L- and D-lysine by reacting the lysine and forming a salt with one of the optical antipodes of α-phenoxy propionic acid. The improvement comprises using optically impure α-phenoxy propionic acid having optical purities of as low as 70%, instead of the more expensive optically pure α-phenoxy

3,658,898

PROCESS FOR PRODUCING ADIPIC ACID

Guy Lartigau, Lyon, France, assignor to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Nov. 25, 1969, Ser. No. 879,894

Claims priority, application France, Nov. 27, 1968, 17,550; July 23, 1969, 25,147

Int. Cl. C07c 51/24

U.S. Cl. 260—537 P 12 Claims

Adipic acid is produced by oxidizing 6-hydroperoxyhexanoic acid, preferably obtained from the by-products formed in the oxidation of cyclohexane with oxygen in the absence of a catalyst, with nitric acid.

3,658,899

MELT-ZONE SALT-OUT CRYSTALLIZATION

Robert W. Campbell, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Mar. 11, 1969, Ser. No. 806,280

Int. Cl. B01j 9/18; C07c 143/70

U.S. Cl. 260—543 R 9 Claims

A binary or more complex mixture containing a target compound to be separated therefrom is dissolved in a first solvent and frozen. A second solvent is added as a liquid phase and the resulting mixture is allowed to equilibrate, resulting in the separation of pure target compound.

3,658,900

N,N'-DICYCLOPROPYL DITHIOOXAMIDE

Gerhard H. Alt, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

No Drawing. Original application Nov. 14, 1968, Ser. No. 775,918. Divided and this application Aug. 3, 1970, Ser. No. 67,653

Int. Cl. C07c 153/05

U.S. Cl. 260—551 S 1 Claim

N,N'-dicyclopropyl dithiooxamide which is useful in combating chewing insect larvae species of the order Lepidoptera, particularly species of the family Noctuidae.

3,658,901

CYANODITHIOIMIDOCARBONATES

Richard J. Timmons, 222 Grand Ave., and Lawrence S. Wittenbrook, 720 W. 5th St., both of Marysville, Ohio 43040

No Drawing. Continuation-in-part of application Ser. No. 578,974, Sept. 13, 1966. This application June 18, 1969, Ser. No. 834,510

Int. Cl. C07c 12/00

U.S. Cl. 260—551 C 5 Claims

Unsymmetrical esters of cyanoimidodithiocarbonic acid and their production and uses.

3,658,902

ACETYLENIC DIAMINES

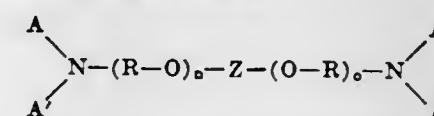
Carl Bordenca, Ponte Vedra Beach, Fla., assignor to SCM Corporation, Cleveland, Ohio

No Drawing. Filed Aug. 21, 1969, Ser. No. 852,101

Int. Cl. C07c 93/10, 93/12

U.S. Cl. 260—563 R 14 Claims

Compounds of the formula:



where the groups represented by A and A' are like or dissimilar alkyl, R is lower alkylene, Z is an alkynylene

group containing from 4 to 16 carbon atoms and n is a number of from 1 to 15 and stable salts thereof.

Also described are stable salts of the above compounds and compositions containing the compounds and salts, as well as processes for controlling arachnids. Compounds, compositions, and processes are advantageous in that they provide effective means of controlling arachnids such as, for example, mites, spiders, ticks, and the like without harming human beings or animal wildlife.

3,658,903

METHOD FOR CHLORINATING SUBSTITUTED GUANIDINES AND RESULTING PRODUCT COMPOUNDS

Clifford L. Coon, Fremont, and Derek Tegg, Palo Alto, Calif., assignors to Standard Research Institute, Menlo Park, Calif.

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,818

Int. Cl. C07c 129/00

U.S. Cl. 260—564 A

7 Claims

Hydrocarbyl- or loweralkanoic acid-substituted guanidines, when reacted with a large excess (at least $10\times$) of hypochloride under acid conditions, form polychloro product compounds wherein all the hydrogens on the nitrogen atoms are replaced by chlorine. The compounds so formed are typified by tetrachloroguanidinomethane and tetrachloroguanidinophenylmethane, formed from salts of methyl guanidine and N -benzylguanidine, respectively, as well as by the cyclic compound 4,4-bis(dichloroamino)-3-chlorobutylolactone, formed from guanidine acetic acid. The compounds have a high content of available chlorine and are useful as chlorinating agents, bleaches and disinfectants.

3,658,904

EXTRACTION PROCESS USING CYANO ACETAL SOLVENTS

Donald G. Kuper, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application Dec. 12, 1966, Ser. No. 600,793, now Patent No. 3,466,317, dated Sept. 9, 1969. Divided and this application June 27, 1969, Ser. No. 837,364

Int. Cl. C07c 7/10; C10g 21/20

U.S. Cl. 260—674 SE

7 Claims

3-cyano acetals are prepared at relatively low pressures from a nitrile, an alcohol, CO and H_2 in the presence of a Group VIII metal-containing hydrogenation catalyst by adding an acid. The cyano acetals may be used as selective solvents for the extraction of members of different classes of hydrocarbons such as aromatic hydrocarbons from paraffin hydrocarbons, paraffin hydrocarbons from olefin hydrocarbons, monoolefin hydrocarbons from diolefin hydrocarbons and cyclo hydrocarbons from open chain hydrocarbons.

3,658,905

PROCESS FOR THE PURIFICATION OF p-AMINOPHENOL

Henri Daunis, Vienne, Isere, and Marcel Gominet, Le Peage-de-Roussillon, Isere, France, assignors to Rhone-Poulenc S.A., Paris, France

No Drawing. Filed Mar. 12, 1969, Ser. No. 806,730

Claims priority, application France, Mar. 12, 1968, 143,564

Int. Cl. C07c 91/44

U.S. Cl. 260—575

9 Claims

Para-aminophenol, prepared by the catalytic hydrogenation of nitrobenzene in a strong acid medium, is purified by treatment with a liquid aliphatic, cycloaliphatic or aromatic ketone. The impure p -aminophenol may be washed with and/or recrystallized from ketones such as

acetone, methylethylketone, methylisobutylketone, cyclohexanone or acetophenone and the purified p -aminophenol is found to remain colourless over several months when stored with stabilising agents. Further purification is achieved by dissolving the purified crystals in boiling water and recrystallising the p -aminophenol from the aqueous phase.

3,658,906

MULTIPHASE AMINATION PROCESS OF NITROPHENOLS

John Cryer, New Lenox, Harold M. Foster, Park Forest, and Thomas C. Rees, Park Forest South, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Jan. 21, 1970, Ser. No. 4,553

Int. Cl. C07c 85/02

U.S. Cl. 260—581

11 Claims

A process for aminating nitrophenols by reaction with ammonia in a multiphase liquid system having an aqueous phase and an organic phase. The process is used to make nitroaniline compounds in high yield.

3,658,907

METHOD OF PREPARATION OF HOMOCAMPHOR AND HOMOEPICAMPHOR

Genevieve Chaliel, 18 Chemin des Marronniers 38, and Andre Rassat, 5 Rue Marcellin Berthelot 38, both of Grenoble, France

No Drawing. Filed Oct. 7, 1968, Ser. No. 765,614

Claims priority, application France, Oct. 10, 1967, 123,822

Int. Cl. C07c 45/00

U.S. Cl. 260—586 A

1 Claim

A method of preparation of homocamphor and of homoepicamphor, characterized in that it comprises dissolving 1,8,8-trimethylbicyclo[3,2,1]-octane-2,4-dione in a mixture of hydrazine hydrate with an organic solvent which has a high boiling point and which is capable of supplying protons, heating and refluxing of said mixture, addition of a strong base after cooling of the mixture, distillation of the hydrazine hydrate and water, said distillation process being stopped from the moment of formation of the first crystals which appear in the condenser, cooling of the residue to room temperature, addition of water and phosphoric acid to the residue until a pH value lower than 2 is obtained and distillation of the water resulting in entrainment of the crystals of the desired products.

3,658,908

DIBENZO[a,e]CYCLOPROPA[c]CYCLOHEPTENE DERIVATIVES

William E. Coyne and John W. Cusic, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed May 31, 1968, Ser. No. 733,261

Int. Cl. C07c 49/76

U.S. Cl. 260—590

3 Claims

Tetrahydrodibenzo[a,e]cyclopropa[c]cycloheptene 5-ketones and 5-alcohols are described herein. They are prepared by starting from 5H-dibenzo[a,e]cycloheptene-5-one and ethyl trichloroacetate and are themselves useful as intermediates in the preparation of other compounds which possess pharmacological activity such as diuretic activity or anti-depressant activity.

3,658,909

COMPOSITIONS CONTAINING SUBSTITUTED 3-MERCAPTOCYCLOHEXANONES

Roger P. Napier, Piscataway, N.J., assignor to Mobil Oil Corporation

No Drawing. Filed Aug. 26, 1968, Ser. No. 755,389

Int. Cl. C07c 49/30

U.S. Cl. 260—590

5 Claims

3-(substituted arylthio) cyclohexanones are new compounds useful as fungicides. Some are effective against

plant fungi, while others are effective against soil fungi. Some are effective against both types.

3,658,910

LIQUID 2-HYDROXY-4-ALKOXYBENZOPHENONES

Ingenuin A. Hechenbleikner, Cincinnati, Ohio, assignor to Carlisle Chemical Works, Inc., Reading, Ohio

No Drawing. Filed Feb. 11, 1970, Ser. No. 10,608

Int. Cl. C07c 49/82

U.S. Cl. 260—591

3 Claims

Liquid 2-hydroxy-4-alkoxybenzophenones are prepared where the alkoxy group is a mixture of random branched alkyl groups of 6–10 carbon atoms. They are useful as ultraviolet light stabilizers for polymers, e.g. vinyl chloride polymers and monoolefin polymers.

3,658,911

PRODUCTION OF 2-METHYLHEPTEN-2-EN-6-ONE
Horst Pommer, Ludwigshafen, Herbert Mueller, Frankenthal, and Harald Koehl and Hermann Overwien, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 2, 1968, Ser. No. 764,646

Claims priority, application Germany, Oct. 4, 1967, P 16 43 668.3

Int. Cl. C07c 49/20

U.S. Cl. 260—593 R

3 Claims

Production of 2-methylhept-2-en-6-one which is important for organic synthesis by isomerization of 2-methylhept-1-en-6-one using as catalyst an iron carbonyl compound, a zerovalent element of 8 of the Periodic System, some of the carbonyl groups if desired being replaced by other neutral ligands.

3,658,912

STABILISATION OF AQUEOUS FORMALDEHYDE SOLUTIONS

Raimund Wambach, Wulf von Bonin, and Hermann Wolz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 9, 1966, Ser. No. 532,887

Claims priority, application Germany, Apr. 15, 1965, F 45,834

Int. Cl. C07c 47/04

U.S. Cl. 260—606

10 Claims

A method of improving stabilization of aqueous formaldehyde solutions by admixing therewith a graft polymer of a vinyl alcohol ester grafted to a poly acetal of formaldehyde with a glycol or the corresponding saponification product thereof; heating the mixture at 60–120° C. for 3–20 hours.

3,658,913

AQUEOUS FORMALDEHYDE SOLUTION STABILIZED BY SYNERGIC MIXTURES OF AMINOTRIAZINE

Ibrahim Dakli, Busto Arsizio, Varese, Angelo Demicheli, Saronno, Varese, and Giuseppe Gregori, Busto Arsizio, Varese, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed July 15, 1968, Ser. No. 744,624

Claims priority, application Italy, July 17, 1967, 18,476/67

Int. Cl. C07c 47/04

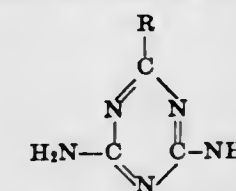
U.S. Cl. 260—606

1 Claim

Described are aqueous formaldehyde solutions containing or not containing methanol, which remain stable for longer storage times, at lower temperature with higher CH_2O concentration. The solutions contain as stabilizing agents synergistic mixes constituted by:

(A) melamine or its methylol derivatives;

(B) at least one of the guanamine derivatives or their methylol derivatives whose general formula is:



wherein R may be alkyl with between 1 to 20 carbon atoms, aryl, a hydrogenated aryl, an alkylaryl, an alkyl or phenyl substituted aryl, or a polyaryl.

3,658,914

POLYPEROXIDES

George P. Gregory, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

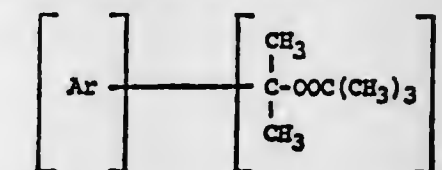
No Drawing. Continuation-in-part of application Ser. No. 137,744, Sept. 13, 1961, now Patent No. 3,402,205. This application June 11, 1968, Ser. No. 736,027

Int. Cl. C071 73/00

U.S. Cl. 260—610 R

2 Claims

Organic peroxides of the formula



where n is an integer from 2 to 4, and Ar represents a polyvalent aryl group containing 1 to 3 benzene rings are crosslinking agents for polymers.

3,658,915

BENZYLOXY COMPOUNDS

Raymond L. Cobb, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Application Oct. 17, 1968, Ser. No. 768,520, now Patent No. 3,527,773, dated Sept. 8, 1970, which is a continuation-in-part of application Ser. No. 531,351, Mar. 6, 1966. Divided and this application May 12, 1970, Ser. No. 36,693

Int. Cl. C07c 43/20

U.S. Cl. 260—611 A

4 Claims

Novel organic compounds are formed by treating a mixture of allylic halides with an alkali metal salt of benzyl alcohol. The reaction products are oxidized to form novel epoxide compounds. The novel benzyloxy compounds are useful as monomers for polymerization reactions and the epoxy derivatives thereof are useful in preparing curing agents, adhesives, and plasticizers.

3,658,916

5,10-SECO-19-NORANDROSTENES

William McCrae, Los Altos, John H. Fried, Palo Alto, and John A. Edwards, Los Altos, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Mar. 18, 1968, Ser. No. 714,078

Int. Cl. C07c 43/18

U.S. Cl. 260—611 F

5 Claims

New 5,10-seco-19-norandrostenes prepared from estradiol, 1,3,5(10),6,8-pentaenes having estrogenic activity.

3,658,917

ARYLATION OF ALLYL COMPOUNDS

Richard F. Heck, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 479,605, Aug. 13, 1965. This application Apr. 16, 1969, Ser. No. 816,795

Int. Cl. C07c 41/06

U.S. Cl. 260—612 D

12 Claims

Allyl compounds are produced by reacting a compound such as allyl chloride with an organometallic compound

of a Group VIII metal at a temperature in the range of 0° to about 200° C. in the presence of a highly polar organic compound as solvent. A representative organometallic compound is that prepared by reaction between phenylmercuric chloride and palladium chloride. The process is illustrated by the conversion of allyl chloride to allyl benzene.

3,658,918

FLUOROALKYL ETHERS AND PROCESS FOR THEIR MANUFACTURE

Horst Jaeger, Bettingen, Switzerland, assignor to Ciba Limited, Basel, Switzerland

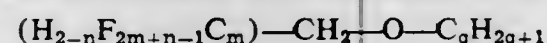
No Drawing. Filed Nov. 10, 1969, Ser. No. 875,575
Claims priority, application Switzerland, Nov. 25, 1968, 17,515/68

Int. Cl. C07c 43/00

U.S. Cl. 260—614 F

7 Claims

Fluoroalkyl alkyl ethers, especially perfluoroalkyl methyl alkyl ethers are provided. They correspond to the formula



in which m is 4 to 9, n is at most 2 and q is at most 4. These ethers are manufactured by reacting in an anhydrous medium and in the presence of hydrogen halide a corresponding fluoralkylcarboxylic acid and a corresponding dialkyl ether with lithium aluminum hydride. The fluoroalkyl alkyl ethers are useful as hydraulic liquids, agents for conferring oleophobic properties or intermediate products, especially for the manufacture of fluoroalkyl vinyl ethers.

3,658,919

DUST-FREE POLYOLS

John H. Daniel, Jr., South Whitehall Township, Pa., assignor to Commercial Solvents Corporation, New York, N.Y.

No Drawing. Filed Dec. 17, 1969, Ser. No. 885,953

Int. Cl. C07c 41/12

U.S. Cl. 260—615 A

5 Claims

A process for preparing dust-free dipentaerythritol, tri-pentaerythritol and higher molecular weight poly-pentaerythritols, or mixtures thereof, by precipitating them in the presence of methyl cellulose or carboxy polymethyl-ene.

3,658,920

PROCESS FOR THE PRODUCTION OF PHENOLS

Herbert George Lawley, Robert Kerr, and Duncan Cuthbertson Curry, Norton-on-Tees, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Aug. 1, 1968, Ser. No. 749,268
Claims priority, application Great Britain, Aug. 10, 1967, 36,697/67

Int. Cl. C07c 39/04

U.S. Cl. 260—624

7 Claims

Alkyl cycloalkyl and aralkyl groups are removed from substituted phenols using a ferric sulphate catalyst.

3,658,921

PROCESS FOR PRODUCTION OF HALONITRO ALCOHOLS

Richard Wessendorf, Hilden, Rhineland, Germany, assignor to Henkel & Cie G.m.b.H., Dusseldorf-Helt-hausen, Germany

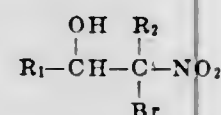
No Drawing. Filed July 17, 1969, Ser. No. 842,711
Claims priority, application Germany, July 19, 1968, P 17 68 976.8; Oct. 19, 1968, P 18 04 068.1

Int. Cl. C07c 31/34

U.S. Cl. 260—633

14 Claims

An improved process for the preparation of halonitro alcohols of the formula



wherein R_1 is selected from the group consisting of hydrogen and methyl optionally substituted with 1 to 3 halogen atoms and R_2 is selected from the group consisting of hydrogen and methyl and ethyl optionally substituted with at least one hydroxyl by reaction of a nitroalkane and an aldehyde in an aqueous media.

3,658,922

PREPARATION OF NITROOLEFINS IN THE PRESENCE OF ETHER SOLVENTS

Charles A. Drake, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Apr. 23, 1970, Ser. No. 31,376
Int. Cl. C07c 79/06

U.S. Cl. 260—644

6 Claims

A method of preparing nitroolefins by contacting olefins with nitric oxide in the presence of an ether solvent without the formation of significant amounts of nitro-alcohols, nitroso-nitro or dinitro compounds.

3,658,923

HALOMETHYLATION OF TRIMETHYLBENZENES

Paul R. Stapp, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,909

Int. Cl. C07c 25/14

U.S. Cl. 260—651 HA

8 Claims

Halomethylation of trimethylbenzenes is obtained by contacting the trimethylbenzene with HCHO and a hydrogen halide in the presence of liquid SO_2 at a temperature ranging from -100 to -10° C.

3,658,924

FLUORINATED ALKYL ALLENES

Robert Neville Haszeldine, Disley, England; Ronald Eric Banks, Torkington, England; and David Robin Taylor, Bramhall, England (all % Pennwalt Corporation, 900 1st Ave., King of Prussia, Pa. 19406)

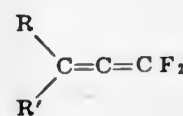
No Drawing. Filed Oct. 3, 1969, Ser. No. 863,717
Claims priority, application Great Britain, Oct. 23, 1968, 50,295/68

Int. Cl. C07c 21/18

U.S. Cl. 260—653.3

4 Claims

1,1-difluoro-3-polyhalogenoalkylallenes of the formula



where R is fluorinated or fluorochlorinated alkyl and R' is fluorine, chlorine or fluorinated or fluorochlorinated alkyl, are useful for the preparation of cross-linkable polymers having oil and water repellent properties.

3,658,925

METALATION OF LIMONENE AND SYNTHESIS OF LIMONENE DERIVATIVES

William F. Erman and Charles D. Broadus, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 29, 1969, Ser. No. 888,893

Int. Cl. C07f 1/02; C07c 13/00, 35/00

U.S. Cl. 260—665 R

3 Claims

Disclosed is a novel compound, 2-(4-methylcyclohex-3-en-1-yl)allyllithium and a process for its production. Also

disclosed are processes of converting this novel compound to known and useful limonene derivatives. These derivatives find use mainly as perfume materials.

3,658,926

BUTADIENE OLIGOMERS AND PRODUCTION THEREOF

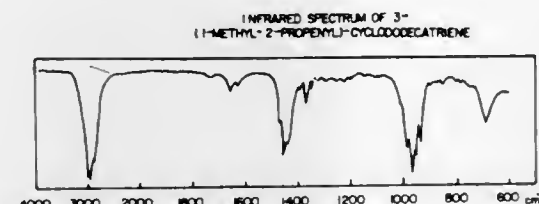
Hiroyuki Morikawa, Ami-machi, Japan, assignor to Mitsubishi Petrochemical Company Limited, Tokyo, Japan

Filed Dec. 14, 1970, Ser. No. 97,764

Int. Cl. C07c 3/00

U.S. Cl. 260—666 B

12 Claims



Butadiene-1,3 and a specific chain dimer thereof are caused to undergo cyclic cotrimerization in contact with a Ziegler catalyst comprising, in combination, a specific titanium compound (e.g., titanium tetrabutoxide), a specific electron-donor compound (e.g., triphenyl phosphine) and a specific organic aluminum compound (e.g., diethyl-aluminum). Alternatively, butadiene is caused to contact a catalyst comprising, in combination, a cobalt or iron compound, a chromium or nickel compound, and a trialkylaluminum.

By this process, new compounds 3-(1-methyl-2-propenyl)-cyclododecatene, 3-(3-butenyl)-cyclododecatene, and 3-(1-methyl-2-propenyl)-cyclooctadiene are produced.

3,658,927

OLEFIN CONVERSION AND CATALYSTS THEREFOR

Donald L. Crain and Robert E. Reusser, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Continuation of application Ser. No. 627,634, Apr. 3, 1967. This application Sept. 2, 1969, Ser. No. 856,886

Int. Cl. C07c 3/62

U.S. Cl. 260—666 A

20 Claims

Olefins are converted into other olefins having different numbers of carbon atoms by contact with a catalyst, active for disproportionating propylene into ethylene and butene, comprising alumina promoted with a compound of molybdenum, tungsten or rhenium and further treated with a modifying amount of a compound of an alkali metal or an alkaline earth metal.

3,658,928

DEHYDRATION OF α -METHYLBENZYL ALCOHOL

John R. Skinner, Oakland, and Charles E. Sanborn, Walnut Creek, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Sept. 21, 1970, Ser. No. 74,227

Int. Cl. C07c 15/10

U.S. Cl. 260—669 QZ

7 Claims

Styrene is prepared by catalytically dehydrating α -methylbenzyl alcohol in the vapor phase, at a temperature above about 260° C., in the presence of controlled amounts of added steam. In one embodiment, the dehydration is effected in a vertically-oriented catalyst-containing reaction zone, through which the substrate alcohol passes upwardly. Every 75 to 500 hours, the catalyst is reactivated by passing an aromatic hydrocarbon through the reactor zone.

3,658,929

CONVERSION OF OLEFINS

Robert L. Banks, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Original application Apr. 3, 1967, Ser. No. 627,635. Divided and this application Nov. 16, 1970, Ser. No. 90,091

Int. Cl. C07c 3/62, 11/00, 13/00

U.S. Cl. 260—683 D

5 Claims

Olefins are converted by contacting a mixture of at least two double bond isomers with an olefin reaction catalyst. Olefins are pretreated by contact with magnesium oxide prior to the conversion.

3,658,930

OLEFIN CONVERSION WITH HETEROGENEOUS OLEFIN DISPROPORTIONATION CATALYST COMBINED WITH RHODIUM OXIDE

Joseph R. Kenton and John E. Mahan, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Filed Dec. 20, 1968, Ser. No. 785,771

Int. Cl. C07c 3/62, 11/00, 13/00

U.S. Cl. 260—683 D

9 Claims

Olefins are converted in accordance with the olefin reaction by contacting the olefin feed with a catalyst which comprises a heterogeneous olefin reaction catalyst in association with rhodium oxide.

3,658,931

LINEAR OLEFINS VIA OLEFIN DISPROPORTIONATION AND ETHYLENE-PROPYLENE CO-DIMERIZATION

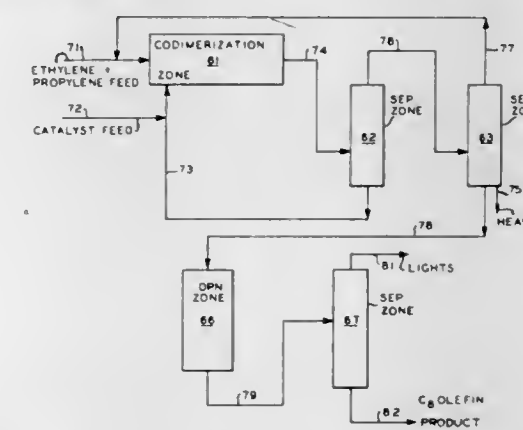
Donald L. Crain and Paul R. Stapp, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 11, 1969, Ser. No. 884,135

Int. Cl. C07c 3/62

U.S. Cl. 260—683 D

7 Claims



Linear olefins are prepared by a process of co-dimerizing ethylene and propylene to produce linear pentenes, and disproportionating the pentenes alone or in combination with the products of an olefin disproportionation reaction to provide the linear olefins. The ethylene and propylene feed materials can be provided by disproportionating propylene to provide ethylene and butenes and separating the butenes from the ethylene and propylene.

3,658,932

ISOMERIZATION OF 4-METHYLPENTENE-1

Robert P. Arganbright and Mervin M. Simpson, Jr., Houston, Tex., assignors to Petro-Tex Chemical Corporation, Houston, Tex.

No Drawing. Filed Sept. 29, 1969, Ser. No. 862,003

Int. Cl. C07c 5/22

U.S. Cl. 260—683.2

4 Claims

4-methylpentene-1 can be isomerized in good yields to 4-methylpentene-2 using a molecular sieve catalyst having a pore size of 4 Å. For example, type 13X gave 65.6 percent yield of 4-MP-2. The selectivity of the catalysts can be improved by substituting a noble metal ion for a portion of the sodium in the catalyst, e.g. yields go to

73.5 percent. This result is contrary to the thermodynamic equilibrium which indicates the predominant product is 2-methylpentene-2 and 4-MP-2 is only a minor product. 4-MP-2 can be reacted with ethylene over a 10 percent MoO₃-alumina catalyst to give good yields of 3-methylbutene-1 which can be dehydrogenated to isoprene.

3,658,933

ETHYLENE FROM ETHANE, HALOGEN AND HYDROGEN HALIDE THROUGH FLUIDIZED CATALYST

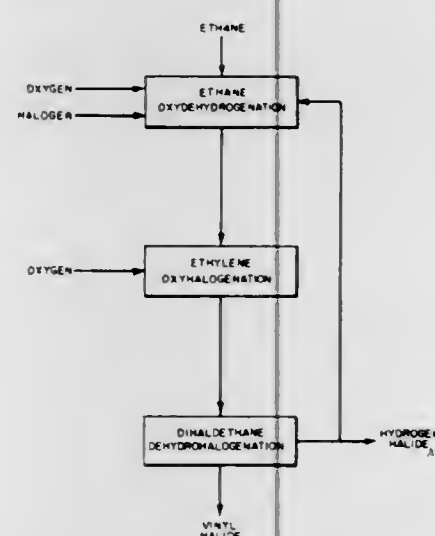
William Q. Beard, Jr., Wichita, Kans., assignor to Ethyl Corporation, New York, N.Y.

Filed July 14, 1969, Ser. No. 841,295

Int. Cl. B01j 11/22; C07c 11/04

U.S. Cl. 260—683.3

16 Claims



Process for the preparation of vinyl halide by oxydehydrogenation of ethane to ethylene with a hydrogen halide, halogen and oxygen feed, oxyhalogenation of the ethylene to 1,2-dihaloethane, dehydrohalogenation of the 1,2-dihaloethane to vinyl halide, and recycle of part or all of the hydrogen halide from the production of vinyl halide to the oxydehydrogenation step. A preferred catalyst for the oxydehydrogenation step includes a low concentration of copper or iron halide with rare earth halide, the ratio of rear earth halide to copper or iron halide being greater than 1:1. Other preferred catalyst components include alkali metal halide and manganese halide.

3,658,934

ETHYLENE FROM ETHANE AND HALOGEN THROUGH FLUIDIZED RARE EARTH CATALYST

William Q. Beard, Jr., Wichita, Kans., assignor to Ethyl Corporation, New York, N.Y.

Filed July 14, 1969, Ser. No. 841,456

Int. Cl. C07c 3/28, 5/18

U.S. Cl. 260—683.3

16 Claims

Process for the preparation of vinyl halide by halodehydrogenation of ethane to ethylene in the presence of an inert diluent, oxyhalogenation of the ethylene to 1,2-dihaloethane, dehydrohalogenation of the 1,2-dihaloethane to vinyl halide, and recycle of part or all of either or both ethane and hydrogen halide from the vinyl halide step to the halodehydrogenation and oxyhalogenation steps, respectively. A preferred catalyst for the halodehydro-

genation step includes a low concentration of copper or iron halide with rare earth halide, the ratio of rare earth halide to copper or iron halide being greater than 1:1. Other preferred catalyst components include alkali metal halide and manganese halide.

3,658,935

DIMERIZATION AND CODIMERIZATION PROCESS

Lloyd A. Pine, Baton Rouge, La., assignor to Esso Research and Engineering Company, Linden, N.J.

No Drawing. Continuation-in-part of application Ser. No. 683,447, Nov. 16, 1967. This application June 8, 1970, Ser. No. 44,610

Int. Cl. C07c 3/20

U.S. Cl. 260—683.15 R

3 Claims

The dimerization or codimerization of monolefins, especially propylene and n-butylene or mixtures thereof in the presence of nickel oxide catalysts has been found to produce high yields of predominantly straight chain or singly branched C₆, C₇ and C₈ olefins which are especially suitable as feedstocks for oxonation to lightly branched alcohols that are subsequently used in the formation of plasticizers of superior quality. The improvement in these well-known dimerization or codimerization reactions resides in the introduction of critical amounts of hydrogen to the dimerization or codimerization reactor in order to enhance the catalyst activity and to suppress catalyst poisoning by impurities in the feedstream which are mainly acetylenes and diolefins, especially 1,3-butadiene. The introduction of a specified amount of hydrogen ranging from 1 to 10 moles of hydrogen per mole of butadiene impurity has greatly extended the life of the catalyst.

3,658,936

CATALYTIC POLYMERIZATION

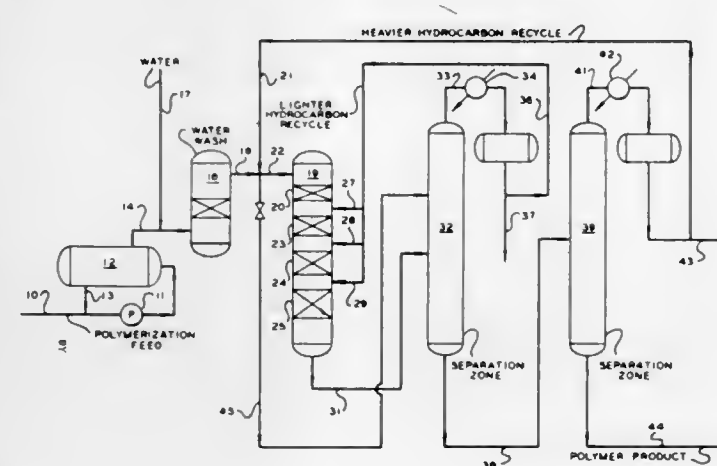
Fred H. Erdmann, Great Falls, Mont., assignor to Phillips Petroleum Company

Continuation of application Ser. No. 598,681, Dec. 2, 1966. This application Oct. 31, 1969, Ser. No. 871,782

Int. Cl. C07c 3/16

U.S. Cl. 260—683.15 C

4 Claims



A method of controlling the reaction temperature of olefins during polymerization in a polymerization zone by removing lighter hydrocarbons from a first separation zone in an amount sufficient to control the temperature in the polymerization zone, cooling said removed light hydrocarbons and introducing the cooled lighter hydrocarbons back into the polymerization zone.

3,658,937

PROCESS FOR PREPARING DYE-RECEPTIVE POLYOLEFINIC FIBERS

Benito Beghelli, Terzi, and Pierpaolo Camprincoli, Florence, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Aug. 10, 1970, Ser. No. 62,602

Claims priority, application Italy, Aug. 11, 1969,

20,795A/69

Int. Cl. C08g 45/04

U.S. Cl. 260—837 R

9 Claims

There is disclosed a process for preparing fibers based on olefin polymers consisting essentially of isotactic macromolecules, which fibers have improved receptivity for dyestuffs of the acid, metallized, and plastosoluble classes. The dyeing properties of the fibers are modified by means of basic nitrogen-containing polymers and copolymers, such as the product obtained by polymerizing epichlorhydrin with aminic compounds, which are treated with an epoxy compound in the course of granulation and/or during spinning operations.

3,658,938

POLYAMIDE-IMIDE/POLYSULFONE COMPOSITES

George T. Kwiatkowski, Piscataway; George L. Brode, Somerville, and Lloyd M. Robeson, Lebanon, N.J., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Dec. 30, 1970, Ser. No. 102,922

Int. Cl. C08g 41/04

U.S. Cl. 260—857 PI

9 Claims

The mechanical blending of polysulfones with oligomer sulfone ether diamine polyamide/imides affords polyblends having environmental stress aging characteristics greater than those of the polysulfones and improved processability over that of the oligomer sulfone ether diamine polyamide/imides.

3,658,939

POLYURETHANE AND ADHESIVE SOLUTION OF A POLYURETHANE

Austin T. Carpenter, Roy Garrington, and Keith W. Harrison, Leicester, England, assignors to USM Corporation, Boston, Mass.

No Drawing. Filed Sept. 26, 1969, Ser. No. 862,063

Claims priority, application Great Britain, Dec. 11, 1968, 58,777/68

Int. Cl. C08g 41/04, 22/00

U.S. Cl. 260—858

14 Claims

Polyurethane and adhesive solution of polyurethane providing superior bond strength to metallic surfaces. The polyurethane is formed by chemical reaction between components comprising an hydroxyl terminated polyol, an organic polyisocyanate and a chain extending agent which includes an organic diol having as a substituent a carboxyl group or a grouping capable of conversion to a carboxyl group.

3,658,940

SULPHONATED POLYMERS DERIVED FROM POLYURETHANES

Jean Claude Galin, Strasbourg, France, assignor to Societe Rhodiaceta, Paris, France

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,116

Claims priority, application France, Sept. 17, 1968,

166,519

Int. Cl. C08g 41/04

U.S. Cl. 260—859

9 Claims

A sulphonated polymer having a good affinity for basic dyestuffs in the form of a plyurethane in which part of the hydrogen atoms attached to nitrogen have been replaced by units derived from propane sulfone and optionally also acrylonitrile.

3,658,941

3,3,3',3'-TETRAMETHYL - 6,6'-DI(2-HYDROXYPROPOXY)-1,1'-SPIROBIINDANE AND POLYESTERS DERIVED THEREFROM

Erkki J. Pulkkinen, Morris Plains, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Dec. 13, 1968, Ser. No. 783,721. Divided and this application Sept. 21, 1970, Ser. No. 74,141

Int. Cl. C08f 11/02, 21/02

U.S. Cl. 260—861

5 Claims

This invention relates to the propoxylation of 3,3,3',3'-tetramethyl-6,6'-dihydroxy-1,1'-spirobiindane to form 3,3,3',3'-tetramethyl - 6,6' - di(2 - hydroxypropoxy)-1,1'-spirobiindane and to the reaction of this latter compound with an ethylenically unsaturated dicarboxylic acid to give an unsaturated polyester. These unsaturated polyesters can be cross-linked with styrene to give a cured polyester having excellent chemical resistance which is useful in films, molded articles and in reinforced sheets such as polyester impregnated glass fabric.

3,658,942

POLYMERS OF PROPARGYL DERIVATIVES WITH QUATERNARY COMPOUNDS

Valentin Alexeevich Kargin, Ulitsa Gaidara 7, kv. 4; Viktor Alexandrovich Kabanov, Karetny ryad 5/9, kv. 21; Kantamir Vagabovich Aliev, Leninsky prospekt 92, korpus 1, kv. 110; and Rafail Mamed Ogly Salimov, Ulitsa D. Ulyanova 3, all of Moscow, U.S.S.R.

No Drawing. Filed Oct. 29, 1969, Ser. No. 872,407

Claims priority, application U.S.S.R., Oct. 31, 1968,

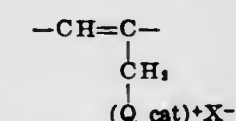
1,282,152; Oct. 14, 1969, 1,360,704

Int. Cl. C08f 9/00, 23/00

U.S. Cl. 260—875

6 Claims

Polymers with a system of conjugated double bonds in the main chain comprising homopolymers and copolymers of quaternary compounds of monomeric amines, phosphines, arsines or their polymeric derivatives with propargyl derivatives, containing links with general formula:



wherein (Q cat)⁺ is a cation containing a quaternary atom of nitrogen, phosphorus, or arsenic; and X⁻ is Cl⁻, Br⁻, I⁻, OH⁻, or an anion comprising an ester group.

The above-mentioned compounds are used in electric, electro-technical, chemical and photochemical industry as a material with semiconductive properties, for electrically conductive coatings, thermistors and other purposes. A method for producing these compounds consists in the interaction of monomeric amines, phosphines, arsines or their polymeric derivatives with propargyl derivatives of the general formula CH₂=C—CH₂X, wherein X is Cl; Br; I; OH⁻ or a radical comprising and ester group, in organic solvents at a temperature between -40° C. and +220° C. followed by separation of the resulting product.

3,658,943

POLYMER COMPOSITION CONTAINING GRAFT COPOLYMER PROCESSING AID

Nathan D. Field, Allentown, and Kornel D. Kiss, Easton, Pa., Donald H. Lorenz, Basking Ridge, N.J., and Edwin M. Smolin, Easton, Pa., assignors to GAF Corporation, New York, N.Y.

No Drawing. Filed Dec. 30, 1969, Ser. No. 889,330

Int. Cl. C08f 29/24, 29/30, 29/50

U.S. Cl. 260—876 R

9 Claims

An easily processable resin composition comprising (a) a normally difficultly processable thermoplastic resin, of the type of vinyl chloride polymer and their chlorination products; and (b) in an amount sufficient to effect an improvement in the processability of said normally difficultly process-

able thermoplastic resin, a graft copolymer comprising methyl methacrylate grafted onto an alkyl vinyl ether backbone polymer, the methyl methacrylate units being present in an amount of 10-95% by weight and the alkyl vinyl ether backbone polymer being present in an amount of 5-90% by weight based on the total weight of the grafted copolymer.

3,568,944

PROCESS FOR THE PREPARATION OF IMPACT-RESISTING POLYSTYRENIC POLYMERS

Hiroshi Osuga and Isao Kaiho, Yokohama, and Hiroshi Shimizu, Kawasaki, Japan, assignors to Nihon Polystyrene Kogyo Kabushiki Kaisha, Kawasaki-shi, Kanagawa, Japan

No Drawing. Continuation of application Ser. No. 657,015, July 31, 1967. This application July 2, 1970, Ser. No. 56,115

Int. Cl. C08f 41/12

U.S. Cl. 260—876 R

6 Claims

Process for producing high impact resistant styrenic polymers comprising changing from bulk polymerization to suspension polymerization during polymerization wherein a small amount of a polybutadiene rubber or a styrene butadiene rubber is dissolved into 100 parts of a styrenic monomer, the system is polymerized insufficiently under bulk polymerization conditions to such extent that more than 2% by weight of the monomer is polymerized, but the polymerization is not completed, thereafter from 10 to 30 parts of a styrenic polymer having a molecular weight of from 80,000 to 300,000 is dissolved into the system in which a part of the monomer has been polymerized, the mixture is dispersed in water to provide a polymer suspension, and then the polymerization of the system is completed under the condition of suspension polymerization.

3,658,945

POLYPHENYLENE OXIDE COMPOSITION

Seizo Nakashio, Nishinomiya, Toshio Takemura, Kyoto, and Kunio Ota, Takatsuki, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

No Drawing. Filed Sept. 25, 1970, Ser. No. 75,669

Claims priority, application Japan, Oct. 1, 1969, 44/78,863; Dec. 6, 1969, 44/98,062

Int. Cl. C08f 41/12

U.C. Cl. 260—876 R

10 Claims

The impact resistance of polyphenylene oxide is markedly improved without being impaired excellent characteristics thereof, such as heat resistance, chemical resistance, and mechanical and electrical properties, by blending therewith a graft copolymer obtained from an ethylene- α -olefin-polyene terpolymer by graft-polymerizing thereon at least one styrene-type compound in an amount of 3 to 90% by weight based on the weight of graft copolymer, in such a proportion that the amount of ethylene- α -olefin-polyene terpolymer component of said graft copolymer is 0.5 to 15% by weight based on the total weight of the resulting composition.

3,658,946

PRODUCTION OF RUBBER-MODIFIED VINYLAROMATIC POLYMERS

Klaus Bronstert, Carlsberg, Karl Buchholz and Adolf Echte, Ludwigshafen, and Juergen Hofmann, Beindersheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed May 8, 1969, Ser. No. 822,997

Claims priority, application Germany, May 11, 1968, P 17 70 392.3

Int. Cl. C08f 15/00

U.S. Cl. 260—878 R

3 Claims

Process for the production of impact-resistant polymers by the continuous polymerization of a solution of

a diene elastomer or elastomeric copolymer of ethylene and propylene, the starting materials being first partially polymerized to such an extent that the solids content of the mixture is 1.1 to 2 times the content of diene elastomer but not more than 16% by weight, then introduced into an isothermal polymerization stage where a mixture containing less than 50% by weight of solids is prepared at a temperature of from 50° to 150° C. while mixing, which mixture is totally polymerized in the downstream continuous polymerization stages at a temperature of up to 250° C. to give a mixture containing more than 60% by weight of solids, and then freed in a conventional manner from volatile constituents.

3,658,947

COMPOSITE RUBBER-MODIFIED THERMOPLASTIC RESIN

Koji Ito, Hekikai-gun, Sadao Arai, Minami-ku, and Nobuo Tsuchiyama, Mizuho-ku, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Dec. 16, 1968, Ser. No. 783,908

Claims priority, application Japan, Dec. 14, 1967, 42/79,765; Feb. 17, 1968, 43/9,605; Aug. 5, 1968, 43/55,022

Int. Cl. C08d 9/08

U.S. Cl. 260—887

10 Claims

A composite two phase rubber-modified thermoplastic resin is described in which a rubber component has been dispersed in a thermoplastic resin matrix in a finely divided form, wherein the rubber particles have the geometric shape of oblate spheroid in which the ratio of the length of the minor axis to that of the major axis is at most 0.5, which resin does not exhibit the stress whitening phenomenon. Also described is a method of preparing such a resin from a similar resin wherein the rubber particles are of spheroidal shape which involves rolling or stretching the same within the temperature range from room temperature to the softening temperature of the resin. Also disclosed is a method for improving the dimensional stability of the modified resin having rubber particles in the shape of an oblate spheroid by heat treating under tension or with permissive limited shrinkage at a temperature in the range of from at least 5° C. above the heat distortion temperature to a temperature below the softening temperature.

3,658,948

HOT MELT COMPOSITION COMPRISING MALEATED POLYETHYLENE AND POLYOLEFIN

Richard L. McConnell, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of abandoned application Ser. No. 693,737, Dec. 27, 1967. This application Nov. 23, 1970, Ser. No. 92,135

Int. Cl. C08f 29/12

U.S. Cl. 260—897 B

5 Claims

A hot melt adhesive coating composition comprising about 40 to about 95% by weight of maleated polyethylene and about 5 to about 60% by weight of a poly- α -olefin having from 2 to 10 carbon atoms, a density in the range of about 0.83 to about 0.98, and a melt index in the range of about 0.1 to about 250, said composition having a melt viscosity within the range between about 1,000 and 100,000 cps. 150° C. Such coating compositions have excellent adhesion to both paper and ink-printed areas, excellent toughness and improved resistance to stress cracking. Improvement is especially notable when the coating thickness is in the range of between about 2 and about 100 mils.

3,658,949

PROCESS FOR PRODUCING MODIFIED POLYPHENYLENE OXIDE COMPOSITION

Seizo Nakashio, Nishinomiya, Toshio Takemura, Kyoto, and Kunio Ota, Takatsuki, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,871

Int. Cl. C08f 29/12

U.S. Cl. 260—897 R

15 Claims

A polyphenylene oxide composition which has a greatly improved impact resistance and, in addition, excellent heat and chemical resistance as well as distinguished mechanical and electrical properties is obtained by oxidative coupling-polymerization of phenols in the presence of at least one polymer selected from the group consisting of ethylene- α -olefin copolymers and ethylene- α -olefin-polyene terpolymers. Moreover, said composition shows no tendency toward phase separation.

3,658,950

THERMOPLASTIC RESIN CONTAINING STYRENE-ACRYLONITRILE COPOLYMER AND CHLORINATED POLYETHYLENE

Elio Eusebi, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

No Drawing. Filed May 27, 1969, Ser. No. 828,391

Int. Cl. C08f 41/12

U.S. Cl. 260—897 C

2 Claims

An inexpensive impact resistant thermoplastic resin made up of a blend of styrene-acrylonitrile copolymer and chlorinated polyethylene. The chlorinated polyethylene contains 30-40% by weight chlorine and constitutes up to about 45% by volume of the resin product.

3,658,951

SULFONYLHYDRAZIDE PHOSPHONATES

John E. Herweh, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

No Drawing. Filed Aug. 5, 1969, Ser. No. 847,715

Int. Cl. C07f 9/40

U.S. Cl. 260—923

3 Claims

Phosphorus-containing sulfonylhydrazides of the formula:



In addition chlorosulfonated phosphorus-containing compounds useful as organic intermediates in the preparation of the hydrazides are described. The phosphorus-containing sulfonyl-hydrazides are useful as blowing agents for resinous blends.

3,658,952

BIS[(DIALKYL)PHOSPHONOALKYLAMIDO]ALKYLS

Hermann Nachbur, Dornach, and Arthur Maeder, Therwil, Switzerland, assignors to Ciba Limited, Basel, Switzerland

No Drawing. Filed July 1, 1969, Ser. No. 838,329

Claims priority, application Switzerland, July 11, 1968, 10,365/68

Int. Cl. C07f 9/40; D06m 1/00

U.S. Cl. 260—932

9 Claims

Phosphorus-containing reaction products of a (methylene)- or (dimethylene ether)-bis-(dialkyl phosphonopropionic acid amide) and formaldehyde or a formaldehyde releasing agent, for flame-proofing fiber materials containing cellulose advantageously together with a curable aminoplast precondensate.

3,658,953

PROCESS FOR THE PREPARATION OF SUBSTITUTED VINYL ESTERS OF ACIDS OF PHOSPHORUS

Dirk E. Poel, Dirk Medema, Robert van Helden, and Nanno Fekkes, Amsterdam, Netherlands, and Elliot Bergman and Jack Wood, Kent, England, assignors to Shell Oil Company, New York, N.Y.

No Drawing. Filed Jan. 21, 1969, Ser. No. 793,924

Claims priority, application Great Britain, Jan. 25, 1968, 3,983/68

Int. Cl. C07d 105/04; C07f 9/08

U.S. Cl. 260—970

7 Claims

Vinyl esters of phosphorus acids having biological activity as pesticides are prepared by reacting dialkyl phosphites or thiophosphites and/or monoalkyl phosphonites, secondary phosphine oxides and their corresponding thio-analogues with an alpha-haloketone in the presence of a base such as gaseous ammonia and di- or trialkyl amines. The amount of base used is at least 0.5 gram equivalents of base per mole of alpha-haloketone.

3,658,954

DUPLICATING PROCESS FOR VIDEO DISC RECORDS

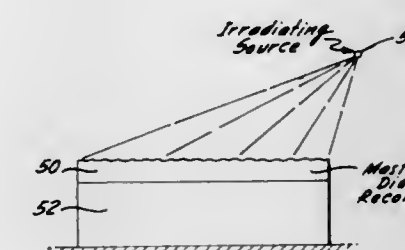
Kent D. Broadbent, San Pedro, Calif., assignor to MCA Technology, Inc., Santa Monica, Calif.

Filed July 24, 1968, Ser. No. 747,251

Int. Cl. B29d 11/00

U.S. Cl. 264—1

4 Claims



A duplicating process for forming duplicate plastic records from a video recording master die is provided. The process involves subjecting the surface of the die to an appropriate vapor, and irradiating the vapor so as to form a film on the surface of the die having holes or depressions therein which are formed by the die, and which are representative of the video recordings of the die. A backing is subsequently applied to the film, the backing being composed, for example, of a transparent material having the same coefficient of refraction as the film, and the resulting combination is subsequently removed from the surface of the die.

3,658,955

PROCESS FOR PRESSURE CASTING OF TUBULAR REVERSE OSMOSIS MEMBRANES USING AIR DRIVEN CASTING BOBS

Richard M. Chamberlin, McKeesport, James L. Emswiler, Bethel Park, Andrew S. Calderwood, Monroeville, and Regis R. Stana, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 15, 1970, Ser. No. 28,605

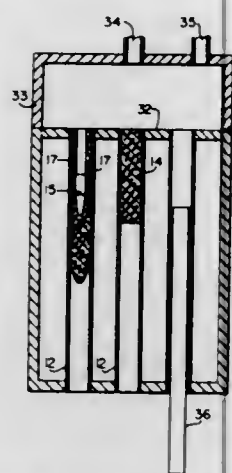
Int. Cl. B29c 13/00; B29d 27/04

U.S. Cl. 264—45

8 Claims

A unitary, tubular, reverse osmosis membrane is made by placing a viscous casting solution containing a cellulose film forming material, a solvent, and a leachable swelling agent into a hollow tube, placing a casting bob having a circular cross section at its widest point into one end of the tube, pushing the casting bob through the casting solution with a gas under pressure to form a con-

tinuous film of casting solution on the inside of the hollow tube, exposing the film to air, and contacting the



film with a leaching liquid to form a reverse osmosis membrane.

ERRATA

For Classes 23—252 to 424—274 sec:
Patent Nos. 3,658,996 thru 3,659,011

3,658,956

N-TRITYL-IMIDAZOLES FOR TREATING FUNGAL INFECTIONS

Karl H. Buchel, Leverkusen, Erik Regel, Wuppertal-Cronenberg, and Manfred Plempel, Wuppertal-Elberfeld, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

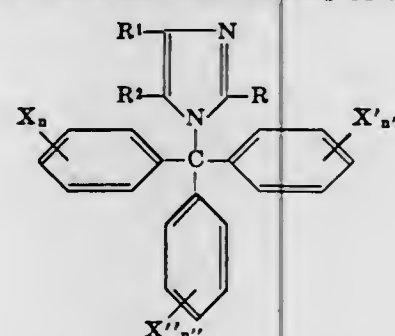
No Drawing. Original application Sept. 9, 1968, Ser. No. 758,594. Divided and this application May 11, 1970, Ser. No. 36,424

Claims priority, application Germany, Sept. 15, 1967, F 53,504

Int. Cl. A61k 27/00

U.S. Cl. 424—273

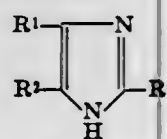
N-trityl-imidazoles and salts thereof of the formula:



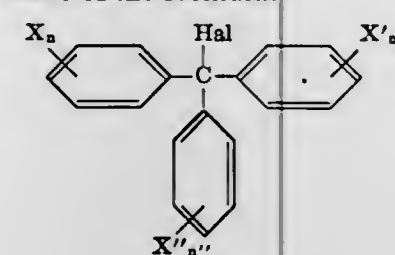
wherein

R, R¹ and R² are hydrogen, lower alkyl or phenyl, or R¹ and R² together form an annellated benzene ring, X, X' and X'' are alkyl of 1 to 12 carbon atoms or an electro-negative moiety, and n, n' and n'' are integers from 0 to 2,

or pharmaceutically acceptable acid salts thereof may be produced by reacting a silver salt or alkali metal salt of an imidazole of the formula:



with a trityl halide of the formula:



wherein the substituents are as above defined and Hal is halogen. These compounds are useful as antimycotics.

3,658,957

PROCESS FOR COMBATING FUNGI USING A BICYCLO, DICARBOXYLIC ANHYDRIDE OR IMIDE AS THE FUNGICIDE

Gwyneth M. Roberts, Doncaster, Victoria, Faye E. Butt, North Balwyn, Victoria, Asbjorn Baklien, Kingsbury, Victoria, Jocelyn M. Gregory, Croydon, Victoria, and Jan Kuiper, Wagga Wagga, New South Wales, Australia, assignors to Imperial Chemical Industries of Australia and New Zealand Limited, Melbourne, Victoria, Australia

No Drawing. Original application Dec. 2, 1965, Ser. No. 511,251, now Patent No. 3,476,546, dated Nov. 4, 1969. Divided and this application June 23, 1969, Ser. No. 850,286

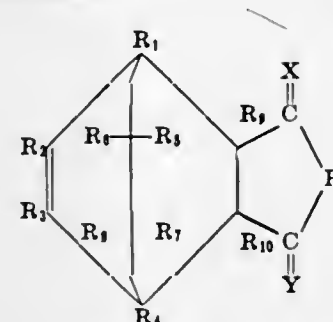
Claims priority, application Australia, Dec. 17, 1964, 53,063/64

Int. Cl. A01n 9/22, 9/28

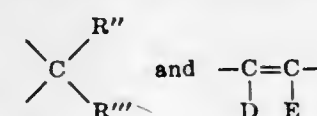
U.S. Cl. 424—274

4 Claims

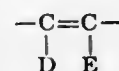
A process for combating undesired fungi in plants which comprises treating the plants with a composition comprising as the fungicidally active ingredient, a compound of the formula:



wherein X and Y are either both oxygen or both sulphur; R is selected from the group consisting of oxygen, NR',



R' is selected from the group consisting of hydrogen, alkyl, alkenyl, aryl, alkylamino, arylamino, dialkylamino, amino, thiazolyl, —SCZ₃ wherein Z is Cl, Br or F, and —SCQCl·CQ'Cl₂ wherein Q and Q', which may be the same or different, are H or Cl; R'', R''', D, E and R₁ to R₁₀ inclusive, which may all be the same or different, are hydrogen, halogen or alkyl and D and E may be linked to form a 6-membered ring whenever they stand for alkyl provided, however, that R₉ and R₁₀ stand for hydrogen whenever R is



and an inert carrier therefor.

3,658,958

METHOD OF INHIBITING GASTRIC ACID SECRETION WITH 2-(2,6-DICHLOROPHENYLIMINO)PYRROLIDINES

Timothy Yu-Wen Jen and Bernard Loev, Broomall, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Filed Oct. 21, 1969, Ser. No. 868,231

Int. Cl. A61k 27/00

U.S. Cl. 424—274

2 Claims

2-(2,6-disubstituted-phenylimino)pyrrolidines and piperidines and compositions and methods for producing inhibition of gastric acid secretion substantially without hypotensive activity with 2-(2,6-dichlorophenylimino)pyrrolidine and N-lower alkanoyl derivatives thereof.

3,658,959 NOVEL CARBAMATE INSECTICIDAL COMPOSITIONS

Clyde G. Inks, Taylor, Mich. (% Wyandotte Chemicals Corp., Wyandotte, Mich. 48192)

No Drawing. Filed Sept. 16, 1966, Ser. No. 579,849

Int. Cl. A01n 9/20

U.S. Cl. 424—300

7 Claims

Polybasic acid esters of hydroxyl-terminated oxyalkylene polyols provide stability to carbamate insecticidal compositions and compatibility when these compositions are employed along with other active ingredients in the preparation of pesticidal formulations.

3,658,960

COMPOSITIONS CONTAINING 1,3-DICYANO-TETRACHLOROBENZENE USED IN COCCIDIOSIS TREATMENT

Roelof van Hes, Weesp, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

No Drawing. Filed May 25, 1970, Ser. No. 40,391

Claims priority, application Netherlands, May 27, 1969, 6908065

Int. Cl. A61k 27/00

U.S. Cl. 424—304

7 Claims

It has been found that 1,3-dicyanotetrachlorobenzene can be used to control and/or prevent coccidiosis in poultry. The substance can be administered as an admixture to the feed or the drinking water. The substance may be added to the feed in the form of a constituent of a premix. In general, the feed contains from 5 to 250 p.p.m., as a rule from 10 to 100 p.p.m., of the substance. If the substance is administered in the drinking water, the concentration may be halved.

3,658,961

PEST CONTROL COMPOSITIONS AND METHOD

Ralph I. Dorfman, Los Altos Hills, Calif., assignor to Syntex Corporation, Panama, Panama

No Drawing. Continuation-in-part of application Ser. No. 589,856, Oct. 27, 1966. This application May 23, 1969, Ser. No. 827,134

Int. Cl. A01n 9/24

U.S. Cl. 424—308

7 Claims

The control of rodents and birds by administering an edible composition containing a pest management material selected from 1,2,3,4,9,10-hexahydrophenanthrene; 1,2,3,4,9,10-hexahydrophenanthrene acids; 1,2,3,4,9,10-hexahydrophenanthrene alcohols; 1,2,3,4,9,10-hexahydrophenanthrene aldehydes; 1,2,3,4,9,10-hexahydrophenanthrene nitriles; 1,2,3,4,9,10-hexahydrophenanthrene amides and derivatives thereof to minimize or terminate the reproductive capabilities of said rodents and birds.

3,658,962

ANIMAL FEED COMPOSITIONS AND METHODS

Gino J. Marco, Webster Groves, Mo., and Eugene S. Erwin, Phoenix, Ariz., assignors to Monsanto Company, St. Louis, Mo.

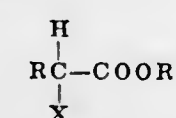
No Drawing. Original application June 26, 1967, Ser. No. 648,994, now Patent No. 3,522,353, dated July 28, 1970. Divided and this application Feb. 27, 1970, Ser. No. 18,392

Int. Cl. A61k 27/00

U.S. Cl. 424—311

9 Claims

Animal feed composition containing at least one compound of the formula



wherein X is halogen (Cl, Br, and I), R is selected from the group consisting of hydrogen and alkyl of not more than 20 carbon atoms and R¹ is selected from the group consisting of hydrogen and alkyl of not more than 4 carbon atoms.

3,658,963

METHOD OF REDUCING INTRAOCULAR PRESSURE WITH A BASIC THYMOL ETHER

Paul Turner, London, Vincent James Marmion and John Mason Sneddon, Bristol, and David D. H. Craig, Eastleigh, England, assignors to Warner-Lambert Company, Morris Plains, N.J.

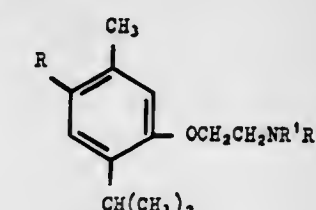
No Drawing. Filed July 7, 1970, Ser. No. 52,987

Int. Cl. A61k 27/00

U.S. Cl. 424—311

3 Claims

Water-soluble salts of basic thymol ethers having the general formula



in which R is an hydroxyl, alkoxy or acyloxy group and R¹ and R² are lower alkyl groups, are used in aqueous solution at pH 3.5 to 9.0 to lower intraocular pressure. The salts may be formulated in compositions together with a pH-adjusting agent and preferably a bactericide or fungicide.

3,658,964

2-PHENYLACETYL BENZOIC ACID IN THE TREATMENT OF INFLAMMATION

Mario G. Buzzolini, Morristown, and Robert E. Manning, Mountain Lakes, N.J., assignors to Sandoz-Wander, Inc., Hanover, N.J.

No Drawing. Filed June 18, 1970, Ser. No. 47,566

Int. Cl. A61k 27/00

U.S. Cl. 424—317

3 Claims

This disclosure relates to 2-phenylacetylbenzoic acid monohydrate. The compound is useful as an anti-inflammatory agent.

3,658,965

FUNGICIDAL HALOGENATED FLUORO-SULFONATED PHENOLS

Harold J. Miller, Newtown Square, Pa., and James L. Sandeno, Tacoma, Wash., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa.

No Drawing. Filed Dec. 12, 1968, Ser. No. 783,405

Int. Cl. A01n 9/14

U.S. Cl. 424—315

1 Claim

Fluorosulfonated phenol derivatives selected from the group consisting of 5-chloro-2-hydroxybenzenesulfonyl fluoride, 3-fluoro-4-hydroxybenzenesulfonyl fluoride, and 2-fluoro-4-hydroxybenzenesulfonyl fluoride are effective in protecting plants against attack by soil-borne fungi.

3,658,966

METHODS OF TREATING HYPERTENSION

Shigeru Tsunoo, Tokyo, Kazuyoshi Horisaka, Yokohama, Akiyuki Yamaguchi, Tokyo, Kikuo Adachi, Sagami-hara-shi, and Osamu Umezawa, Tokyo, Japan, assignors to Kowa Company, Ltd., Nagoya, Japan

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,130

Int. Cl. A61k 27/00

U.S. Cl. 424—315

5 Claims

A pharmaceutical composition for remedy of hypertension and hyperlipemia, which comprises 3-amino-propane

sulfonic acid in an amount capable of lowering blood pressure, and a physiologically non-toxic carrier. A method of medical treatment for hypertension and hyperlipemia, which comprises administering 3-amino-propane sulfonic acid in an amount capable of lowering blood pressure. A process for the preparation of 3-amino-propane sulfonic acid, which comprises reacting 3-amino-1-propanol in an inert organic solvent with a member selected from the group consisting of thionyl chloride and chlorine compounds of phosphorus, and reacting the resulting 3-amino-1-chloropropane hydrochloride with an alkali salt of sulfurous acid.

3,658,967

CARBOXYLIC ACID DERIVATIVES FOR LOWERING THE CONCENTRATION OF TRIGLYCERIDES IN THE BLOOD

Thomas Leigh and Leslie Arthur McArdle, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Continuation-in-part of application Ser. No. 644,489, June 8, 1967. This application May 14, 1970, Ser. No. 37,317

Claims priority, application Great Britain, June 23, 1966, 28,198/66, 28,200/66

Int. Cl. A61k 27/00

U.S. Cl. 424—317

11 Claims

The disclosure relates to a method for lowering the concentration of cholesterol, triglycerides or fibrinogen in the blood by administering a pharmaceutical composition containing as active ingredient a phenylbenzyloxy-alkanoic acid derivative, for example α -[4-(p-chlorophenyl)benzyloxy]- α -methylpropionic acid.

3,658,968

COMPOSITION AND METHOD OF TREATMENT

Victor J. Lotti, Harleysville, Pa., assignor to

Merck & Co., Inc., Rahway, N.J.

No Drawing. Filed June 11, 1970, Ser. No. 45,554

Int. Cl. A61k 27/00

U.S. Cl. 424—317

24 Claims

A composition and a method for compensating for a dopamine deficiency in the brain tissue of an animal by administering to the animal m-tyrosine or its salts. Preferably, m-tyrosine is used in conjunction with a decarboxylase inhibitor such as α -hydrazino- α -substituted-3,4-dihydroxyphenylpropionic acid or its salts wherein the substituent is hydrogen or lower alkyl. The use of such compounds compensates for a dopamine deficiency in the brain tissue which tends to alleviate some of the symptoms caused by Parkinsonism, manganese poisoning and similar diseases.

3,658,969

PHARMACEUTICAL COMPOSITIONS USEFUL IN CITRIC ACID THERAPY

Jeanne Renie, Born Vaille, Paris, France, assignor to Codex S.A., Fribourg, Switzerland

Continuation-in-part of application Ser. No. 605,600, Dec. 29, 1966. This application Nov. 14, 1969, Ser. No. 876,804

Int. Cl. A61k 27/00

U.S. Cl. 424—317

6 Claims

This invention relates to a pharmaceutical composition used for treating disorders of the metabolism known as "overload" diseases, as well as for treating diseases coming within the scope of conventional citric therapeutics, said composition comprising an equilibrium mixture of citric acid, monosodium citrate and monopotassium citrate, in a weight ratio of 1-1.3:2:2 of citric acid:mono-

sodium citrate:monopotassium citrate, associated with a suitable pharmaceutical excipient.

3,658,970

INJECTABLE LAURIC ACID

John McClure Carroll, 1421 Royal St.,

Kissimmee, Fla. 32741

No Drawing. Filed July 23, 1969, Ser. No. 844,193

Int. Cl. C08h 17/36

U.S. Cl. 424—318

12 Claims

A process for preparing crystalline lauric acid in dosage form suitable for parenteral injection into mammalian tissue. An aqueous suspension of lauric acid crystals of a particle size ranging between 0.01 and 5 microns is formed by mixing lauric acid and water, and preferably a dispersing agent or surfactant, and subjecting the mixture to intense agitation.

3,658,971

METHOD OF MOLDING POLYURETHANE FOAM COMPOSITES AND REMOVING THEM FROM THE MOLD

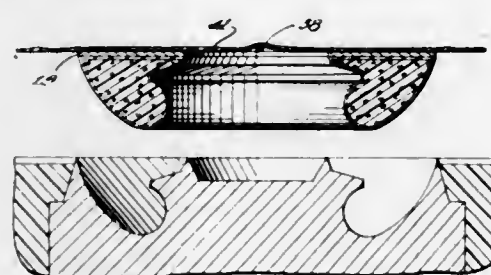
Erich Schickedanz, Illereichen-Altstadt, Germany, assignor to The Scholl Mfg. Co., Inc., Chicago, Ill.

Filed Dec. 29, 1969, Ser. No. 888,575

Int. Cl. B29d 27/04

U.S. Cl. 264—45

7 Claims



Method for the continuous production of molded cushioning devices wherein a foamable composition is injected into the molding cavity of an open ended mold, a web having an adhesive surface is applied over the open end of the mold, pressure is applied on the adhesived material to provide a closure for the mold cavity, the foam in the mold is permitted to expand into conformity with the molding cavity while the cavity is closed by the adhesived surface, the resulting foamed product and the adhesived strip adhering thereto are severed, applying a web of pressure-sensitive adhesive-receptive material onto the molded product and then the resulting laminated structure is lifted from the mold.

3,658,972

PROCESS FOR MOLDING A MULTIPLE DENSITY POLYURETHANE FOAMED PRODUCT

William C. Ready, East Haven, John E. Puig, Wallingford, and Bruce G. Van Leuwen, Hamden, Conn., assignors to Olin Corporation

Filed May 28, 1970, Ser. No. 41,372

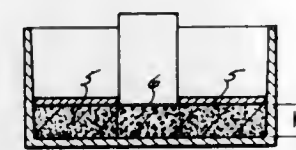
Int. Cl. B29d 27/04

U.S. Cl. 264—52

9 Claims

Molded, multiple density polyurethane foams and a process for their preparation are disclosed. The free rise of a polyurethane foam forming reaction mixture, placed in a mold, is constrained or limited in one or more sections of the mold. Then, after completion of the foam rise but before substantial curing, the foam, or a section

thereof, is compressed to a fraction of its free rise volume and thereafter curing of the foam is completed.



Molded, multiple density foams are of particular utility in making bucket seats for use by the automotive industry.

3,658,973

METHOD FOR EXTRUDING A FOAMED THERMOPLASTIC POLYMER

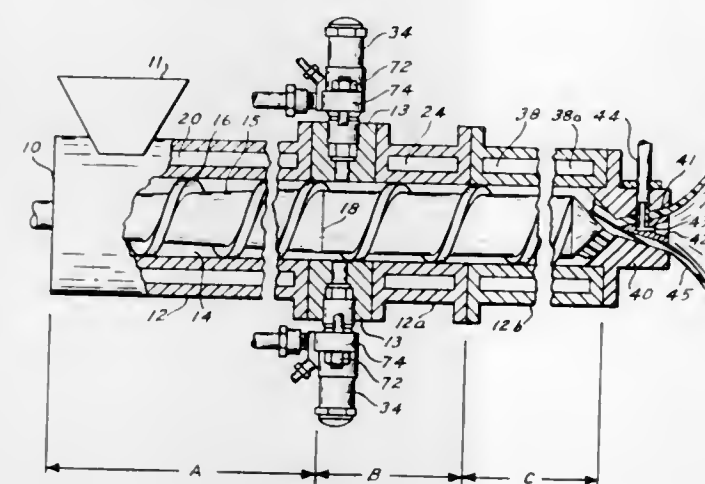
Ardashus A. Aykanian, Wilbraham, Mass., assignor to Monsanto Company, St. Louis, Mo.

Continuation of application Ser. No. 835,880, June 9, 1969, which is a continuation of application Ser. No. 553,404, July 7, 1966, which is a division of application Ser. No. 502,797, Sept. 27, 1965, which is a continuation of application Ser. No. 342,679, Feb. 5, 1964, now Patent No. 3,451,103, which in turn is a division of application Ser. No. 114,352, June 2, 1961. This application Mar. 22, 1971, Ser. No. 128,621

Int. Cl. B29d 7/02, 27/00

U.S. Cl. 264—53

7 Claims



Extruding a foamed thermoplastic resin wherein a volatile organic blowing agent is introduced into a molten thermoplastic polymer in a zone of decompression in a screw extruder. Thereafter, prior to extrusion the pressure is increased and the molten polymer further mixed with the blowing agent. The mix is then cooled, and finally the pressure on the mix is increased while continuing the cooling. The mix is then extruded into a zone of low pressure. Polystyrene may be used as the thermoplastic polymer.

3,658,974

METHOD OF FORMING SHAPES FROM PLANAR SHEETS OF THERMOSETTING MATERIALS

George M. Low, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of James A. Scholl, Riverside, Calif.

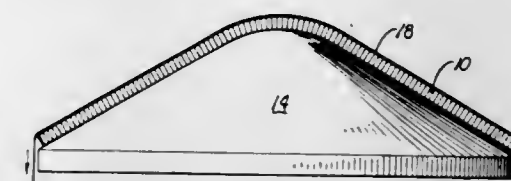
Filed May 28, 1970, Ser. No. 41,346

Int. Cl. B29d 3/02; B29g 5/00

U.S. Cl. 264—92

3 Claims

A method of forming shapes from planar sheets of thermosetting honeycomb core particularly suited for use in forming the center sections for aeroshells and the like, characterized by steps of heat-shocking thermosetting honeycomb core stock, deforming the sheet about a male



forming tool having a surface of a predetermined configuration, and curing the thus deformed sheet while sub-

3,658,975

PROCESS FOR THE PRODUCTION OF POLYAMIDE CASTINGS

Jan Drabek, Oto Horak, Zdenek Ditrych, and Svatoslav Zahorovsky, Pardubice, Czechoslovakia, assignors to Vyzkumny ustav syntetickych pryskyrc a laku, Pardubice, Czechoslovakia

No Drawing. Filed Sept. 11, 1969, Ser. No. 857,204 Claims priority, application Czechoslovakia, Sept. 11, 1968, 6,359/68, 6,366/68; Aug. 11, 1969, 5,559/69

Int. Cl. B21d 39/00; B29c 1/12; B29d 3/00

U.S. Cl. 264—94

10 Claims

A process for the production of polyamide castings, containing cavities or fitted with a metal shaft, by an activated anionic polymerization of lactams in a mould, the mould being fitted with a composite core or metal shaft, the core or metal shaft having an outer inflatable jacket prepared by winding an elastic tube around the inner core or metal shaft with neighboring turns in engagement, inserting the composite core or metal shaft into a preheated stationary mould, inflating the tube with compressed gas, filling the mould with a lactam melt containing an alkaline catalyst, promoter, and/or pigments, and/or fillers, and/or other additives, the lactam melt then being polymerized at a temperature lower than the melting point of the polyamide formed, and after cooling, the composite core including said outer inflatable jacket is removed from the finished casting to give a casting with a cavity or in which the metal shaft together with the outer inflatable jacket remains tightly gripped in the casting.

3,658,976

METHOD FOR PRODUCING ELECTRICALLY CONDUCTIVE TETRAFLUOROETHYLENE POLYMER TUBING

Winton Lloyd Slade, Lancaster, Pa., assignor to Raybestos-Manhattan, Inc., Manheim, Pa.

No Drawing. Original application May 22, 1962, Ser. No. 196,598, now Patent No. 3,473,087, dated Oct. 14, 1969. Divided and this application Apr. 10, 1969, Ser. No. 816,868

Int. Cl. B29f 5/02

U.S. Cl. 264—105

3 Claims

Electrically conductive polytetrafluoroethylene tubing having high resistance to seepage by low viscosity fluids is produced by extruding through an annular orifice a pressure-coalescing composition comprising unsintered colloidal tetrafluoroethylene polymer particles and carbon black. In making the composition, a minor portion of the polymer particles are coated with carbon black, and the coated particles are substantially uniformly distributed throughout the mass of polymer particles forming the pressure-coalescing composition to provide a total of from about 0.01 to about 0.5%, by weight, of carbon black. The extruded unsintered tubing is subsequently baked at a temperature above the sintering temperature of the polymer to produce the desired conductive tubing.

3,658,977

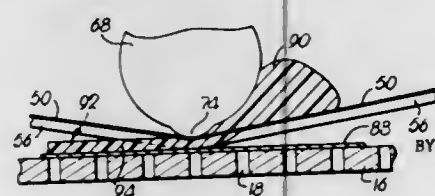
METHOD AND APPARATUS FOR SCREEN MOLDING THREE-DIMENSIONAL OBJECTS

Harold L. Baker, Kansas City, Mo., assignor to Rayette-Faberge, Inc., New York, N.Y.
Filed Mar. 12, 1969, Ser. No. 806,419

Int. Cl. B29c 15/00; B29d 9/08

U.S. Cl. 264—130

17 Claims



Three-dimensional objects are molded by advancing a special squeegee member along a flexible screen or the like to which a perforated mold is affixed, and pressing the mold into progressive engagement with a substrate, while at the same time, causing the squeegee to force the molding material through the screen and into the mold cavity, the mold stripping automatically and cleanly from the deposited material behind the squeegee as it is advanced.

3,658,978

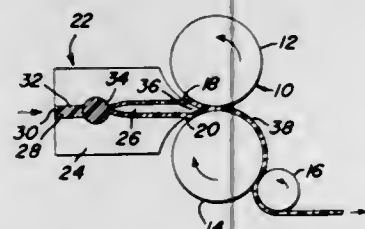
CALENDERING OF POLYMERIC MATERIALS

Fred H. Ancker, Warren, N.J., assignor to Union Carbide Corporation, New York, N.Y.
Filed July 7, 1969, Ser. No. 839,292

Int. Cl. B29d 7/14

U.S. Cl. 264—175

10 Claims



Process and apparatus for the calendering of polymeric material comprising feeding said polymeric material thru the nip of a calendar having a pair of counter-rotating rolls while maintaining a volumetric obstruction across the width and between the pair of calendar rolls, the most downstream projection of said obstruction being positioned so as to at least penetrate the bank of material formed between the pair of calendar rolls upstream of the nip by the selection of calendering conditions and while concurrently feeding a stream of polymeric material to said nip opening on each side of said volumetric obstruction.

3,658,979

METHOD FOR FORMING FIBERS AND FILAMENTS DIRECTLY FROM MELTS OF LOW VISCOSITIES

Stanley A. Dunn, Verona, Wis., and Lawrence F. Rakestraw and Robert Ernest Cunningham, Raleigh, N.C., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of application Ser. No. 510,844, Dec. 1, 1965, which is a continuation-in-part of application Ser. No. 443,982, Mar. 30, 1965. This application June 2, 1969, Ser. No. 829,216

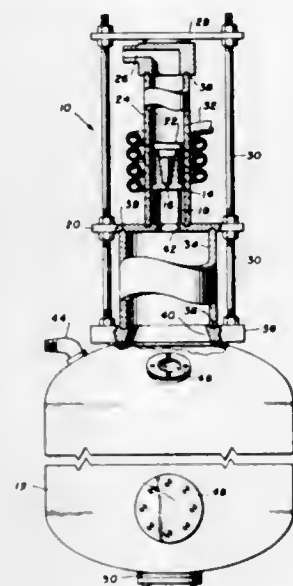
Int. Cl. D01d 5/08

U.S. Cl. 264—176 F

14 Claims

Filaments and fibers of metals, ceramics and other materials which are essentially inviscid in the molten state

can be made by extruding or spinning the molten material as a free stream into an atmosphere which forms



a stabilizing film on the stream pending solidification and prior to breakup caused by surface tension.

3,658,980

INTERNAL ADDITIVE FOR CONTROLLED COHESION IN POLYMERIZED OLEFIN FILMS

Robert Joseph Caiola, Saginaw, William F. Mick, Midland, and Oliver Bernard Amley, Sanford, Mich., assignors to The Dow Chemical Company, Midland, Mich.

No Drawing. Filed Sept. 23, 1968, Ser. No. 761,812

Int. Cl. B29d 7/02; D01f 1/02

U.S. Cl. 264—210

6 Claims

Cohesive polymerized olefin films are prepared by (a) intimately admixing a polymerized olefin, such as polyethylene, with a small amount of a viscous liquid, such as polypropylene glycol having a molecular weight of 2,000, and (b) extruding the resulting mixture in the form of a thin, transparent flexible sheet.

3,658,981

PROCESS FOR SPINNING POLYBLEND YARN

Roger A. Fleming, Stow, Ohio, and William H. Harlacher, Chester, Raymond J. Spalek, Colonial Heights, and James B. Lowe, Hopewell, Va., assignors to Allied Chemical Corporation, New York, N.Y.

No Drawing. Original application Oct. 23, 1967, Ser. No. 677,064, now Patent No. 3,470,686, dated Oct. 7, 1969. Divided and this application Apr. 10, 1969, Ser. No. 839,110

Int. Cl. B29b 1/04

U.S. Cl. 264—349

7 Claims

A process for producing multifilament yarn from blends consisting essentially of dispersions of synthetic linear polyesters in a continuous phase of acid terminated synthetic linear polyamide by employing an intensified shear in the extruder and at the spinneret as compared to conventional melt spinning of nylon; maintaining the temperature throughout the melt in the range of $275^{\circ} \pm 10^{\circ}$ C.; and flowing the melt into the spinneret capillary with gradual convergence of the stream to selectively control the melt bulge in the extruder filament. Observance of the above conditions makes it possible to produce multifilament yarns economically from blends of materials wherein one component is uniformly dispersed into a matrix-forming component in the form of fine fibrils which impart improved properties to the yarn. The filaments produced by this invention are prepared from a matrix-forming polyamide having a relative viscosity in 90 percent formic acid of about 40 to 65 when the polyester constituent comprises at least 20 percent by weight thereof.

3,658,982

STABLE LATEX REAGENT FOR THE DETECTION OF RHEUMATOID ARTHRITIS

Alice M. Reiss, Somerville, and Rosemary K. Chachowski, Manville, N.J., assignors to Ortho Pharmaceutical Corporation

No Drawing. Continuation-in-part of application Ser. No. 558,255, June 17, 1966. This application May 13, 1969, Ser. No. 824,314

Int. Cl. G01n 31/00, 33/16

U.S. Cl. 424—12

6 Claims

A stable reagent having avidity for the agglutination reaction in the serological determination of rheumatoid factors is composed of rabbit gamma globulin which is degraded with a proteolytic enzyme, coated on latex particles, heat treated and stored at low temperatures until used. This reagent is capable of identifying true positives when the sodium chloride of the serum diluent is maintained within certain critical limits.

3,658,983

USE OF ISOMALTOL ESTERS, AS ANTIMICROBIAL AGENTS

Robert P. Allingham, Groton, and John J. Beereboom, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 491,440, Sept. 29, 1965. This application Dec. 31, 1968, Ser. No. 788,323

Int. Cl. A23b 7/00; A01n 3/00, 9/28

U.S. Cl. 424—45

14 Claims

The use of isomaltol, its esters and related compounds in inhibiting microbial growth, in preserving foodstuffs, and in the treatment of certain fungal infections. Novel esters of isomaltol are prepared.

3,658,984

COMPOSITION AND METHOD FOR TREATING INFLAMMATION OF THE SKIN

Herman F. Kamp, 438 Farenden St., Arcadia, Pretoria, Transvaal, Republic of South Africa
Filed Jan. 13, 1967, Ser. No. 609,041

Claims priority, application Republic of South Africa, Jan. 18, 1966, 66/322

Int. Cl. A61f 13/00; A61l 15/03

U.S. Cl. 424—28

3 Claims

This invention relates to a method of treating skin injuries involving inflammation of tissues, such as burns, varicose ulcers, and decubitus ulcers (bedsores), and to a therapeutic composition for carrying out such treatment. Furthermore the invention relates to a dressing incorporating the therapeutic composition, and to a method of preparing the composition and the dressing.

More particularly the invention is concerned with a method and a composition and dressing for treating skin injuries, especially burn wounds, by controlling the evaporation of fluid from the injured area and by regulating the temperature of the injured area, so as to maintain the micro-circulation and to expedite healing.

3,658,985

OIL AND FLUORESCENT DYE CONTAINING LUSTER IMPARTING LIQUID SHAMPOO

Frank Wesley Olson, Jr., Pompton Plains, and Karl Hutcheson Roberts, Flemington, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Filed July 28, 1969, Ser. No. 845,521

Int. Cl. A61k 7/06

U.S. Cl. 424—70

13 Claims

A liquid shampoo for improving the combing properties and luster of hair washed therewith comprising an aqueous detergent composition suitable for shampooing hair which contains oil from the group consisting of mineral oil, vegetable oil, animal oil and synthetic oil and a hair substantive fluorescent dye in proper proportions.

3,658,986

IMMUNIZATION METHODS AGAINST TOXIC EFFECTS OF BACTERIAL INFECTION

Victor N. Tompkins, 524 Madison Ave., Albany, N.Y. 12208; Kent D. Miller, 36 Font Grove Road, Slingerlands, N.Y. 12159; Thelma F. Muraschi, R.D. 2, Box 123A, Altamont, N.Y. 12009; and John W. Fenton II, 11 Paul Holly Drive, Loudonville, N.Y. 12211

No Drawing. Filed July 2, 1969, Ser. No. 838,680

Int. Cl. A61k 19/00

U.S. Cl. 424—88

2 Claims

The toxic effects of infection by elastase-elaborating bacteria are minimized by immunizing susceptible animals against bacterial elastase.

3,658,987

ANTIBIOTIC 8036 R.P. AND PROCESS FOR THE PRODUCTION THEREOF

Denise Mancy, Charenton, and Leon Ninet and Jean Preud'homme, Paris, France, assignors to Rhone-Poulenc S.A., Paris, France

Filed Nov. 15, 1965, Ser. No. 507,773

Claims priority, application France, Nov. 18, 1964, 995,376

Int. Cl. A61k 21/00

U.S. Cl. 424—118

10 Claims

The invention provides the new antibiotic 8036 RP which has bacteriostatic properties especially against gram-positive microorganisms, e.g. streptococci. The new antibiotic is isolated from aerobic culture media of *Streptomyces canadiensis* NRRL 3155.

3,658,988

CARRIER FOR PESTICIDAL COMPOSITIONS

Herbert B. Scher, Moraga, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Nov. 26, 1969, Ser. No. 880,403

Int. Cl. A01n 17/08, 13/00

U.S. Cl. 424—128

7 Claims

A pesticidal composition consisting of a clay, a phosphate type toxicant and a stabilizer for said toxicant is described herein. The stabilizer is selected from a group consisting of sodium and potassium inorganic phosphates. The process of forming granules of said pesticidal composition is also defined herein.

3,658,989

ANTIBACTERIAL COMPOSITION CONTAINING TETRACYCLINE SULFAMATE AND DERIVATIVES THEREOF

Alberto Jurado and José MaPuigmartí, Barcelona, Spain, assignors to Laboratorios Hosbon, S.A., Barcelona, Spain

No Drawing. Original application June 5, 1968, Ser. No. 734,573, now Patent No. 3,536,759, dated Oct. 27, 1970. Divided and this application Dec. 8, 1969, Ser. No. 883,362

Claims priority, application France, June 6, 1967, 109,212

Int. Cl. A61k 21/00

U.S. Cl. 424—227

11 Claims

Compounds of the formula:



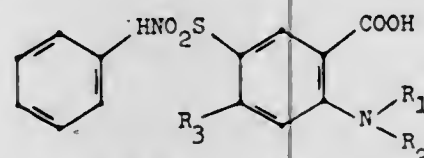
wherein T is tetracycline or an administrable therapeutically active derivative thereof, R is a linear alkyl group of 2 to 18 carbon atoms and n is 1 or 2. Therapeutic compositions comprising these compounds and a pharmaceutically acceptable carrier have an excellent local tolerance for all modes of administration, including oral, parenteral, rectal and topical. Beneficial results are illustrated with tetracycline n-dodecylsulfamate and tetracycline n-hexylsulfamate. The compounds are prepared by reacting an n-alkylsulfamic acid with a tetracycline in a slightly warm alcoholic solution.

3,658,990

DIURETIC COMPOSITIONS

Lincoln Harvey Werner, Summit, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.
No Drawing. Continuation-in-part of application Ser. No. 675,330, Oct. 16, 1967, which is a continuation-in-part of application Ser. No. 598,980, Dec. 5, 1966. This application June 10, 1969, Ser. No. 832,029
Int. Cl. A61k 27/00

U.S. Cl. 424—228 3 Claims
5-arylsulfamyl-4-halo-anthranilic acids, e.g. those of the formula



R₁=aliphatic or araliphatic radical

R₂=H or R₁

R₃=Cl or Br

and functional derivatives thereof, exhibit diuretic effects.

3,658,991

ANTI-INFLAMMATORY METHODS USING DERIVATIVES OF 2-MERCAPTOIMIDAZOLES

Karl J. Doebel, Ossining, N.Y., and Andre R. Gagneux, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 721,930, Apr. 17, 1968, which is a continuation-in-part of application Ser. No. 500,245, Oct. 21, 1965. This application Nov. 7, 1969, Ser. No. 874,948
Int. Cl. A61k 27/00

U.S. Cl. 424—273 3 Claims

A method and compositions for producing antiinflammatory effects in warm-blooded animals by administration of an effective amount of a derivative of 2-mercaptoimidazoles, such as, for example 1-(4-methoxyphenyl)-2-methylmercapto-5-methylimidazole.

3,658,992

SULFAMIDE DERIVATIVES

Engelbert Kuhle, Bergisch-Gladbach, Erich Klauke, Cologne-Flittard, Paul-Ernst Frohberger, Burscheid Bezirk Duesseldorf, and Hans Scheinplflug, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Original application Jan. 20, 1967, Ser. No. 610,500, now Patent No. 3,577,451, dated May 4, 1971. Divided and this application Jan. 26, 1970, Ser. No. 10,699

Claims priority, application Germany Feb. 17, 1966, F 48,451

Int. Cl. A01n 9/16

U.S. Cl. 424—298 10 Claims

The disclosure covers broadly N,N'-di(alkyl and/or alkenyl)-N- or -N,N'-di-fluorodichloromethylmercapto-sulfamides which possess fungicidal properties and which may be prepared by conventional procedures.

3,658,993

METHODS OF INDUCING A CARDIOVASCULAR HYPOTENSIVE RESPONSE

Jiro K. Kodama, Herne Bay, England, and George R. Haynes and James R. Albert, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 674,753, Oct. 12, 1967. This application Apr. 29, 1970, Ser. No. 33,058
Int. Cl. A61k 27/05

U.S. Cl. 424—326 4 Claims

o-Halobenzylideneaminoguanidines are employed as central nervous system depressants, as cardiovascular depressants, and/or as antidepressants for overcoming psychic depression.

3,658,994

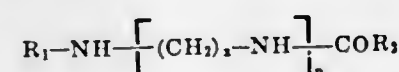
CLEANING AGENTS COMPRISING AN ANIONIC SURFACTANT AND A SKIN-PROTECTING COMPONENT

Gerhard Kaiser, Frankfurt am Main, and Günther Täuber, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany
No Drawing. Filed Aug. 19, 1969, Ser. No. 851,427
Claims priority, application Germany, Aug. 21, 1968, P 17 92 334.1

Int. Cl. A61d 23/00; C11d 3/32, 3/48

U.S. Cl. 424—319 5 Claims

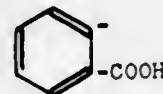
Cleaning agents comprising anionic surfactants which may tend to irritate the skin in admixture with a skin-protection agent which is a dicarboxylic acid semi-amide of an alkylene diamine or of ethylene triamine, of the formula



wherein R₁ is hydrogen, alkyl, or alkylene; R₂ is



or



and n and x are small integers.

3,658,995

METHODS FOR TREATING MENTAL FATIGUE

Enzo Marchetti, Rome, Italy, assignor to Istituto Farmacologico Sero S.p.A., Rome, Italy

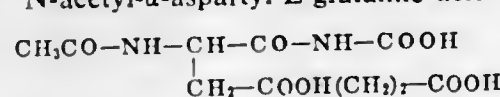
No Drawing. Continuation-in-part of application Ser. No. 805,902, Mar. 10, 1969, which is a continuation of application Ser. No. 528,355, Feb. 18, 1966. This application June 25, 1969, Ser. No. 836,612

Claims priority, application Italy, Feb. 27, 1965, 4,102/65

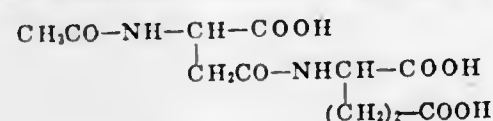
Int. Cl. A61k 27/00

U.S. Cl. 424—319 8 Claims

N-acetyl-α-aspartyl-L-glutamic acid



and N-acetyl-β-L-aspartyl-L-glutamic acid



and pharmaceutical compositions containing them which are used for the treatment of mental fatigue and related syndromes. A process for the preparation of N-acetyl-α-L-aspartyl-L-glutamic acid and N-acetyl-β-L-aspartyl-L-glutamic acid is also disclosed.

ERRATA

For Classes 424—273 thru 424—318 see:
Patent Nos. 3,658,956 thru 3,658,970

3,658,996

SYSTEM FOR THE REMOVAL OF HYDROGEN FROM NUCLEAR CONTAINMENT STRUCTURES

Robert Frumerman, Pittsburgh, and John D. McAdoo, Jr., Murrysville, Pa., assignors to Westinghouse Electric Company, Pittsburgh, Pa.

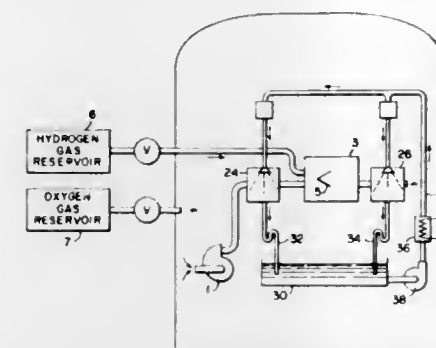
Filed Feb. 3, 1969, Ser. No. 795,950

Int. Cl. B01j 1/00; G21f 9/02; C01b 5/00

U.S. Cl. 23—252 5 Claims

A system for the direct combustion of hydrogen within a reactor containment structure to prevent the formation

of an explosive atmosphere therein. A blower produces a predetermined flow of containment hydrogen to a combustion chamber and additional amounts of hydrogen and oxygen are added to facilitate complete burning so as to



minimize the quantity of hydrogen remaining within the containment. A separate system cools and condenses the gases leaving the chamber so as to prevent stratification and localized temperature increases.

3,658,997

GOLD-BASE BRAZING ALLOYS

Mieczyslaw Herman Sloboda, Pinner, Middlesex, and John Derek Boughton, High Wycombe, England, assignors to Johnson, Matthey & Company, Limited, London, England

No Drawing. Filed Aug. 15, 1969, Ser. No. 850,650
Claims priority, application Great Britain, Aug. 20, 1968, 39,805/68

Int. Cl. C22c 5/00

U.S. Cl. 75—165 4 Claims

A gold-base brazing alloy for use in the fabrication of jewellery articles, jet engines and high quality engineering components comprising 30 to 80 wt. percent gold, 0.5 to 67.5 wt. percent copper and 2.0 to 12.0 wt. percent nickel. Additionally, the brazing alloy may include 0.5 to 7.0 wt. percent chromium and from a trace up to 0.5 wt. percent boron.

3,658,998

RECEPTOR COATING FOR IMAGE TRANSFER

Gerry H. Ehrhardt, West Des Moines, and Timothy G. Abernathy, Clive, Iowa, assignors to Pacific Industries, Inc., San Francisco, Calif.

No Drawing. Filed Aug. 31, 1967, Ser. No. 664,615

Int. Cl. C09d 3/44

U.S. Cl. 117—168 4 Claims

A water based receptor coating for image receiving substrates formed of the dried residue of a finely divided hydrocarbon wax emulsion having apyrogenic silica matrix forming agent and a pigmented filler dispersed therein and in which the size of the wax particles does not exceed 25 microns and the particle size of the matrix forming agent does not exceed .05 micron.

3,658,999

PROCESS FOR MANUFACTURING REINFORCING STRUCTURES FOR USE AS A BREAKER STRUCTURE OF PNEUMATIC TIRES

Giorgio Tangorra and Antonio di Giovinazzo, Milan, Italy, assignors to Industrie Pirelli S.p.A.

Filed Mar. 4, 1970, Ser. No. 16,386

Claims priority, application Italy, Mar. 6, 1969, 13,717/69

Int. Cl. B29h 17/10, 17/28

U.S. Cl. 156—133 10 Claims

A method of manufacturing a reinforcing structure adapted to provide a breaker structure for radial ply tires and which utilizes the step of building an assembly of at least two strips of cord fabric embedded in a vulcanizable rubber compound with the cords so arranged as to form

an angle ranging between 75° and 25° relative to the mid-circumferential plane of the tire, the assembly being of a width generally corresponding to the width and development of the breaker structure. The strips are caused to firmly adhere to each other in a zone of the breaker structure extending the entire length and a portion of the width of the assembly. A separating element which can be eliminated in a further working step is interposed between the strips in a zone extending the entire length and a part of the width of the assembly. The assembly is then stretched lengthwise to a point of elongation ranging from 20% to 200% of its original length. The separating element is eliminated at least partially after the stretching step has been performed, at least partially. The resultant structure is then allowed to set, after which it is applied to the tire carcass which previously has been shaped into toroidal form.

3,659,000

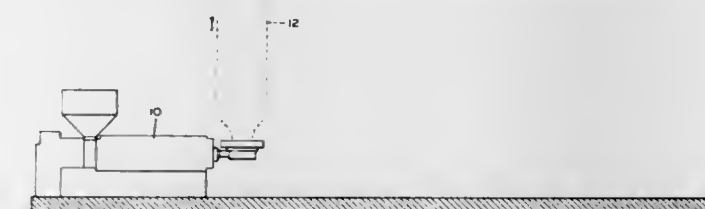
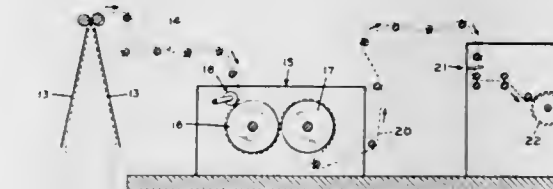
PROCESS FOR PRODUCTION OF LONGITUDINALLY ORIENTED THERMOPLASTIC FILM

Harold C. Cronk, Pompton Plains, N.J., assignor to Allied Chemical Corporation, New York, N.Y.

Filed July 31, 1969, Ser. No. 846,558

Int. Cl. B29d 7/24, 7/02

U.S. Cl. 156—229 10 Claims



Blown thermoplastic tubular film is collapsed to a two-ply layflat which is stretched in the machine direction to provide oriented shrink film. During stretching, the two-ply layflat is heated sufficiently to heat set the finished product, thereby fusing the two plies into an inseparable laminate and eliminating the need for a separate annealing step to render the product dimensionally stable at ambient temperature.

3,659,001

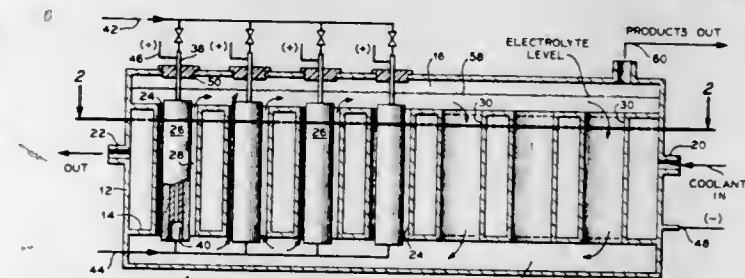
ELECTROLYTIC CELL

King L. Mills, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Feb. 26, 1970, Ser. No. 14,293

Int. Cl. B01k 3/00

U.S. Cl. 204—274 8 Claims



An electrolytic cell having a heat exchanging shell disposed therein and dividing the cell into an upper and a lower electrolyte chamber. Cathodic tube means, segregated in one region of the shell, extend through said shell and are in communication with said electrolyte

chambers. Anode means are disposed in said cathodic tubes in a manner to preserve said communication. Down-comer tube means, segregated in another region of said shell, also extend through the shell into communication with said electrolyte chambers.

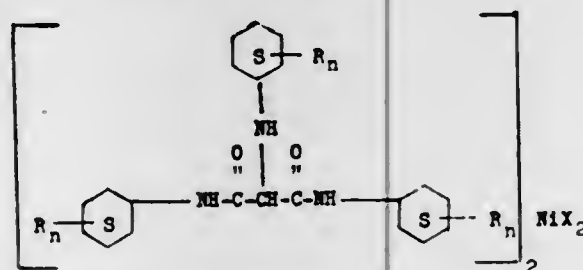
3,659,002 ULTRAVIOLET LIGHT STABILIZATION OF POLYOLEFINS WITH NICKEL OR COBALT COMPLEXES

Ronald D. Mathis, Bartlesville, Okla., and Howard E. Dunn, Mount Vernon, Ind., assignors to Phillips Petroleum Company

No Drawing. Filed Jan. 22, 1970, Ser. No. 5,103
Int. Cl. C08f 45/60, 45/62

U.S. Cl. 260—45.75 N 10 Claims

Solid homopolymer or copolymers prepared from 1-olefins containing from about 2 to 6 carbon atoms per molecule are protected against the deteriorating effects of ultraviolet light by incorporating therein minor amounts of a compound selected from (a) 2,2'-dipyridyl cobalt dihalide complex compounds, (b) a nickel complex formed by the reaction of borontrifluoride with bis(dimethylglyoxime-N,N')nickel and (c) a nickel complex represented by the following formula:



wherein X is a halogen, R is an alkyl group containing up to about 24 carbon atoms and *n* is an integer having a value of 0, 1, or 2.

3,659,003 THERMOSET MOLDING POWDERS FROM HY- DROXY-FUNCTIONAL GRADED ELASTOMER PARTICLES AND MONOBLOCKED DIISOCYA- NATE AND MOLDED ARTICLE

Olin B. Johnson, Livonia, and Santokh S. Labana, Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich.

No Drawing. Filed Dec. 21, 1970, Ser. No. 100,469
Int. Cl. C08g 41/04

U.S. Cl. 260—859 29 Claims
Novel thermosetting resin powders which can be molded to form unique, urethane-crosslinked, elastomer-comprising products are prepared by reacting hydroxy-functional, graded, acrylic, rubber-like particles with a monoblocked diisocyanate. These powders are molded by conventional molding techniques to form unique thermoset products.

3,659,004 SUBSTITUTED 3-AMINOBENZOTHIOPHENES

Klaus Wagner and Ernst Roos, Cologne, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Dec. 5, 1969, Ser. No. 882,748

Claims priority, application Germany, Jan. 11, 1969, P 19 01 291.0

Int. Cl. C07d 63/22; C08f 45/14

U.S. Cl. 260—330.5 2 Claims

Novel 3-aminobenzothiophenes are obtained by a process wherein a mercaptomethyl compound is reacted in the presence of a base with benzonitrile derivatives.

The novel compounds, i.e., 2-carbethoxy-3-amino-5,7-dinitrobenzothiophene, can be used for dyeing plastics as polyvinyl chloride.

3,659,005 EPOXIDES

Hans-Peter Sigg, Binningen, and Christian Stoll, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

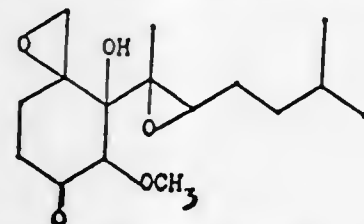
Filed Apr. 8, 1969, Ser. No. 814,394

Claims priority, application Switzerland, Apr. 16, 1968, 5,565/68

Int. Cl. C07d 1/18

U.S. Cl. 260—348 R 1 Claim

The invention provides a new antibiotic derivative of formula



The new antibiotic derivative is useful in inhibiting the production of antibodies and the formation of cellular immunity reactions.

3,659,006 SYNTHESIS OF α -HALOACRYLONITRILE

Kailash C. Pande, Parkersburg, W. Va., assignor to Borg-Warner Corporation, Chicago, Ill.

No Drawing. Filed June 17, 1969, Ser. No. 834,151

Int. Cl. C07c 121/30

U.S. Cl. 260—465.7 1 Claim

A method of preparing α -haloacrylonitriles from α,α,β -trihalopropionitriles comprising the step of adding a dehalogenating agent selected from the group of a trialkyl phosphite and a trihydrocarbylphosphine at a temperature of from 0–60° C.

3,659,007 STABILIZATION OF THERMALLY UNSTABLE DIMETHYL TEREPHTHALATE

Edward H. Giambra, Wilmington, N.C., assignor to Hercules Incorporated, Wilmington, Del.

No Drawing. Filed Oct. 23, 1969, Ser. No. 868,925

Int. Cl. C07c 69/82

U.S. Cl. 260—475 B 13 Claims

Disclosed is the stabilization of thermally unstable dimethyl terephthalate with a stabilizing quantity of material selected from the group consisting of catechol and pyrogallol.

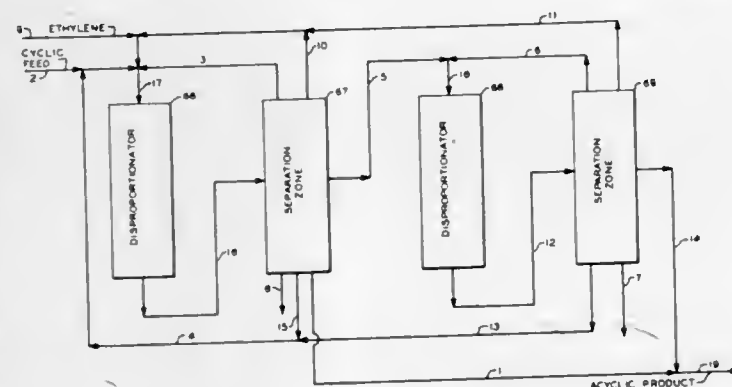
3,659,008 NON-CONJUGATED ACYCLIC POLYENES BY WAY OF OLEFIN DISPROPORTIONATION

Donald H. Kubicek and Robert E. Reusser, Bartlesville, Okla., assignors to Phillips Petroleum Company

Filed Dec. 29, 1969, Ser. No. 888,592

Int. Cl. C07c 11/02, 3/00

U.S. Cl. 260—677 6 Claims



Non-conjugated acyclic olefins are prepared by olefin disproportionation of ethylene and a non-conjugated cyclic olefin, the desired acyclic olefin is recovered, and

lighter acyclic olefin is conducted to a second olefin disproportionation zone wherein the lighter olefin is converted to additional quantities of the desired acyclic olefin product. Heavier acyclic olefins are conducted to the first olefin disproportionation zone.

3,659,009 ACID DYEABLE POLYMERIC AMINE/ALKYLENE HYDROCARBON-ACRYLIC ACID COPOLYMER MODIFIED POLYOLEFIN

Ronald W. Fuest, Kinnelon Borough, and Milton Farber, Verona, N.J., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Filed Aug. 13, 1969, Ser. No. 849,896

Int. Cl. C08f 29/12; C08g 39/10, 41/04

U.S. Cl. 260—857 L 42 Claims

A fiber-forming composition comprising a blend of (A) a polyolefin or polyester, (B) an amine-containing polymer and (C) a copolymer of an alkylene hydrocarbon and acrylic or methacrylic acid or the salts thereof. The resultant products are dyeable with anionic and disperse dyes.

3,659,010 AGENTS INHIBITING FUNGUS GROWTH AND METHOD OF CONTROLLING FUNGI THEREWITH

Jorg Bader, Arlesheim, and Karl Gatz, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Division of application Ser. No. 706,614, Feb. 19, 1968, now Patent No. 3,527,867, which is a continuation-in-part of application Ser. No. 621,800, Mar. 9, 1967, which in turn is a continuation-in-part of application Ser. No. 555,994, June 8, 1966. This application Apr. 13, 1970, Ser. No. 32,476

Claims priority, application Switzerland, June 11, 1965, 8,200/65; Feb. 23, 1967, 2,700/67

Int. Cl. A01n 9/12, 9/22; C07d 71/00

U.S. Cl. 424—277 4 Claims

Agents for inhibiting the growth of fungi, which contain as active component 5-amino-1,2-dithiol-3-ones substituted at the amino group and also in 4-position, and method of controlling phytopathogenic and other noxious fungi with such agents, which are of surprisingly low phytotoxicity.

3,659,011 PROMOTION OF ANALGESIC AND SEDATIVE ACTION WITH 5-BROMOISATIN

Jacques Debat, Paris, France, assignor to Institut de Recherches Chimiques et Biologiques Appliquees, I.R.C.E.B.A., Paris, France

No Drawing. Filed July 22, 1969, Ser. No. 843,740

Claims priority, application Great Britain, July 26, 1968, 35,815/68

Int. Cl. A61u 27/00

U.S. Cl. 424—274 2 Claims

Pharmaceutical compositions containing, as active ingredient, 5-bromoisatin have valuable analgesic and sedative properties. The 5-bromoisatin can be prepared by forming an aqueous suspension of isatin and brominating the isatin in the suspension.

3,659,012 METHODS OF TREATING HELMINTH INFEC- TIONS WITH THIOUREA DERIVATIVES

Herschel D. Porter, Lawrence Township, Marion County, and Harold M. Taylor, Washington Township, Marion County, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

No Drawing. Filed May 26, 1969, Ser. No. 827,965

Int. Cl. A61k 27/00

U.S. Cl. 424—322 6 Claims

1,1,3-trisubstituted thioureas, active against helminths in warm-blooded animals, and methods for the preparation and use thereof.

3,659,013 METHOD OF INDUCING ANALGESIA WITH DIALKYLACETYLANILIDES

Henry E. Meunier, 24 Avenue Alsace Lorraine, Grenoble, France, and Pierre L. Eymard, 22 Avenue de la Liberte, Fontaine, France

No Drawing. Continuation-in-part of application Ser. No. 673,260, Oct. 6, 1967. This application Sept. 11, 1970, Ser. No. 71,368

Claims priority, application France, Oct. 21, 1966, 81,021

Int. Cl. A61k 27/00

U.S. Cl. 424—324 10 Claims

Dialkylacetyl benzenes, naphthalenes and anilides; and derivatives thereof are disclosed as analgesic, antipyretic and anti-inflammatory agents.

3,659,014 SUBSTITUTED CINNAMAMIDES IN MYORELAXANT COMPOSITIONS

Michel Bayssat, Louis Fontaine, and Marcel Grand, Lyon, France, assignors to Lipha Lyonnaise Industrielle Pharmaceutique, Lyon, France

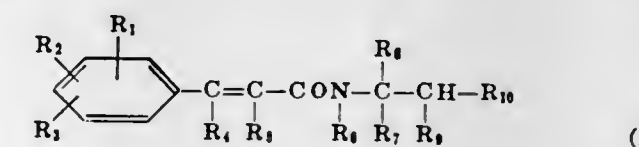
No Drawing. Filed Mar. 31, 1970, Ser. No. 24,359

Claims priority, application France, Apr. 2, 1969, 6910054

Int. Cl. A61k 27/00

U.S. Cl. 424—324 5 Claims

The present invention concerns new cinnamamides of formula:



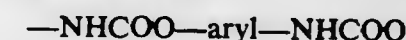
in which R₁ and R₃ are hydrogen, a lower alkyl or lower alkoxy radical; R₂ is hydrogen, a halogen, a lower alkyl or lower alkoxy radical; R₄ and R₅ are hydrogen or a lower alkyl radical; R₆ is hydrogen, a lower alkyl or lower hydroxy alkyl radical aryl radical or



R₇ and R₈ are hydrogen, a lower alkyl or lower hydroxy, alkyl radical; R₉ is hydrogen, a lower alkyl or lower hydroxy alkyl radical; R₁₀=halogen, a hydroxy radical—except when R₁ to R₉=H and R₁, R₂, R₃=CH₃O, R₄=CH₃ and R₅ to R₉=H, a lower alkyl radical, a lower hydroxy-alkyl radical, NH₂-COO, a lower alkyl radical



and aryl radical —NH—COO. The invention is relative to preparation processes and medicine containing as active principle a cinnamamide of Formula I, in which the radicals R₁ to R₉ have the same meanings as above and R₁₀=halogen, a hydroxy radical except when R₁, R₂, R₃=CH₃O, R₄=CH₃ and R₅ to R₉=H—lower hydroxy alkyl, NH₂COO, lower alkyl



3,659,015 DERIVATIVES OF 2-CAMPHANAMINES AS ANTI-INFLUENZA AGENTS

Conrad E. Hoffmann, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of application Ser. No. 422,513, Dec. 31, 1964. This application Apr. 21, 1967, Ser. No. 632,537

Int. Cl. A61k 27/00

U.S. Cl. 424—325 11 Claims

Method of using 2-camphanamine and its N-alkyl, N,N-dialkyl, derivatives and pharmaceutically acceptable salts

of said compounds for pharmaceutical effectiveness against influenza virus infection of warm-blooded animals

3,659,016

SUBSTITUTED AMINO GUANIDINES AS ANTI-OBESITY AGENTS

Robert E. Manning, Mountain Lakes, N.J., assignor to Sandoz-Wander, Inc., Hanover, N.J.
No Drawing. Original application Aug. 11, 1970, Ser. No. 63,000. Divided and this application Apr. 26, 1971, Ser. No. 137,693

Int. Cl. A61k 27/00

U.S. Cl. 424—326 5 Claims
Substituted aminoguanidines, e.g. γ -phenylpropyl-aminoguanidine hydronitrate, are useful as anti-obesity/anti-diabetic agents.

3,659,017

SAFENING AGENTS FOR DINITROPHENOLS AND THEIR DERIVATIVES

William C. von Meyer, Willow Grove, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 648,995, June 26, 1967. This application Sept. 23, 1969, Ser. No. 860,412

Int. Cl. A01n 9/20

U.S. Cl. 424—326 5 Claims
The phytotoxicity of pesticidal formulations containing dinitrophenols, or their derivatives, is reduced on host crop plants, such as cucurbits, grapes, beans and tomato by adding to the formulation safening agents selected from a thiourea, a thionium salt, a tetrazolium salt, and certain imidazolines. The safening agents prevent internal tissue damage in growing plants caused by the dinitrophenols and derivatives without reducing their fungicidal activity.

3,659,018

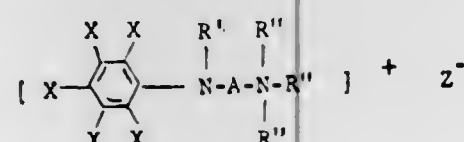
COMPOSITIONS AND METHODS OF USING N-PENTAHALOPHENYL-AMINO-AMMONIUM SALTS

Werner Daum, Krefeld-Bockum, and Hans Scheinpfug, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Sept. 23, 1966, Ser. No. 581,442, now Patent No. 3,518,308, dated June 30, 1970. Divided and this application Jan. 8, 1970, Ser. No. 7,311

Claims priority, application Germany, Sept. 27, 1965, F 47,281

Int. Cl. A01n 9/20, 9/28

U.S. Cl. 424—329 13 Claims
Bactericidal compositions and methods of using N-pentahalophenyl-amino ammonium salts having the formula



in which A is lower alkylene, R' is hydrogen or alkyl, at most one R'' group is arylmethyl, optionally substituted with halo, nitro, alkoxy, alkyl and/or methylene dioxy, at least two R'' groups are aliphatic, optionally halo-substituted, X is chloro and/or bromo, and Z is a salt-forming anion, e.g. halo-anion, which possess bactericidal activity and which may be produced by conventional methods.

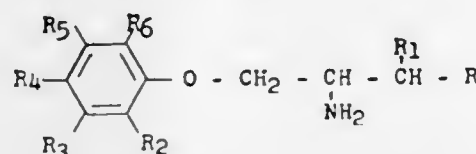
PHARMACEUTICAL COMPOSITIONS COMPRISING CERTAIN 1-PHENOXY-2-AMINO-ALKANES

Herbert Koppe, Karl Zeile, Werner Kummer, Helmut Stahle, and Peter Danneberg, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Application Nov. 14, 1969, Ser. No. 871,619, which is a continuation-in-part of application Ser. No. 667,665, Sept. 14, 1967. Divided and this application Nov. 4, 1970, Ser. No. 86,982

Claims priority, application Germany, Sept. 16, 1966, B 88,950; Aug. 17, 1967, B 94,024
Int. Cl. A61k 27/00

U.S. Cl. 424—330 3 Claims
Pharmaceutical compositions comprising as an active ingredient a 1-phenoxy-2-amino-alkane of the formula



wherein

R₁ is hydrogen or alkyl of 1 to 2 carbon atoms, and R is hydrogen or alkyl of 1 to 3 carbon atoms, R₂ through R₆, which may be identical to or different from each other, are each hydrogen or alkyl of 1 to 5 carbon atoms, but preferably 1 to 2 carbon atoms;

provided, however, that at least one of R₁ through R₆ is other than hydrogen, and if R₁ and R₄ are both methyl, at least one of the remaining substituents R₂, R₃, R₅ and R₆ is other than hydrogen; or a non-toxic, pharmacologically acceptable acid addition salt thereof; the compositions are useful as anticonvulsants and respiration-analeptics in warm-blooded animals.

3,659,020

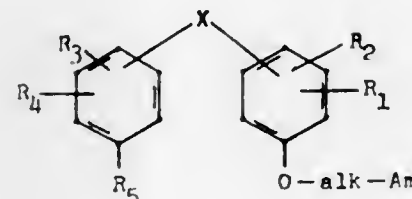
METHOD FOR REARING RUMINANTS

Douglas Cecil Maplesden, Neshanic Station, and George Scott Myers, Jr., Flemington, N.J., assignors to Ciba Corporation, Summit, N.J.

No Drawing. Filed June 18, 1968, Ser. No. 737,808

Int. Cl. A61k 27/00

U.S. Cl. 424—330 9 Claims
The ruminant feed, feed additive or veterinary composition, comprising a compound having the formula

R₁₋₄=H, alkyl, halogeno, CF₃R₅=H or —O—alk—AmX=direct bond, S, SO, SO₂ or alkylidene

alk=lower alkylene

Am=di-lower alkylamino, lower alkyleneimino, morpholino or 4-lower alkyl-piperazino.

or an acid addition salt thereof, and an ingestible carrier material, increases the propionic-acetic acid ratio in the rumen.

3,659,021

RODENT STERILANT PROCESS AND BAIT

Gilbert A. Youngdale, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Filed May 5, 1970, Ser. No. 34,857

Int. Cl. A01n 9/24; A61k 27/00

U.S. Cl. 424—342 6 Claims
Pharmaceutical preparations in dosage forms and animal feeds (baits) consisting essentially of pharmaceutically acceptable carriers, oral and injectable, compounded with a sub-lethal, yet effective, amount of a compound having the formula:



wherein R and R₁ can be hydrogen or an acyl radical of a hydrocarbon carboxylic acid of 1 to 18 carbon atoms, inclusive for inducing sterility in male mammals. Methods for preventing impregnation of females by male mammals which comprises administering systemically to male mammals a sterilizing amount of a compound of the formula.

3,659,022

METHODS OF PREVENTING IMPREGNATION

Gilbert A. Youngdale and Ronald J. Ericsson, Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

No Drawing. Continuation-in-part of application Ser. No. 682,609, Nov. 13, 1967. This application Oct. 3, 1968, Ser. No. 764,914

Int. Cl. A61k 27/00

U.S. Cl. 424—343 5 Claims
Pharmaceutical preparations in dosage forms consisting essentially of compatible pharmaceutically acceptable carriers, oral and injectable, compounded with an effective amount for preventing impregnation by sexually mature male animals, of a compound of the formula



wherein R₁ is hydrogen or an acyl radical of a hydrocarbon carboxylic acid of 1 to 18 carbon atoms, inclusive, and R₂ is selected from the group consisting of hydrogen, an acyl radical of a hydrocarbon carboxylic acid of 1 to 18 carbon atoms, inclusive, an alkyl radical of 1 to 16 carbon atoms, inclusive, an alkenyl radical of 3 to 16 carbon atoms, inclusive, and an alkynyl radical of 3 to 16 carbon atoms, inclusive. Methods of preventing impregnation by male animals which comprise administering systemically to sexually mature male animals an effective amount of preventing impregnation of a compound as described, suitably compounded into a dosage form of a pharmaceutical preparation.

3,659,023

METHOD OF INDUCING ANESTHESIA WITH 2-BROMO-1,1,2,3,3-PENTAFLUOROPROPANE

Bernard M. Regan, Chicago, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

No Drawing. Continuation of application Ser. No. 858,206, Mar. 10, 1969, which is a division of application Ser. No. 664,604, Aug. 31, 1967, now Patent No. 3,480,683, which in turn is a continuation-in-part of application Ser. No. 538,523, Feb. 2, 1966, now Patent No. 3,362,874. This application May 11, 1970, Ser. No. 36,380

The portion of the term of the patent subsequent to Nov. 25, 1985, has been disclaimed

Int. Cl. A61k 13/00

U.S. Cl. 424—350 1 Claim
2-bromo-1,1,2,3,3-pentafluoropropane is employed as an anesthetic agent by administration by inhalation.

3,659,024

USE OF CERTAIN POLYENES AS COLORING AGENTS

Ulrich Manz, Basel, and Ulrich Schwieter, Reinach, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Jan. 16, 1967, Ser. No. 609,312, now Patent No. 3,539,643, dated Nov. 10, 1970. Divided and this application Apr. 24, 1969, Ser. No. 819,524

Claims priority, application Japan, Jan. 28, 1966, 41/1,233

Int. Cl. A61k 7/00, 27/00

U.S. Cl. 424—358 10 Claims
Coloring compositions for foodstuffs, pharmaceutical preparations and cosmetic preparations containing ethers of polyene diketo compounds.

3,659,025

COSMETIC COMPOSITIONS EMPLOYING WATER-SOLUBLE POLYSACCHARIDES

Frank E. Halleck, Madison, Conn., assignor to The Pillsbury Company, Minneapolis, Minn.

No Drawing. Filed Apr. 28, 1966, Ser. No. 545,848
The portion of the term of the patent subsequent to Jan. 31, 1984, has been disclaimed

Int. Cl. A61k 7/00

U.S. Cl. 424—361 8 Claims
Water-based cosmetic compositions exhibiting improved storage stability and application properties are provided by incorporating into a cosmetic composition containing a topical emollient, a water-soluble polysaccharide consisting essentially of a polymeric chain of D-glucopyranose units attached to one another by a beta 1,3 linkage to form a polymeric chain with appendant D-glucopyranose groups contiguously attached to the polymeric chain through a beta 1,6 linkage.

3,659,026

MIXTURE OF XANTHOMONAS HYDROPHYLIC COLLOID AND LOCUST BEAN GUM AS AGRICULTURAL CARRIER

Harry R. Schnuppner, Jr., El Cajon, Calif., assignor to Kelco Company, San Diego, Calif.

No Drawing. Continuation-in-part of application Ser. No. 502,624, Oct. 22, 1965. This application Dec. 8, 1969, Ser. No. 883,229

The portion of the term of the patent subsequent to Apr. 21, 1987, has been disclaimed

Int. Cl. A01n 17/08

U.S. Cl. 424—361 29 Claims
A method of improving the application of agricultural chemicals embodied in an aqueous carrier by admixing therewith from about 0.10% to about 2% by weight of the aqueous component of the carrier of a mixture of a Xanthomonas colloid and locust bean gum at weight ratios of Xanthomonas colloid to locust bean gum ranging from 95:5 to 5:95. A composition comprising an agricultural chemical, an aqueous carrier for the agricultural chemical, and from about 0.10% to about 2% by weight of the aqueous component of the carrier of a mixture of a Xanthomonas hydrophilic colloid and locust bean gum with the weight ratio of the Xanthomonas hydrophilic colloid to locust bean gum ranging from 95:5 to 5:95.

3,659,027

METHOD FOR PRODUCING PYROGEN-FREE SOLUTIONS

Verity C. Smith, 561 Bridge St., Dedham, Mass. 02026
Filed Apr. 17, 1968, Ser. No. 722,124

Int. Cl. A61k 27/00; A61l 1/00

U.S. Cl. 424—366 4 Claims
A pyrogen-free solution is produced by adding a base such as an alkali metal hydroxide to pyrogen contaminated

water in an amount sufficient to bring the pH to at least 8.0, and preferably 12.0. Substantially pyrogen-free conditions are attained after a period of time which depends on the temperature and alkalinity. The hydroxide may be subsequently neutralized with an acid to produce a saline solution suitable for parenteral use.

3,659,028
APPARATUS FOR THE CONTINUOUS PRODUCTION OF PROFILE GLASS AND PLATE GLASS IN BAND FORM
Siegfried Harcuba, Saint Gall, Switzerland, assignor to Intervet Etablissement, Vaduz, Liechtenstein
Filed Nov. 27, 1964, Ser. No. 414,200
Claims priority, application Switzerland, Dec. 4, 1963, 14,827/63

Int. Cl. C03b 5/32, 13/00
U.S. Cl. 65—185
7 Claims
An apparatus for the continuous production of profile glass and plate glass in band form. A plurality of glass supporting and conveying rollers are provided over which a band of glass is advanced. A plurality of rotatable band contacting shaping tool means for shaping said band of glass are mounted so as to be movable in various positions both above and in contact with said band of glass. Adjusting means are provided for lowering and raising the plurality of shaping tool means towards and away from

said band of glass and in a direction transverse to the direction of advancement of said band of glass during normal operation of the apparatus. Thus, profile glass and

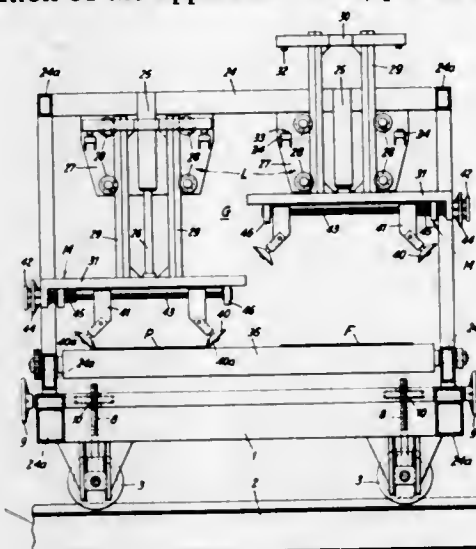
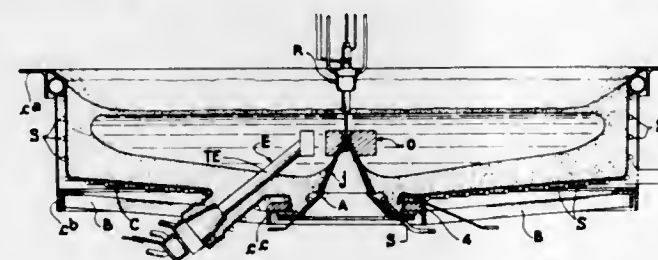


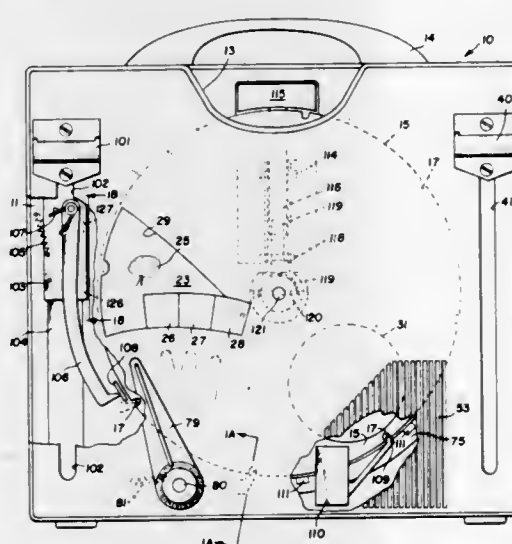
plate glass in band form can be produced in the same apparatus without necessitating stoppage of operation during a change-over.

3,659,029
ELECTRICAL HIGH-TEMPERATURE MELTING FURNACE
Jacques Marie Yves le Clerc de Bussy, Bussy par Poix, France, assignor to Societe de Participations Verrieres, Paris, France
Filed Mar. 19, 1971, Ser. No. 126,159
Claims priority, application France, Mar. 27, 1970, 7011235
Int. Cl. C03b 5/02
U.S. Cl. 13—6
10 Claims



High-temperature melting furnace comprising a vessel having a molten product extracting means surrounded by melting electrodes. A ceramic refractory lining covers the inner face of the vessel. Sealing means are provided for sealing off the whole of the face of the vessel from the exterior. Means are also provided for constantly blowing in a region located at the bottom of the vessel a small amount of inert gas into the lining which opposes penetration into the lining of gases liable to attack the metal of the support of the extracting means and the metal of the electrode rods in contact with the lining.

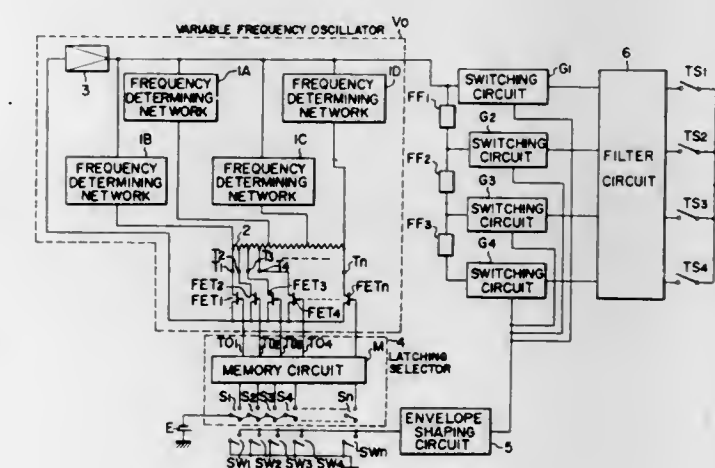
3,659,030
AUDIO-VISUAL TOY
Donald W. Scott, East Aurora, N.Y., assignor to The Quaker Oats Company
Filed Jan. 15, 1970, Ser. No. 3,008
Int. Cl. G09b 5/06
U.S. Cl. 35—8 A
61 Claims



An audio-visual toy uses a record element bearing recordings and visual displays, and the toy includes a movable transducer for reproducing sound from the recordings while the visual displays stand still. A selector mechanism is movable relative to the displays, and its position determines the recording tracked by the transducer. Such an arrangement is embodied in a question-and-answer toy.

ELECTRICAL

3,659,031
MONOPHONIC ELECTRONIC MUSICAL INSTRUMENT WITH A VARIABLE FREQUENCY OSCILLATOR EMPLOYING POSITIVE FEED BACK
Takeshi Adachi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu-shi, Shizuoka-ken, Japan
Filed Sept. 8, 1970, Ser. No. 70,055
Claims priority, application Japan, Oct. 10, 1969, 44/71889
Int. Cl. G10h 1/02, 5/00
U.S. Cl. 84—1.01
1 Claim

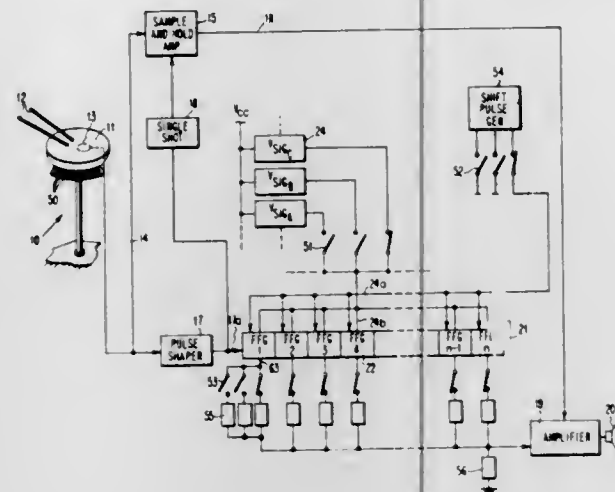


A monophonic musical instrument having a variable frequency oscillator including an amplifier, a plurality of frequency determining networks whose input sides are connected to the output side of the amplifier, a tapped resistor having a plurality of taps several of which are respectively connected to the output sides of the frequency determining networks, and a plurality of switching elements each connected between each of the taps and the input side of the amplifier thus constituting a positive feed-back loop; a plurality of key switches; a latching selector having output lines respectively connected to the switching elements and associated key switches so that the closure of the key switch makes the corresponding one of the output lines to deliver a gating signal to render the corresponding switching element conductive; and circuit means for providing rising and sustaining characteristics to the output signal of the oscillator.

3,659,032
PERCUSSION INSTRUMENT
Gordon H. May, 1923 Camden Avenue, San Jose, Calif.
Continuation of application Ser. No. 782,196, Dec. 9, 1968, now abandoned. This application June 25, 1971, Ser. No. 156,994
Int. Cl. G10h 3/00
U.S. Cl. 84—1.04
12 Claims

A musical percussion instrument having components which are removably mounted on a base providing space for storage and transportation, and including a drum head transducer

with electronic circuit components including a signal amplifier and sound simulators for simulating the sound of percus-



sion instruments and other sounds in response to striking the head.

3,659,033

ELECTRICAL BUSHING HAVING ADJACENT CAPACITOR SECTIONS SEPARATED BY AXIALLY CONTINUOUS CONDUCTIVE LAYERS, AND INCLUDING A COOLING DUCT

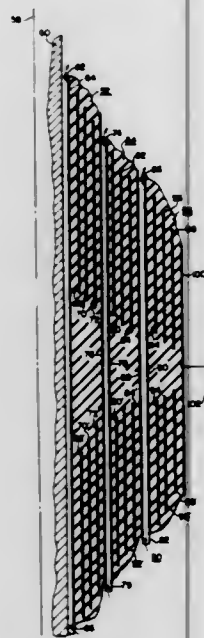
Elmer J. Grimmer, Sharpville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 28, 1970, Ser. No. 84,774

Int. Cl. H01b 17/28

U.S. Cl. 174-15 BH

3 Claims



A condenser bushing including a conductor, electrical insulation disposed about the conductor, and a plurality of radially spaced cylindrical layers of electrically conductive material disposed in the electrical insulation. The cylindrical layers of electrically conductive material are arranged to provide at least first and second concentric radially adjacent condenser systems, with at least one of the systems being of the split or axially divided type. The first and second condenser systems are separated by a continuous electrically conductive layer, not structurally related to either adjacent system, but which functions as the outermost layer of the first condenser system, and the innermost layer of the second condenser system, to connect the two systems in series.

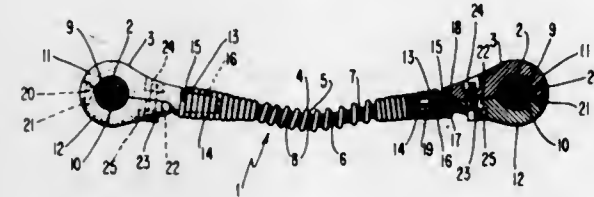
SELF-DAMPING BUNDLE CONDUCTOR SPACER Charles B. Rawlins, and Fred R. Collins, both of Massena, N.Y., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sept. 28, 1970, Ser. No. 75,804

Int. Cl. H02g 7/14, 7/12

U.S. Cl. 174-42

15 Claims



Self-damping bundle conductor spacer for maintaining apart suspended lengths of adjacently extending electrical conductors, including at least two opposed conductor clamps for clamping respectively a portion of the girth of a corresponding electrical conductor, each of the clamps being interconnected in spaced relation with the next adjacent clamp by a corresponding substantially transversely extending elongated helical spacer spring having a hollow axial bore, and a damping bundle of substantially parallel discrete flexible metal strands occupying substantially the cross section of the axial bore of a corresponding spring with the bundle strands in frictional surface contact with one another along their common extent yet relatively slidably displaceable with respect to one another and with respect to the confining portions of the spring along at least a portion of the extent of the axial bore in dependence upon tension and compression forces acting on the assembly.

3,659,035

SEMICONDUCTOR DEVICE PACKAGE

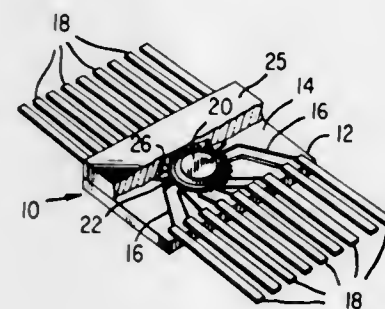
Carmine Stephen Planzo, Onex-Geneva, Switzerland, assignor to RCA Corporation

Filed Apr. 26, 1971, Ser. No. 137,206

Int. Cl. H05k 5/00

U.S. Cl. 174-52 S

15 Claims



A construction for a semiconductor device in which a large number of closely spaced beam leads on a semiconductor chip are connected to external leads, including: an insulating substrate, a metallized pattern of conductors on the substrate, and a connector subassembly for coupling the beams on the chip to the conductors on the substrate. The connector subassembly comprises an insulating body having photolithographically formed beam leads in a diverging pattern thereon, adapted to connect to the chip at one end and to the conductive patterns at the other end thereof.

3,659,036

ELECTRICAL JUNCTION BOX

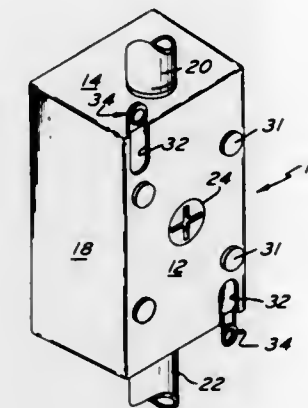
Harry Silver, 1844 Meadowbrook Road, Abington, Pa.

Filed Jan. 20, 1971, Ser. No. 107,927

Int. Cl. H02g 3/10

U.S. Cl. 174-58

9 Claims



An electrical junction box comprising a back wall and side, top and bottom walls defining a cavity for reception of an electrical component such as a receptacle or switch. Spring clips are pivotally mounted within recesses in the back wall of the box for the purpose of mounting the box on a supporting surface such as a wall or pole. A plurality of the clips is provided, and each of the clips is pivotable from a position wherein it is wholly confined within the perimeter of the back wall to a position where it extends outwardly of the outer lateral edge of the back wall. Each clip includes an opening formed therein through which a screw, nail or other fastening device can be used for mounting the box.

3,659,037

ELECTRICAL OUTLET BOX

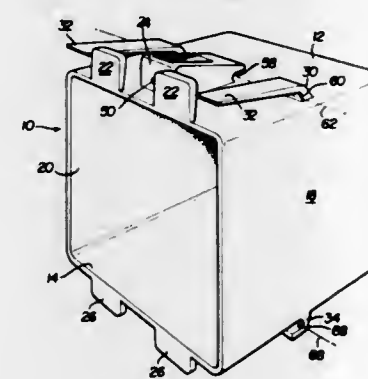
Robert D. MacDonald, Metamora, Mich., assignor to Cardinal of Adrian, Inc., Adrian, Mich.

Filed Apr. 30, 1971, Ser. No. 139,058

Int. Cl. H02g 3/12

U.S. Cl. 174-58

8 Claims



A molded plastic electrical outlet box has upper and lower mounting bosses which engage front and rear faces of the wall panel opening in which the box is installed, thereby temporarily but securely retaining the box in the wall opening. The same pair of screws which subsequently fix an electrical unit within the box also permanently and securely clamp the mounting bosses to the wall panel. Transverse nail guiding passages provide a means for additionally nailing the box to a stud if required by local building codes.

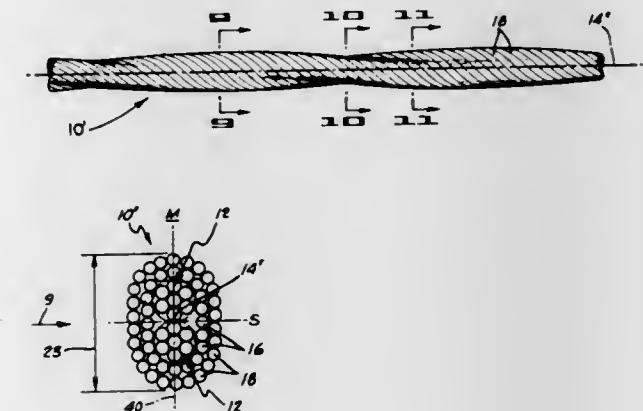
3,659,038

HIGH-VOLTAGE VIBRATION RESISTANT TRANSMISSION LINE AND CONDUCTORS THEREFOR Alexander N. Shealy, 701 Mt. Vernon Road, Newark, Ohio Continuation-in-part of application Ser. No. 861,806, Sept. 29, 1969, now abandoned. This application Jan. 13, 1971, Ser. No. 106,025

Int. Cl. H02g 7/14; H01b 5/08

U.S. Cl. 174-42

20 Claims



Improved vibration and sag resistant overhead transmission line and air-insulated conductor cables therefor. Each conductor cable has an approximately oval or elliptically shaped cross-sectional configuration and it is continuously rotated or twisted about its central axis and along its length whereby the conductor cable, in effect, simulates an air foil that presents an ever changing angle of attack to the cross-winds that occur in the area of installation of the transmission line.

3,659,039

METHOD AND APPARATUS FOR RECORDING AND REPRODUCING COLOR IMAGES ON MONOCHROME FILM

Bernhard J. Rogers, London, England, assignor to The Rank Organisation Limited, London, England

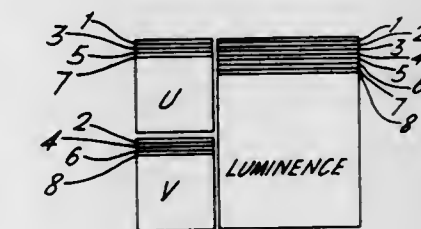
Filed Feb. 26, 1970, Ser. No. 14,317

Claims priority, application Great Britain, Feb. 28, 1969, 10,868/69

Int. Cl. H04n 1/22

U.S. Cl. 178-5.4 CD

5 Claims



A method of recording color images on monochrome recording medium, wherein successive frames are recorded on successive areas along the length of the recording medium, and wherein, considering each such area as being composed of two parts of unequal width, luminance signals are recorded on the larger said parts of such areas, and a corresponding pair of color signal components are recorded on the smaller said parts of such areas. The invention includes apparatus for recording and reproducing images according to this method.

3,659,040

CONTROL SYSTEM FOR A COLOR SYNCHRONIZING SIGNAL OSCILLATOR IN A MAGNETIC RECORDING AND REPRODUCING APPARATUS

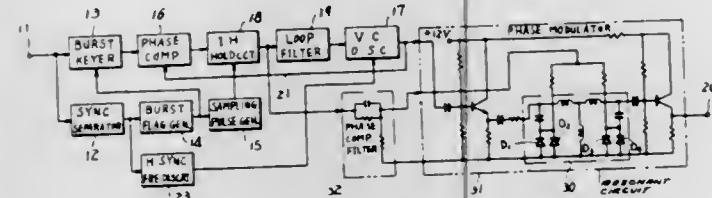
Mitsuo Fujita, Tokyo, Japan, assignor to Victor Company of Japan, Limited, Kanagawa-ku, Yokohama, Japan

Filed Sept. 29, 1969, Ser. No. 861,561

Claims priority, application Japan, Sept. 30, 1968, 43/70245
Int. Cl. H04n 9/44

U.S. Cl. 178—5.4 CD

2 Claims



A control system for a color synchronizing signal oscillator used with a magnetic color video signal recording and reproducing apparatus which prevents a color step out, when a color video signal having a timing variation is demodulated. In this system, the phases of a color burst signal of the color video signal and an output signal of a voltage control oscillator are compared with each other. A phase error voltage is produced corresponding to the phase difference between the two signals, and this voltage is sampled by sampling pulses. The sampled phase error voltage is held during one horizontal scanning period and then supplied to the voltage control oscillator to control its oscillation frequency so that color synchronization may be effected satisfactorily.

3,659,041

FM-FM AUDIO MULTIPLEX TELEVISION BROADCASTING SYSTEM WITH REDUCTION OF UNDESIRE PHASE MODULATION COMPONENT

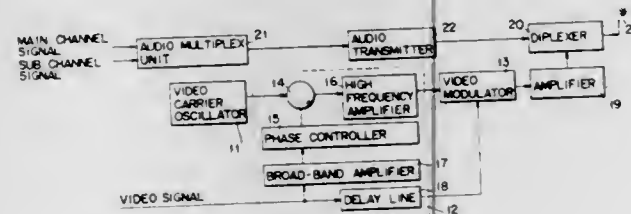
Kouichi Kitaoka, and Taku Ichihara, both of Yokohama, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

Filed June 17, 1970, Ser. No. 46,903

Claims priority, application Japan, June 20, 1969, 44/48553
Int. Cl. H04n 5/40; H03c 1/04

U.S. Cl. 178—5.8 R

7 Claims



An FM-FM audio multiplex television broadcasting system, wherein the video carrier is phase controlled by a phase controller provided prior to the video modulation stage and including a varactor diode, whose electrostatic capacitance varies with the video signal, in such a manner that the component of phase modulation accompanying the video carrier amplitude modulation with the video signal is canceled.

3,659,042

WIDE DEVIATION MAGNETIC RECORDING TECHNIQUES

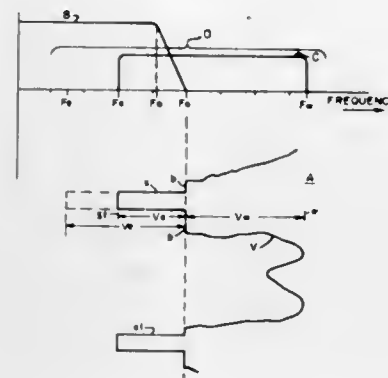
Paul G. Kennedy, Monroeville, and Raymond W. Mackenzie, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 6, 1969, Ser. No. 863,831

Int. Cl. H04n 5/62, 5/68

U.S. Cl. 178—6.6 A

8 Claims



A method and apparatus for recording on recording media, having a predetermined bandwidth, composite video signals including video, blanking and synchronizing portions and having a predetermined frequency spectrum wherein the composite video signals are frequency modulated on a carrier frequency which has a value near to the upper frequency limit of the predetermined frequency spectrum so that the blanking portion of the composite video signal produces the carrier frequency, modulated signals of frequencies lower than the carrier frequency extending into the predetermined frequency spectrum are produced in response to the synchronizing portion and modulated signals having frequencies higher than the carrier frequency are produced in response to the video portion, with the maximum deviation of the carrier frequency being greater than the predetermined frequency spectrum.

3,659,043

HYDROGEN FIRE BLINK DETECTOR

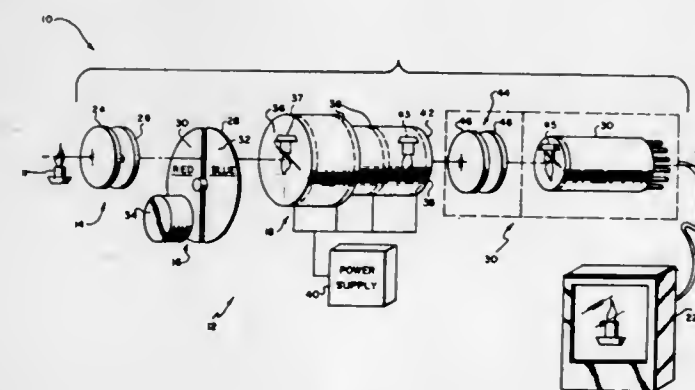
George M. Low, Deputy Administrator of the National Aeronautics and Space Administration in respect to an invention of, and James M. Donnini, 1505 Fell Avenue N.E., Huntsville, Ala.

Filed July 1, 1970, Ser. No. 51,477

Int. Cl. H04n 7/18, 7/02

U.S. Cl. 178—6.8

4 Claims



A hydrogen fire detector for use either on a high altitude rocket or in a ground installation. The device incorporates a conventional vidicon camera and television receiver-monitor. The device also comprises an infrared image converter to change the infrared radiation from the fire to visible light,

3,659,046

MESSAGE SCRAMBLER FOR PCM COMMUNICATION SYSTEM

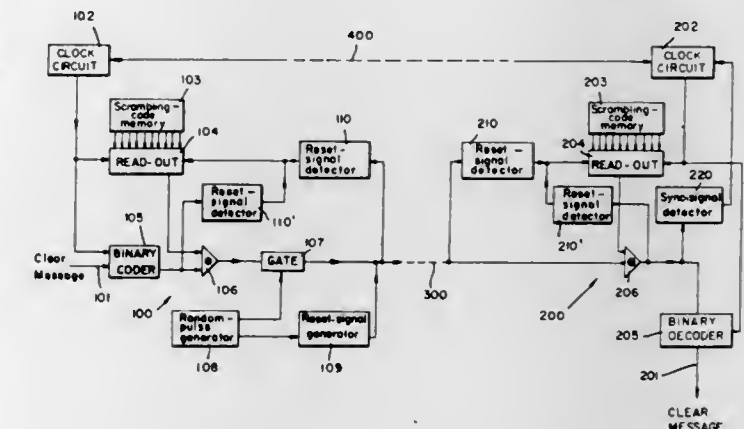
Emanuele Angeleri, and Evangelo Lyghounis, both of Milan, Italy, assignors to Societa' Italiana Telecomunicazioni Siemens S.p.A., Piazzale Zavattari, Milan, Italy

Filed May 13, 1969, Ser. No. 824,235

Claims priority, application Italy, May 15, 1968, 16,492 A/68
Int. Cl. H04l 9/00

U.S. Cl. 178—22

6 Claims



3,659,044

TEST SYSTEM FOR ELECTRICAL APPARATUS

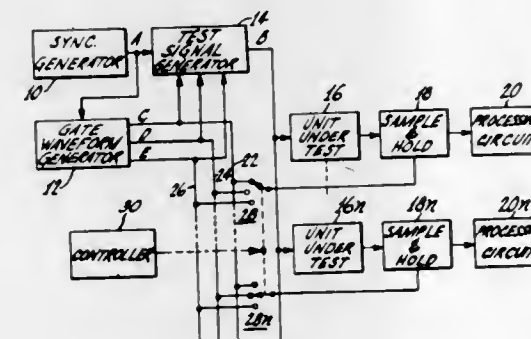
Larry Alan Olson, Indianapolis, Ind., assignor to RCA Corporation

Filed July 31, 1970, Ser. No. 59,953

Int. Cl. H04n 1/38, 7/08

U.S. Cl. 178—6.8

7 Claims



A test waveform which consists of n separate test signals during n successive time intervals, respectively, is applied to one or more units under test. The response of a unit to a particular one of the signals is ascertained by sensing the output produced by that unit only during times synchronous with times that the test signal is present.

3,659,045

VIDICON TUBE CARRIAGE

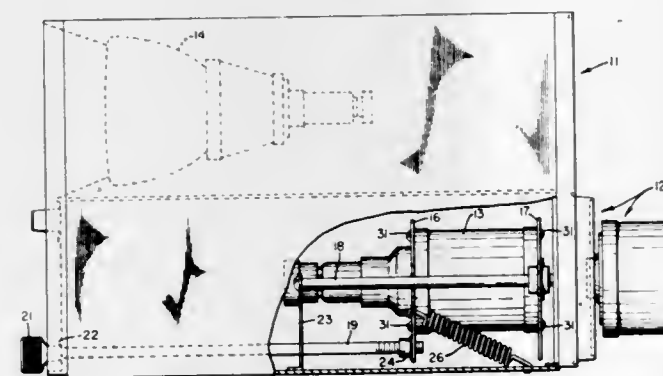
Raymond C. Slebert, Saratoga, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Filed Jan. 5, 1970, Ser. No. 539

Int. Cl. H04n 5/645; G02b 7/04

U.S. Cl. 178—7.92

9 Claims



To overcome backlash and looseness effects in a two-rail mounted vidicon camera tube, the tube mounting being suspended on the rails by means of three loose fitting tubular bearings and being loaded by a single spring in orthogonal directions parallel to the rails, normal to the rails in the plane of the rails, and normal to the plane of the rails, so as to take up slack and looseness in the bearings and positioning screw.

3,659,047

DEVICE FOR PRINTING THE ELEVATION COORDINATES ON A MAP

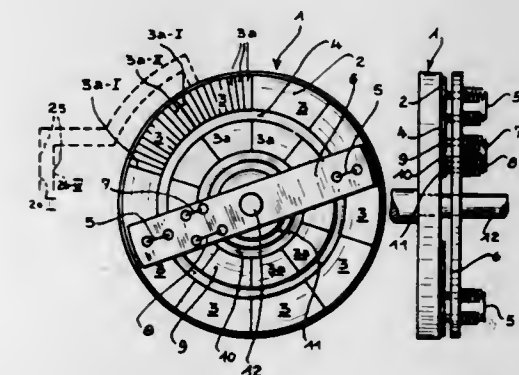
Hans Staffel, Gundwaldstr.12,6092, Keisterbach/M., and Dieter Isenbarg, Jahnstr.17,6051, Weiskirchen, both of Germany

Filed July 13, 1970, Ser. No. 54,129

Int. Cl. H04L 15/24; H04l 17/16

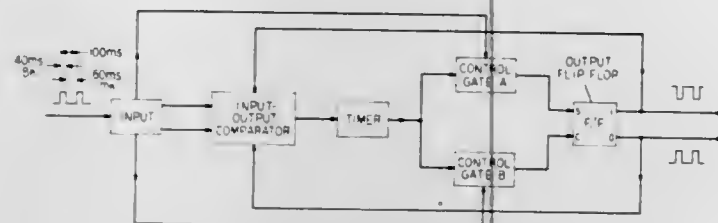
U.S. Cl. 178—36

16 Claims



A device for the continuous and automatic transmission and indication of the elevation coordinate at a cartographic location in a stereoscopic apparatus to an indicating device associated with a map, and wherein the measured value is introduced to a first motor by means of a commutator disc with contact plates. The motor is coupled to the indicating device

input transition (low-to-high and high-to-low) is delayed for 12.5 ms, at which time the state of the flip-flop is changed provided the input level is then different from the output level. An input-output logic level comparator drives a single-shot timer into its astable timing state for 12.5 ms each time the input level changes so as to be different from the output



level. Enable-disable gates are controlled by the timer to allow the flip-flop to be set according to the input level only when the timer is in its stable state. Changes of the input level are disregarded (i.e., filtered out) during the 12.5 ms timing interval. The single-shot timer is continuously recycled so as to become effective at all input transitions which occur at intervals longer than 12.5 ms.

3,659,056

HEARING AID SYSTEMS

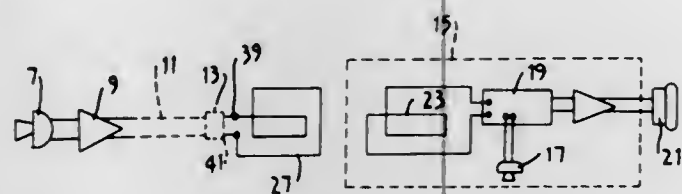
William B. Morrison, 1136 First Avenue, N.W., Moose Jaw, and Adolf C. Howorko, 4518 McTavish Street, Regina, both of Saskatchewan, Canada

Filed Nov. 13, 1969, Ser. No. 870,588

Int. Cl. H04b 5/02

U.S. Cl. 179-82

4 Claims



This invention relates to a hearing aid system for the education of deaf children, and permits the incorporation of such children in a class of normal children. The child carries a conventional hearing aid provided with an integral inductive audio-frequency signal pick-up loop. The child also carries an audio-frequency signal inductive transmitting loop of such size that it can be worn in close proximity to the pick-up loop of the hearing aid. The teacher uses a microphone coupled by a suitable transmission system to the inductive transmitting loop. Thus the standard hearing aid enables the child to hear both ambient noise and a relatively distant teacher, with both signals at convenient sound levels.

3,659,057

CONSTANT SPEED TELEPHONE DIAL RETURN MECHANISM

Werner Poppendieck, Reinerstrasse 16, 1 Berlin 33, Germany

Filed Feb. 16, 1970, Ser. No. 11,440

Claims priority, application Germany, Feb. 14, 1969, P 19 07 544.6

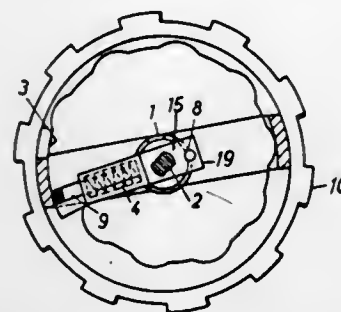
Int. Cl. H04m 1/26

U.S. Cl. 179-90 R

4 Claims

Mechanism for progressively balancing the unwinding spring tension of a telephone dial so as to effect a constant dial-return speed and hence obtain a constant output pulse rate ratio from the telephone. An inner tubular cam face of spiral, repetitive wave form is swept by a brake consisting of a resiliently radially-outwardly-urged friction pin carried by

the shaft of the dialing disk. An axially-directed drive pin also carried by the shaft is spring-urged to be (during dial return only) in driving relation with a unidirectionally rotatable



toothed wheel which is jointly rotatable with a pulse wheel. Arrangement eliminates present spur gear, worm-drive, and centrifugal regulator.

3,659,058

AUTOMATIC DEVICE FOR DIALING PULSES

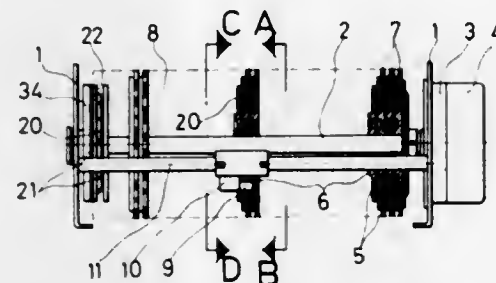
Antonio Peral Hernandez, Tracia 27, Madrid 17, Spain

Filed May 11, 1970, Ser. No. 36,009

Int. Cl. H04m 1/45

U.S. Cl. 179-90 B

10 Claims



An automatic device for dialing pulses such as telephone numbers. A revolving drum that includes a plurality of discs having on their periphery a series of groups of irregularities programmed in accordance with a determined code are selectively brought opposite a rapidly acting micro-switch inserted in the telephone line. An electric motor rotates the discs while simultaneously the telephone apparatus with which the micro-switch is incorporated is short-circuited. The micro-switch is fitted on a cursor having multiple stable positions on a shaft parallel to the shaft of the drum. The cursor is fitted with a sensing shoe sliding over extensions in the programmed discs. The discs bearing programmed irregularities for operating the micro-switch are constituted by means of independent circular sections which are fitted on the drum secured against radial and tangential forces. The drum is constituted by means of the combination of two different classes of discs, rigid and flexible. A cam on the drum produces the locking of the drum in a stable position when the apparatus is at rest and the automatic closing of a switch in the feed circuit of the motor during a complete revolution of the drum. Between every two groups of irregularities of the same disc there are fitted some separating pieces capable of bringing about the stopping of the drum and a telephonic commutation in accordance with which the telephone ceases to be short-circuited during the time that the stopping of the drum lasts. The shaft along which the cursor moves has the possibility of turning through a certain angle between two check-pieces and is acted upon by a spring that endeavors to turn it in a clockwise direction. A radial lever operates to form a block of telephonic commutation so that when the apparatus is sending pulses the telephone is short-circuited and when the block is in a situation of repose or of momentary stopping between two emissions of pulses, produced by the pieces that are inserted between the groups of programming sectors, then the telephone is in service.

3,659,059

METHOD AND APPARATUS FOR SUPPRESSING AND SUBSTITUTING SIGNALS

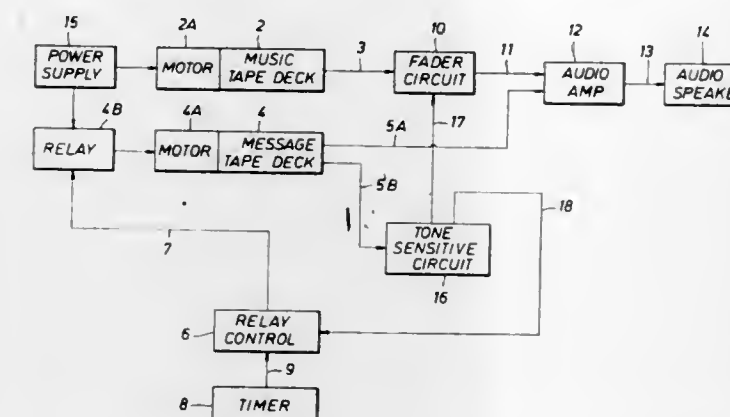
Leon H. Ivy, 2422 Tangle, Houston, Tex.

Filed July 7, 1969, Ser. No. 839,421

Int. Cl. G11b 15/06

U.S. Cl. 179-100.1 C

14 Claims



A method and apparatus for progressively suppressing a primary electronic signal, and for substituting a secondary electronic signal for said suppressed primary signal, in response to a tone control frequency. The secondary signal and tone control frequency may both be recorded on a common magnetic tape which may be selectively played at preselected discrete time intervals.

3,659,060

SYSTEM FOR MEASURING FREQUENCY DEVIATION

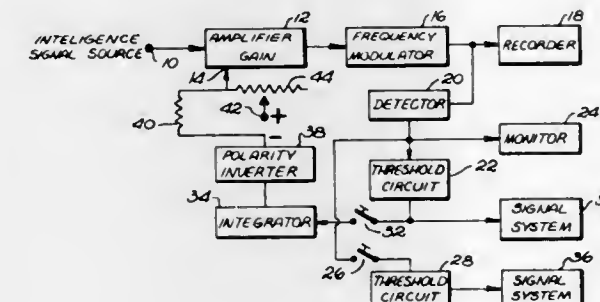
Allan L. Wolff, 2485 Huntington Drive, San Marino, Calif., and David Ferber, 17139 Bullock Street, Encino, Calif.

Filed Apr. 8, 1970, Ser. No. 26,643

Int. Cl. H03c 3/06

U.S. Cl. 179-100.2 K

4 Claims



A monitoring system for use in combination with a frequency modulation apparatus is disclosed, whereby occurrences of over modulation may be controlled. Manual control may be exercised, or the system may include a servo loop to accomplish automatic modulation control. In the system a frequency-modulated intelligence signal is detected to provide an amplitude-varying signal which is applied to an amplitude threshold unit that functions to signal when the input amplitude exceeds a predetermined level. The system is disclosed to provide a humanly-perceivable signal and additionally to include a loop to automatically control the degree of modulation.

3,659,061

PUSH BUTTON ELECTRICAL SWITCH INTERLOCKING STRUCTURE INCLUDING WASHER BLOCK-OUT MECHANISM

Joseph Andreaggi, Short Hills, N.J., assignor to Weston Instruments, Inc., Newark, N.J.

Filed Oct. 20, 1970, Ser. No. 82,242

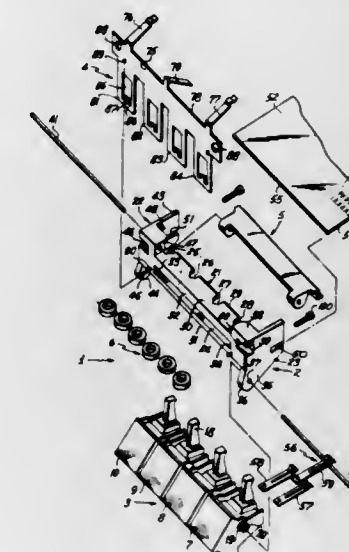
Int. Cl. H01h 9/26; G05g 11/00

U.S. Cl. 200-5 EA

8 Claims

A push-button switch of the selective or latching type. A washer block-out mechanism co-operates with a tail portion

of each push-button to positively prevent depressing more than one pivotally mounted push button to a contact make position. The push buttons are mounted in side by side relation to each other on a shaft for pivotal movement. Latching in a switch closed position is accomplished by a latch bar common to all the push buttons. Each push button carries three movable spring arm contacts, each contact having a



pair of tips electrically joined to bridge stationary contacts on a printed circuit board connectable to the switch assembly. Guides are provided to properly position the circuit board so its contacts are aligned with the movable contacts carried by the buttons. A unique contact arrangement including a contact carried by each push button provides for illuminating the button when depressed.

3,659,062

ACCELERATION RESPONSIVE SWITCHES EMPLOYING A PLURALITY OF MASSES

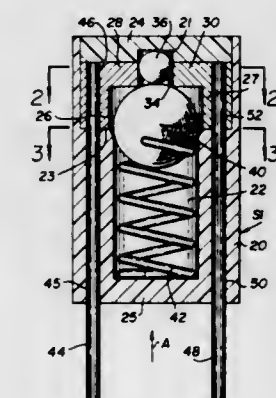
Edward T. Shea, Huntington, N.Y., assignor to Aerodyne Controls Corporation, Farmingdale, N.Y.

Filed Mar. 31, 1970, Ser. No. 24,122

Int. Cl. H01h 35/14

U.S. Cl. 200-61.45

10 Claims



An acceleration switch comprises a housing in which is a cylindrical bore of larger diameter communicating with a cylindrical cavity of smaller diameter. A large, electrically conductive mass, typically a spherical ball, is held by spring tension at one end of the bore. The large ball holds another mass which may be a smaller ball in the cavity and normally bridges a pair of electrical contacts in the housing. When the ball moves, upon application of sufficient force of acceleration, the smaller ball moves out of the cavity into the bore and prevents return of the larger ball to its original position. This represents the latching mode. The switch is normally closed and latches open, but can be arranged normally open to latch closed, or to open one pair of contacts while closing another pair of contacts.

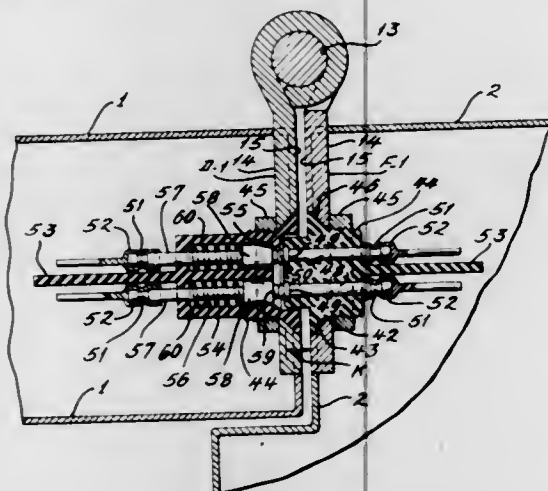
3,659,063

HINGE WITH MEANS FOR CONDUCTING ELECTRICITY THERE THROUGH

Francis C. Peterson, Affton, Mo., assignor to C. Hager & Sons Hinge Manufacturing Company, St. Louis, Mo.
Filed Aug. 6, 1970, Ser. No. 61,633
Int. Cl. H01h 3/16

U.S. Cl. 200—61.7

11 Claims



A hinge wherein the leaves are pivotally secured together on a pin, one of said leaves having electricity conducting means connected thereto which contacts cooperating electricity conducting means connected to the other leaf of said hinge to permit the flow of electricity from one leaf to another when the door is in its door-closed position.

3,659,064

WATER SURFACE SWITCH

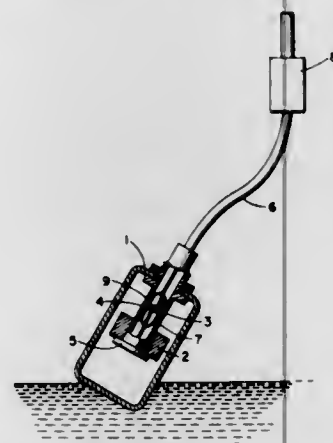
Mitsuo Inoue, Ibaragi, Japan, assignor to C.D.M. Kabushiki Kaisha, Kishiwada, Osaka, Japan

Filed Sept. 23, 1970, Ser. No. 74,650

Int. Cl. H01h 35/18

U.S. Cl. 200—84 C

2 Claims



A float switch for opening and closing a circuit in response to the level of a liquid comprising a permanent magnet which is disposed loosely around a protection tube enclosing a lead switch, the magnet being slidable along the tube to open or close the switch contacts depending on the level of the liquid.

3,659,065

FLUID-BLAST CIRCUIT INTERRUPTER WITH DELAYED MOVING CONTACT TRAVEL

Robert Michael Roidt, and Bruce W. Swanson, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Mar. 6, 1970, Ser. No. 17,198

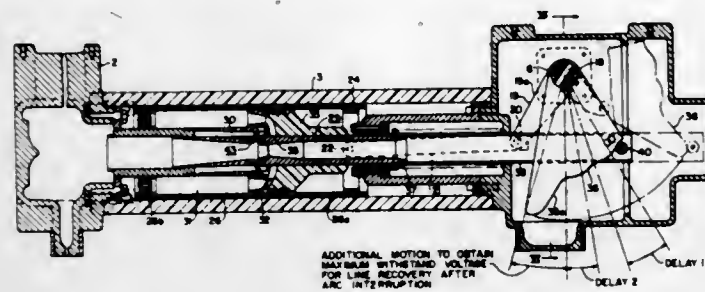
Int. Cl. H01h 33/70

U.S. Cl. 200—148 R

6 Claims

A fluid-blast circuit interrupter is provided having a pair of separable contacts, the moving contact of which has two

delayed periods during its opening travel, the first of which is during the time of increasing fluid pressure resulting from piston-generating action, with a relatively short arc length, and the second delayed period of the movable contact is dur-



ing the time of fluid flow with an arc length of greater length adequate for arc interruption. Subsequently, the moving contact is further withdrawn to the fully open-circuit position to thereby be capable of withstanding the returning recovery-voltage transient.

3,659,066

PUSH-BUTTON ELECTRICAL SWITCHES

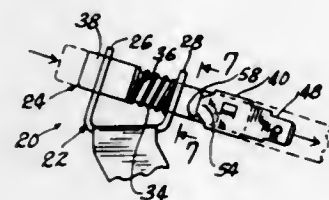
William N. Schlak, Crystal Lake, and Harry J. Krol, Arlington Heights, both of Ill., assignors to Indak Manufacturing Corp., Northbrook, Ill.

Filed July 13, 1970, Ser. No. 54,193

Int. Cl. H01h 3/12

U.S. Cl. 200—159 R

6 Claims



Each of the illustrated switches comprises a carriage in the form of a flat bar which is slidable through guide slots in a conductive body or bracket. A coil spring is mounted around the carriage and is connected between the carriage and the body. The contactor is secured to one side of the carriage and is engageable with the body. In one embodiment, the carriage is made of insulating material. In the second embodiment, an insulator is provided between the contactor and the carriage, which is made of metal. In both cases, the carriage can be made by an inexpensive stamping operation. The contactor is preferably in the form of a flat blade having a nose portion adapted to be moved into a slot in the body. The nose portion preferably has a pair of tapering edges which are engageable with the body at opposite sides of the slot. The wiping action between the tapering edges and the body insures that good electrical contact will be maintained between the contactor and the body. The contactor preferably has a terminal to which a flexible lead may be attached.

3,659,067

ELECTRICAL SWITCHES WITH PIVOTAL ACTUATOR DETENT MEANS

Norman Wilkinson, Barrowford near Nelson, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

Filed Mar. 11, 1970, Ser. No. 18,631

Claims priority, application Great Britain, Mar. 17, 1969, 13,794/69

Int. Cl. H01h 3/50

U.S. Cl. 200—166 SD

3 Claims

An electrical switch includes a body, a fixed contact carried by the body, a slide mounted for sliding movements on

3,659,069

INDUCTOR FOR HEATING AN ELONGATED WORKPIECE HAVING A VARIED PROFILE

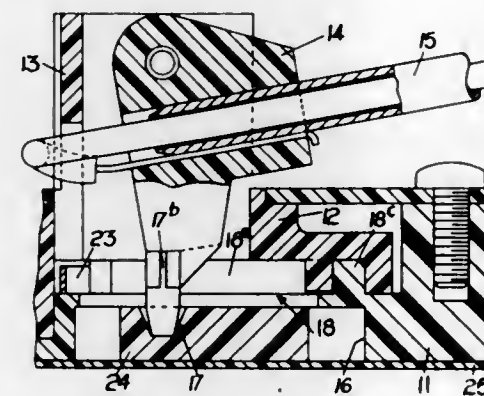
Norbert R. Balzer, Parma, and George M. Mucha, Parma Heights, both of Ohio, assignors to Park-Ohio Industries, Inc., Cleveland, Ohio

Filed Dec. 7, 1970, Ser. No. 95,503

Int. Cl. H05b 9/02

U.S. Cl. 219—10.79

3 Claims



piece causes sliding movement of the slider. A resilient member is carried by the body and co-operates with the pivot piece to define detent means for locating the pivot piece in a predetermined angular position. The resilient member includes a pair of legs which are resiliently urged into engagement with the pivot piece, the surface of each of the legs which engages the pivot piece being formed with a depression in which a portion of the pivot piece is engaged when the pivot piece is in the predetermined angular position.

An induction heating inductor for heating an elongated workpiece having a varied profile which inductor includes two generally parallel conductors extending the portion of the workpiece to be heated and generally U-shaped flux concentrators around these conductors with spaced legs facing the workpiece and wherein the length of the legs are varied to form substantially a mirror image of the workpiece profile.

3,659,068

MICROWAVE OVEN SAFETY INTERLOCK

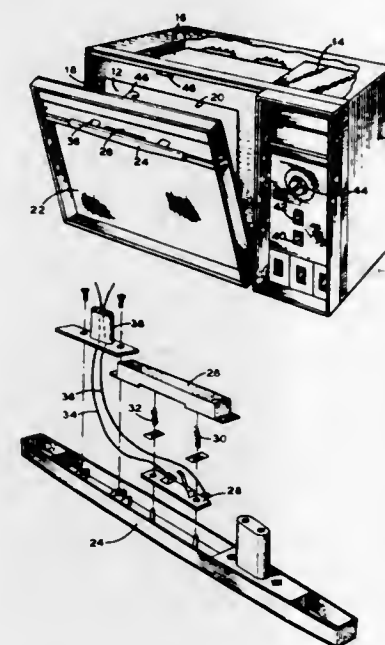
Gordon Duffner, St. Joseph, and Robert D. Fernau, Stevensville, both of Mich., assignors to Heath Company, Benton Harbor, Mich.

Filed Sept. 23, 1970, Ser. No. 74,576

Int. Cl. H05b 9/06

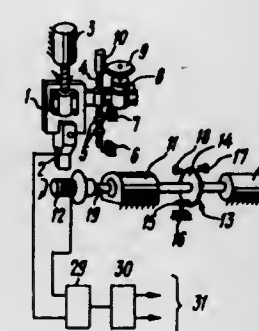
U.S. Cl. 219—10.55

9 Claims



A safety latching device for a microwave oven in which the oven door can not be opened until the microwave generator circuit in the oven has been deenergized and wherein power can not be applied to the microwave generator circuit until the oven door has been latched to a closed position against the oven cavity.

An electro-erosion machine for machining through holes which ensures highly arcuate spacing of holes machined in articles involved, as well as strict similarity thereof and features high throughput capacity due to full automation of its entire working cycle, which makes this machine applicable for large-scale production.



3,659,070

ELECTRO-EROSION MACHINE FOR MACHINING THROUGH HOLES

Vladimir Fedorovich Ioffe, Kirovsky prospekt, 69/71, kv. 5; Garri Shmylevich Roitshtein, Kirovsky prospekt, 65, kv. 9; Iosif Yakovlevich Vyatskin, Leningrad ulitsa Iluskaia, II, kv. 42; Vladimir Grigorovich Tsypkin, Leningrad ulitsa Gaviskaya, 3, korpus I, kv. 12; Vladimir Nikolaevich Alexandrov, Leningrad Chkalovsky prospekt, 14, kv. 25, all of Leningrad, and Gennady Gavrilovich Semin, ulitsa Tsentralnaya, 15, kv. 1, Fryazino Moskovskoi Oblasti, all of U.S.S.R.

Filed June 17, 1969, Ser. No. 833,966

Int. Cl. B23k 9/16

U.S. Cl. 219—69 E

5 Claims

3,659,071

ARC CUTTING OF METALS AND METHOD OF CONTROL OF CUTTING DEPTH

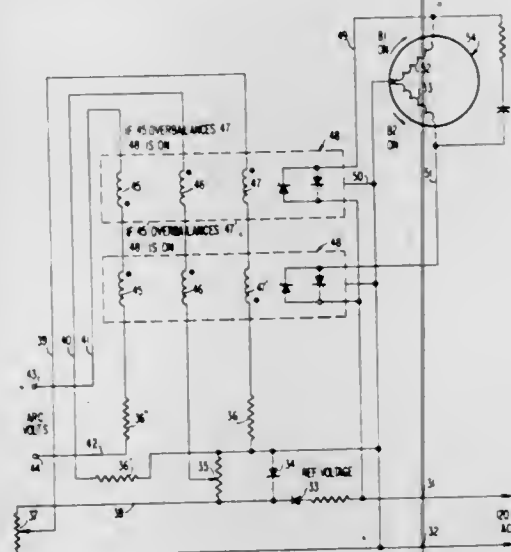
R. Henderson, Lancaster, Ohio, assignor to Arcair Company, Allentown, Pa.

Continuation of application Ser. No. 699,927, Jan. 23, 1968.

This application July 27, 1970, Ser. No. 64,082

Int. Cl. B23p 1/14

U.S. Cl. 219—69 G



Automatically controlled carbon arc cutting of metals by use of a gas jet to remove metal as it melts in the arc as cut is effected by a reversible motor-driven electrode adjustment according to sensed departures in arc voltage from a preset value. The arc is first struck and thereafter immediately adjusted to a desired depth of groove by sensing the departure of voltage across the arc from a set value to produce the desired depth for the finished groove bottom, which sensed deviation operates either of two switches to drive the electrode closer to or farther from the work to restore the arc voltage to the set value. A precision of cutting depth is achieved comparable to rough machining at a very high cutting rate for steel and metals not cut by ordinary machining operations. A tolerance of a few thousandths of an inch is maintained although irregularities in flatness or surface shape of the metal being cut would prevent predictable cutting depth for prior depth gauging methods.

3,659,072

CUTTING AND GOUGING ELECTRODE HOLDER

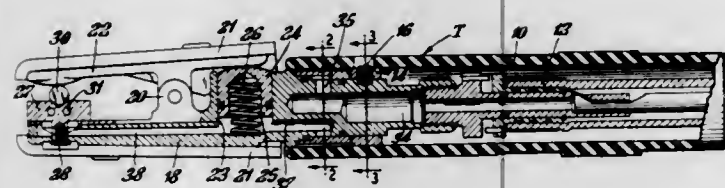
Donald Wesley Carkhuff, Wanaque, and Harry Charles McGinty, Belleville, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Sept. 17, 1970, Ser. No. 73,151

Int. Cl. B23k 37/02

U.S. Cl. 219—70

3 Claims



Cutting and gouging electrode holder wherein a gas-pressure-responsive means is provided in one of the jaws of said electrode holder to hold the electrode in working position without the aid of a spring means. Pressurized gas is fed to, and through nozzles in, at least one jaw to blow away molten metal. Gas from the same source also operates the gas-pressure-responsive means.

3,659,073

METHOD OF DC CONSTANT POTENTIAL SUBMERGED ARC WELDING

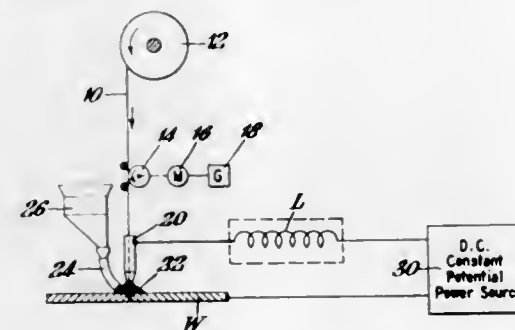
Gerald D. Uttrachi, Westfield, and Joseph E. Messina, Roselle, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed June 8, 1970, Ser. No. 44,169

Int. Cl. B23k 9/18

11 Claims U.S. Cl. 219—73

1 Claim



A method of DC constant potential submerged arc welding wherein an inductor is interposed between the constant potential source and the electrode of a magnitude of at least about 1,350 micro-henries and a minimum saturating current level of approximately 500 amperes.

3,659,074

ELECTRIC RESISTANCE WELDER AND METHOD

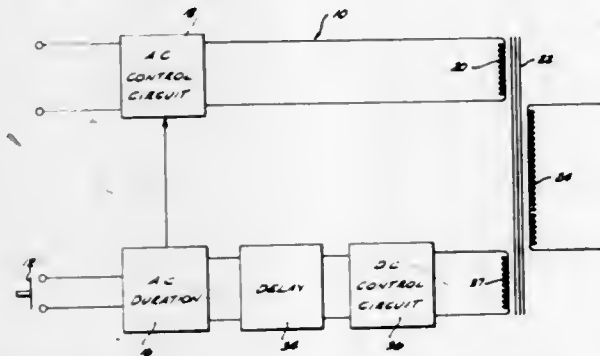
Richard G. Friess, San Marcos, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Apr. 13, 1970, Ser. No. 27,888

Int. Cl. B23k 11/24

U.S. Cl. 219—111

8 Claims



Resistance welder supplies an AC preheat current to the workpiece, followed by a DC weld pulse.

3,659,075

MAGNETIC CONTROL OF ARC IN STRIP PLATING

Dieter Pellkofer, Winterthur, Switzerland, assignor to Sulzer Brothers, Limited, Winterthur, Switzerland

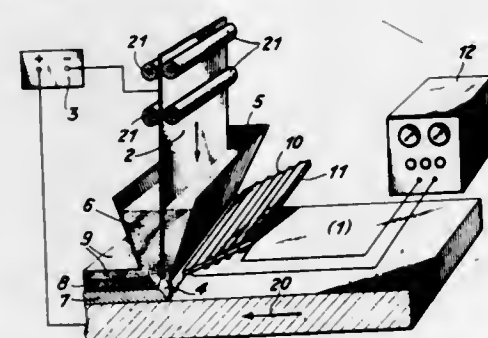
Filed Jan. 28, 1970, Ser. No. 6,465

Claims priority, application Switzerland, Jan. 29, 1969, 1333/69

Int. Cl. B23k 9/04

U.S. Cl. 219—76

12 Claims



A flat coil is positioned adjacent the plating zone with the long sides of the coil parallel with the plating zone. With a

pulsating current directed through the coil, the magnetic field produced by the coil controls the movement of an electric arc between the workpiece being plated and the plating strip.

3,659,076

AIR COOLED WELDING GUN

Ralph Ogden, Sr., 1304 Fisher Street, Munster, Ind.

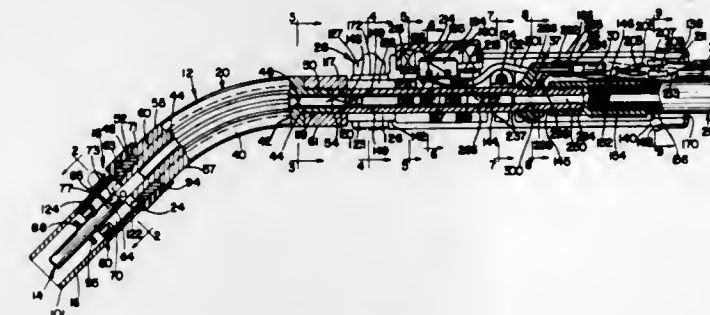
Continuation-in-part of application Ser. No. 838,419, July 2, 1969, now Patent No. 3,596,049, dated July 27, 1971. This

application June 3, 1970, Ser. No. 43,100

Int. Cl. B23k 9/00

U.S. Cl. 219—130

20 Claims



The disclosure is directed to a welding gun for MIG welding in which the gas cup and contact tip of the nozzle are secured in place by a single clamp type device that permits ready replacement of both. The nozzle in turn is connected to the gun handle by a single clamp device that permits ready replacement of the nozzle as a unit or ready change of positioning of same relative to the handle. The nozzle is arranged to provide for cooling of the gas cup through air fins on the nozzle that are in electrically insulating good heat transfer relation to the gas cup. The nozzle is in the form of an elongate extruded body having its end portions threaded for threaded attachment thereto at its handle end of a finger forming fitting to which the clamp that holds the nozzle to the gun handle is applied, and for attachment to its discharge end a finger forming fitting to which is applied the clamp that holds the gas cup and contact tip in place. Interposed between the gas cup and the body discharge end fingers is a contractable sleeve formed from a material having good heat conducting characteristics that is covered with a coating of a material that is electrically insulating but of good heat conducting characteristics.

3,659,077

APPARATUS FOR THE CURING OF CONCRETE

Wallace A. Olson, P.O. Box 22502, Denver, Colo.

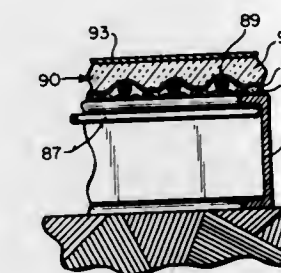
Original application Oct. 24, 1968, Ser. No. 770,163. Divided

and this application Jan. 15, 1971, Ser. No. 106,784

Int. Cl. H05b 1/00

U.S. Cl. 219—213

3 Claims



To accelerate the curing of concrete, heat is applied to a fluid concrete mix substantially uniformly over the outer mix surface. The temperature of the mix is sensed and the application of the heat is terminated when that temperature reaches a predetermined level such that the immediately subsequent exothermic heating within the mix further increases its temperature only to a substantially predetermined maximum value that corresponds to substantially maximum subsequently ultimate compressive strength of the concrete. In one structural embodiment, an electrically energized element is disposed substantially in convective contact with a form in which the mix is received; the element produces heat substantially uniformly over the surface of the form. The heating element is de-energized when the temperature of the form reaches a preselected value. In another structural version, a frame is shaped to mount upon the upper periphery of the sidewalls of a form, a layer of heat-conductive material is carried by the frame in a position to overlie the upper surface of the mix and an electrically energized element is disposed substantially in conductive contact with that layer and produces heat substantially uniformly thereover; another layer of heat-insulating material overlies the heat element. Also disclosed is a flexible blanket that may be placed over the exposed upper surface of a curing concrete mix. The blanket includes one layer of flexible moisture-impervious material substantially reflective to ultraviolet rays and another layer of flexible material substantially reflective to visible light; also preferably included in the blanket is an electrically energized flexible heating element that produces heat uniformly over the surface of the bottom layer.

3,659,078

ELECTRODE AIR HUMIDIFIER

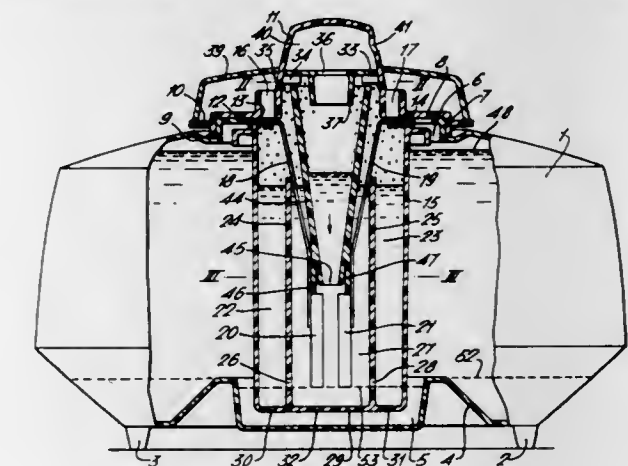
Erik Rudstrom, Storgaten 22, Oslo, 1, Norway

Filed Sept. 29, 1970, Ser. No. 76,544

Int. Cl. H05b 3/60

U.S. Cl. 219—284

20 Claims



An electrode air humidifier is provided. The electrodes are suspended in an inner container with water flow contact with the outer container through a pocket chamber, whereby pulsation is greatly reduced or prevented. It is further provided for separation of water drops in the steam and means are provided to reduce the wear of the electrodes by bringing the apparatus to a rapid stop when relatively little water is left in the apparatus.

3,659,079

ELECTRICALLY HEATED WINDOW

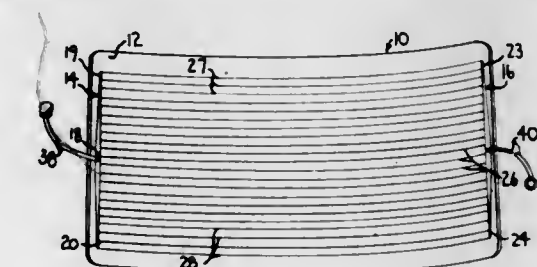
Russell G. Whittemore, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Apr. 27, 1971, Ser. No. 137,899

Int. Cl. H05b 3/06

U.S. Cl. 219—522

8 Claims



A heated window having bus bars of non-uniform width interconnected by spaced electroconductive members to form

a heating circuit. The center portions of the bus bars, which are adapted for connection to a power source, are of greater width than their end portions to minimize bus bar heating when the heating circuit is energized to remove mist or frost from the window.

3,659,080

PHOTO-ELECTRIC READER AND FREQUENCY TONE CODE CONVERTER

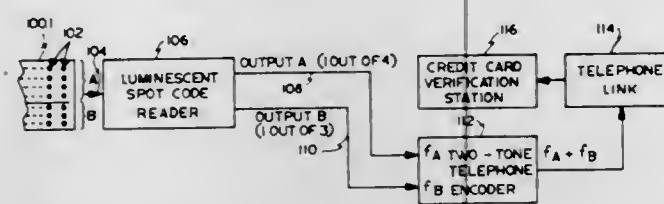
Lawrence Jerome Smith, Stamford, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn.

Filed July 10, 1970, Ser. No. 53,835

Int. Cl. G06k 7/10

U.S. Cl. 235-61.11 E

9 Claims



A photo-electric telephone dialing code reader which overcomes signal-to-noise ratio, optical hum and poor pulse waveform problems by averaging all the individual code channel bit sensing outputs to derive a floating reference level, against which it compares each individual channel bit sensing output. This technique is used to sense one bit out of the A code group, and one bit out of the B code group, and the individual A and B outputs are applied to respective frequency-determining inputs of a two-frequency-tone (telephone dialing type) encoder so that a decimal digit represented by the resulting tones can be transmitted to any data utilization equipment on premises or at the other end of a conventional telephone link.

3,659,081

JAMMED PAPER DETECTOR

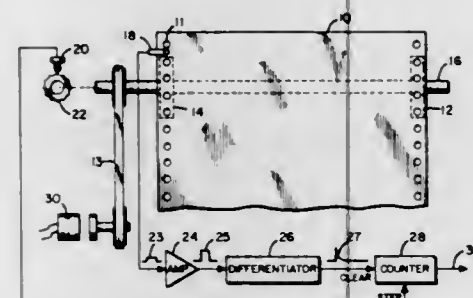
Sebastian W. Piccione, 3026 Sheffield Drive, Plymouth Valley, Norristown, Pa.

Continuation of application Ser. No. 751,256, Aug. 8, 1968, now abandoned. This application May 3, 1971, Ser. No. 141,063

Int. Cl. G06m 3/12; H03k 21/36

U.S. Cl. 235-92 PE

7 Claims



This invention pertains to a paper jam prevention scheme. In order to detect the jamming of a moving record medium which operates at a relatively high speed, the motion of the paper is detected such that for each line of print or interline spacing a pulse is generated. These pulses are counted whereby upon the generation of a predetermined number of printed lines or spaces on the moving record medium, a clear signal is generated by a device which actually senses paper motion. This last mentioned signal clears the counter and causes the latter to re-cycle and signifies a proper operation of the paper feed. When no clear signal is generated as a result of the paper being jammed or torn, the counter continues to count to a predetermined number whereupon a halt signal is generated.

3,659,082 ELECTRICAL CIRCUITRY FOR LOGARITHMIC CONVERSION

Norman Frederick Ferdinand Joseph Rolfe, Wakefield, Mass., assignor to Instrumentation Laboratory Inc., Lexington, Mass.

Filed June 12, 1970, Ser. No. 45,705

Int. Cl. G06g 7/24

U.S. Cl. 235-150.53

19 Claims



A log converter circuit has converter and reference transistors connected in differential pair relation. An operational amplifier is connected in circuit with each transistor and a storage circuit is arranged to apply an output of the circuit to the reference transistor. A switch is connected between the output of the log converter circuit and the storage circuit for interrupting application of symmetrical signal from the log converter circuit to the storage circuit.

3,659,083

BINARY CODED READOUT DEVICE

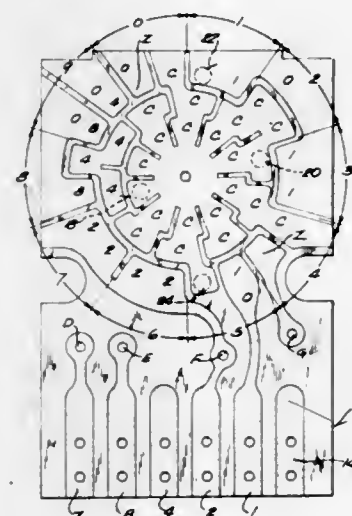
Ronald C. Winter, Johnson Creek, and Enno A. Knief, Watertown, both of Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis.

Filed Sept. 3, 1970, Ser. No. 69,406

Int. Cl. G06m 1/27

U.S. Cl. 235-92 EA

6 Claims



A binary coded readout device has a printed circuit pattern on a circuit board with conductive segments in adjoining sectors which are wiped by contact members on a rotating wiper. There are two angularly spaced wiper contact positions per sector in the outer circle of contact member travel.

The rotating wiper has an axis of rotation which is eccentric to its symmetrical center and the contact members on the oppositely extending long arms are thus angularly spaced so that with each step of the wiper one of these contact members will come to rest on the clockwise first of these two contact positions in sector N and the other contact number will come to rest on the clockwise second of these two contact positions in a clockwise advanced sector N+4.

3,659,084

PREDETERMINED COUNTER FOR ELECTROSTATIC COPYING APPARATUS

Herbert Engel, and Gunther Schnall, both of Munich, Germany, assignors to AGFA-Gevaert Aktiengesellschaft, Leverkusen, Germany

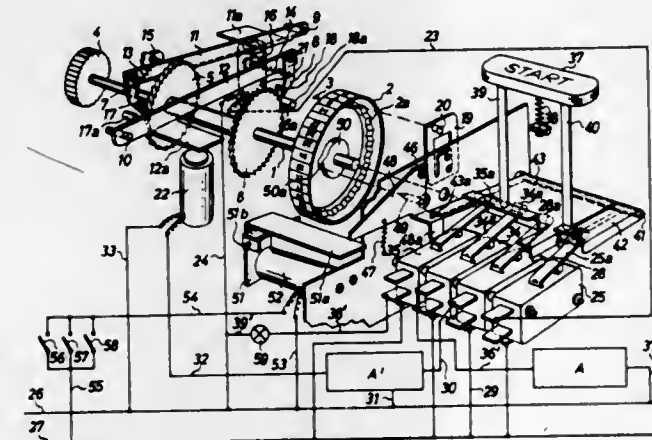
Filed Dec. 2, 1970, Ser. No. 94,421

Claims priority, application Germany, Dec. 5, 1969, P 19 61 070.9

Int. Cl. G06c 27/00

U.S. Cl. 235-132 A

12 Claims



In an electrostatic copier a switch can be operated for initiating a copying sequence. A number wheel is mounted on the shaft and can be turned from a zero position to a plurality of operating positions in each of which it preselects a specific number of repetitions of the sequence. An externally accessible knob is provided for turning the shaft manually to place the number wheel in the desired operating position. A device is provided which incrementally returns the number wheel to zero position as each of the respective sequences is executed. An additional device is provided which is operated every time the switch is actuated and which causes the number wheel to move from its zero position to a respective operating position incrementally in dependence upon the number of times the switch is operated.

3,659,085

COMPUTER DETERMINING THE LOCATION OF OBJECTS IN A COORDINATE SYSTEM

Basil E. Potter, Williamsville; Theodore K. Bosworth, Kenmore, both of N.Y.; John P. Chisholm, Olympic Valley, Calif., and James A. Cadzow, Tonawanda, N.Y., assignors to Sierra Research Corporation

Filed Apr. 30, 1970, Ser. No. 33,205

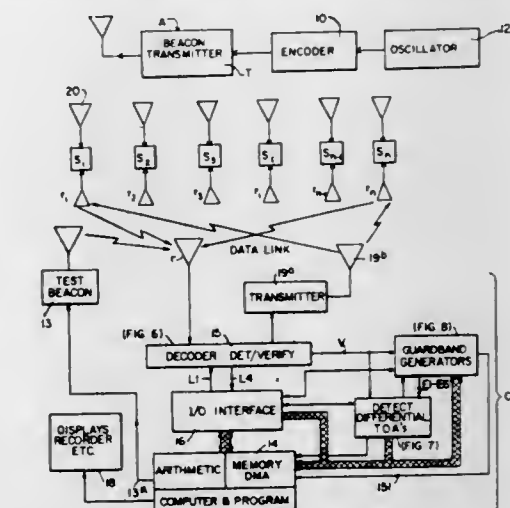
Int. Cl. G06f 15/48; G01s 5/14

U.S. Cl. 235-150.2

40 Claims

A disclosure in which one or more objects, such as aircraft or other vehicles, moving in a system of coordinates transmit pulse signals to a large number of fixed position receiving stations all linked to common computer means, and the computer means uses one of several well known techniques such as multilateration, time-of-arrival, differential time-of-arrival, etc., of the pulse signals to solve for position of the transmitting object, and in which weighting is used to minimize errors. Such weighting includes selective of optimum receiving stations from a larger number of available stations according

to geometric criteria, weighting the value of the data delivered by the various stations in order to weight most heavily the best data chosen according to predetermined criteria, and minimizing the errors by one of several different



techniques including the use of iterative computations converging upon a location which continuously grows more accurate, or by other error minimizing techniques such as the technique of least squares fitting.

3,659,086

REPETITIVE SAMPLING WEIGHTED FUNCTION CONVERTER

Eric Metcalf, Farnborough, England, assignor to The Solartron Electronic Group Limited, Farnborough, England

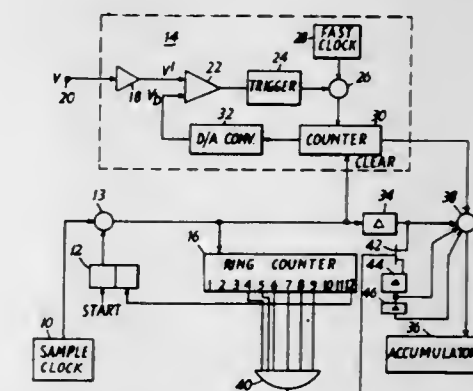
Filed June 8, 1970, Ser. No. 44,078

Claims priority, application Great Britain, June 11, 1969, 29,593/69

Int. Cl. H03k 13/04; G06f 7/50

U.S. Cl. 235-150.51

3 Claims



An electrical signal is sampled repeatedly and the samples are integrated in analog or digital form to effect active filtering of the signal. Preferably the samples are weighted differently or the inter-sample interval is varied in accordance with a weighting function chosen to improve noise rejection at one or more frequencies.

3,659,087

CONTROLLABLE DIGITAL PULSE GENERATOR AND A TEST SYSTEM INCORPORATING THE PULSE GENERATOR

Richard F. Green, Upper Terrace; Eugene J. Scray, Jr., Burlington, and Donald L. Wilder, Colchester, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sept. 30, 1970, Ser. No. 76,892

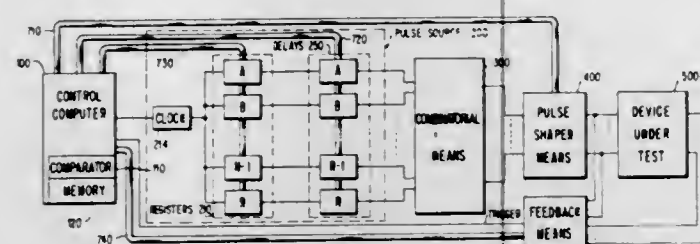
Int. Cl. G06f 15/20; H03k 3/64

U.S. Cl. 235-151.3

8 Claims

A digital pulse generator provides pulses of arbitrary width. The width of the pulses may be much less than the

length of a clock cycle. Once the pulse generator has been adjusted it can produce many pulse patterns without further



adjustment. A test system which provides extremely accurate information about a device under test incorporates the pulse generator as its primary element.

3,659,088

METHOD FOR INDICATING MEMORY CHIP FAILURE MODES

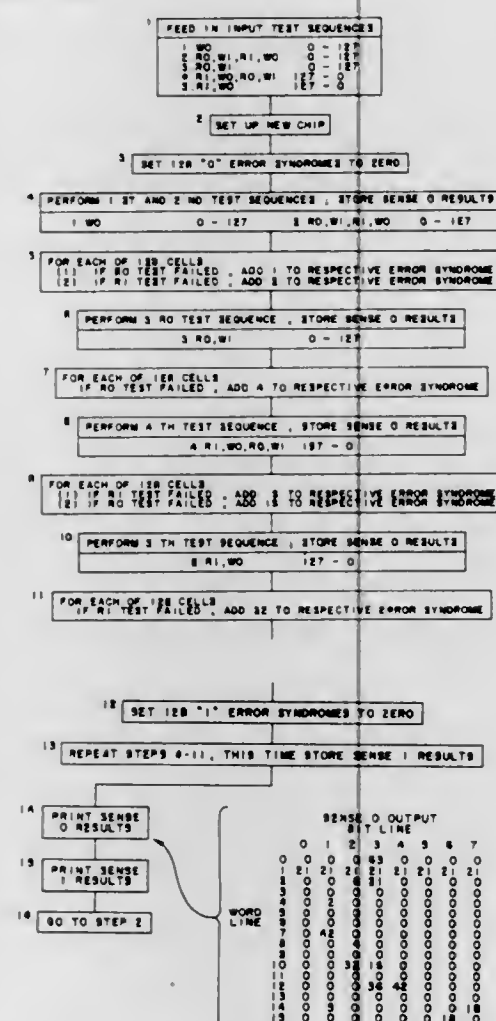
Conrad J. Boisvert, Jr., Wappingers Falls, N.Y., assignor to Cogar Corporation, Wappingers Falls, N.Y.

Filed Aug. 6, 1970, Ser. No. 61,674

Int. Cl. G01r 31/00

U.S. Cl. 235—153

18 Claims



A machine-practiced method for indicating memory chip failure modes. The individual memory cells on a chip are tested in accordance with standard practice. Each test has associated with it a respective one of the binary numbers 1, 2, 4, 8,.... An "error syndrome" is provided for each cell, and when that cell fails a particular test the respective binary number is added to the error syndrome for the cell. At the end of the sequence a chip map is printed. For each cell there is printed the respective error syndrome; that number identifies a particular group of tests which have been failed by the cell. By analyzing the error syndromes it is possible to identify individual cell failures, group cell failures and gross (total chip) failures. Moreover, the technique of the invention is a valuable diagnostic aid because it enables the causes of many failures to be ascertained.

3,659,089 ERROR DETECTING AND CORRECTING SYSTEM AND METHOD

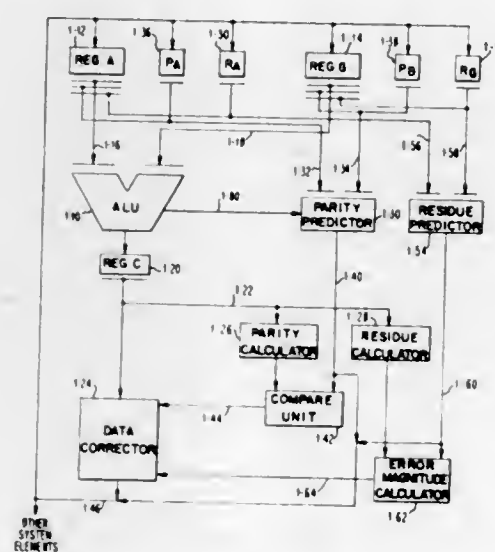
Arthur D. Payne, Hagerstown, and Harry J. Reinheimer, Rockville, both of Md., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 23, 1970, Ser. No. 100,939

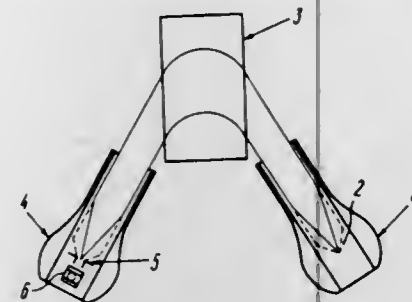
Int. Cl. G06f 11/10

U.S. Cl. 235—153

15 Claims



patterns of the collimating and focusing lenses undergo



synchronous and identical variations, thereby providing for an image magnification equal to unity.

3,659,096

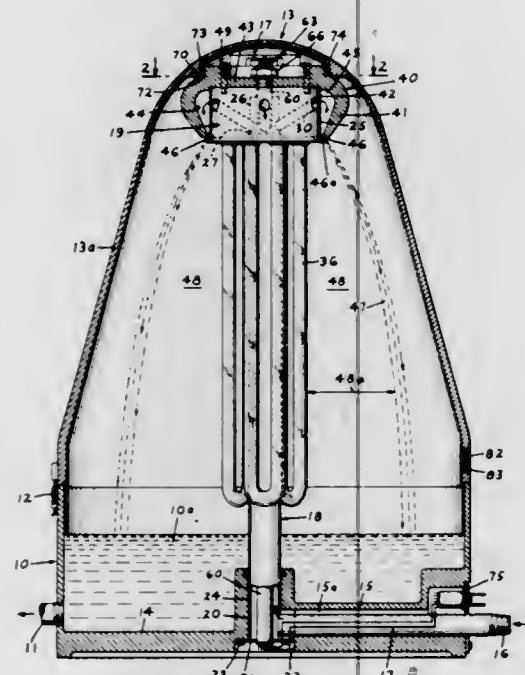
APPARATUS FOR IRRADIATING A LIQUID

Andrew Joseph Kompanek, Lansdale, Pa., assignor to Control Corporation of America, North Salem, Croton Falls, N.Y.

Filed June 16, 1970, Ser. No. 46,644
Int. Cl. H01J 37/00

U.S. Cl. 250-43

29 Claims



An apparatus and method are provided wherein a liquid to be irradiated is formed into the shape of an unsupported thin stream; the stream is irradiated from a source of radiation which is disposed in spaced relationship to the liquid stream. The apparatus has numerous utilities such as, for example, disinfecting contaminated liquids by subjecting them to ultra-violet or infra-red radiation. Oxygen can be supplied to the radiation zone of the apparatus in the case of ultra-violet radiation to produce an oxidizing atmosphere of ozone in contact with the liquid. The apparatus possesses numerous advantages over previously described apparatus as discussed in greater detail in the attached specification.

3,659,097

MAGNETIC LENSES

Richard Bassett, Cheltenham, and Thomas Mulvey, Birmingham, both of England, assignors to National Research Development Corporation, London, England
Continuation of application Ser. No. 781,219, Dec. 4, 1968, now abandoned. This application Feb. 16, 1971, Ser. No. 115,847

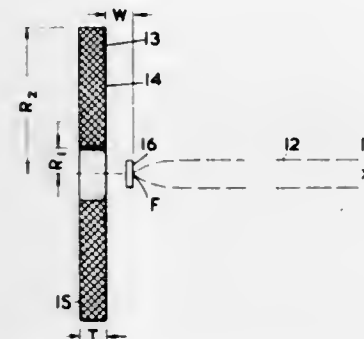
Int. Cl. H01J 37/26

U.S. Cl. 250-49.5 D

11 Claims

Apparatus having a generator of a beam of charged particles and magnetic focusing means in which a beam of

charged particles is brought to a focus between the source and the focusing means so that radiation from a target placed at the focus can be received by a radiation detector within a substantial solid angle, bounded by said magnetic focusing



means and the beam of charged particles.

Preferably the focusing means is an electrically conducting coil of substantially flat or shallow conical form having a conical half-angle of not less than 75°.

3,659,098

ARRANGEMENT FOR FACILITATING ADJUSTMENT OF THE ELECTRONIC BEAM OF AN ELECTRONIC-BEAM MICROANALYZER AND METHOD OF PRODUCING SAME

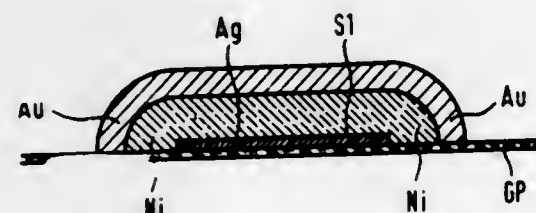
Alfred Polticky, Ottobrunn; Ulrich Jecht, Karlsruhe, and Jurgen Gullasch, Kandel-Minderslachen, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed June 16, 1970, Ser. No. 46,763
Claims priority, application Germany, June 28, 1969, P 19 32 926.1

Int. Cl. H01J 37/26

U.S. Cl. 250-49.5 A

6 Claims



A fine-meshed metallic grating to aid in adjusting the beam of an electronic-beam microanalyzer, particularly for contrast adjustment, comprising a central grating structure having at the edges of the ribs and junctions thereof one or more layers of metals coplanar with the central structure and having different atomic numbers from the metal thereof. The layers are deposited electrolytically with the central structure placed on a non-conductive base.

3,659,099

X-RAY APPARATUS FOR SCREENING AND RADIOGRAPHS IN TWO DIRECTIONS

Hermann Bertheau, Hamburg-Fuhlsbuttel, Germany, assignor to U.S. Phillips Corporation, New York, N.Y.

Filed Oct. 20, 1969, Ser. No. 867,805
Claims priority, application Germany, Oct. 19, 1968, P 18 04 111.7

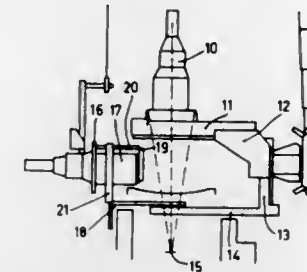
Int. Cl. G03b 41/16

U.S. Cl. 250-50

4 Claims

X-ray apparatus including a first X-ray tube and associated image intensifier for mylographic examination to which a

second X-ray tube and the associated image intensifier are detachably coupled; X-ray beams from the two X-ray tubes



are alignable to traverse the patient-supporting table, and movable lengthwise and laterally relative to a patient.

3,659,100

SYSTEM AND METHOD OF AIR POLLUTION MONITORING UTILIZING CHEMILUMINESCENCE REACTIONS

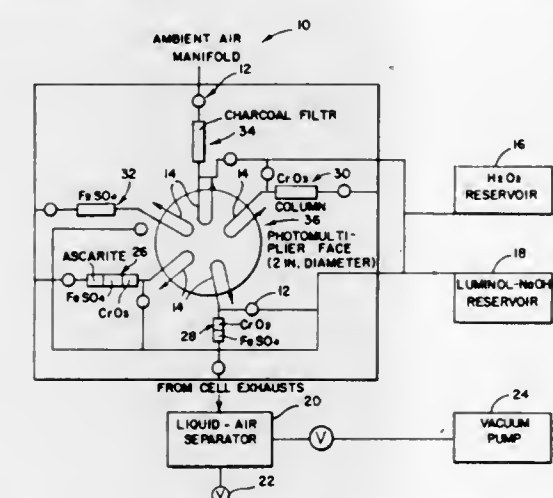
Howard H. Anderson, Covina; Rudolph H. Moyer, West Covina; Donald J. Sibbett, Cucamonga, and David C. Sutherland, El Monte, all of Calif., assignors to Geomet, Incorporated, Rockville, Md.

Filed Aug. 14, 1970, Ser. No. 63,844

Int. Cl. G01J 1/42

U.S. Cl. 250-71 R

23 Claims



An instrumental system and method for detecting and analyzing pollutant gases in the atmosphere, particularly sulfur dioxide, ozone, nitrogen dioxide, and nitric oxide utilizing the catalyzed chemiluminescence reaction of luminol (5-amino-2, 3-dihydro-1,4-phthalazinedione) with hydrogen peroxide. Sampled air streams, after appropriate treatment by adsorption column, are reacted with surface films of luminol-hydrogen peroxide solutions to give continuous, real time analysis of pollutant gases.

The chemiluminescence method of monitoring air pollutants utilizes five or six microreactors (channels) simultaneously which are monitored sequentially by a single photomultiplier. Channel monitoring is controlled by a rotary shutter which moves discretely from channel (microreactor) to channel. Quantitative analysis of the gaseous components of the atmosphere is obtained by comparison of the signals obtained from the separate channels with calibrated standards for each channel. Signal processing may utilize simple computer circuitry.

3,659,101

NANOSECOND PULSE HEIGHT ANALYZER

Jerome D. Friedman, Chelmsford, Mass., assignor to The United States of America as represented by the Secretary of the Air Force

Filed Sept. 10, 1970, Ser. No. 70,966

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 R

3 Claims

A nanosecond pulse height analyzer utilizing a cathode ray tube in conjunction with an array of photo sensitive elements

wherein a cathode ray tube beam is deflected to a height proportional to the energy of, for example, a γ -ray photon which has been detected to provide the deflecting signal. At the peak height the grid of the cathode ray tube is gated. A

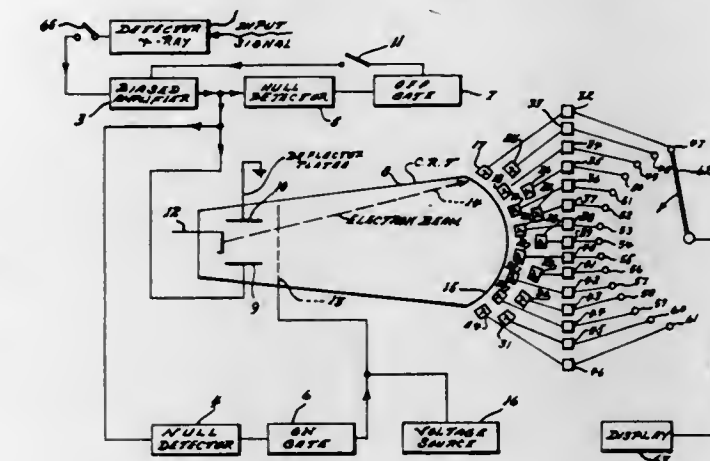


photo sensitive device at this position registers this event into the associative memory, each photo sensor corresponding to a different energy. At the end of a counting period each memory can be read at leisure.

3,659,102

LASER BEAM POWER MEASUREMENT

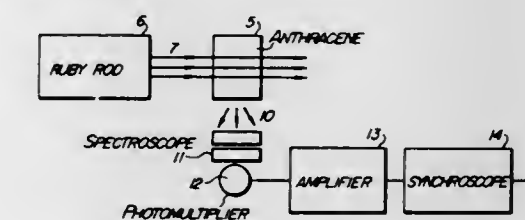
Kazuhisa Toriyama, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sept. 18, 1969, Ser. No. 858,980

Int. Cl. G01t 39/18

U.S. Cl. 250-71.5

4 Claims



Absolute measurement of the power output of a radiation energy utilizing the intensity of fluorescence of the secondary emission process from a body of a molecular crystal irradiated by the radiation energy under measurement.

3,659,103

RADIATION SCANNING DEVICE FOR DETECTING A PLURALITY OF DIFFERENT RADIATING SOURCES POSITIONED IN DIFFERENT PLANES

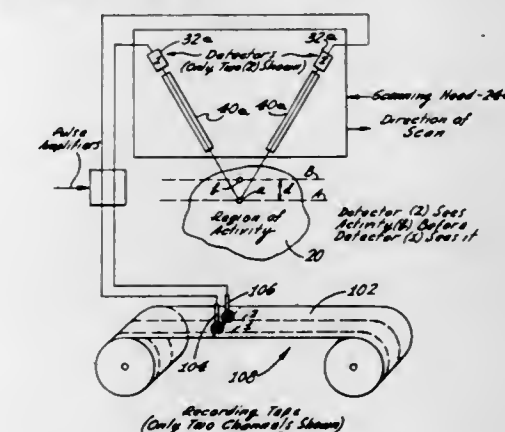
Benedict Cassen, Pacific Palisades, Calif., assignor to The Regents of the University of Calif., Berkeley, Calif.

Filed Aug. 4, 1969, Ser. No. 847,086

Int. Cl. G01t 1/20

U.S. Cl. 250-71.5 S

7 Claims



A radioisotope detection system is provided in which signals emitted by radioactive particles disposed at different

depths in a body under observation are collimated in separate collimating channels which are scanned rectilinearly over the body and whose axes are distributed over a solid angular range. The signals from the individual collimating channels are separately stored in a memory system, such as on different channels on a magnetic tape. The signals recorded in the different channels may subsequently be played back with an adjustable relative time relationship, and the various signals may be controllably superimposed on one another so that the radioactive elements in any plane in the body under observation may be selected for display and study, or a three-dimensional display may be exhibited.

3,659,104

METHOD OF MEASURING SERUM THYROXINE

Jack Gross; Amirav Gordon, both of Jerusalem, Israel, and Lloyd Alan Schick, Elkhart, Ind., assignors to Yisum Research Development Company of the Hebrew University of Jerusalem

Filed June 29, 1970, Ser. No. 51,005

Int. Cl. G21h 5/02

U.S. Cl. 250-83 SA

7 Claims

A new and improved in vitro concept in measuring serum thyroxine (T-4) is disclosed which employs an alkaline cross-linked dextran gel (Sephadex) column to dissociate and separate the T-4 from the serum protein in a single operation. An isotope dilution technique combined with saturation analysis is used to estimate the T-4 content in serum.

3,659,105

SUBATOMIC PARTICLE DETECTOR WITH LIQUID ELECTRON MULTIPLICATION MEDIUM

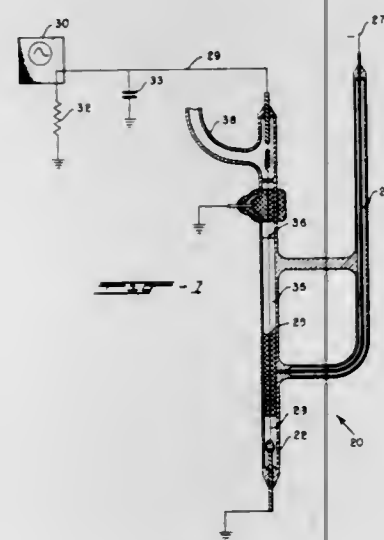
Luis W. Alvarez; Stephen E. Derenzo; Richard A. Muller, all of Berkeley; Robert G. Smits, Lafayette, and Halm Zaklad, Berkeley, all of Calif., assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 21, 1970, Ser. No. 82,653

Int. Cl. G01t 1/18; H01j 39/26

U.S. Cl. 250-83.6 R

11 Claims



A subatomic particle detector having a large number of equally spaced anode conductors arranged in a single plane opposite and parallel to a large cathode plate with the space between the anode conductors and cathode plate filled with liquid argon. A phototransistor is connected to each conductor for automatic readout of the detector by means of a laser beam that is scanned over each phototransistor.

3,659,106

PORTABLE NEUTRON SOURCE USING A PLURALITY OF MODERATING MEANS

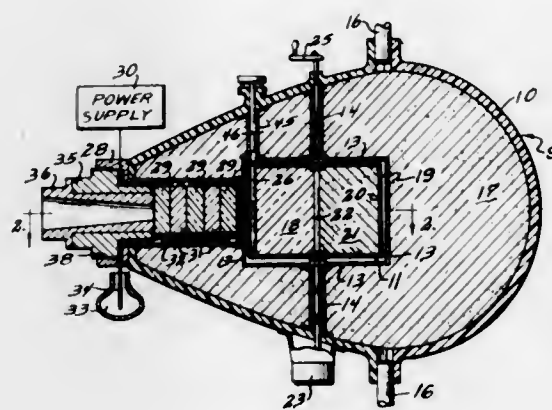
John L. Cason, Kennewick, Wash., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 21, 1970, Ser. No. 73,823

Int. Cl. G21h 5/00

U.S. Cl. 250-106 S

7 Claims



A portable neutron source uses the isotope ^{252}Cf as a source of neutrons. The isotope is mounted in a rotatable cylinder to permit the source to be "turned off". The thickness of the moderator for the neutron source can be varied to change the neutron spectrum. The neutron spectrum can also be varied by heating or cooling the moderator.

3,659,107

RADIOISOTOPIC FUEL CAPSULE

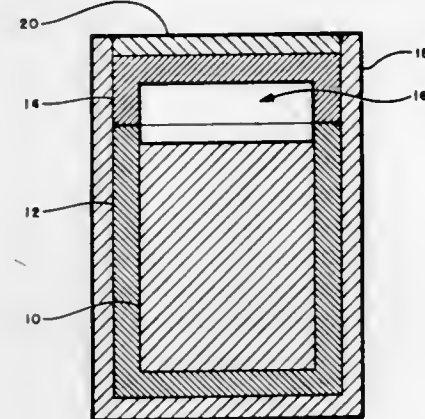
James E. Selle, Miamisburg, and Bernard R. Kokenge, Kettering, both of Ohio, assignors to The United States of America as represented by the United States Atomic Energy Commission

Filed July 29, 1970, Ser. No. 59,173

Int. Cl. G21h 5/00

U.S. Cl. 250-106 S

1 Claim



A radioisotopic fuel capsule or cell and making thereof for use in such as a thermoelectric or thermionic generators which utilizes substoichiometric plutonium dioxide enclosed within a refractory container.

3,659,108

COLLAPSIBLE FLOATABLE SUBMERGIBLE AND TOWABLE CONTAINERS WITH RESISTANT LAYERS

Harold Gerson Quase, Potomac, Md., assignor to Underwater Storage, Inc., Washington, D.C.

Filed Feb. 7, 1969, Ser. No. 797,600

Int. Cl. G21f 1/12, 3/00

U.S. Cl. 250-108 FS

15 Claims



Described herein are collapsible, floatable, submersible and towable containers having walls with penetration resistant layers for the ocean transportation and submerged storage or disposal of corrosive chemicals and radioactive materials.

3,659,109

PHOTOSENSITIVE CONTROLLED MACHINE PROGRAMMER

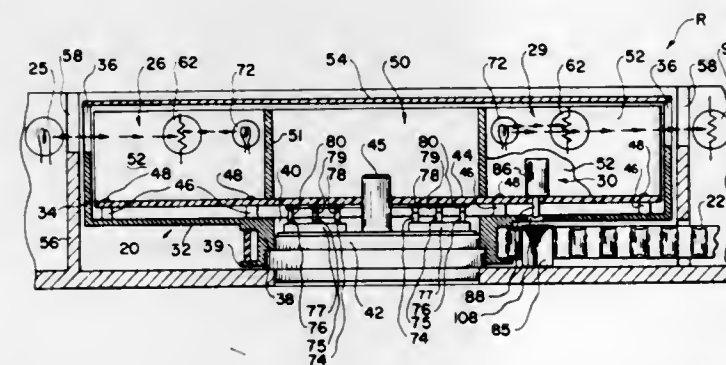
Lionel R. Hickey, and Ellsworth J. McCune, both of Webster, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 16, 1970, Ser. No. 19,999

Int. Cl. H01j 39/12; G03g 15/00

U.S. Cl. 250-208

28 Claims



A machine programmer is provided for controlling work performed on a work piece which moves through separate work stations wherein a shift register selectively energizes and de-energizes the work stations in response to movement of the work. The shift register includes a multisectioned cylinder which is divided into individual light-tight sectors each of which has a slot along the periphery of the cylinder through which light can pass and is rotatably driven in response to movement of an endless photoconductive member. Each sector has a switching circuit which includes a lamp and a photosensitive device. The lamp is turned on by an input signal from a radiation device, such as an initiator

light, adjacent the cylinder when it is desired to make electrophotographic copies of an original. As each sector moves along a circular path past the initiator light the photosensitive device turns on the lamp, whose light by means of a photosensitive device maintains the circuit in activated condition so that the lamp remains illuminated. The initiator light remains on until the number of sectors illuminated corresponds with the number of document copies to be made. As the cylinder is rotated the light therein activates each of a series of photosensitive devices spaced around the cylinder which energize circuits connected to various electrophotographic stations along the path of the photoconductive element in response to movement of the photoconductive element to cause copies of the original to be made.

3,659,110

DOCUMENT READER TRANSPORT COMPRISING A POSITIONING GUIDE WHICH INCLUDES A TRACK OF MAGNETIC MATERIAL

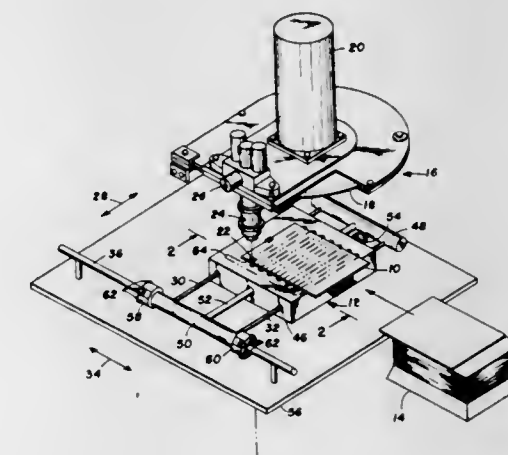
William P. Gingras, and Roy E. Van Der Linden, both of Rockville, Md., assignors to Recognition Equipment Incorporated, Irving, Tex.

Filed June 2, 1970, Ser. No. 42,746

Int. Cl. G01n 21/30; G06m 7/00

U.S. Cl. 250-219 CR

18 Claims



In a document reader having a reading station and where a document is transported past the station on a platen along a path established by a cam. The cam comprises a serpentine guide attached to the platen and engaging a magnetic drive roller. Magnetic forces acting on the serpentine guide and the drive roller cause the platen to traverse a path defined by the guide configuration. To determine the direction of movement of the platen, a precoder roller is supported by the drive roller and engages the serpentine guide.

3,659,111

TWIN BEAM RADIATION ANALYSER USING RADIATION CHOPPERS

David R. Weaver, Carshalton; Anthony G. Emery, Bromley, and Michael Henry Spearing, Epsom, all of England, assignors to BP Chemicals Limited, London, England

Filed Apr. 9, 1970, Ser. No. 27,030

Claims priority, application Great Britain, Apr. 11, 1969, 18,630/69

Int. Cl. H01j 39/12; G01n 21/26

U.S. Cl. 250-220 R

10 Claims

Method of analysis using a twin beam radiation analyzer in which the incident beams of radiation are modulated by a chopper activated by two, out of phase square wave form alternating currents to give two, out of phase, incident beams of radiation which are passed through two sample cells, col-

quasi-complementary fashion in a number of different transmission paths. In the absence of strobe and strobe signals, one device in one transmission path connects the circuit output terminal to ground. In the presence of strobe and strobe signals, the output terminal is disconnected from ground and, if the control voltages applied to certain of the devices in certain of the transmission paths all represent the desired binary value, the strobe signal is conducted via certain of the devices in said one transmission path to said output terminal.

3,659,119

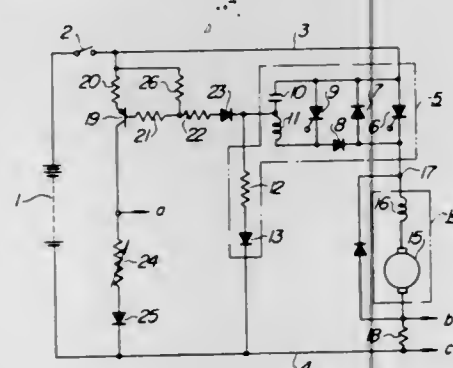
THYRISTOR CHOPPER CONTROLLING CIRCUIT

Ryoji Kasama, and Sigeru Kuriyama, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 19, 1971, Ser. No. 125,941

Claims priority, application Japan, Mar. 20, 1970, 45/23037
Int. Cl. H03k 17/00

U.S. Cl. 307—252 M

4 Claims



A circuit arrangement for controlling a thyristor chopper which extinguishes a main thyristor by discharging the charge stored in a capacitor to the main thyristor at a predetermined instance in the opposite polarity, comprising means for detecting the terminal voltage of said capacitor and calculating the maximum ability for extinguishing the main thyristor and means for detecting the load current of the chopper, thereby enabling the extinction of the thyristor in the extinguishing ability of the capacitor.

3,659,120

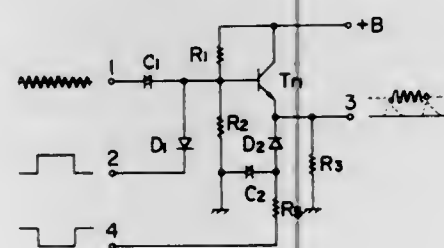
SWITCHING CIRCUIT

Yoshifumi Saeki, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed July 29, 1970, Ser. No. 59,168

Claims priority, application Japan, July 29, 1969, 44/71358
Int. Cl. H03k 17/00

U.S. Cl. 307—253

3 Claims



A switching circuit with two control terminals, one coupled to the base of a transistor receiving input signals and the other to the emitter of the transistor. The switching circuit is operated such that when a positive potential is applied to one

of the control terminals, a null potential is applied to the other.

3,659,121

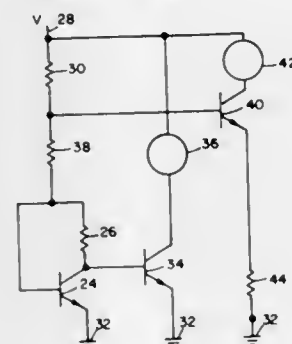
CONSTANT CURRENT SOURCE

Thomas M. Frederiksen, Scottsdale, Ariz., assignor to Motorola, Inc., Franklin Park, Ill.
Filed Nov. 16, 1970, Ser. No. 89,538

Int. Cl. H03k 1/14

U.S. Cl. 307—297

3 Claims



An improved constant current source, which may provide very small current without requiring the construction of a large resistor, is disclosed. This constant current source includes a transistor having a bias source comprising a second transistor that is biased to low current conduction, the biasing resistor for the biased transistor being advantageously small.

3,659,122

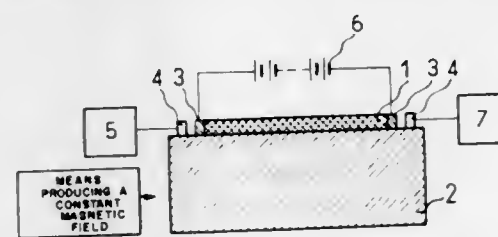
METHOD OF CONTINUOUS AMPLIFICATION OF SURFACE AND TRANSVERSE COUPLED ELASTIC-SPIN WAVES

Sylwester Kaliski, ul. Elstenia 17, Warszawa, 49, Poland
Filed Dec. 14, 1970, Ser. No. 97,500

Claims priority, application Poland, Dec. 13, 1969, 137529
Int. Cl. H01v 7/00

U.S. Cl. 310—8.1

7 Claims



A method of continuous amplification of elastic-spin waves with use of a circuit of a slab ferromagnetic crystal on which a semi-conductor layer is superposed comprises generating a propagating waves in the slab, and applying a direct voltage to the semi-conductor layer to produce a current of drifting electrons in the layer, inducing an elastic wave in the layer through the propagating wave in the slab which produces a piezoelectric field in the layer, modulating the current of drifting electrons with the piezoelectric field, amplifying the elastic wave in the semi-conductor layer and in the slab when the drift velocity of the drifting electron reaches a critical velocity, and applying a constant magnetic field to the circuit to produce a spin-acoustic resonance, the elastic wave in the ferromagnetic slab amplifying the spin wave in the slab through spin-elastic coupling.

3,659,123

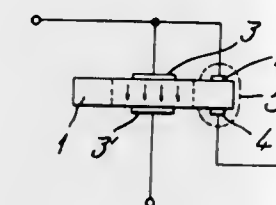
COMPOSITE CIRCUIT MEMBER INCLUDING AN ELECTRO-STRICTIVE ELEMENT AND CONDENSER

Kotchi Oya, Haruna-machi, Gunna-gun, Japan, assignor to Talyo Yuden Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 29, 1969, Ser. No. 888,285

Claims priority, application Japan, Feb. 14, 1969, 44/10410
Int. Cl. H01v 7/00

U.S. Cl. 310—8

7 Claims



Driving electrodes and a capacitor are mounted on an electrostrictive base member to form a composite circuit member. The capacitor is covered with a high polymer resin. To improve the characteristics of this circuit member, the electrostrictive characteristics of the base member are restricted to a limited portion and the capacitor is mounted outside of this limited portion.

3,659,124

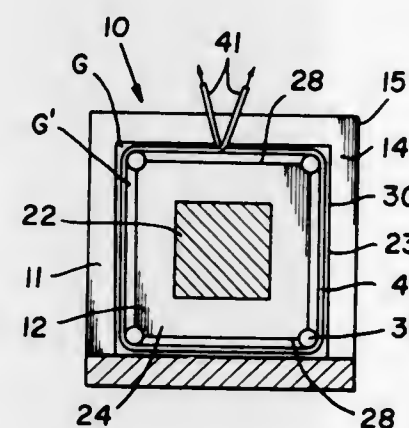
LINEAR MOTION MOTOR WITH RECTANGULAR COIL CONSTRUCTION

Raymond Lathrop, Canoga Park, Calif., assignor to Vernitron Corporation, Great Neck, N.Y.
Filed Sept. 28, 1970, Ser. No. 75,861

Int. Cl. H02k 41/00

U.S. Cl. 310—13

4 Claims



A linear motion motor includes a reciprocable armature carried by a stator comprising a plate with four parallel non-magnetic rods. A rectangular coil is wound on the rods and is supported thereby only at inside corners of the coil. The stator includes a permanent bar magnet secured at one end to one end wall of a U-shaped magnetic frame. The other end of the bar magnet is formed with a rectangular pole piece disposed inside a rectangular hole in the other end wall of the frame. The coil extends longitudinally between the air gap defined between the edges of the pole piece and hole in the other end wall. The rods are slidably engaged in corner notches formed in the pole piece.

3,659,125

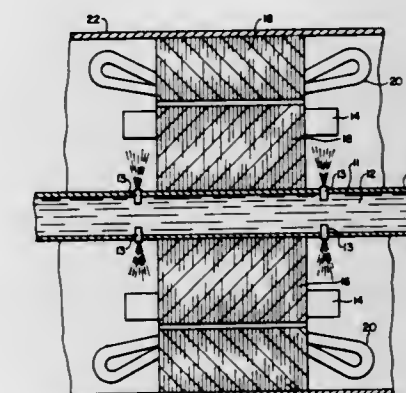
NON-CLOGGING NOZZLE FOR ROTATING EQUIPMENT SUCH AS FOR COOLING DYNAMO-ELECTRIC MACHINES

Donald R. Basel, Lima, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.
Filed Sept. 10, 1970, Ser. No. 71,005

Int. Cl. H02k 9/19

U.S. Cl. 310—54

3 Claims



A nozzle for spraying fluid outwardly from a rotating member has inner openings that extend non-perpendicularly to the axis of rotation to avoid clogging of the opening by particles acted upon by centrifugal force. The invention is applied in dynamo-electric machines having oil spray cooling of the rotor field coils by oil sprayed out from the hollow rotor shaft.

3,659,126

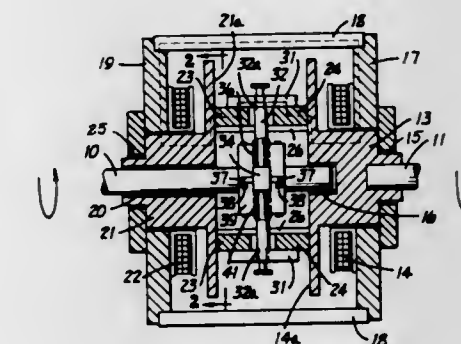
MAGNETIC TORQUE CONTROL COUPLING

Jesse A. Whipker, P.O. Box 361, Columbus, Ind.
Filed Apr. 5, 1971, Ser. No. 131,362

Int. Cl. H02k 49/00

U.S. Cl. 310—92

6 Claims



Disclosed is a coupling in which the drive shaft initially picks up the load provided by a driven shaft through a resilient element and subsequently drives the load through a magnetic link between the drive and driven shaft, the magnetic link and hence the degree of torque transfer being controlled by the level of magnetic flux through the link.

3,659,127

PIEZOELECTRIC CERAMIC TRANSFORMER WITH SPECIFIC WIDTH TO LENGTH RATIOS

Osamu Kumon, Itami-shi, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

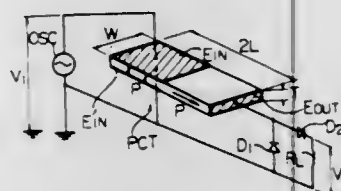
Filed Sept. 25, 1970, Ser. No. 75,598

Claims priority, application Japan, Oct. 1, 1969, 44/78855; Nov. 14, 1969, 44/108808; 44/108809

Int. Cl. H01v 7/00

U.S. Cl. 310—9.5

4 Claims



A piezoelectric ceramic transformer of the plate type having a total length $2L$ and width W is driven into fundamental mode, longitudinal vibration by an A.C. input, the wave length of which is λ , that is, $2L = \lambda/2$. When the ratio W/L falls within the range of 0.2 to 1.2 a high voltage output and a high input-to-output power efficiency are attained.

Alternatively, the piezoelectric ceramic transformer referred to above is driven into second, higher harmonic mode longitudinal vibrations where $2L = \lambda$. When the ratio W/L falls within the range of 0.05 to 0.85 the high performance referred to above is also attained.

3,659,128

ICEMAKER DRIVE WITH OVERLOAD RELEASE

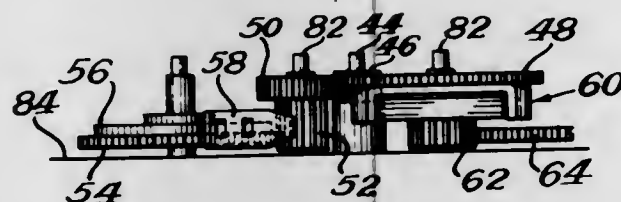
August J. Danek, Crystal Lake, Ill., assignor to Autotrol Corporation, Crystal Lake, Ill.

Filed Nov. 17, 1969, Ser. No. 877,324

Int. Cl. H02k 7/10

U.S. Cl. 310—99

8 Claims



A turntable type ice cube maker in which a series of pivoted dumping cups having water-fill, freeze, and dump stations is revolved by a gearmotor drive affording overload protection. This protection can be called into play in the instance, for example, when the turntable rotary mechanism jams on a piece of stray ice. No excessive torque will be encountered if and as the mechanism thereupon stalls out, because of overload protection provided by a permanent-magnet clutch, interposed in the drive line from the motor of the gearmotor to the gearing thereof being protected. A most important factor is that the clutch, which continually slips while stalled out, is consistently exerting maximum rated stall torque in the drive direction for immediate restart of the mechanism as soon as the impediment causing jamming is dislodged, and a further factor is that the clutch while so slipping is in actuality exerting cycles which pulse, tending to release and even to dislodge the impediment in some cases.

3,659,129

INSULATED BAR DYNAMOELECTRIC MACHINE AND METHOD OF FORMING

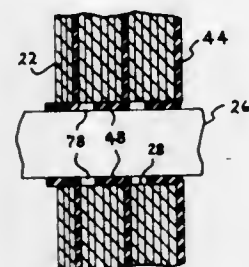
Thomas P. Pettersen, Schenectady, N.Y., assignor to General Electric Company

Filed Sept. 15, 1970, Ser. No. 72,461

Int. Cl. H02k 1/00

U.S. Cl. 310—216

8 Claims



Rotor bars of a high starting torque squirrel cage motor are insulated from the sheet metal laminations forming the rotor by disposing insulating laminations at spaced apart locations along the rotor axis. The insulating laminations are pre-slit in registration with the slots of the juxtaposed sheet metal laminations and as the rotor bars are driven through the sheet metal laminations, the leaves of the pre-slit insulating laminations are folded back by the advancing bars to electrically insulate the rotor bars from the sheet metal laminations.

3,659,130

ELECTRICAL COMMUTATOR

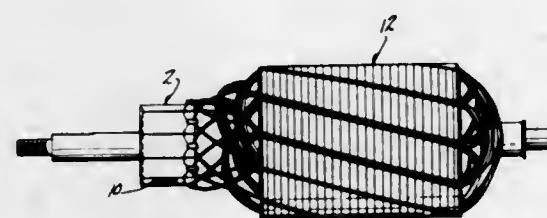
Eugene A. Lilley, Alton, and Virgil J. Jones, Godfrey, both of Ill., assignors to Olin Corporation

Filed Feb. 4, 1970, Ser. No. 8,666

Int. Cl. H02k 13/04

U.S. Cl. 310—234

9 Claims



Electrical commutator having a plurality of spaced apart plates wherein the plates are a composite having a copper base alloy containing silver bonded to an iron base alloy. The plates are positioned about a bushing so that the copper base alloy component faces outward therefrom to provide a surface for contacting the commutator brushes. The commutator is characterized by improved strength and weldability of the plates to the armature wire while retaining other highly desirable characteristics.

3,659,131

CATHODE SUPPORT AND CONTACT ARRANGEMENT

James E. Beggs, Schenectady, N.Y., assignor to General Electric Company

Filed May 21, 1970, Ser. No. 39,462

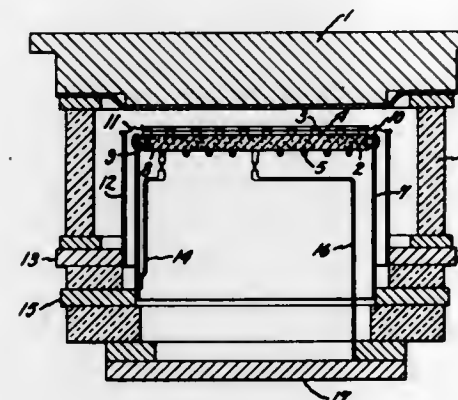
Int. Cl. H01j 1/02

U.S. Cl. 313—11

8 Claims

An electron discharge device of the planar disk electrode type employs an electrode with a peripheral groove and a

support and contact arrangement for the electrode. A conductive cylinder surrounding the electrode has a groove in its inner surface and a garter spring is positioned between and



engages the grooves in both the electrode and the cylinder so that the turns of the spring provide high electrical conductivity between the electrode and the cylinder while minimizing the thermal conductivity.

3,659,132

LIQUID-METAL ARC SWITCHING DEVICE AND PROCESS

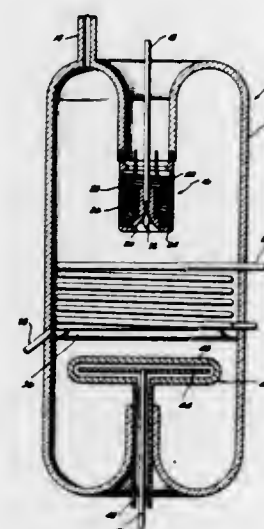
Wilfried O. Eckhardt, Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Continuation-in-part of application Ser. No. 720,695, Apr. 11, 1968, now abandoned. This application July 2, 1970, Ser. No. 51,868

Int. Cl. H01j 13/00

U.S. Cl. 313—32

21 Claims



The electrical switch device has an envelope in which is mounted a force-fed liquid-metal cathode, an anode, a condenser which may or may not be subdivided for voltage grading purposes and, in the preferred embodiment, electrical shielding means for the condenser. The cathode is capable of very high electron-to-atom emission ratio. The required value for the electron-to-atom emission ratio is above 50 to 1. When arcing occurs from the liquid metal, a plasma jet of electrons, ions, and neutral particles is emitted from the arc spot. In addition, during arcing as well as non-arcing periods, some of the liquid metal evaporates from the cathode. This evaporation occurs into a much larger solid angle than that

subtended by the plasma jet. The anode is mounted facing the cathode and it intercepts the plasma jet, thus permitting current conduction between anode and cathode with minimum voltage drop. The anode is kept at an elevated temperature, so that none of the ions and neutrals of the impinging plasma jet can remain condensed on it. They are immediately re-evaporated, including the ions after they have been neutralized. The condenser has a very much larger area than the exposed liquid metal area on the cathode, at least 100 times the exposed liquid metal area to dominate the equilibrium and it is kept at a low enough temperature to efficiently condense the liquid-metal vapor emitted by the cathode. With mercury used as the liquid metal, the condenser temperature is kept substantially below 0°, preferably at about -35° C, which is just above the melting point of mercury. The combination of the high electron-to-atom emission ratio of the cathode with the large, low temperature condenser results in an equilibrium background pressure (i.e., pressure outside the plasma jet) of at least as low as 10^{-3} Torr during arcing and lower than 10^{-4} Torr during non-arcing periods. This low background pressure, in turn, permits the essentially unperturbed propagation of the plasma jet between the cathode and the anode surface upon which it impinges. Such a discharge mode is commonly referred to as a "vacuum arc". The fact that the plasma jet is emitted only during arcing and that the pressure within the space surrounding this jet is kept low, results in the ability to hold off electric fields up to 50 kV per centimeter between anode and cathode immediately after cessation of arcing. Arcing may cease because of a zero in the current fed to the switching device, as in conventional arc devices, or it may cease due to depletion of the liquid metal available for arcing on the surface of the force-fed cathode. In the latter case, the current fed to the switching device is forcibly interrupted. The process employs these characteristics for switching.

3,659,133

IN-LINE TYPE TRIPLE ELECTRON GUN ASSEMBLY

Asahide Tsuneta, Kawasaki; Yasuo Ohta; Makoto Ikegaki, both of Saltama-ken; Shinichi Sawagata, Tokyo, and Fumiyuki Sato, Yokohama, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

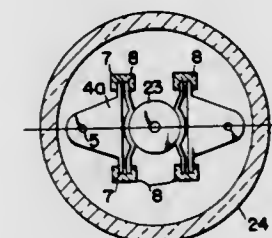
Filed Oct. 14, 1970, Ser. No. 80,635

Claims priority, application Japan, Oct. 15, 1969, 44/81855; Oct. 22, 1969, 44/99771; Nov. 17, 1969, 44/108295

Int. Cl. H01j 29/50

U.S. Cl. 313—70

8 Claims



An in-line type triple electron gun assembly wherein there is provided a central electron gun member; there are disposed on both sides of the central electron gun member in the same plane a pair of electron gun members whose axis defines a prescribed angle of inclination to that of the central electron gun member; the first and second grid electrodes of each of the paired electron gun members consist of a substantially triangular plate electrode; the plate electrodes of each of the three electron gun members have an effective surface intersecting the axis of said each member at right angles; and each plate electrode is perforated with an electron beam hole coaxial with the axis of the electron gun member.

3,659,134

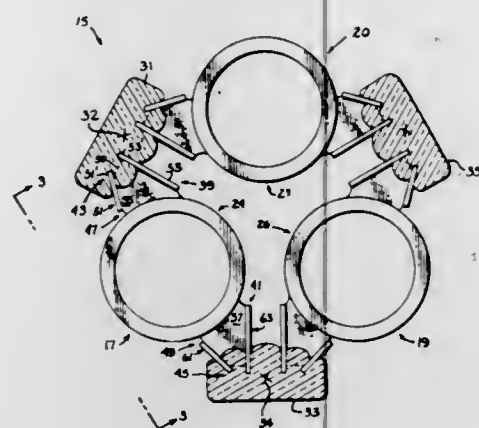
ELECTRODE SUPPORT MEANS FOR AN ELECTRON GUN STRUCTURE

Louis R. Wanner, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc.

Filed July 2, 1970, Ser. No. 51,761
Int. Cl. H01J 29/02, 29/50, 19/42

U.S. Cl. 313-82 BF

2 Claims



Substantially U-shaped support means provide improved positioning and support for the individual electrode elements comprising a cathode ray tube electron gun assembly. The related side members of each U-shaped support channel are oriented in substantially parallel relationship with the longitudinal axis of the respective support rod. The discrete shaping of the electrode support arm provides structural cooperation with the contiguously reformed support rod material to provide an enhanced locking effect therebetween.

3,659,135

ELECTRON GUN HAVING CATHODE WITH CYLINDRICAL EXTENSION AND CONTROL GRID WITH CONICAL SECTION

Johannes Hendrikus Theodorus Van Roosmalen, Emmasingel, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

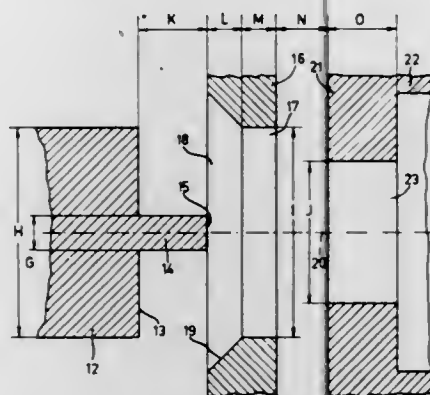
Filed Nov. 12, 1970, Ser. No. 88,769

Claims priority, application Netherlands, Nov. 22, 1969, 691764

Int. Cl. H01J 29/02, 29/58

U.S. Cl. 313-82 R

3 Claims



The rotationally-symmetric electron gun of a cathode-ray tube device comprises successively a cathode, a disk-shaped control grid provided with a central control, grid aperture and a disk-shaped anode grid provided with a central circular-cylindrical anode grid aperture. The cathode comprises a first conductive circular cylinder from the base of which a second conductive circular cylinder projects the base of which forms the emitting surface. The control grid aperture, on the side of the anode grid, has a circular-cylindrical part and, on the side of the cathode, has a conical part which nar-

rows towards the circular-cylindrical part, the wall of which encloses substantially an angle of 45° with the axis of the electron gun. The diameter of the said first conductive circular cylinder and the diameter of the said circular-cylindrical part are substantially six times as large as the diameter of the emitting surface, while the diameter of the anode grid aperture is substantially four times as large, the length of the said second conductive cylinder is substantially twice as large, the distance between the emitting surface and the said circular-cylindrical part is substantially equally large, the axial length of the said conical part is at least equally large and the distance between the control grid and the anode grid is substantially one and a half times as large as the diameter of the emitting surface. The control grid is kept at a negative potential relative to the cathode. The anode is kept at a positive potential which is substantially four and a half times as large, relative to the cathode, while the space on the side of the anode grid remote from the control grid is kept substantially field-free.

3,659,136

GALLIUM ARSENIDE JUNCTION DIODE-ACTIVATED UP-CONVERTING PHOSPHOR

William H. Grodkiewicz, Murray Hill; Shobha Singh, Summit, and Le Grand G. Van Ultert, Morris Township, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 16, 1969, Ser. No. 822,847

Int. Cl. H01J 1/63; C09k 1/06

U.S. Cl. 313-108 D

5 Claims



Electro-luminescent output in the visible spectrum results from use of a GaAs infrared-emitting diode provided with a coating of a compound having at least one each of two different anions or at least one anion vacancy in some unit cells. The compound, exemplified by the oxychlorides and fluorochlorides, contains the ion pair $\text{Yb}^{3+}\text{-Er}^{3+}$, $\text{Yb}^{3+}\text{-Ho}^{3+}$, $\text{Yb}^{3+}\text{-Tm}^{3+}$ or mixtures thereof.

3,659,137

LOW VOLTAGE SPARK PLUGS

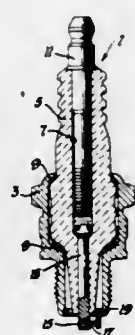
Roy S. Cataldo, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 22, 1970, Ser. No. 39,850

Int. Cl. H01t 13/20

U.S. Cl. 313-141

1 Claim



A low voltage spark plug wherein the sparking end of the center electrode positioned within the spark plug insulator is

provided with a cylindrical bore, a conically-shaped electrode electrically connected to the shell at one end and positioned within the bore with its axis substantially coincident with that of the bore and with the point of the cone positioned within the bore.

3,659,138

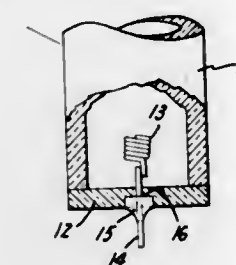
ALUMINA-METAL SEALED LAMP APPARATUS

Peter D. Johnson, Schenectady, and Howard A. Poran, El-nora, both of N.Y., assignors to General Electric Company

Filed Nov. 6, 1970, Ser. No. 87,525

Int. Cl. H01J 5/20, 5/32, 5/04

U.S. Cl. 313-317



Improved seal structure, particularly useful in the fabrication of electric lamps and the like includes a crystalline alumina member and a thin molybdenum member sealed to one another by a substantial mass of interposed sealing glass having a softening point of approximately 1,400° C. to 1,600° C., and forming a concave surface between the sealed members which intersects the respective members at a small angle having a radius of curvature which is large as compared with the thickness dimension of the molybdenum member.

3,659,139

HOLLOW ELECTRODE ASSEMBLY OF CARBON HAVING DENSED GRAPHITE JUNCTION NIPPLE

Hans Ernst, Meltingen near Augsburg; Jurgen Semmler, Donauworth; Otto Vohler, Nordendorf uber Donauworth, and Ottmar Rubisch, Meltingen near Augsburg, all of Germany, assignors to Sigril Elektrographit Gesellschaft mit beschränkter Haftung, Meltingen near Augsburg, Germany

Filed Sept. 18, 1969, Ser. No. 859,128

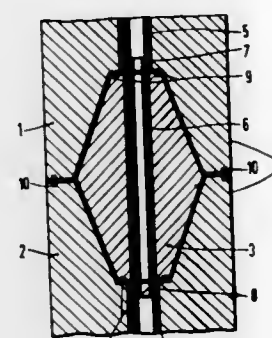
Claims priority, application Germany, Sept. 23, 1968, P 17

90 172.3

Int. Cl. H01J 1/00

U.S. Cl. 313-357

3 Claims



A hollow electrode assembly of industrial carbon comprises coaxially sequential electrode members with a central through-bore lined by an inner tube of carbon in each member. Each two sequential electrode members are rigidly joined with each other by a nipple, preferably of double-coni-

cal shape, which enters into respective socket recesses in the adjacent electrode members. The inner tubes of the electrode members are rigidly and gastightly connected with each other. Preferably, the connecting nipple is also lined with an inner tube which enters into a close telescoping seating relation with the adjacent ends of the respective electrode members.

3,659,140

IMAGE PICKUP TUBE DEVICE UTILIZING A MAGNETIC FIELD GENERATOR TO REVERSE THE LEAKAGE FIELD

Shoichi Miyashiro, Yokohama-shi; Shunzi Shirouzu, Kawasaki-shi, and Mineo Iwasawa, Kanagawa-ken, all of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan

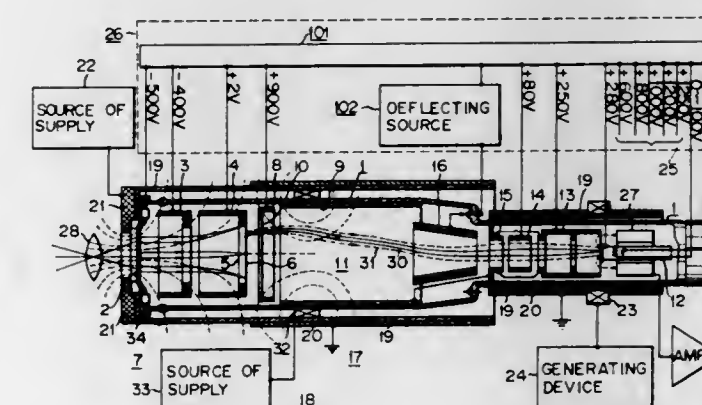
Filed June 16, 1969, Ser. No. 833,645

Claims priority, application Japan, June 20, 1968, 43/42225

Int. Cl. H01J 31/26

U.S. Cl. 315-10

6 Claims



An image pickup tube device has an evacuated container including a scanning section and an image section. In the sections are respectively mounted first and second magnetic means; the former generating a magnetic field in the image section and producing a leakage of magnetic field in the other section, the latter producing a magnetic field to reverse the polarity of the leakage field.

3,659,141

CURRENT CONTROL CIRCUIT FOR OPERATING A DEFLECTION YOKE

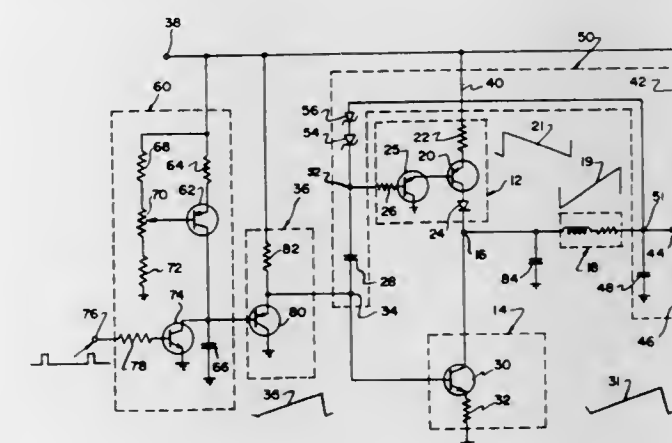
Robert Kubala, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill.

Filed May 20, 1970, Ser. No. 38,969

Int. Cl. H01J 29/70

U.S. Cl. 315-18

14 Claims



A current control circuit having a pair of current generators connected in circuit with one another at a common cir-

cuit point for controlling a direct current voltage source in such a manner as to produce an alternating current through current utilization means coupled to the common circuit point. Where a substantially linear increasing sawtooth-shaped control signal is applied to the current generators, the current output at the common circuit point is also a linear increasing sawtooth, initially of one polarity, passing through zero and then of another polarity to produce a current sweep signal suitable for use with a printed circuit deflection yoke where such is used as the current utilization means.

3,659,142

ANNULAR SCANSION CIRCUIT FOR CLOSED CIRCUIT TELEVISION SYSTEMS

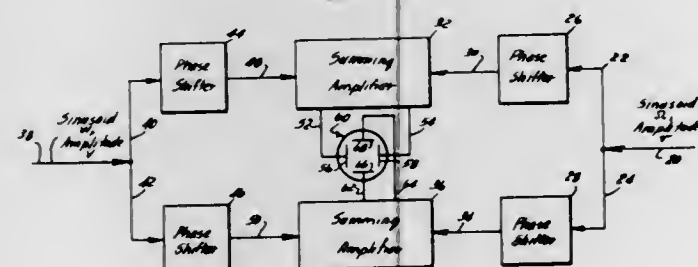
Edwin N. Phillips, Winter Park, Fla., assignor to The United States of America as represented by the Secretary of the Navy

Filed Oct. 26, 1970, Ser. No. 84,032

Int. Cl. H01J 29/78

U.S. Cl. 315-24

6 Claims



A circuit of high and low frequency quadrature networks and additive amplifiers for generating an annular scansion pattern in a CRT employed in a closed circuit television system; the scan pattern being generated by combining alternate quadrature components of two voltages of different frequencies for application to the horizontal and vertical deflection plates of the CRT, the scan pattern being characteristic of a spring coil bent along the path of a base frame frequency circle.

3,659,143

VARIABLE RESISTANCE TIME DELAY CIRCUIT UTILIZING A COINCIDENCE CIRCUIT

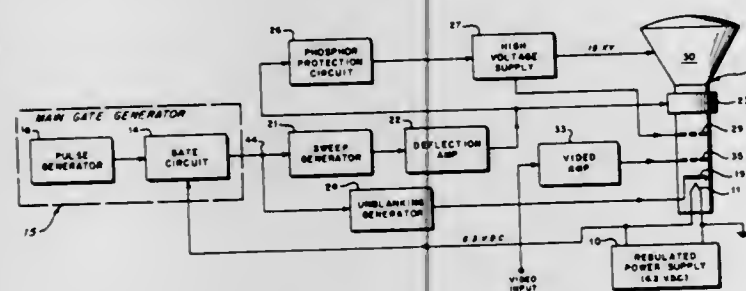
Ted R. Trilling, Doylestown, Pa., assignor to The United States of America as represented by the Secretary of the Navy

Filed May 20, 1970, Ser. No. 39,681

Int. Cl. H01J 29/52

U.S. Cl. 315-30

9 Claims



Apparatus for automatically delaying operation of electronic circuits until the filaments of vacuum tubes therein are near operating temperature. A variable resistance filament receives a constant current supply. On heating, the resistance of the filament increases providing an increased voltage drop which is applied to a solid state switching device in a main gate circuit that applies an energizing signal to additional

components in the system upon the coincidence of a generated pulse and the increased voltage reaching a predetermined magnitude.

3,659,144

SYSTEM FOR PROCESSING SIGNAL DATA TO OBTAIN IMPROVED CONTOUR PRESENTATIONS ON A CATHODE-RAY DISPLAY

John Peter Wilfred Flemming, Harlow, Essex, England, assignor to Standard Telephones and Cables Limited, London, England

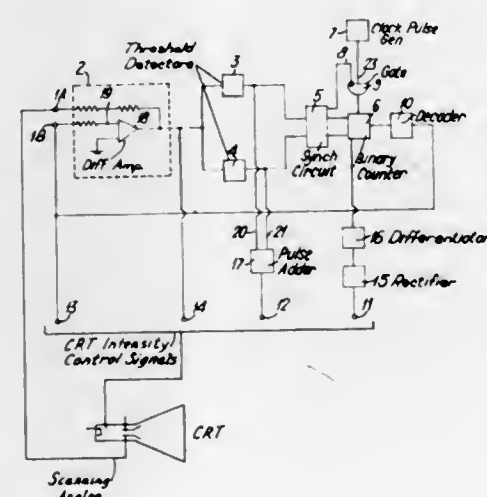
Filed July 7, 1969, Ser. No. 839,422

Claims priority, application Great Britain, July 10, 1968, 32,909/68

Int. Cl. H01J 29/70

U.S. Cl. 315-30

7 Claims



A system for processing analog signals representative of a parameter such as charge intensity, etc., along a scanned surface in contour mapping fashion. Monopolar and bipolar pulse patterns and a staircase signal are generated wherein the pulse spacing and staircase individual step widths are representative of corresponding input analog signal slopes at the corresponding points in real time. A variety of display intensity modulation signals is developed to permit a selection of contour presentations.

3,659,145

MAGNETRONS

Alan Hugh Pickering, Chelmsford, England, assignor to English Electric Valve Company Limited, London, England

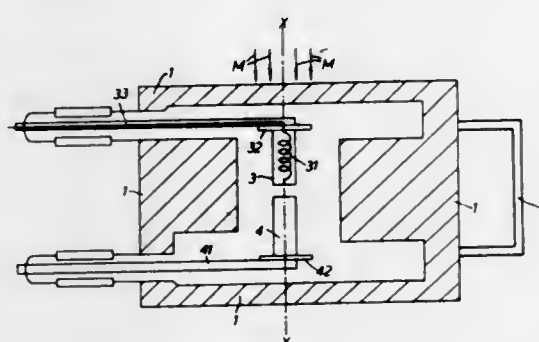
Filed Oct. 5, 1970, Ser. No. 78,108

Claims priority, application Great Britain, Dec. 2, 1969, 58,694/69

Int. Cl. H01J 25/50

U.S. Cl. 315-39.55

9 Claims



An electrically tunable axial cathode magnetron comprises adjacent to the cathode and sufficiently close to the cathode to be in the space charge formed when the magnetron is in

use, an additional electrode arrangement. The additional electrode arrangement is non-emitting and coaxial with the cathode and symmetrical with the magnetron anode axis.

controlled by controlling the current flowing from the anode to the cathode of the vacuum tube.

3,659,146

AUXILIARY LIGHTING SYSTEM FOR USE PARTICULARLY WITH HIGH PRESSURE METAL VAPOR LAMPS

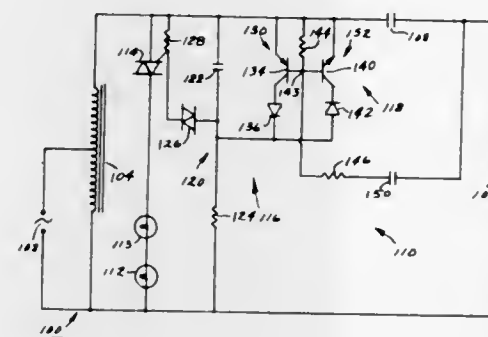
Robert D. Munson, Jennings, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 20, 1970, Ser. No. 13,119

Int. Cl. H05b 39/10, 41/46

U.S. Cl. 315-92

26 Claims



A stand-by lighting system for a high-pressure metallic-arc lamp circuit is provided which includes an auxiliary light source, a solid state switch for the emergency light, a switch control circuit for operating the switch in response to a predetermined arc lamp circuit condition in which the arc lamp fails to effectively light when normal operating voltage is applied thereto. The control circuit includes a relaxation oscillator for producing triggering pulses for effecting conduction of the solid state switch and energization of the auxiliary light when the above arc lamp circuit condition occurs.

3,659,147

ELECTRIC CURRENT CONTROL APPARATUS

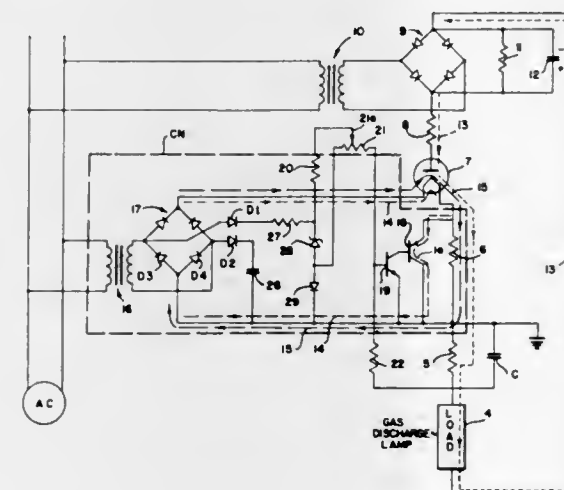
Don F. Widmayer, Bethesda, Md., assignor to Controlled Environment Systems, Inc., Rockville, Md.

Filed Apr. 22, 1969, Ser. No. 818,375

Int. Cl. H05b 39/04

U.S. Cl. 315-107

10 Claims



A current control system particularly useful but not limited to high voltage non-linear load devices wherein a vacuum tube, connected in series relationship with the load device and a DC power source, is operated in a controlled electron emission mode. The current through the load may thus be

3,659,148

LAMP MODULATOR

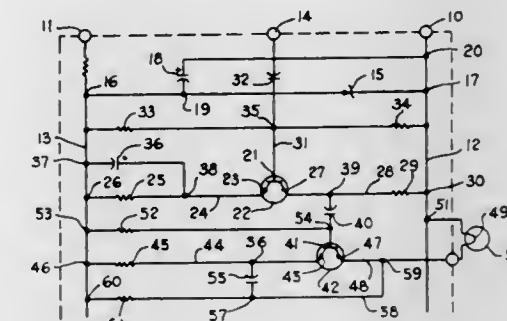
John R. Zeman, Cocoa Beach, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Dec. 16, 1970, Ser. No. 98,517

Int. Cl. H05b 41/392

U.S. Cl. 315-135

2 Claims



An electronic apparatus for generating a visual indication of the presence and magnitude of a signal. The apparatus includes a first amplifying transistor which amplifies an alternating electrical signal. A switching transistor is coupled to the output of the first transistor and is turned on by a portion of the positive half of the cycle of the signal. When the switching transistor is turned on it allows a capacitor to discharge therethrough for illuminating a lamp. The duration that the switching transistor turns on is directly proportional to the amplitude of the signal being monitored and, as a result, the intensity of the light produced by the lamp is directly proportional thereto.

3,659,149

INFORMATION DISPLAY PANEL USING AMORPHOUS SEMICONDUCTOR LAYER ADJACENT OPTICAL DISPLAY MATERIAL

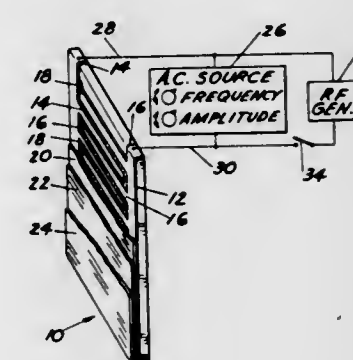
Gordon R. Fleming, Pontiac, Mich., assignor to Energy Conversion Devices, Inc., Troy, Mich.

Filed Nov. 18, 1970, Ser. No. 90,659

Int. Cl. H01J 1/70, 1/78; H05b 33/28

U.S. Cl. 315-153

17 Claims



An amorphous semiconductor layer is employed in the display panel disclosed herein. An electroluminescent layer is sandwiched between the amorphous semiconductor layer and a set of parallel spaced conductors. An AC signal is applied

to the conductors so that adjacent conductors are 180° out of phase. A field is established between adjacent conductors which passes up through the electroluminescent layer across the layer of amorphous semiconductor material and back down through another portion of the electroluminescent layer. If the amorphous semiconductor material is in a low resistance state the field across the electroluminescent material is made sufficiently strong to cause it to emit light. By switching the amorphous semiconductor material at selected regions, the electroluminescent material emits light in accordance with a desired pattern of information to be displayed. Systems are disclosed for switching the amorphous material in a variety of ways, and techniques for varying the intensity and contrast of the display are also disclosed.

3,659,150

ELECTRONIC GAS DISCHARGE TUBE IGNITER

Robert Ronald Laupman, Wijchen, Netherlands, assignor to N. V. Auco, Wijchen, Netherlands

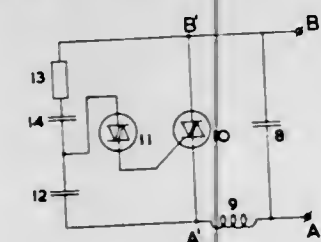
Filed Oct. 20, 1969, Ser. No. 867,833

Claims priority, application Netherlands, Oct. 21, 1968, 68/15032

Int. Cl. H05b 41/36

U.S. Cl. 315-106

9 Claims



In an electronic gas discharge tube igniter comprising a semiconductor switch element, a separate control signal terminal of said element is connected through a semiconductor A.C. diode with the tap of a voltage divider. The circuit elements are so dimensioned as to avoid reignition. The device is preferably used in combination with a circuit arrangement including a suppressing capacitor.

3,659,151

APPARATUS FOR COVERING AN OBJECT WITH A LAYER OF POWDER

Pierre Fabre, Grenoble, France, assignor to Tunzini-Sames, Grenoble, France

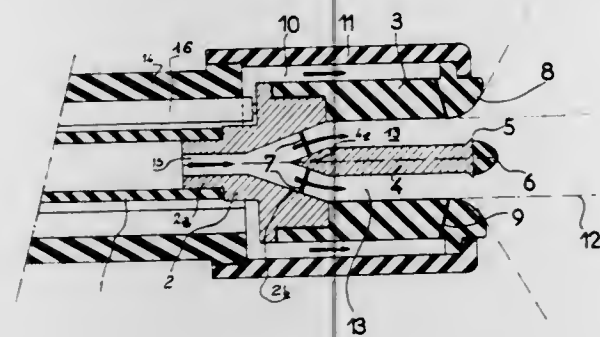
Filed Dec. 10, 1969, Ser. No. 883,793

Claims priority, application France, Dec. 17, 1968, 5302

Int. Cl. B05b 5/02

U.S. Cl. 317-3

5 Claims



This invention concerns a spray nozzle fed with the powder conveyed in an air stream constructed so that expansion of the air conveying the powder is effected in the nozzle and the spread of the spray jet issuing from the nozzle is adjusted by

regulating the flow of an auxiliary jet of air which whirls about the air stream conveying the powder. In a specific embodiment the nozzle comprises a conduit having a downstream portion of larger cross-section than the cross-section of an upstream portion thereby forming an expansion chamber in the nozzle; and the jet of whirling air is admitted to the nozzle conduit downstream of the expansion chamber. A conductive core is mounted coaxially in the nozzle conduit and is adapted to be connected to a source of high voltage. The ionization means for ionizing the air conveyed powder are at the outlet of the nozzle.

3,659,152

GROUND DETECTOR AND GUARD CIRCUIT

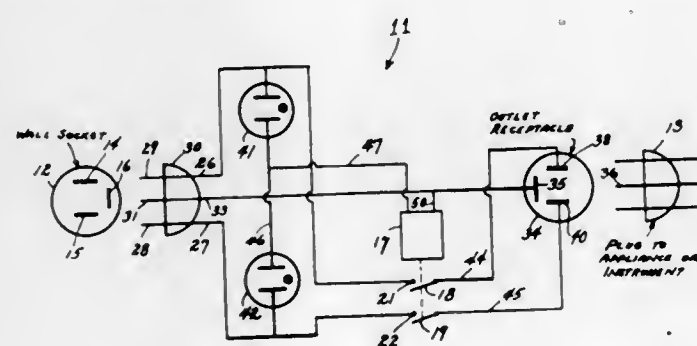
Philip A. De Langis, 4060 226th Street, Torrance, Calif.

Filed Dec. 28, 1970, Ser. No. 101,684

Int. Cl. H02h 3/14

U.S. Cl. 317-18 B

6 Claims



A ground detection and guard circuit for preventing operation of an appliance or instrument unless the associated supply source has a grounded conductor. The circuit includes a ground wire and a pair of line conductors, with a control relay having one terminal connected to the ground wire and respective neon lamps connected between the line conductors and its other terminal. If one of the line conductors is properly grounded, one of the neon lamps is shorted, allowing the other neon lamp to ignite and energize the control relay.

3,659,153

CLAMP WITH SURGE PROTECTION

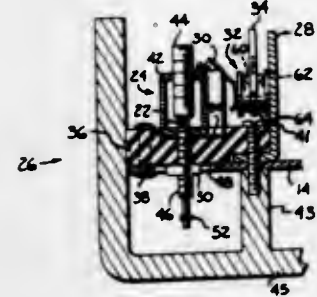
Ralph E. Neuber, 3 JoAnne Avenue, Seneca Falls, N.Y.

Filed Dec. 16, 1970, Ser. No. 98,686

Int. Cl. H02h 9/06

U.S. Cl. 317-16

9 Claims



A clamping device for seizing a wire is disclosed wherein the clamping device includes a provision for resiliently retaining a surge protection device for protecting against voltage surges on the wire.

3,659,154

ELECTRONIC LOCK AND ALARM SYSTEM

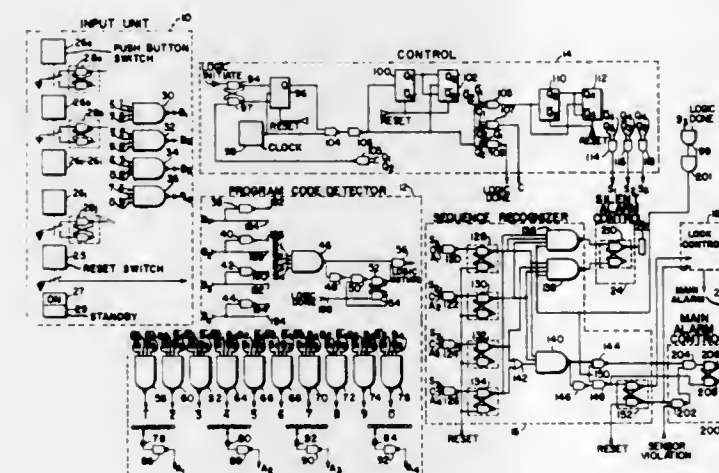
Steven G. Finn, 27 Nobscot Road, Newton, Mass.

Filed Jan. 5, 1970, Ser. No. 522

Int. Cl. E05b 47/02, 49/04

U.S. Cl. 317-134

7 Claims



In an electronic lock and alarm system, a sequence of digitally coded signals, specified by logically comparing input coded signals from a manually operated selector matrix and preset coded signals from a programmable code detector, is transmitted to a sequence recognizer computer for determining the validity of the coded sequence, and terminals such as door locks, ignition switches, etc. are operated by the computer in one of several modes specified by a user discriminatingly operating the selector matrix. In a first mode, the terminals are opened for accessibility to the user. In a second mode, the terminals are closed for inaccessibility to the user and a main alarm in the immediate vicinity is energized. In an optional third mode, the terminals are opened for accessibility to the user and a silent alarm is energized at a remote location.

3,659,155

CURRENT SENSING APPARATUS

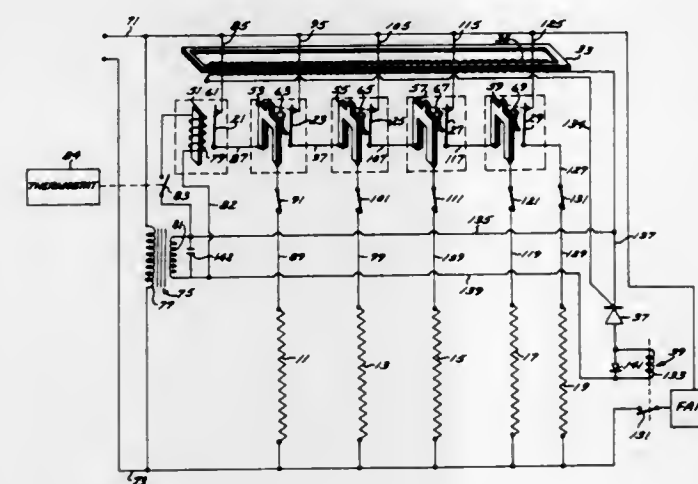
William W. Chambers, Anaheim, Calif., assignor to Robertshaw Controls Company, Richmond, Va.

Continuation-in-part of application Ser. No. 774,863, Nov. 12, 1968, now abandoned. This application Mar. 3, 1969, Ser. No. 814,491

Int. Cl. H01h 47/32; H05b 3/02

U.S. Cl. 317-148.5 B

7 Claims



This application relates to a fan control apparatus for actuating a fan to circulate air over a plurality of electric environmental change elements included in a temperature con-

trol system. The apparatus includes a fan in circuit with switch means which is operative in response to an electrical signal to actuate the fan. A sensing element is disposed in electrically inductive relationship with the environmental change elements and is responsive to energization of any one of such elements to generate said electrical signal and effect closing of the switch means to actuate the fan. The signal will continue and maintain the fan operative as long as the environmental change elements are energized and will be rendered inoperative when the last change element is de-energized thus discontinuing said signal and deactuating said fan.

3,659,156

SEMICONDUCTOR DEVICE

Heinz Beneking, Aachen, Germany, assignor to Licentia, Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

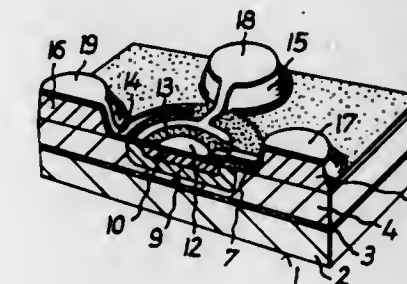
Filed May 1, 1970, Ser. No. 33,582

Claims priority, application Germany, May 31, 1969, P 19 27 876.3

Int. Cl. H01l 5/00, 5/02, 5/06

U.S. Cl. 317-234 R

8 Claims



A semiconductor device comprises a semiconductor body having two regions of different types of conductivity extending to one surface of the semiconductor body and to which contact is made by means of conducting paths extending over the surface and over the high resistance semiconductor areas provided on the surface. A method of making such a semiconductor device is also included.

3,659,157

ULTRAVIOLET PHOTOCONDUCTIVE CELL AND A METHOD FOR MAKING THE SAME

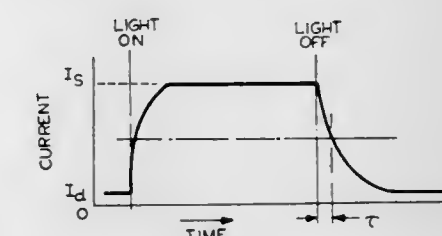
Masahiro Nagasawa, Osaka, Japan, assignor to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Dec. 29, 1970, Ser. No. 102,420

Int. Cl. H01l 15/00

U.S. Cl. 317-234 R

6 Claims



An ultraviolet photoconductive cell. The cell has a stannic oxide body heated in a gaseous atmosphere having a partial oxygen pressure of more than 5 kg./cm². Two electrodes are

applied to one surface of said stannic oxide body. The cell has a high photosensitivity and also a high response speed with respect to an ultraviolet light signal.

3,659,158

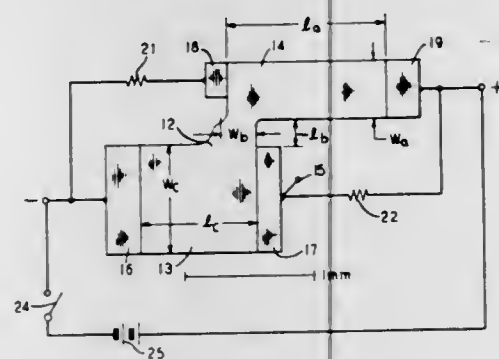
BULK-EFFECT SEMICONDUCTOR DEVICES AND CIRCUITS THEREFOR

Masakazu Shoji, Plainfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 25, 1969, Ser. No. 852,794

Int. Cl. H011 9/00

U.S. Cl. 317-234 R

2 Claims



A wafer of bulk-effect material includes a first region contained between a first cathode and first anode and a second region contained between a second cathode and a second anode. The first and second cathodes and first and second anodes are resistively connected. A bias voltage nucleates a traveling electric field domain at the first cathode which, as it propagates in the first region, passes the second cathode where it nucleates a second domain in the second region. The output to the external circuit then has two frequency components derived from the first and second anodes.

3,659,159

OPTOELECTRONIC DISPLAY PANEL

Minoru Nagata, 1558 Josuchoncho, Kodaira-shi, Tokyo, Japan

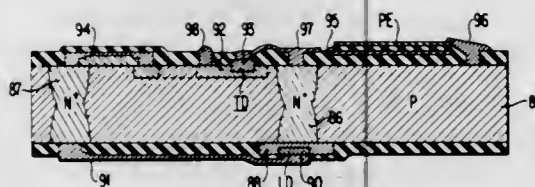
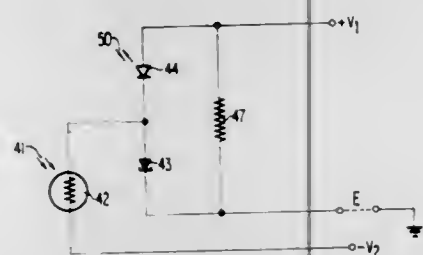
Original application Oct. 30, 1967, Ser. No. 679,021, now Patent No. 3,560,750. Divided and this application Oct. 14, 1970, Ser. No. 80,621

Claims priority, application Japan, Oct. 31, 1966, 41/71372

Int. Cl. H011 5/00, 17/00

U.S. Cl. 317-235 R

17 Claims



An optoelectronic amplifier in which a light-receiving element, such as a photoconductive element, a light-emissive

element, such as a PN junction light emitter, and a negative resistance element, such as tunnel diode, are suitably combined to form a system wherein an input light signal is received and converted into an electrical signal by the light-receiving element, and the negative resistance element is controlled by the converted electrical signal to switch the light-emissive element on and off whereby an amplified light signal is emitted from the light-emissive element.

3,659,160

INTEGRATED CIRCUIT PROCESS UTILIZING ORIENTATION DEPENDENT SILICON ETCH

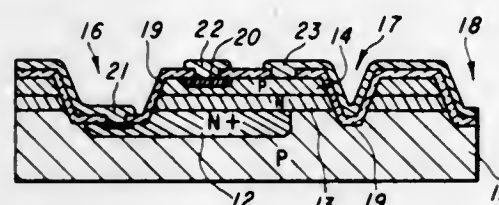
Benjamin Johnston Sloan, Jr.; Billy M. Martin, both of Richardson; Loyd H. Clevenger, Dallas, all of Tex., and Roger S. Dunn, Los Angeles, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 13, 1970, Ser. No. 11,070

Int. Cl. H011 5/00

U.S. Cl. 317-235 R

8 Claims



Orientation-dependent etching is employed in the fabrication of a monolithic semiconductor circuit network to provide electrical isolation and increased packing density, while minimizing collector series resistance and output capacitance. Collector contact to a transistor component is made by the direct metallization of a buried low-resistivity substrate region exposed by the preferential etching operation.

3,659,161

BLOCKING FIELD EFFECT TRANSISTOR

Heinz Beneking, Aachen, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Dec. 16, 1970, Ser. No. 98,802

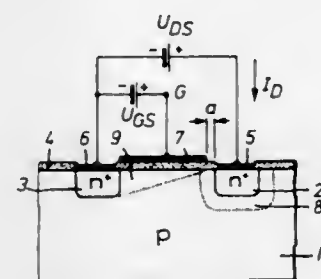
Claims priority, application Germany, Jan. 2, 1970, P 20 00

092.4; P 70 00 076.9

Int. Cl. H011 1/14

U.S. Cl. 317-235

5 Claims



A blocking field effect transistor comprises a semiconductor body having two main electrodes thereon which form barrier layers and a gate electrode which is insulated from the semiconductor body, positioned between the two main electrodes but spaced from one of the main electrodes at its edge adjacent thereto.

3,659,162

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING IMPROVED WIRING LAYER STRUCTURE

Wada Toshio, and Nakanuma Sho, both of Tokyo, Japan, assignors to Nippon Electric Company, Ltd., Tokyo, Japan

Filed Dec. 19, 1969, Ser. No. 886,444

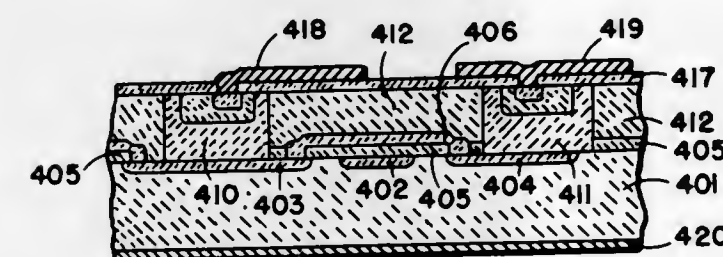
Claims priority, application Japan, Dec. 27, 1968, 44/818;

44/819; Apr. 1, 1969, 44/25331

Int. Cl. H011 19/00

U.S. Cl. 317-235 R

2 Claims



A semiconductor integrated circuit is disclosed having at least one buried layer formed of a high impurity concentration buried layer or a conductive film formed beneath the epitaxial single crystal and polycrystal regions.

3,659,163

PUSHBUTTON VARIABLE CAPACITOR

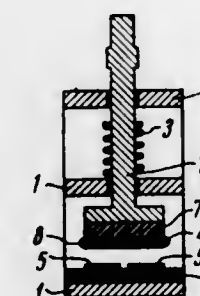
Konstantin Grigorovich Borisov, pereulok Zapadny 3, korpus 2; Iosif Leibovich Markman, Nesterovskiy pereulok, 10, kv. 6; Leonid Semenovich Sitnikov, ulitsa Trudovoykh Rezervov, 56"q," kv. 12, and Lev Lazarevich Utyakov, ulitsa Trudovoykh Rezervov, 56"q," kv. 22, all of Kiev, U.S.S.R.

Filed July 29, 1969, Ser. No. 845,770

Int. Cl. H01g 5/16

U.S. Cl. 317-249 R

4 Claims



A pushbutton key unit of a data input device for, say, a computer, comprising a push rod with a pull-back spring and a mechanical motion-to-electric signal converter associated with said push rod and having the form of a variable capacitor. The pushbutton key is simple in manufacture and reliable in operation.

3,659,164

INTERNAL CONSTRUCTION FOR PLASTIC SEMICONDUCTOR PACKAGES

John Wallen Gaylor, Princeton, N.J., assignor to RCA Corporation

Filed Nov. 23, 1970, Ser. No. 91,716

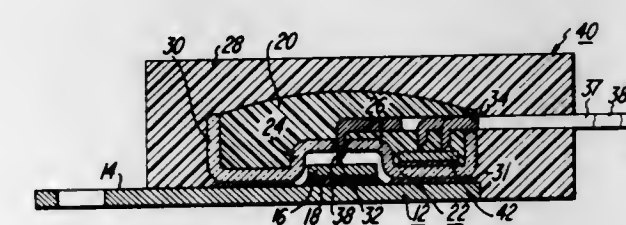
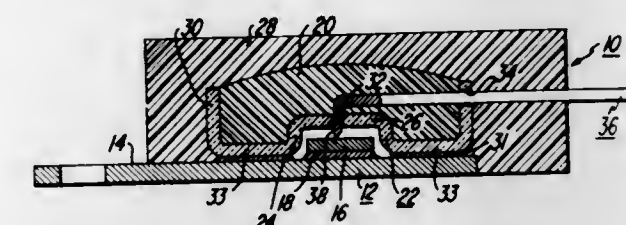
Int. Cl. H011 3/00, 5/00

U.S. Cl. 317-234 R

7 Claims

The package includes a substrate having a semiconductor pellet mounted on a surface thereof, with a flexible encapsulant disposed over the pellet. A spacing member is interposed between the pellet and the encapsulant. A plastic molding overlies the surface and the encapsulant, and a rim extends

from the surface into the interface between the encapsulant and the molding. A metal clip extends through the molding,



the rim and the encapsulant and has an end which extends through the spacing member to contact the pellet.

3,659,165

VARIABLE CAPACITOR

Peter Dome, Athenaz, Geneva, Switzerland, assignor to Societe Suisse Pour L'Industrie Hologere S.A., Geneva, Switzerland

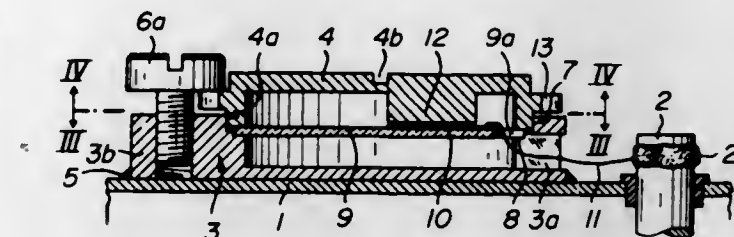
Filed Sept. 11, 1970, Ser. No. 71,504

Claims priority, application Switzerland, Sept. 12, 1969, 13765/69

Int. Cl. H01c 5/06

U.S. Cl. 317-249 D

8 Claims



The capacitor comprises a metallic lower cup whose rim forms an annular seat for a glass plate held in position by an inverted metallic upper cup defining with the lower cup a conductive enclosure. The glass plate carries an eccentrically positioned metallic layer, spaced from the surrounding enclosure, which constitutes a first condenser plate and confronts with small clearance a conductive boss integrally depending from the upper cup and constituting the second condenser plate. Relative rotation of the two cups, via a pinion meshing with peripheral teeth of the upper cup, enables adjustment of the capacitance defined by the layer and the boss.

3,659,166

MULTI-SPEED DIAL CONTROL MECHANISM

Gary D. Fredell, East Moline, Ill., assignor to Gulf & Western Industries, Inc., New York, N.Y.

Filed Nov. 13, 1970, Ser. No. 89,359

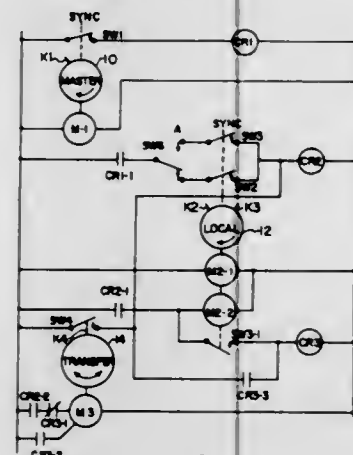
Int. Cl. H02p 5/46

U.S. Cl. 318-85

17 Claims

Disclosed is a mechanism for controlling the relative positions of one or more rotating objects or local cams with respect to a master rotating object or cam. In addition, the mechanism also controls the rotating speed of the object or cams with respect to a master. Each local cam is normally driven by a motor which rotates the cam at the same speed as the master cam. A synchronization pulse is produced by the

master cam and by each local cam, one pulse being produced for each revolution. When the synchronization pulses of the master and local cams are coincident in time, the cams are in their proper relative positions. When the synchronization pulses are not coincident, relay circuits are energized and, in turn, energize as second or third drive motor for the local cam. The second or third drive motor drives the cam at a greater or slower speed and overrides the normal local cam



drive motor. The length of operation of the override motors is controlled by transfer cams which are also energized by the relay circuit. The mechanism may advantageously be incorporated in a traffic control system where the individual controllers are regulated from a master. The disclosed mechanism permits the smooth and rapid transition from one control sequence to another depending on local traffic conditions.

3,659,167

ELECTROMAGNETIC DEVICE FOR MAINTAINING A MECHANICAL OSCILLATING OR ROTARY MOVEMENT

Hans Ulrich Meyer, Bugnon 24, Renens, Switzerland
Filed Aug. 10, 1970, Ser. No. 62,522
Claims priority, application Switzerland, Aug. 25, 1969, 12849/69

Int. Cl. H02k 33/00

U.S. Cl. 318-128

6 Claims



An electromagnetic device for maintaining movement of an oscillating or rotating piece, such as the balance wheel of a timepiece, comprises a driving coil associated with a magnet on the piece. A contactor transistor in the feed circuit of the driving coil is controlled by a pick-up coil to deliver driving pulses to the driving coil. A regulating transistor acts on the contactor transistor to adjust the values of the driving pulses as a function of the desired speed of the piece. The emitter-base junction of the regulating transistor is connected to the terminals of the pick up coil and the regulating transistor is connected by its collector and its base to by-pass the base-emitter junction of the contactor transistor.

3,659,168 VOLTAGE CONTROL FOR A MOTOR SUPPLY SYSTEM

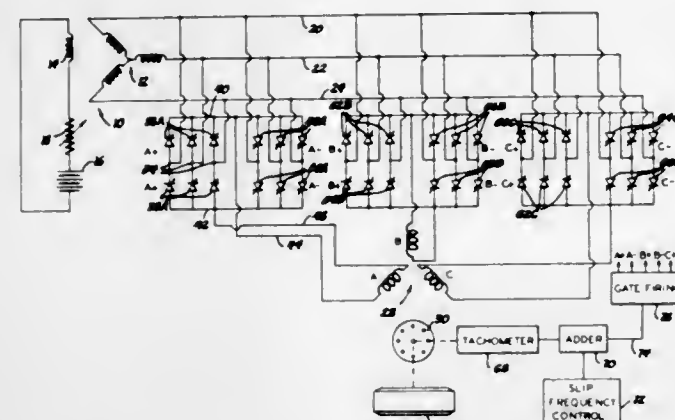
Jalal T. Salih, Birmingham, and Daniel W. Shimer, Madison Heights, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 22, 1971, Ser. No. 117,498

Int. Cl. H02p 5/40

U.S. Cl. 318-227

9 Claims



In this system, a controlled rectifier converter interconnects an alternating current voltage source with an AC induction motor. To effect voltage amplitude control, trigger signals are pulsed to the various controlled rectifiers of the converter during their respective 120° conductive intervals. The resultant duty cycle modulation affords control of the level of the voltage applied to the induction motor. At low frequencies, a plurality of power pulses are provided by the converter during each 60° of conduction, whereas at high frequencies, a single power pulse is supplied for each 60° of conduction. A smooth transition is provided between these two operating modes to ensure smooth, continuous motor control and operation throughout the operating range of the motor. This smooth transition is facilitated by synchronizing the power pulses in relation to the two 60° increments comprising the 120° conductive intervals for the respective controlled rectifiers.

3,659,169

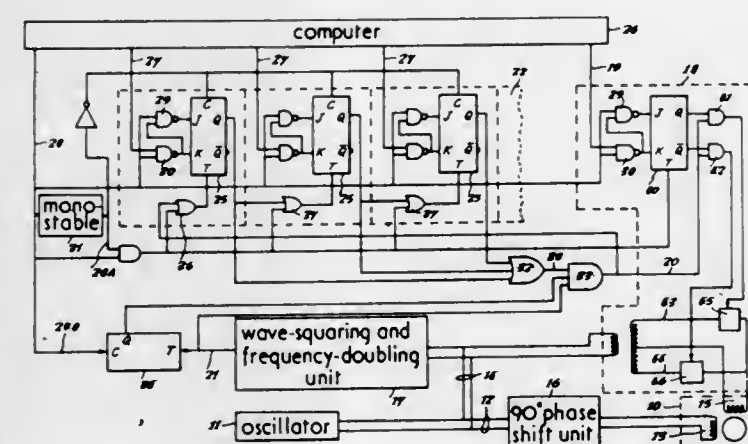
MOTOR SPEED CONTROL USING A COUNTDOWN COUNTER

Andrew Hurlstone Waddicor, Lower Lodge, Almondsbury, Gloucestershire, England
Continuation of application Ser. No. 729,958, May 17, 1968, now abandoned. This application Oct. 9, 1970, Ser. No. 79,672

Int. Cl. H02p 5/16

U.S. Cl. 318-341

6 Claims



The speed of a hysteresis induction motor is controlled by eliminating selected pulses from the alternating current

supply by loading a count-down register at regular intervals with a binary number, the register being connected to establish the current supply to the motor for so long as a number is present in the register. The pulses of the current so established are used to count down the register so that the supply is cut-off when the number reaches zero. The number determines the duration of the supply between successive loadings of the register and the speed is thus determined by the magnitude of the number.

3,659,170

DIRECT COUPLED POWER SOURCES AND BRAKING MEANS FOR TOOLS SUCH AS LAWN MOWERS

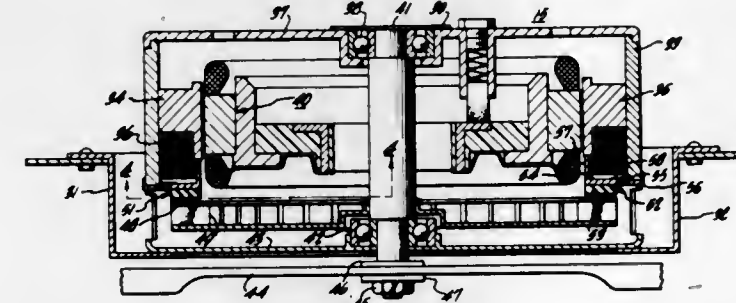
Wilford B. Burkett, Pacific Palisades, and Robert V. Jackson, Los Angeles, both of Calif., assignors to McCulloch Corporation, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 655,593, July 24, 1967, now abandoned. This application Dec. 13, 1968, Ser. No. 787,295

Int. Cl. H02r 3/04

U.S. Cl. 318-372

19 Claims



A direct-current motor operating at a speed which is safe for a specified tool is directly coupled to the working element of the tool and a brake cooperates with the motor to stop the movement of the working element within a prescribed time after removal of power from the motor.

3,659,171

VALVE CONTROL SYSTEM

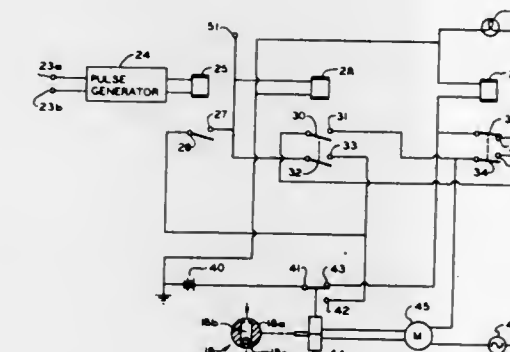
John A. Morgan, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed July 24, 1970, Ser. No. 57,990

Int. Cl. H02p 5/10

U.S. Cl. 318-443

6 Claims



Apparatus is provided for actuating an intermittent motion control element, such as a rotary valve. A pulse generator establishes periodic actuating pulses at a frequency corresponding to the amplitude of a control signal. Rotation of a

3,659,172

MOTOR CONTROLLING DEVICE

Kubokura Kuniaki, and Iwao Sugiyama, both of Hitachi, Japan, assignors to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan

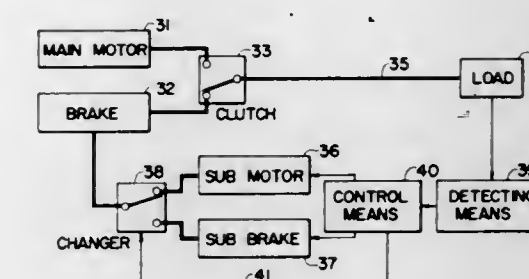
Filed Feb. 9, 1971, Ser. No. 113,946

Claims priority, application Japan, Feb. 12, 1970, 45/12191

Int. Cl. G05g 5/00

U.S. Cl. 318-467

11 Claims



A motor-controlling device in which a driving circuit for a motor connected with an AC power supply is controlled through the contacts of a first relay, and positions where a load driven by the motor stops are detected by a position-detecting means. Output signals of the position-detecting means are used to control the motor-driving circuit. Other operating systems are operated through second and third relays while the motor is in operation.

3,659,173

AIRCRAFT CONTROL SYSTEM INCLUDING LIMITING MEANS

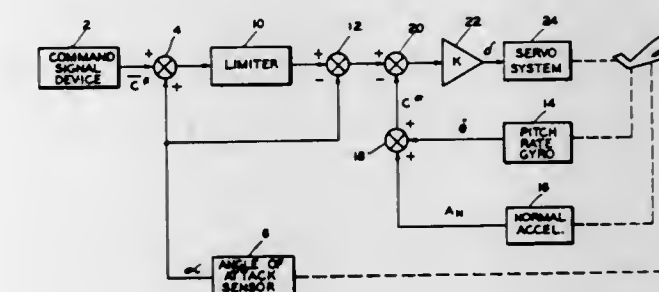
George H. Pfersch, Randolph Township, Morris County, N.J., assignor to The Bendix Corporation

Filed June 19, 1970, Ser. No. 47,850

Int. Cl. B64c 13/18; G05d 1/08

U.S. Cl. 318-584

7 Claims



A feedback system for controlling an aircraft as a function of a primary flight parameter and including limiting means whereby a secondary flight parameter becomes the controlling feedback parameter.

3,659,174

MACHINE FOR PERFORMING OPERATIONS CONSECUTIVELY AT PRESELECTED WORKING POSITIONS

Jacques Bodin, Nantes, France, assignor to Societe d'Etudes, Recherches et Constructions Electroniques S.E.R.C.E.L., Rue de Bel Air, 44 Carquefou, France

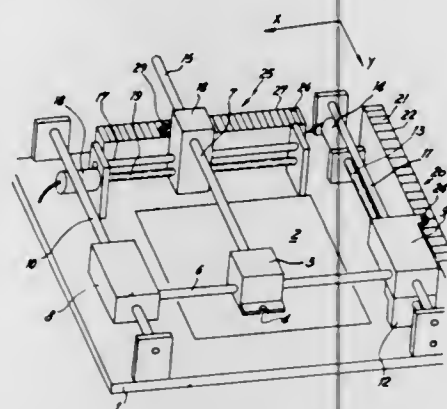
Filed Feb. 18, 1971, Ser. No. 116,541

Claims priority, application France, Feb. 18, 1970, 7005741; May 26, 1970, 7019112

Int. Cl. G05b 19/28

U.S. Cl. 318—602

14 Claims



A machine for performing operations consecutively at preselected working positions, such as semi-automatic wiring of electronic circuits, the positions being defined in relation to co-ordinate axes, the machine having on said axes scales consisting of transverse conductive strips, tool carrier slides adapted to short-circuit adjacent strips, and an electronic logic system which compares the short-circuit position with an input representing preselected working positions and signals a drive system to stop the carrier on reaching the selected working position, and reverse to correct overshoot so that the tool carrier is accurately positioned.

3,659,175

CIRCUIT TO PREVENT OSCILLATION IN AN ELECTRONIC SERVOSYSTEM

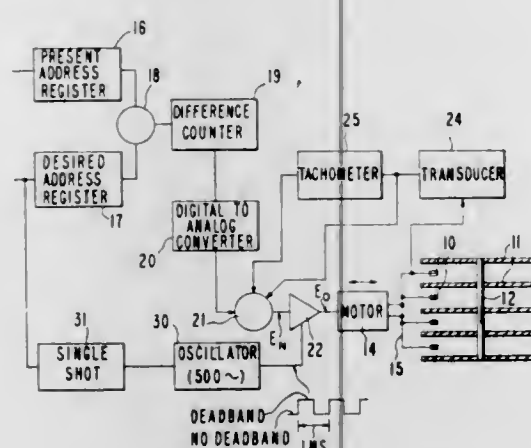
Frank J. Sordello, San Jose, Calif., assignor to Information Storage Systems, Inc., Cupertino, Calif.

Filed June 8, 1970, Ser. No. 44,067

Int. Cl. G05b 5/01, 11/01

U.S. Cl. 318—624

8 Claims



A closed loop servosystem for positioning a device such as a read/write head in a data disc file in which the deadband in the amplifier of the system is turned on and off at a rate great enough to prevent the buildup of resonance oscillations in the system when the device reaches the zero position.

3,659,176

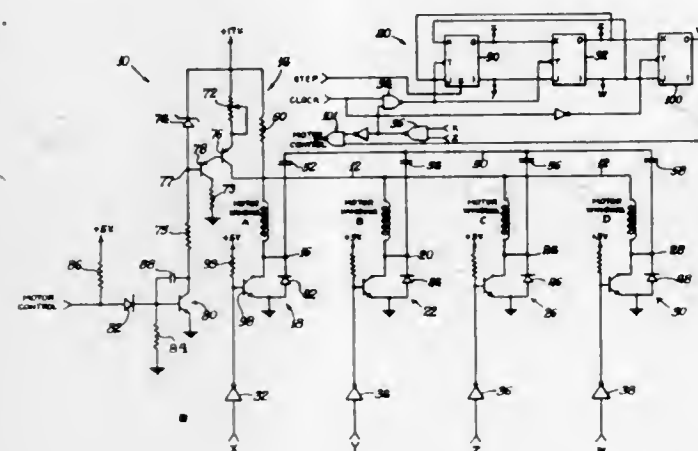
STEPPING MOTOR CONTROL INCLUDING A HIGH LEVEL SUPPLY FOR STEPPING AND A LOW LEVEL SUPPLY FOR HOLDING

Ray A. Marshall, Park Ridge, Ill., assignor to SCM Corporation, New York, N.Y.

Filed Nov. 13, 1969, Ser. No. 876,539

Int. Cl. H02k 37/00

1 Claim



A control circuit for high speed operation of a four winding stepping motor. When the stepping motor is to be advanced, a large constant amplitude current is supplied to a node common to the four windings. A waveform generator then sequentially energizes the windings so as to advance the motor. A low level holding current is supplied to the windings at all times when the motor is not advancing.

3,659,177

STEP MOTOR DRIVE CIRCUIT

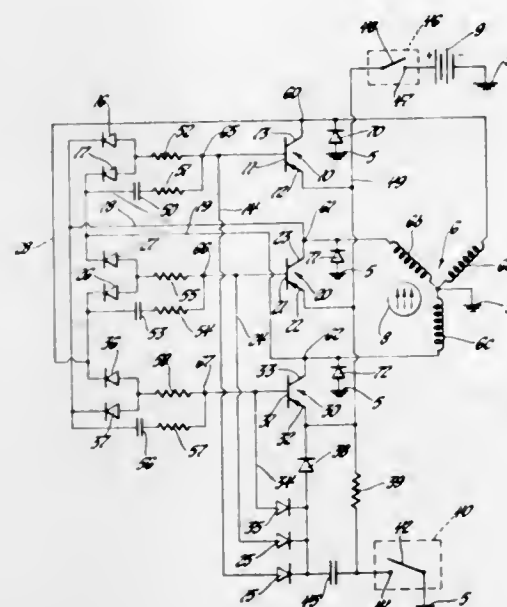
Robert B. Gelenius, Davison, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Sept. 11, 1970, Ser. No. 71,397

Int. Cl. H02k 37/00

U.S. Cl. 318—696

5 Claims



A step motor drive circuit for use with a step motor of the type having three "wye" connected field coils, each of which is connected across a source of direct current supply potential through the collector-emitter electrodes of a respective transistor. The emitter-base electrodes of each transistor are connected across the source of direct current supply poten-

tial through a respective diode, a common series capacitor and a common electrical switch and also through the parallel combination of the other two motor field coils, each having a diode connected in series therewith which becomes reverse biased while the transistor through which that field coil is energized is conductive to interrupt that branch of the parallel combination. Circuitry responsive to the triggering of each not conductive transistor conductive upon each closure of the electrical switch for extinguishing the earlier conductive transistor of the other two is provided whereby each transistor is maintained not conductive while the other two transistors are conductive and each not conductive transistor is triggered conductive and the earlier conductive transistor of the other two transistors is extinguished upon each closure of the electrical switch.

3,659,178

CAPACITOR CHARGING CIRCUIT

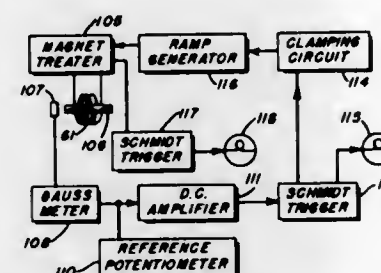
Everett A. Gilbert, Denville, and Channing S. Williams, Rockaway, both of N.J., assignors to RFL Industries, Inc., Boonton, N.J.

Original application July 12, 1968, Ser. No. 744,439, now Patent No. 3,560,805, dated Feb. 2, 1971. Divided and this application May 19, 1970, Ser. No. 48,672

Int. Cl. H02m 5/40; H01f 13/00

U.S. Cl. 320—1

1 Claim



Apparatus for selectively decreasing the magnetic intensity of a permanent magnet by passing current pulses of decaying waveform through a pull-down coil. A capacitor is alternately charged to a predetermined voltage level and discharged through the pull-down coil. Control means are provided to pass through the pull-down coil either a single current pulse of predetermined maximum amplitude, or a continuous series of such pulses or a train of current pulses of increasing initial amplitude.

3,659,179

EMERGENCY ELECTRIC LIGHTING UNITS

John S. N. Barker, and Ronald H. Minter, both of Hants, England, assignors to Bardic Systems Limited, Northam, Southampton, Hampshire, England

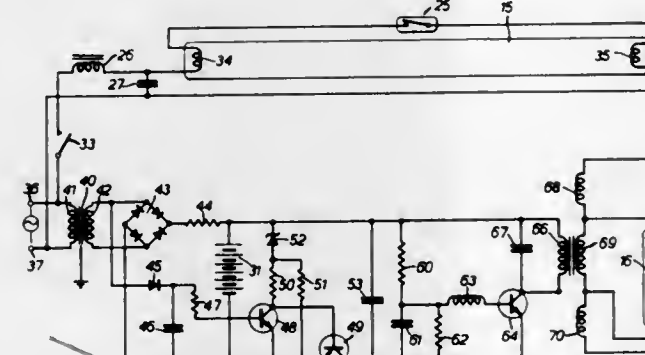
Filed June 10, 1970, Ser. No. 45,175

Claims priority, application Great Britain, June 11, 1969, 29,656/69

Int. Cl. F21v 19/04; H05b 33/02

U.S. Cl. 320—2

5 Claims



An electric lighting unit incorporates a main fluorescent lamp which is normally illuminated from an A.C. supply as

well as an auxiliary emergency fluorescent lamp which is automatically switched on if the supply should fail. The unit has the usual base which contains not only the auxiliary equipment for the main lamp but also a rechargeable battery, incorporated in an encapsulated unit, and, incorporated in another encapsulated unit, a charger for normally trickle-charging the battery from the A.C. supply, a solid-state inverter, and a solid-state switching device responsive to failure of the A.C. supply to switch on the inverter to illuminate the auxiliary lamp from the battery. The auxiliary lamp is supported by the main lamp.

3,659,180

SELF-CHARGING APPLIANCE AND STAND

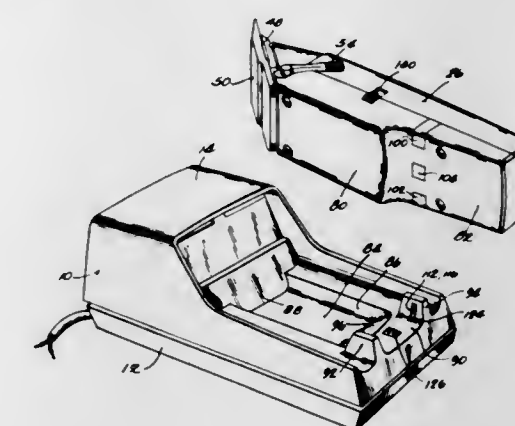
Richard L. Urbush, Racine, Wis., assignor to Andis Clipper Co., Racine, Wis.

Filed Jan. 21, 1969, Ser. No. 792,511

Int. Cl. H01m 45/04

U.S. Cl. 320—2

1 Claim



A hair clipper is the particular appliance shown. It normally rests horizontally on a stand having plural electrical contacts and internally provided with a transformer and with circuit elements supplementing those within the hair clipper for recharging batteries by which the hair clipper is powered, the charge being reduced to a trickle charge when the batteries are ready for use. The hair clipper and stand have complementary surfaces for guiding the hair clipper to a position in which its contacts are properly engaged with yieldable contacts in the stand. The movable blade of the hair clipper can be adjusted for fineness of cut.

3,659,181

AUTOMATIC BATTERY CHARGING REGULATOR FOR EMERGENCY LIGHTING AND POWER SYSTEMS

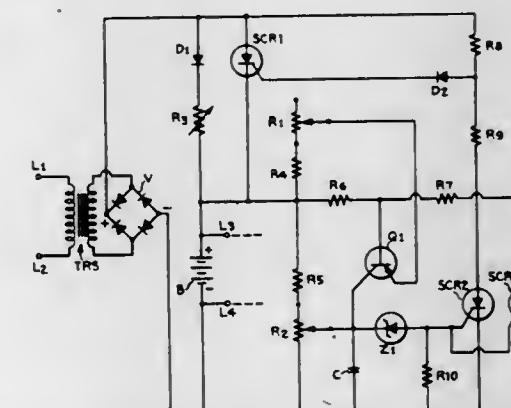
Edward Bembek, Springfield, Mass., assignor to Standard Electric Time Corp., Springfield, Mass.

Filed Mar. 12, 1970, Ser. No. 18,918

Int. Cl. H02j 7/02

U.S. Cl. 320—22

7 Claims



A voltage sensing circuit monitors the battery voltage and places the battery on "fast charge" rate through a silicon

controlled rectifier, when the monitored battery voltage drops to a predetermined value. When the battery has charged to a certain value, the battery is automatically returned to a "trickle charge" rate through a parallel circuit. A clamping circuit maintains the circuit in "trickle" charge condition until the battery voltage is again sensed to have fallen below the first aforementioned desired predetermined value preventing "hunting" of the battery by providing control with a voltage differential between the "trickle" and "fast" charging rates.

3,659,182

BATTERY CHARGING SYSTEM WITH REVERSE BATTERY PROTECTION

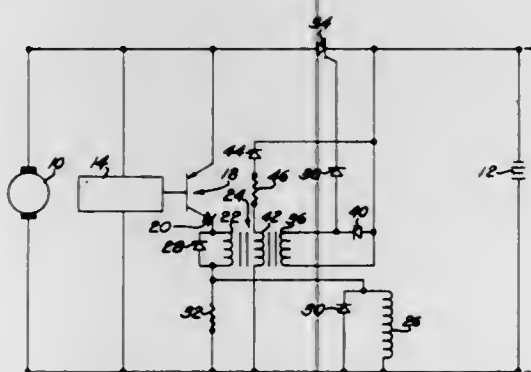
Marion L. Snedeker, Cleveland, Ohio, assignor to VLN Corporation, Cleveland, Ohio

Filed Sept. 3, 1970, Ser. No. 69,253

Int. Cl. H02J 7/00

U.S. Cl. 320-25

15 Claims



A circuit prevents a generating machine from being operatively connected to a battery whenever the battery has been connected with a reverse polarity. The machine is coupled through the anode-cathode path of a silicon-controlled rectifier to the battery and the rectifier is switched on in response to current pulses in the field winding of the machine. A primary winding of a pulse transformer and the secondary winding of the pulse transformer are employed to supply gating pulses to the controlled rectifier. The transformer has a saturating winding which is energized when the battery is connected in a reverse direction so that no gating pulses are coupled through the transformer to the gate of the controlled rectifier to turn on the controlled rectifier.

3,659,183

POLARITY CONTROL SYSTEM

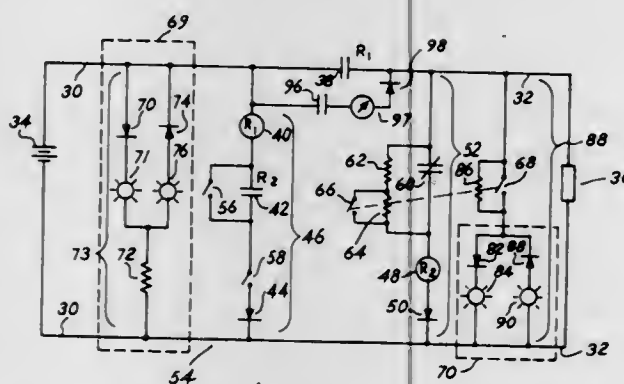
Arthur E. Carlson, Newton, Iowa, assignor to Winpower Manufacturing Company

Filed Dec. 4, 1970, Ser. No. 95,264

Int. Cl. H02J 7/00

U.S. Cl. 320-25

6 Claims



A system for controlling the transmission of electrical power between a D.C. power source and a load. The system includes a circuit having indicator lamps for visually indicat-

ing the polarity of the power source and of the load. Relays are utilized to prevent power transmission when the source and the load are improperly connected to the circuit. The circuit includes normally closed contacts of one relay in series with the coil thereof and a resistor in parallel with the normally closed contacts so that when the coil is energized, the voltage applied to the coil is automatically reduced during operation.

3,659,184

ANALOG SIGNAL TO DISCRETE TIME INTERVAL CONVERTER (ASDTIC)

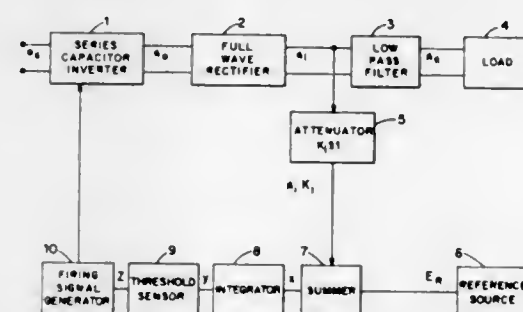
Francisc C. Schwarz, Concord, Mass., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Feb. 11, 1970, Ser. No. 10,329

Int. Cl. H02m 3/22

U.S. Cl. 321-2

14 Claims



An electronic signal conversion device is disclosed. The concept of pulse modulation includes in the sense of this invention the process of sampling a source of electric energy by one or several switches, and the electronic function that controls this switch or switches; any utilization of averaging devices to smooth the ensuing pulses such as filters are excluded as part of this process, except that a filter may be inserted ahead of a lead to be energized. The device is particularly useful wherever conversion of analog signals to discrete time signal intervals for purpose of pulse modulation is required. However, the invention has general utility and is presently being used with specific power supplies in the space program and communication technology. In addition, the device lends itself to incorporate a reference source and feedback network as used with power amplifiers and direct current pulse modulated power converters. The device maintains its accuracy of expected operation notwithstanding variations in its component characteristics, variations of applied voltage waveforms and supply voltages.

3,659,185

VOLT-SECOND UNBALANCED COMPENSATED TWO CORE POWER TRANSFORMER

James M. Gregorich, Marlboro, Mass., assignor to Collins Radio Company, Cedar Rapids, Iowa

Filed June 10, 1971, Ser. No. 151,666

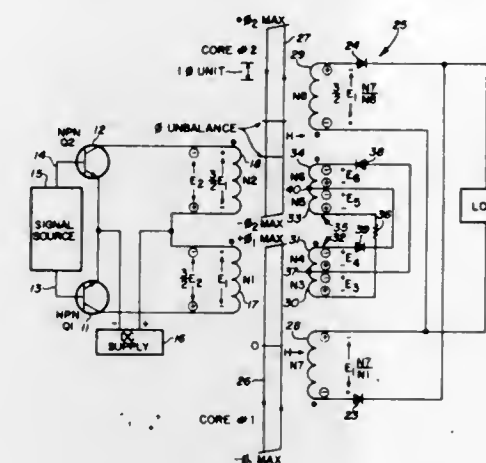
Int. Cl. H02m 3/14

U.S. Cl. 321-2

8 Claims

A two-core dc to dc converter power transformer having duo reset coils circuit interconnected for compensating volt-

second unbalance. The circuit interconnect between the reset coils on both cores includes current limiting means coupled to a thyristor type inverter supplying a synchronous motor. A low-voltage alternator is driven by the motor and



limiting current flow after core reset to saturation and diode signal rectifying means.

3,659,186

CONTROL AND PROTECTION ARRANGEMENT FOR A D.C. POWER TRANSMISSION SYSTEM

Takehiko Machida; Yukio Yoshida, both of Tokyo; Koji Iwata, and Kenjiro Yokoyama, both of Hitachi-shi, all of Japan, assignors to Hitachi Ltd., Tokyo, Japan and Zaidan Hojin Denryoku Chuo Kenkyusho, Tokyo, Japan

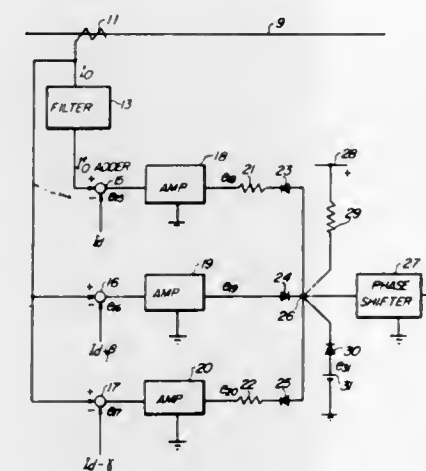
Filed Aug. 28, 1969, Ser. No. 853,866

Claims priority, application Japan, Sept. 4, 1968, 43/63021

Int. Cl. H02m 1/18; H02p 7/14

U.S. Cl. 321-14

4 Claims



A current from a power transmission line is smoothed by a filter and then compared with a set value to detect and control the transmission current when the transmission current is in the neighborhood of the setpoint. Whereas, the current is directly detected and controlled to the set value without intervening the filter when the deviation rapidly increases.

3,659,187

SYSTEM FOR SUPPLYING ELECTRIC ENERGY TO AN ELECTRIC TRACTION RAILWAY VEHICLE

Paul Lamorlette, Paris, France, assignor to L'Eclairage Des Vehicules sur Rail (E.V.R.), Paris, France

Filed Mar. 25, 1970, Ser. No. 22,469

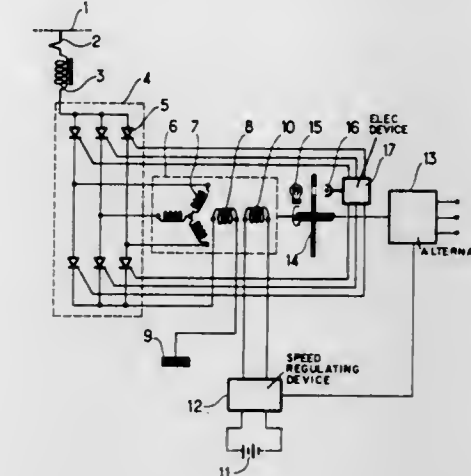
Claims priority, application France, Mar. 28, 1969, 6909473

Int. Cl. H02p 9/00

U.S. Cl. 322-26

6 Claims

In an electric energy supply system for an electrically drawn railway carriage and fed from the medium-voltage supply of the drive locomotive, a current smoothing choke is



3,659,188

GENERATOR VOLTAGE REGULATOR WITH DETACHABLE RESISTANCE UNIT IN THE VOLTAGE REFERENCE CIRCUIT

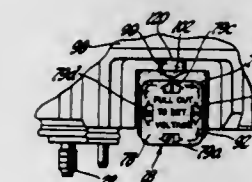
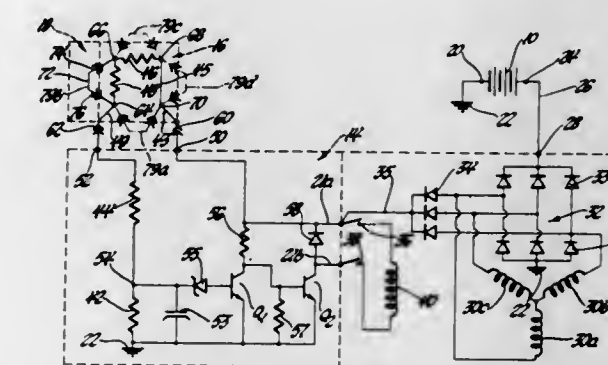
Arthur W. Alexander, and Glen R. Renner, both of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 16, 1970, Ser. No. 29,151

Int. Cl. H02p 9/30

U.S. Cl. 322-28

2 Claims



A voltage regulator adjustment device including a plurality of series-connected resistors contained in a body having two sets of terminals for removable connection with other structures. One set of terminals is adapted for connection with a conductor contained in a cap so as to short any of the resistors in the body. The other set of terminals is removably connected across terminals of an otherwise inaccessible voltage regulator located in the housing of an alternator, thereby inserting the resistors of the body into a voltage divider contained in the regulator. A reference point in the voltage divider is operatively connected to an output transistor in the regulator to control the output of the alternator in accordance with the voltage at the reference point. Therefore, by adding the resistors of the body and shorting those desired with the conductor in the cap, the voltage setting of the volt-

age regulator is in effect altered to provide a different output voltage for the alternator.

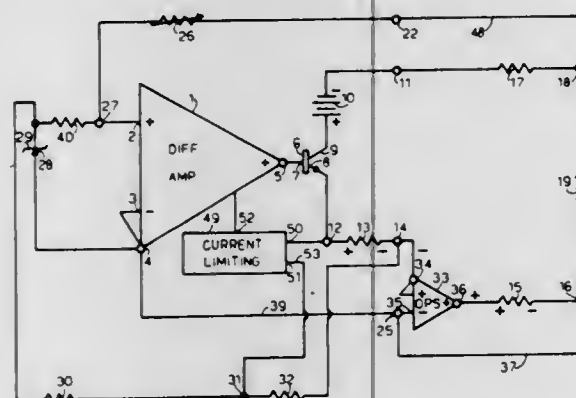
3,659,189 REGULATED POWER SUPPLY LEAD-DROP COMPENSATION

John Kiviranna, Flushing, N.Y., assignor to Forbro Design Corp., New York, N.Y.

Filed Feb. 3, 1971, Ser. No. 112,204
Int. Cl. G05f 1/56, 1/58

U.S. Cl. 323-9

8 Claims



An operational power supply is connected to supply the voltage drop in the common lead from the main regulated power supply to the load.

Regulated power supplies are designed to regulate their terminal voltage to a high degree. Where a remote load is being supplied, the voltage drop in the connecting leads may cause trouble as, for example, degraded voltage regulation across the actual load. This problem has been solved in some cases by providing remote voltage sensing leads feeding back the actual load voltage over leads separate from the load current carrying leads. However, there are practical limits imposed on this remote sensing method.

The voltage drop in the common lead to the load must be substantially less than the pass transistor drive amplifier output since the voltage drop in the common lead is in series and in opposition to this output. Also, if current limiting is accomplished by using the voltage drop across a current sensing resistor in series with the common lead and the reference voltage for the current limiting circuit is derived from the voltage reference, the voltage drop in the common lead acts in series with the voltage across the current sensing resistor causing current limiting to take place at a lower actual load current than provided for.

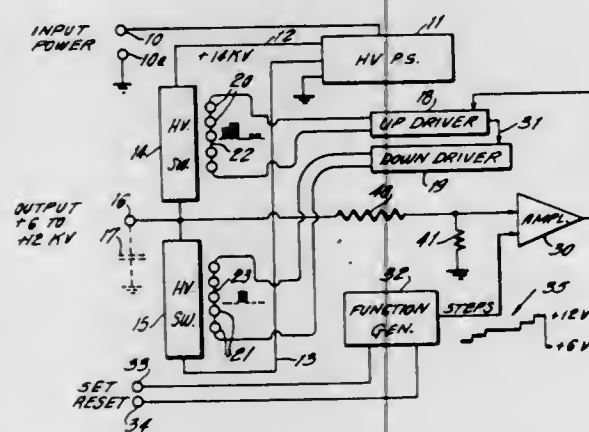
3,659,190 SWITCHING HIGH-VOLTAGE POWER SUPPLY

Filippo B. Galluppi, Mount Vernon, N.Y., assignor to Venus Scientific Inc., Farmingdale, N.Y.

Filed Oct. 6, 1970, Ser. No. 78,429
Int. Cl. G05f 1/56

U.S. Cl. 323-22 T

7 Claims



Two series-connected transistor chains have an output terminal at their junction and are connected in series with a

high-voltage power supply. The output terminal is connected to ground through an output capacitor, which may include stray capacitance of the system. The base circuits of each of the transistor chains are transformer coupled to controlled amplitude oscillators which modulate the transistor outputs between given amplitudes. Control of the first transistor chain causes an increase in output by charging the output capacitor to given levels while control of the second transistor chain causes a decrease in voltage output to a minimum value by permitting discharge of the output capacitor. The output of the oscillators is controlled from an operational amplifier which is controlled, in turn, from a function generator.

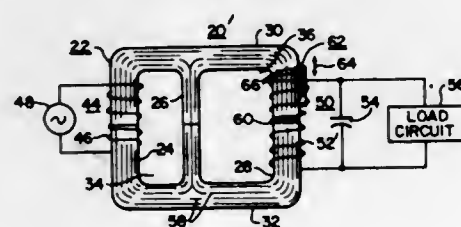
3,659,191 REGULATING TRANSFORMER WITH NON-SATURATING INPUT AND OUTPUT REGIONS

Robert J. Spreadbury, Murrysville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Apr. 23, 1971, Ser. No. 136,702
Int. Cl. G05f 1/32, 3/06

U.S. Cl. 323-51

16 Claims



A three-path parametric regulating and filtering transformer having an adjustable output voltage. The regulating transformer includes a magnetic core having input, output and saturable regions, an input winding disposed about the input region, an output winding disposed about the output region, and a capacitor connected to the output winding to provide a tank circuit. In one embodiment, a magnetic element is disposed to influence the magnitude of the voltage across the output winding, with the position of the magnetic element, relative to the output winding, being adjustable. In another embodiment, the output region of the magnetic core is divided into two spaced portions, the output winding is disposed about both portions, and electrical control coils are disposed about each portion and connected in opposition. A unidirectional control current is passed through the control coils, with the magnitude of the unidirectional current controlling the voltage across the output winding.

3,659,192 A DEVICE FOR DETERMINING THE MINERAL COMPOSITION, SIZE AND LOCATION OF ORE DEPOSITS

Jury Samullovich Ryss, 2. Murlinsky prospekt, 14 kv. 39; Jury Grigorievich Bakhtin, ulitsa Generala Khazova, 45, kv. 66; Vladimir Mikhailovich Panteleimonov, Nevsky prospekt, 11/12, kv. 19, and Alexei Illarionovich Alexeev, ulitsa Sedova, 87, korpus, kv. 7, all of Leningrad, U.S.S.R.

Filed Oct. 7, 1969, Ser. No. 864,503

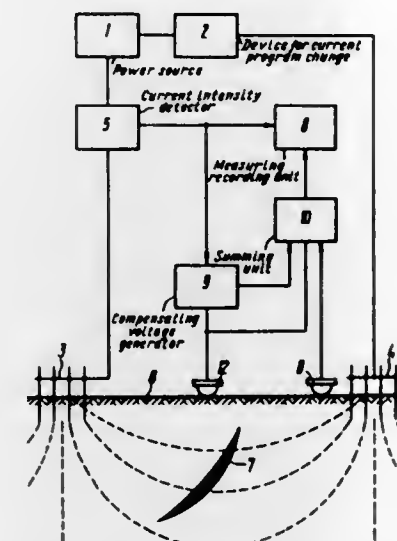
Int. Cl. G01v 3/02

U.S. Cl. 324-1

2 Claims

An apparatus for geophysical prospecting of ore deposits which is provided with a means for a program change of the current intensity in the power supply circuit, said current producing successive electrochemical reactions on the surface of the ore body which are recorded in a measuring-and-recording unit simultaneously with the signals sent from a

current intensity detector inserted into the power supply circuit for recording polarization curves which are used for



determination of the mineral composition, location and dimensions of the ore body.

3,659,193 APPARATUS INCLUDING INITIAL ELECTRODE CHARGE MAINTAINING MEANS FOR MEASURING THE CONCENTRATION OF AN ELECTROLYTE

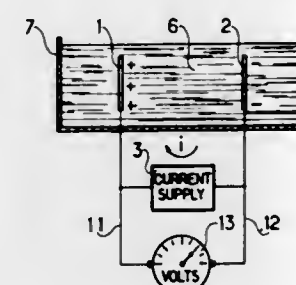
Johan Ludwig Pitsch, Nanterre, and Gerard Charbonnier, Bretigny sur Orge, both of France, assignors to Compagnie Generale D'Electricite and Compagnie Generale D'Automatisme, Paris, France

Continuation-in-part of application Ser. No. 558,510, June 17, 1966, now abandoned. This application Dec. 24, 1969, Ser. No. 888,032

Int. Cl. G01n 27/42

U.S. Cl. 324-29

13 Claims



A device for measuring the concentration of an electrolyte utilizing measuring electrodes and a current generating means supplying the electrodes with a small current for maintaining them in their initial charge state and voltage measuring means connected to the electrodes for indicating the concentration of the electrolyte.

3,659,194 MAGNETIC SENSOR HAVING A HEAT TREATED HOUSING FOR COLLIMATING THE SENSOR'S FLUX

Alfred A. Blackerby, 11 Mark Drive, San Rafael, Calif.

Continuation-in-part of application Ser. No. 779,322, Nov. 27, 1968, now abandoned. This application Nov. 25, 1970, Ser. No. 92,891

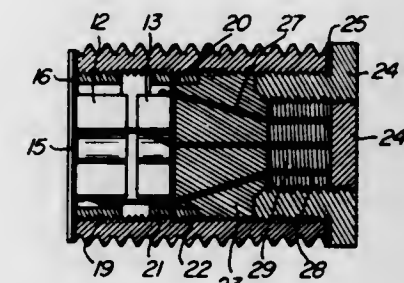
Int. Cl. G01r 33/00

U.S. Cl. 324-34 R

2 Claims

An eddy current sensing device wherein lines of flux are passed in one direction through a stainless steel membrane. The membrane is specially heat treated such that it collimates and permits passage of generated lines of flux yet provides an effective environmental shield that will allow opera-

tion even when the device is subjected to temperatures of up to 1,400° F. and pressures of up to 3,000 p.s.i. An impedance comparator circuit, including measuring and reference coils having virtually identical characteristics, is used to operate a meter to thereby indicate proximity and/or characteristics of conductive materials sensed. The magnetic flux of the mea-



suring coil is shielded and collimated to provide localized sensing and reflected impedance variations between the two coils, which comprise legs of a bridge circuit, are detected and translated to distance, presence or other characteristic measurements, as represented by the output signal of the sensing device.

3,659,195 METHOD OF TESTING MAGNETIC RECORDING CARRIERS FOR DEFECTS IN THE MAGNETIC LAYER

Benjamin Lopes Cardozo; Daniel Johannes Hindericus Admiraal, and Gerrit Domburg, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

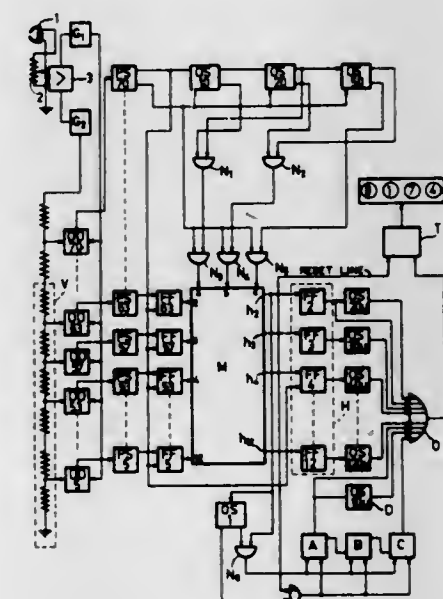
Filed Aug. 29, 1969, Ser. No. 854,158

Claims priority, application Netherlands, Aug. 31, 1968, 6812449

Int. Cl. G01r 33/12

U.S. Cl. 324-34 TA

5 Claims



A method and apparatus for characterizing defect levels and assigning valuations to these levels to enable the rejection of tapes containing defects exceeding predetermined levels, the apparatus including a series of resistant dividers which are weighted in determining the depth of a defect and a series of monostable multivibrators for determining duration, each of these factors having progressive values assigned thereto, a matrix responsive to combinations of depth and duration for determining the annoyance value of a defect, and an output for accumulating the annoyance levels.

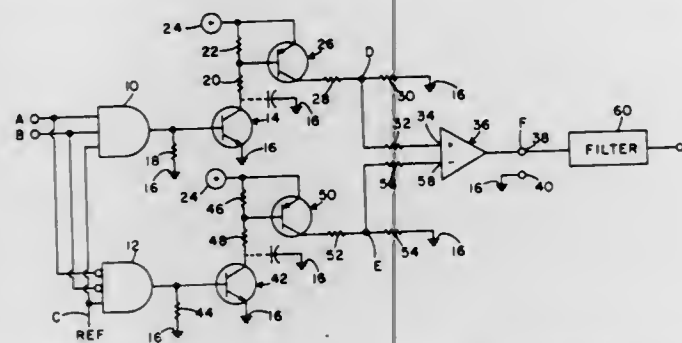
3,659,196

PHASE DETECTOR USING LOGIC GATING CIRCUITS
Nathaniel Bercovitz, Jr., Newport Beach, Calif., assignor to Collins Radio Company, Dallas, Tex.

Filed Oct. 26, 1970, Ser. No. 83,813
Int. Cl. G01n 25/00; H03d 13/00

U.S. Cl. 324-83 A

8 Claims



A phase detection circuit utilizing logic gating elements for providing an output indicative in polarity of the direction of phase deviation from design and indicative in duration or amplitude of the magnitude of phase deviation.

3,659,197

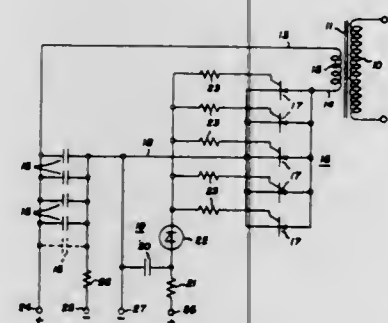
APPARATUS FOR ELECTRICALLY TESTING A COIL INCLUDING A PRIMARY COIL AND CORE, A PICK-UP COIL, AND LIMITED SUPPLY OF HIGH VOLTAGE D.C. FOR ENERGIZING THE PRIMARY COIL

Robert P. Alley, and Paul W. Davis, Jr., both of Danville, Ill., assignors to General Electric Company
Continuation of application Ser. No. 698,838, Jan. 18, 1968, now abandoned. This application May 11, 1970, Ser. No. 37,407

Int. Cl. G01r 31/02

U.S. Cl. 324-51

4 Claims



A primary coil and a core are adapted to be magnetically coupled to a test coil. A pick-up coil is also within the magnetic couple and is electrically connected to a detection or indicating means. A limited supply of high voltage D. C. energy is provided by a capacitor bank. At least one silicon-controlled rectifier serves as a switch between the capacitor bank and the primary coil. The silicon-controlled rectifier is triggered through a four-layer diode with a capacitor in parallel with the four-layer diode providing a repetition rate of switching dependent upon its charging time. A defect, such as a shorted turn, in the test coil will be reflected through the magnetic couple and the pick-up coil to the detection means.

3,659,198

MEANS FOR CHECKING THE RELATIVE NOISE LEVELS OF TRANSISTORS

Robert L. Brown, 1125 Gard Place, Loveland, Colo.
Filed Jan. 8, 1971, Ser. No. 104,868

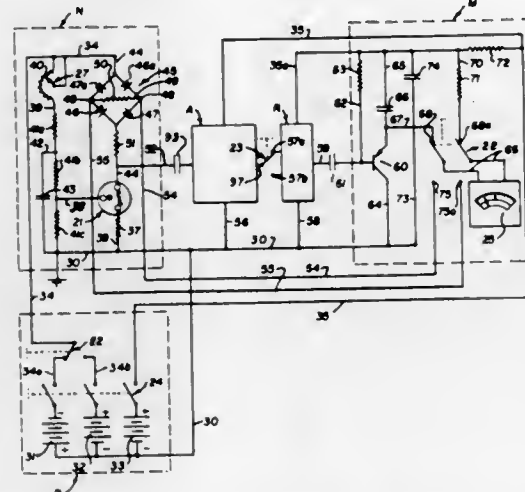
Int. Cl. G01r 31/26, 27/00

U.S. Cl. 324-158 T

7 Claims

The transistors to be checked and compared are individually and sequentially inserted into a test transistor

socket which connects each successive transistor into a noise test circuit provided with a potentiometer. The potentiometer is adjusted to set each successive transistor to a reference D.C. state. The noise level is then picked up at the collector



lead of the socket and is amplified and recorded on a meter. Comparison of the recorded noise level with the noise level of reference transistors, measured in the same manner, provides a quick, simple and reliable check of the transistors.

3,659,199

RECTIFIER TEST METHOD

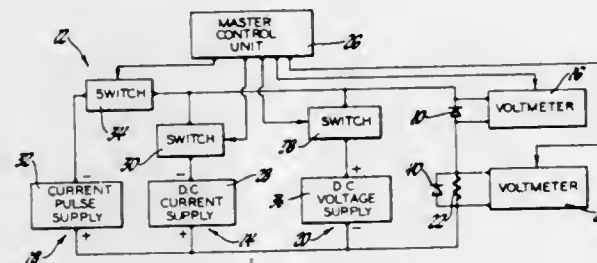
Charles J. Knutson, Burlington, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 7, 1969, Ser. No. 805,277

Int. Cl. G01r 31/26

U.S. Cl. 324-158 D

10 Claims



A method for measuring characteristics of semiconductor devices having a junction. This method includes the steps of heating a junction of a semiconductor device by supplying the device with a predetermined current for a predetermined time, supplying the device with a reverse bias voltage, and measuring the voltage across and current through the device at certain times during the test. Testing by this method yields indications as to the temperature the junction in the semiconductor device will reach during operation, the quality of the mechanical connections to the junction, the junction forward voltage characteristic slope, and the likelihood of the device undergoing thermal runaway.

3,659,200

METHOD AND APPARATUS FOR AUTOMATICALLY DETERMINING CHARACTERISTIC PARAMETERS
Tadashi Ota, Montebello, Calif., assignor to Globe-Union Inc., Milwaukee, Wis.

Filed May 26, 1969, Ser. No. 827,723

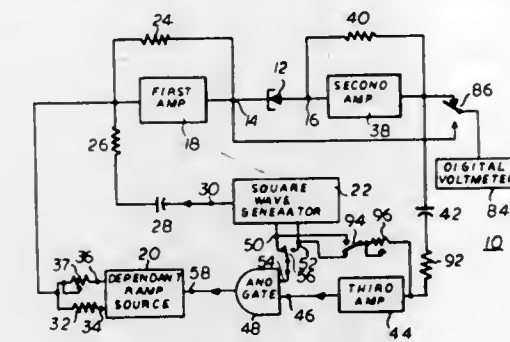
Int. Cl. G01r 31/22, 19/16

U.S. Cl. 324-158 D

14 Claims

A method and apparatus for automatically determining the characteristic parameters of a tunnel diode or other device having nonlinear and preferably not monotonic charac-

teristics, that is having a peak or valley in its characteristic curve, is disclosed. A bias voltage is applied to the diode at a level determined by the output of a dependent ramp source, the source being such that on application of an input pulse the applied bias level increases. A 100 Hertz small signal



square wave voltage is also applied to the diode and an AND gate determines the phase relationship of that voltage and the resultant square wave current through the diode. The AND gate output triggers the dependent ramp source increasing the applied bias voltage until such a peak or valley point is reached or passed.

3,659,201

APPARATUS FOR MEASURING THE MUZZLE VELOCITY OF A PROJECTILE

Remo Joseph Vogelsang, Sudbury, Mass., assignor to Werkzeugmaschinenfabrik Oerlikon-Bührle A.G., Zurich, Switzerland

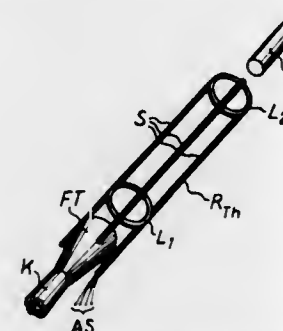
Filed Aug. 5, 1970, Ser. No. 61,355

Claims priority, application Switzerland, Aug. 12, 1969, 12234/69

Int. Cl. G01p 3/66

U.S. Cl. 324-179

4 Claims



Apparatus for measuring the muzzle velocity of a projectile has a measuring system at the muzzle of the gun barrel. The measuring system has two relatively spaced coils through which the projectile passes for inducing two signal pulses. Means are provided for compensating for changes in the distance between the two coils due to variations of temperature including a temperature-dependent resistor and wherein the thermoelectric voltage measured across said resistor is used as a compensating voltage in an electronic compensating circuit. The electronic compensating circuit has a phase-inverting stage to which the signal pulses are to be applied, wherein the output of the phase-inverting stage is connected to the input of a modified monostable multivibrator.

3,659,202

DATA TRANSMISSION SYSTEM

Hisashi Kaneko, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation-in-part of application Ser. No. 708,036, Feb. 26, 1968, now abandoned. This application May 21, 1970, Ser. No. 39,322

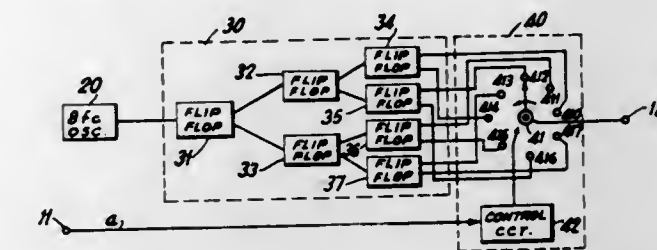
Int. Cl. H03c 3/38; H04b 1/04

U.S. Cl. 325-30

4 Claims

A data transmission system of the type for transmitting multi-level information signals in the form of discretely

shifted phases of a carrier wave includes a phase shifter in the transmitter responsive to a level change in the multi-level information signal for unidirectionally phase shifting the carrier. The phase shifter includes an oscillator generating a



signal of mf_c where f_c is the carrier frequency and m is the number of phases. At the receiver, a phase detector derives the input carrier phase as a voltage level which is amplitude discriminated and the multi-level signal is logically derived.

3,659,203

BALANCED RADIATOR SYSTEM

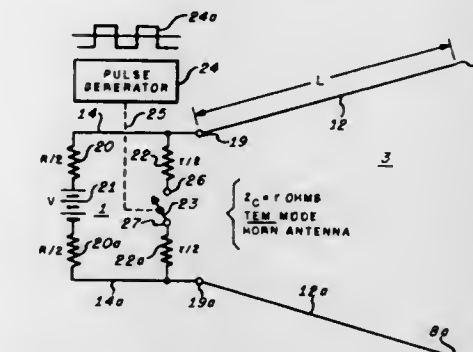
Gerald F. Ross, Lexington, and David Lamensdorf, Cambridge, both of Mass., assignors to Sperry Rand Corporation

Filed June 15, 1970, Ser. No. 46,079

Int. Cl. H04b 1/04

U.S. Cl. 325-105

13 Claims



A transmission line system for having a primarily signal-initiating section and a primarily signal-radiating section, along both of which line sections traveling electromagnetic waves may propagate without adverse interference of impedance discontinuities, is employed cyclically as an energy storage device and as an impulse radiating device having spatially directive characteristics.

3,659,204

SHORT RANGE MICROWAVE SYSTEM

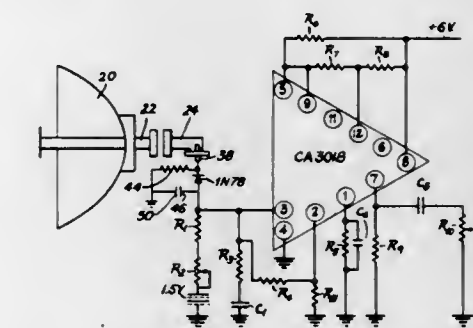
Wayne T. Hufford, Tulsa, Okla., assignor to Cherokee Electronics, Oklahoma City, Okla.

Filed Sept. 10, 1969, Ser. No. 856,685

Int. Cl. H03d 1/10; H04b 1/22

U.S. Cl. 325-373

4 Claims



A short range, low power, microwave system for transmitting single channel data (video, audio, computer pulses,

etc.) over distances up to approximately one mile at a frequency range of about 12.2 to 12.7 GHz. The system includes a microwave transmitter wherein the carrier is amplitude modulated by the desired intelligence and a microwave receiver which includes a reflector feed horn, crystal detector assembly, a bias system for the detector and video amplification; the receiver circuit operates to convert the intelligence from the carrier directly into a usable signal without heterodyning.

3,659,205

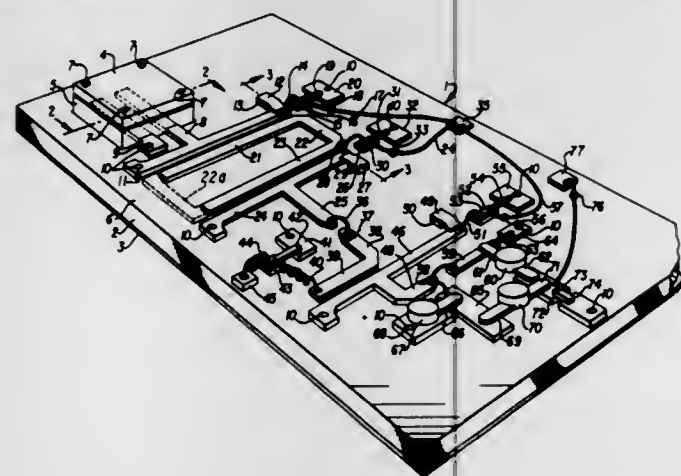
VARACTOR TUNED MICROSTRIP TUNER

Harry F. Cooke; Roger L. Weber; Donald B. Hall, all of Richardson, and Darrell W. Whitten, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex. Continuation of application Ser. No. 679,063, Oct. 30, 1967, now abandoned. This application Dec. 17, 1970, Ser. No. 99,297

Int. Cl. H04b 1/28

U.S. Cl. 325-445

5 Claims



Disclosed is a microstrip TV Tuner which is electronically tuned and the film portions of the tuner are photographically delineated on an insulating substrate.

3,659,206

MICROWAVE BALANCED MIXER CIRCUIT

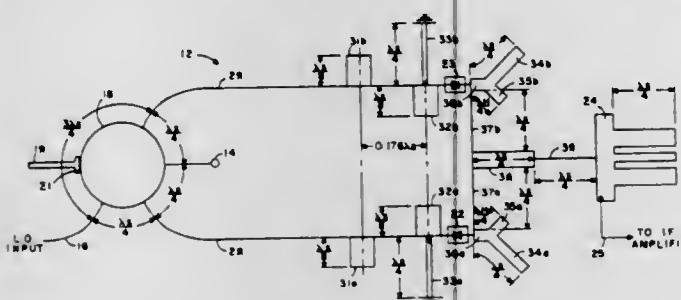
Ben R. Hallford, Dallas, Tex., assignor to Collins Radio Company, Dallas, Tex.

Filed July 16, 1970, Ser. No. 55,324

Int. Cl. H04b 1/26

U.S. Cl. 325-446

17 Claims



A balanced microwave mixer for converting a microwave input signal to an intermediate frequency output using a microwave carrier as a local oscillator signal with the two microwave signals combined and divided out through two signal carrier lines via a hybrid "rat race" circuit ring. The two signal carrier lines are connected respectively one to the anode of a mixer diode and the other to the cathode of another mixer diode the opposite IF side electrodes of which are dc circuit interconnected via IF output circuitry connected thereto. Harmonic suppression filters are employed both at the inputs and outputs of the mixer diodes, and input signal quarter wavelength long outer end grounded stubs are

also provided closely adjacent the mixer diodes on the RF signal input sides thereof. Low impedance RF termination stubs are provided at the diode IF outputs with each connected to an IF combining RF reactive one-quarter RF signal wavelength long stub through high impedance lines of similar length and, further, a high impedance line of similar length interconnects the IF combining stub to an RF rejection filter in turn connected to an IF amplifier.

3,659,207

MULTI-WAVEFORM GENERATION FROM A SINGLE TAPPED DELAY LINE

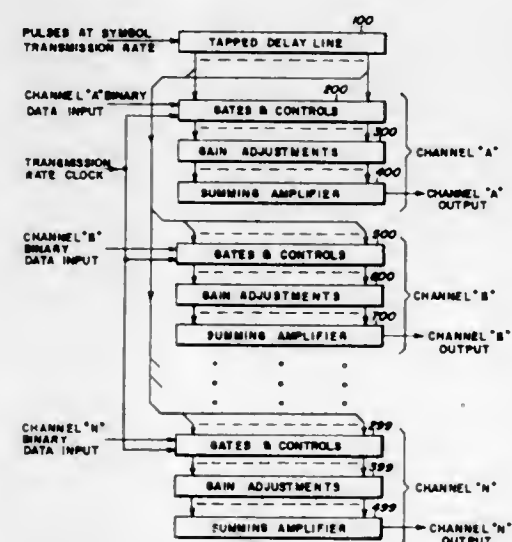
Donald A. Perreault, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Oct. 8, 1969, Ser. No. 864,724

Int. Cl. H03b 19/00

U.S. Cl. 328-14

17 Claims



In a data communication system a multi-waveform generator for simultaneously generating a number of independent wave trains composed of different waveforms. By the use of a single tapped delay line and appropriate gating, gain adjustment and summing circuitry for each channel, independent output waveforms or a multi-state signal can be generated even though the input data streams are independent.

3,659,208

SENSITIVE THRESHOLD OVER-THE-PEAK SIGNAL DETECTION SIGNALS

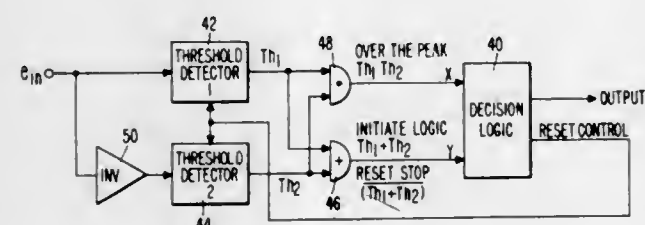
Richard L. Fussell, Chester Springs, Pa., assignor to Burroughs Corporation, Detroit, Mich.

Filed Aug. 31, 1970, Ser. No. 68,177

Int. Cl. H03k 5/153, 17/30

U.S. Cl. 328-31

9 Claims



Threshold and over-the-peak detector circuits are disclosed which in a system configuration provide an interface between input low amplitude analog signals and digital decision logic. The circuits provide threshold information to the decision logic for initiating signal analysis processing at a suitable time prior to the occurrence of the signal peak. Over-the-peak output signals are generated by the system only when predetermined characteristics of the analog signals have been validated.

3,659,209

SLOPE POLARITY DETECTOR CIRCUIT

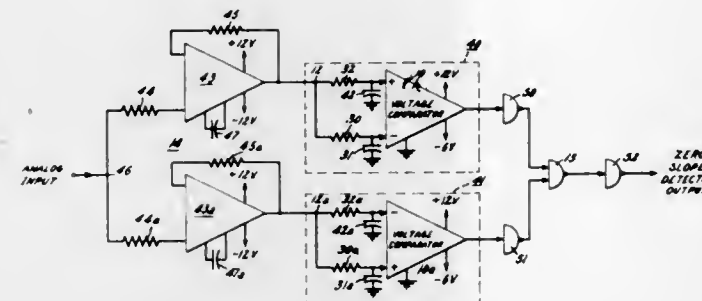
Charles McDonald Puckette, Scotia, N.Y., assignor to General Electric Company

Filed Sept. 29, 1969, Ser. No. 861,821

Int. Cl. H03k 5/20

U.S. Cl. 328-132

11 Claims



An electrical circuit for determining the polarity of the slope of an analog type voltage waveform includes a voltage comparator and time delay network providing a time delay of less than 0.05 times the period of one cycle of the voltage waveform being monitored. In a positive slope detector circuit, the analog input signal is supplied to the positive input terminal of the comparator and is also supplied through the time delay network to the negative input terminal. In a negative slope detector circuit, the time delay network is connected to the positive input terminal. A circuit including both the positive and negative slope detector circuits, and a logic gate connected to the outputs of the detector circuits, provides the function of a zero slope detector.

3,659,210

PHASE DETECTION CIRCUIT

Nils Lennart Nilsson, Hisingen Backa, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

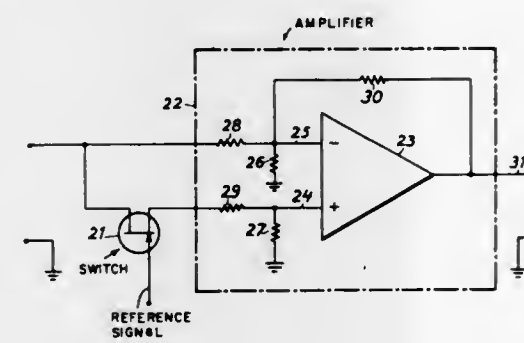
Filed Oct. 26, 1970, Ser. No. 83,879

Claims priority, application Sweden, Nov. 6, 1969, 15211/69

Int. Cl. H03d 13/00

U.S. Cl. 328-134

2 Claims



Phase detection circuit, which in the state of a voltage value indicates the difference between the phase of an incoming signal and the phase of a reference signal. The circuit is built up by an operational amplifier with two inputs, one of them inverting the phase of the incoming signal. The incoming signal is fed to both inputs of the amplifier, whereby the signal is fed to the not inverting input via a switch which is controlled by the reference signal in such a manner that it alternatively lets through and blocks up the incoming signal during every other half period of the reference signal. The amplifier is so dimensioned that the amplification of signals

fed to the inverting input is as high or lower than the amplification of signals fed to the other input.

3,659,211

PULSE ACQUISITION SYSTEM FOR TRANSFORMING RECEIVED SHORT DURATION DATA PULSES INTO PULSES OF THE SAME AMPLITUDE BUT OF A LONGER DURATION

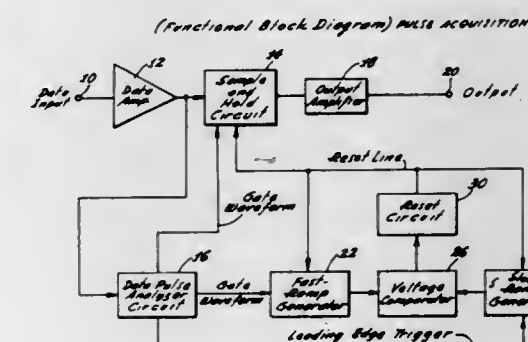
Clyde J. Norton, Van Nuys, Calif., assignor to Astro-Science Corporation, El Monte, Calif.

Filed Sept. 14, 1970, Ser. No. 72,066

Int. Cl. H03k 5/00, 17/00

U.S. Cl. 328-151

4 Claims



A data pulse acquisition, storage and read-out system is described which is capable of measuring automatically the amplitude and duration of an input data pulse, and of generating a corresponding output pulse of similar amplitude but of greater duration. A primary function of the system to be described is to translate selected parameters of wide-band, short duration data input pulses, and effectively to reconstitute such pulses into a more suitable format for storage purposes. The stored pulses may subsequently be re-formed by similar circuitry into a facsimile of the original data input pulses.

3,659,212

NOTCH FILTER

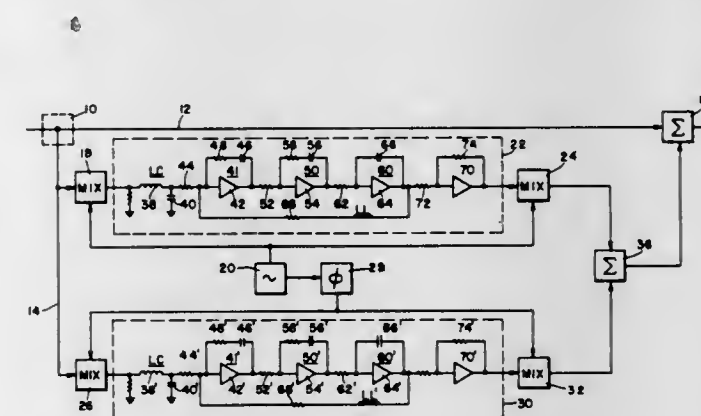
Thomas V. Saliga, Clearwater, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Filed June 16, 1970, Ser. No. 46,679

Int. Cl. H03b 1/00

U.S. Cl. 328-167

18 Claims



A band of frequencies in a signal is suppressed by forming a passband and canceling with it a portion of the signal. The passband is formed by first passing the signal through two mixers that beat quadrature components of the signal down to baseband, then passing each of these low frequency signals through separate low pass filters, beating the filtered signals to center frequency, and adding them together. Steep

sidebands are obtained by making the low pass filters active and by a feed back that forces the phase errors to zero within the low frequency passband.

3,659,213

CONTROL SYSTEM INCLUDING A LIMITER HAVING FIXED OFFSETS

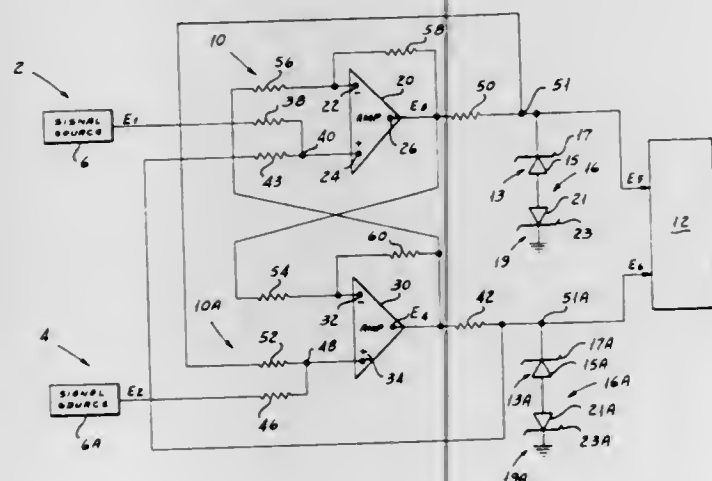
Walter A. Platt, Fair Lawn, N.J., assignor to The Bendix Corporation

Filed Feb. 22, 1971, Ser. No. 117,479

Int. Cl. H03b 3/02; G06f 11/08; H03k 5/08

U.S. Cl. 328-171

8 Claims



A control system having redundant channels and including limiting means whereby maximum and minimum limits for redundant control signals are a function of a desired offset.

3,659,214

PULSE REGENERATING CIRCUIT

Hiroshi Iijima, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

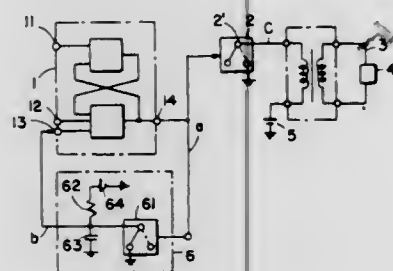
Filed Sept. 16, 1970, Ser. No. 72,626

Claims priority, application Japan, Sept. 20, 1969, 44/74998

Int. Cl. H03k 3/10, 3/284, 5/04

U.S. Cl. 328-207

10 Claims

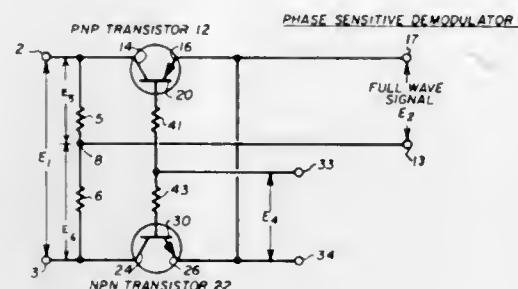


In a PCM regenerative pulse output circuit of the type having a bistable circuit coupled to an output amplifier, an inhibiting circuit including a charging circuit having a predetermined time constant supplies a signal to the output amplifier to terminate its conduction whenever the bistable circuit remains in the set state for greater than a predetermined period. In this manner, the output amplifier is automatically protected against possible damage resulting from excessive current flow.

3,659,215
FULL WAVE PHASE SENSITIVE DEMODULATORS
Walter Parfomak, Wallington, and George Antipas, West New York, both of N.J., assignors to The Bendix Corporation
Filed Mar. 9, 1970, Ser. No. 17,653
Int. Cl. H03d 1/18

U.S. Cl. 329-101

1 Claim



The alternating current signal to be demodulated is applied to a resistive voltage divider which provides two alternating current voltages. An NPN transistor and a PNP transistor are connected to the voltage divider and are alternately rendered conductive during half cycles of the alternating current voltages so that one transistor passes alternate half cycles of one voltage and the other transistor passes the other alternate half cycles of the other voltage. The passed voltages are combined to provide a full wave demodulated output corresponding in polarity to the phase of the alternating current voltage.

3,659,216

LINEAR MAGNETIC AMPLIFIER

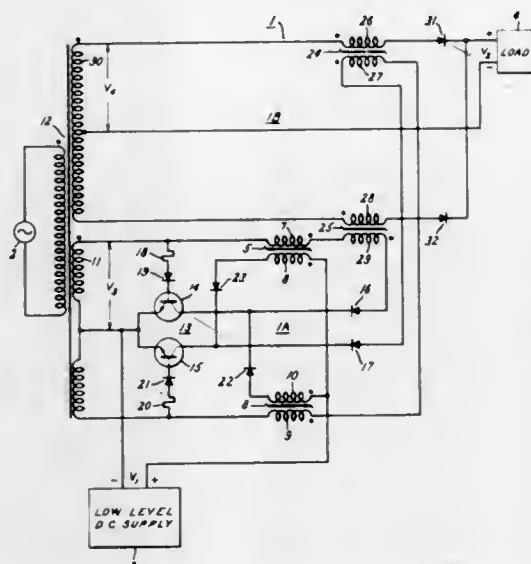
Robert P. De Puy, Cherry Hill, N.J., assignor to General Electric Company

Filed Sept. 28, 1970, Ser. No. 75,808

Int. Cl. H03f 9/00

U.S. Cl. 330-8

4 Claims



Disclosed is a 2 stage linear magnetic amplifier. The first stage includes a pair of saturable magnetic cores each having a control and a gate winding thereon. Excitation voltage is provided to respective first stage gate windings by an alternating voltage source. A DC control voltage is provided to energize the respective control windings via a synchronous switch to reset them in synchronism with the alternating voltage. The second stage includes a pair of saturable magnetic cores each having a control and a gate winding thereon. Respective second stage control windings are connected in

series with respective first stage gate windings so that the output from the first stage gate windings provides reset for the second stage. The respective second stage gate windings are connected to the alternating source and the load.

3,659,217

TWO CHANNEL STEREOPHONIC AMPLIFIER

Tadeusz Korn, 58 Rue Merceles, Brussels, Belgium

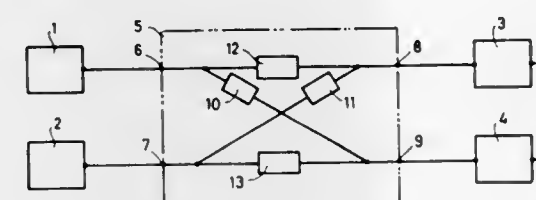
Filed Aug. 25, 1969, Ser. No. 852,548

Claims priority, application Belgium, Aug. 23, 1968, 719.878

Int. Cl. H03f 1/00

U.S. Cl. 330-175

2 Claims



A two-channel amplifier comprising passive elements disposed in the form of a lattice said lattice comprising two diagonally disposed low-pass filters connected respectively between one channel and the other channel, the lattice further comprising two attenuators connected respectively between the input of the first filter and the output of the second filter and between the input of the second filter and the output of the first filter, the degree of attenuation of each attenuator being made equal to the residual attenuation of the low-pass filters in their low-frequency band.

3,659,218

AMPLIFIER HAVING IMPROVED LOAD PROTECTIVE CIRCUIT

Yoshiaki Haneda, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

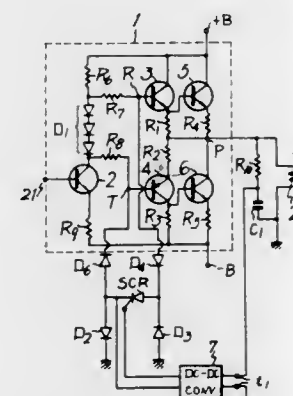
Filed Aug. 25, 1970, Ser. No. 66,703

Claims priority, application Japan, Aug. 28, 1969, 44/68215

Int. Cl. H03f 21/00

U.S. Cl. 330-207 P

6 Claims

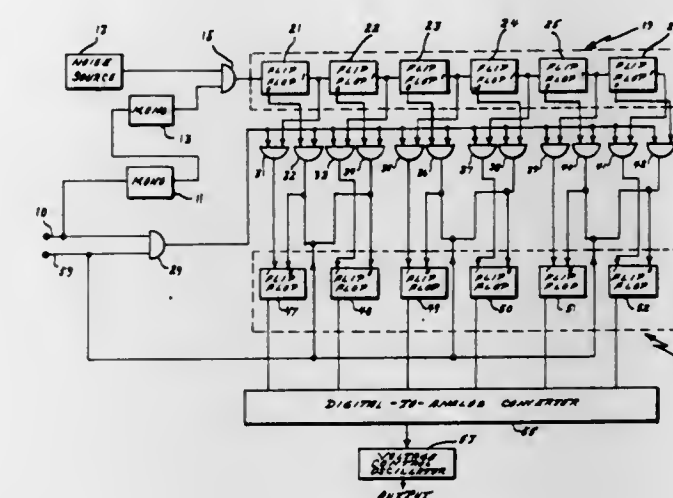


A load protective circuit for an output stage of an amplifier comprising means for detecting an undesirable DC voltage at the output of the amplifier and means for producing a control signal in response to the output of the detecting means for controlling a switching means and thereby remove the undesirable DC voltage from the output of the amplifier.

3,659,219
DISCRETE RANDOM VOLTAGE GENERATOR
Theodore O. Rueff, Jr., Bellflower, Calif., assignor to The United States of America as represented by the Secretary of the Air Force
Filed Jan. 21, 1970, Ser. No. 7,957
Int. Cl. H03b 29/00

U.S. Cl. 331-78

3 Claims



A random voltage generator having a counter fed by a noise source for a period of time as controlled by a monostable multivibrator triggered by a delayed initiating pulse. The same pulse not delayed enables a series of AND gates to transfer the counter's value to a transfer register, the value of which is converted to a voltage by a digital-to-analog converter. This voltage can then control a voltage controlled oscillator.

3,659,220

LASER CONSTRUCTION

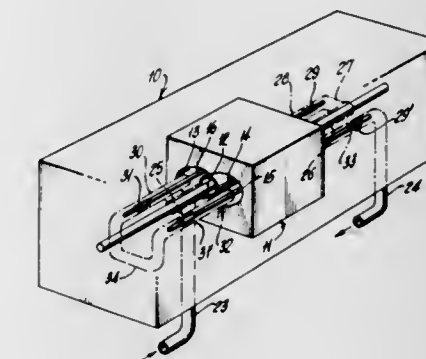
Edward G. Erickson, Oakland, N.J., assignor to Holobeam, Inc., Paramus, N.J.

Continuation of application Ser. No. 843,371, July 22, 1969, now abandoned. This application Nov. 2, 1970, Ser. No. 86,347

Int. Cl. H01s 3/04, 3/02

U.S. Cl. 331-94.5

16 Claims



The invention contemplates a laser-head construction in which a unit-handling elongated prismatic plastic body, with simple externally accessible electrical and coolant-fluid connections, fully contains and supports the laser rod, its light source or sources and the reflecting-cavity means by which light flux is concentrated on the laser rod. The plastic body contains all coolant-fluid passages, and the reflecting-cavity wall is utilized as part of the coolant-circulating system, the entire interior of the body being flooded with coolant. By

having the plastic transparent, the laser may be observed in operation with visual access to the coolant system, and heat may be more readily dissipated from within the laser head.

3,659,221

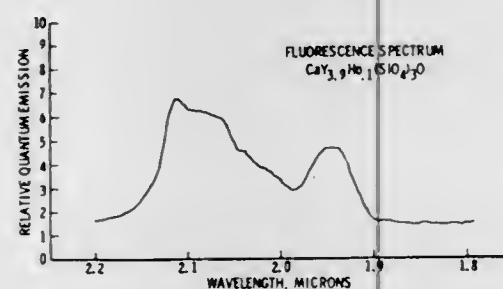
LASER MATERIAL

Nathan T. Melamed, Pittsburgh; George W. Roland, and Richard H. Hopkins, both of Monroeville, all of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Original application Sept. 22, 1969, Ser. No. 859,754.
Divided and this application Mar. 16, 1971, Ser. No. 124,855
Int. Cl. H01s 3/16

U.S. Cl. 331-94.5

2 Claims



A composition of matter which can be used as a laser crystal in a laser generator and which can be doped with Cr sensitizer ions has the empirical chemical formula $\text{CaY}_{4-x}(\text{SiO}_4)_x$, where x has a value from 0.001 to 1. The invention herein described was made in the course of or under a contract or subcontract thereunder with the Department of the Air Force (Contract F33615-68 C-1129).

3,659,222

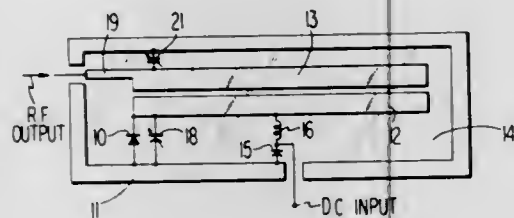
HIGH EFFICIENCY MODE AVALANCHE DIODE OSCILLATOR

Jacques Mayer Assour, Princeton, N.J.; Arye Rosen, Elkins Park, Pa., and James Francis Reynolds, Cranbury, N.J., assignors to RCA Corporation

Filed Sept. 1, 1970, Ser. No. 68,671
Int. Cl. H03b 7/14

U.S. Cl. 331-99

3 Claims



A high efficiency mode avalanche diode oscillator is disclosed. The avalanche diode and a tuning capacitor are connected in parallel at a high microwave voltage point at one end of a resonant transmission line section electrically one-eighth wavelength long at the operating frequency of the oscillator, so as to match the complex impedance of the diode to a load impedance, and to provide the high efficiency mode of operation.

3,659,223

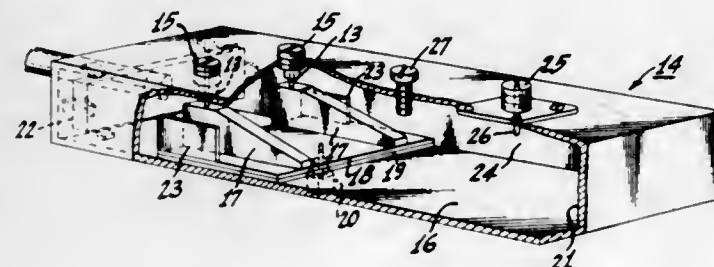
MICROWAVE OSCILLATOR WITH TWO OR MORE PARALLELED SEMICONDUCTIVE DEVICES

Danell David Mawhinney, Livingston, N.J., assignor to RCA Corporation

Filed Oct. 30, 1970, Ser. No. 85,402
Int. Cl. H03b 7/14

U.S. Cl. 331-107 R

6 Claims



Two or more paralleled negative resistance semiconductor devices are mounted inside a microwave cavity in a plane transverse to the direction of microwave propagation. The devices are located at points within the cavity so that the electric field and resulting microwave impedance is the same at each device position. The devices are individually loaded without effecting others in the circuit, resulting in the sum of the microwave energy generated by the respective devices being coupled efficiently to a terminating load.

3,659,224

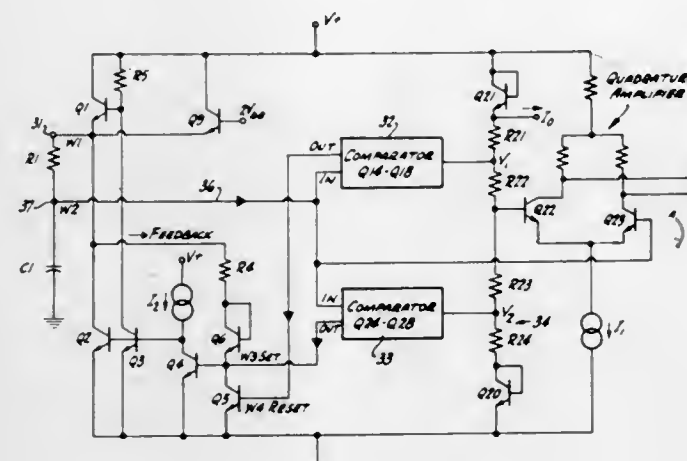
TEMPERATURE STABLE INTEGRATED OSCILLATOR

James V. Ball, Sunnyvale, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed Dec. 7, 1970, Ser. No. 95,580
Int. Cl. H03k 3/26

U.S. Cl. 331-111

8 Claims



A temperature stable integrated oscillator has a control loop including a flip-flop, a series resistor-capacitor timing circuit, reference voltage means and a comparator. The comparator compares the reference voltages to the voltage swing across the capacitor to actuate the flip-flop and thereby provide the oscillator output frequency. Temperature stability is provided by making both the voltage swing across the flip-flop and the reference voltage proportional to the difference between the power supply voltage and the base emitter drop of associated integrated transistors.

3,659,225

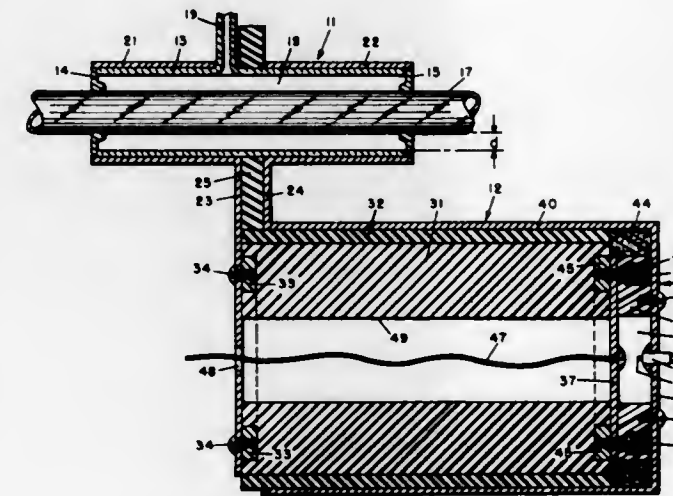
OPTICAL PUMP AND DRIVER SYSTEM FOR LASERS

Horace W. Furumoto, Wellesley, and Harry L. Cecon, Boston, both of Mass., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed May 21, 1970, Ser. No. 39,185
Int. Cl. H01s 3/00, 3/09

U.S. Cl. 332-7.51

15 Claims



Disclosed is a laser pumping system including a xenon filled coaxial flashlamp mounted on a driver assembly including a cylindrical capacitor and integrally mounted spark gap switch. Low inductance plates are used to connect the driver to the flashlamp. Because of low inductance circuitry and the use of a switch to prevent premature breakdown of the xenon gas, an extremely uniform high power discharge is created in the flashlamp by a photoionization process.

3,659,226

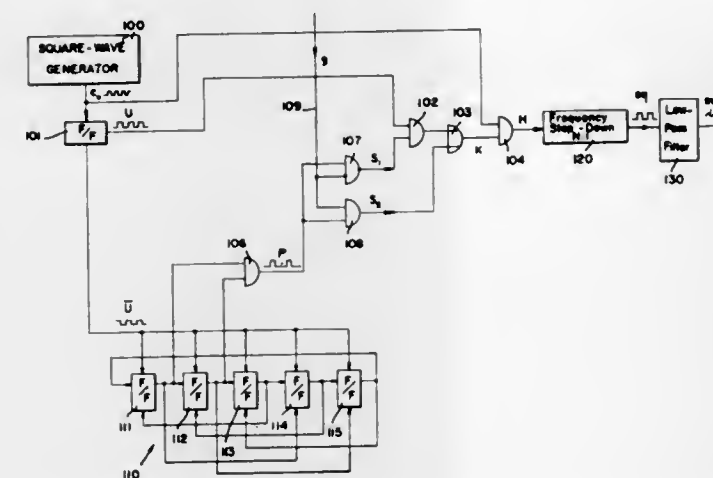
DIGITAL FREQUENCY MODULATOR

Emanuele Angeleri, and Fabio Balugani, both of Milan, Italy, assignors to Societa' Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

Filed May 11, 1970, Ser. No. 36,252
Claims priority, application Italy, May 12, 1969, 16727 A/69
Int. Cl. H04L 27/12

U.S. Cl. 332-9

10 Claims



Two pulse trains with harmonically related repetition frequencies $1/T_0$, $1/nT_0$, are derived from an original square wave of cadence $2/T_0$, the pulses of each train having the width $T_0/4$ of the square-wave pulses. With the aid of a second square wave of cadence T_0 , produced by frequency halving from the original square wave, the two harmonically related pulse trains are additively or subtractively combined so as to produce an irregular pulse sequence with $n \pm 1$ pulses

in each period nT_0 of the lower-frequency train. A digital pulse counter derives from this irregular pulse sequence a low-frequency square wave converted, by filtration, into its fundamental sine wave whose frequency can thus be selectively varied, with only minor phase discontinuities, between three predetermined values related to one another as $(n+1) : n : (n-1)$. In an alternative embodiment, the keying frequencies are related to the basic frequency as $(2n+1) : 2n : (2n-1)$. The two pulse trains are generated by progressive frequency division, starting with the original square wave, and selective gating.

ERRATUM

For Class 332-813 see:
Patent No. 3,659,209

3,659,227

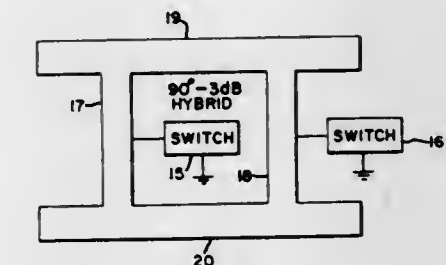
SWITCH-CONTROLLED DIRECTIONAL COUPLER

William T. Whistler, Syracuse, N.Y., assignor to General Electric Company

Filed Sept. 8, 1970, Ser. No. 70,024
Int. Cl. H01p 1/10

U.S. Cl. 333-7

4 Claims



A branch waveguide coupler network using diode or other switches at the midpoint of each branch to control the coupling of the input signal to one of two output ports. Both 50 percent and 100 percent coupling systems are disclosed.

3,659,228

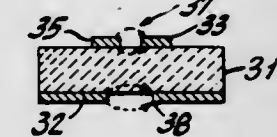
STRIP-TYPE DIRECTIONAL COUPLER HAVING ELONGATED APERTURE IN GROUND PLANE OPPOSITE COUPLING REGION

Louis Sebastian Napoli, Hamilton Square, N.J., assignor to RCA Corporation

Filed July 30, 1970, Ser. No. 59,479
Int. Cl. H01p 5/14

U.S. Cl. 333-10

2 Claims



A compact, microstrip directional coupler is described wherein two narrow strip-like conductors are closely spaced to each other so as to provide a signal coupling region therebetween. The two narrow conductors are spaced from a ground planar conductor by a substrate of dielectric material having a relatively high dielectric constant compared to the adjacent medium wherein the odd mode phase velocity of a signal propagating along the coupler is unequal to the even mode phase velocity thereof. An elongated aperture is located in the ground planar conductor in the coupling re-

gion to alter the odd mode phase velocity so that it is equal to the even mode phase velocity.

3,659,229

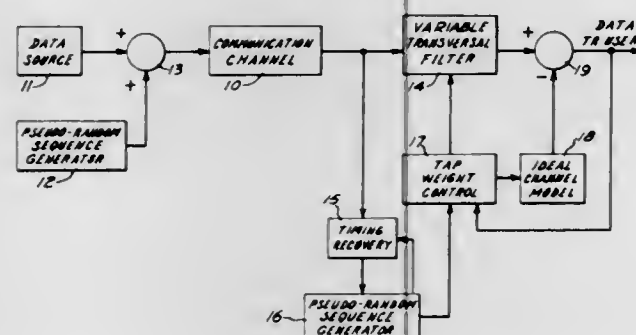
SYSTEM AND METHOD FOR AUTOMATIC ADAPTIVE EQUALIZATION OF COMMUNICATION CHANNELS

Robert T. Milton, Burnt Hills, N.Y., assignor to General Electric Company

Filed Nov. 2, 1970, Ser. No. 85,910
Int. Cl. H04b 3/04

U.S. Cl. 333-18

12 Claims



An adaptive communication channel equalizer utilizes a digital correlator and an ideal channel model for developing signals that vary the tap weights on a tapped delay line to adjust the impulse response of the cascaded channel-equalizer substantially to that of the ideal channel. A pseudorandom sequence probe signal is added to any data signal simultaneously transmitted over the channel to be equalized, and deviations of the impulse response of the actual channel from the ideal are measured by cross correlating the difference between the actual channel and ideal channel probe signal responses with time advanced and delayed versions of the regenerated probe signal to produce the tap weight control signals.

3,659,230

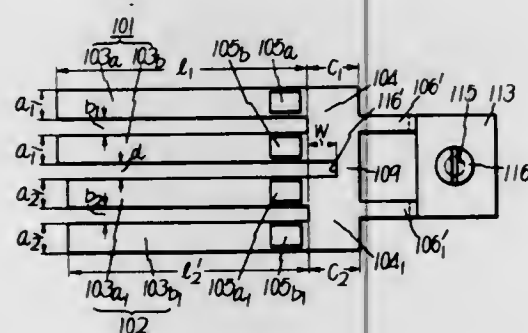
U-SHAPED MECHANICAL VIBRATOR

Tetsuro Tanaka, Kyoto, and Kiyoshi Bansho, Tokyo, both of Japan, assignors to Shigeru Kakubari, Tokyo, Japan
Continuation of application Ser. No. 754,416, Aug. 21, 1968, now abandoned. This application Nov. 10, 1970, Ser. No. 88,507

Claims priority, application Japan, 42/54387; 42/54388; 42/54389; 42/54390
Int. Cl. H03b 5/36

U.S. Cl. 333-71

5 Claims



A U-shaped mechanical vibrator having a pair of strip-like vibratory reeds of substantially the same configuration, and a base portion coupling together the pair of vibratory reeds at one end as a unitary structure, the width of each reed being selected greater than the thickness thereof, the vibratory

reeds being arranged in a single plane including their surfaces in the widthwise direction in parallel and side-by-side relation, and the pair of vibratory reeds vibrating in anti-phase relation to each other at right angles to the single plane.

3,659,231

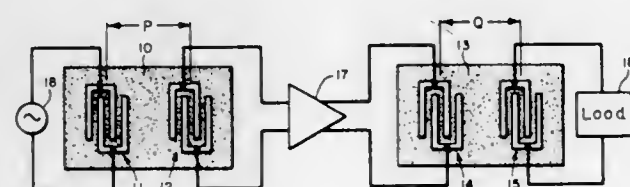
MULTI-STAGE SOLID-STATE SIGNAL-TRANSMISSION SYSTEM

Adrian J. De Vries, Elmhurst, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed Mar. 17, 1971, Ser. No. 125,099
Int. Cl. H03h 7/02, 9/00

U.S. Cl. 333-72

3 Claims



Undesired signal feed-through, due to inherent coupling between the input and output transducers of an acousto-electric surface-wave filter, is substantially attenuated by connecting two or more such filters in series and arranging the effective inter-transducer spacings so that the sum of feed-through components in the different filters add to a minimum. The required effective spacings are obtained either by using different actual physical spacings of the transducer pairs in the filters, or by providing different acoustic wave propagation velocities in the different stages. In a special case wherein the system consists of three filters in series, time-delayed output signals, due to reflected surface waves, also are compensated.

3,659,232

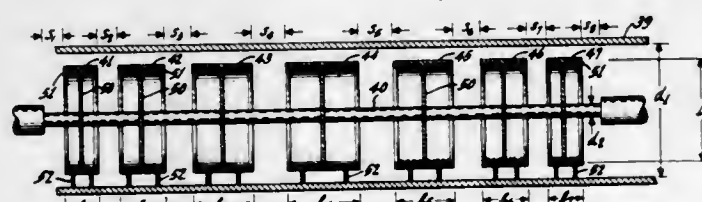
TRANSMISSION LINE FILTER

Thomas Umbrecht Foley, Cherry Hill, N.J., assignor to RCA Corporation

Filed Feb. 24, 1970, Ser. No. 13,316
Int. Cl. H03h 1/10

U.S. Cl. 333-73 C

5 Claims



A coaxial transmission line filter wherein open end cylindrical conducting elements, having equal diameters and various lengths and spacings, are provided for suppressing at least one spurious pass band in the frequency response of the filter.

3,659,233

MICROSTRIP RF VARIABLE ATTENUATOR

Ben R. Hallford, Dallas, Tex., assignor to Collins Radio Company, Dallas, Tex.

Filed July 8, 1970, Ser. No. 53,054
Int. Cl. H01p 1/22

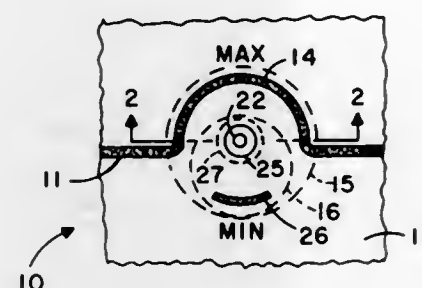
U.S. Cl. 333-81 A

11 Claims

A microwave RF variable attenuator with a microstrip arcuate attenuator section in a transmission line conductor of the microstrip bonded to a relatively low dielectric constant material (polyolefin) in turn bonded to an electrically conductive metal ground plane plate. A relatively high dielectric

low loss circular disc mounted over the arcuate attenuator section of the transmission has an eccentrically smaller diameter thin lossy film of tantalum metal approximately 2

base, whereby the instantaneous releases are located between the plate and the base. The instantaneous releases are hol-



microinches thick positionable into greater or lesser overlying relation to the arcuate attenuator section of transmission line to increase and decrease RF signal attenuation thereby through the transmission line.

3,659,234

BROADBAND FLEXIBLE WAVE GUIDES

Erich Schuttloffel, and Gerhard Schickle, both of Backnang, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany

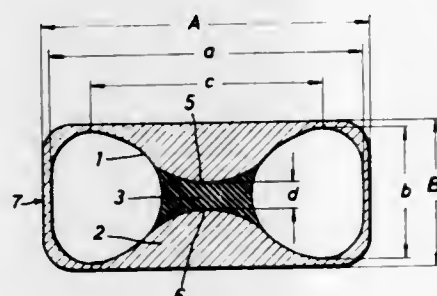
Filed Sept. 9, 1969, Ser. No. 856,272

Claims priority, application Germany, Sept. 21, 1968, P 17 90 171.2

Int. Cl. H01p 3/14; F16l 11/14

U.S. Cl. 333-95 A

4 Claims



A flexible waveguide has an elongated hollow body having a non-circular cross section in which the ratio of the width of the wide side to the narrow side is less than 0.5. The body cross section includes an indentation extending along the longitudinal axis of the wave guide. The indentation is so shaped and the ratio of the width of the wave guide at the indented point to the width of the narrowest side is so small that interfering wave types do no occur.

3,659,235

AUTOMATIC ELECTRIC SWITCH

Karl-Heinz Schelbel, and Wilhelm Holzer, both of Amberg, Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Germany

Continuation-in-part of application Ser. No. 752,300, Aug. 13, 1968, now abandoned. This application Sept. 23, 1970, Ser. No. 74,638

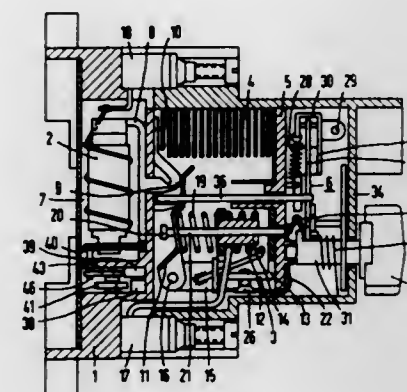
Claims priority, application Germany, Aug. 23, 1967, P 15 88 754.4

Int. Cl. H01h 7/12

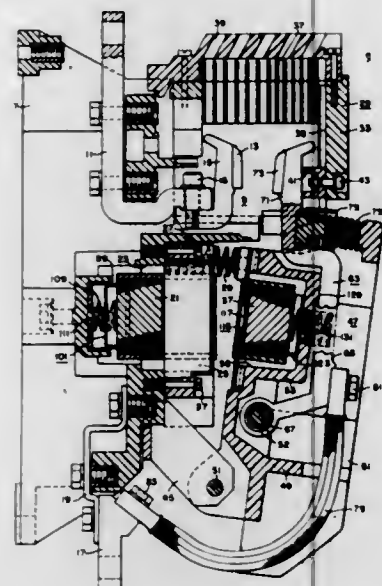
U.S. Cl. 335-35

6 Claims

An automatic electric switch has a base covered by a cap. The switch includes electromagnetic instantaneous and thermal excess current releases, stationary and movable contact portions, quenching devices and a switch lock mounted on a plate which extends at a distance toward the bottom of the



mounting the stationary magnetic member and movable



magnetic armature. The contactor also comprises an improved compactly constructed movable assembly.

3,659,238

PERMANENT MAGNET ELECTROMAGNETIC ACTUATOR

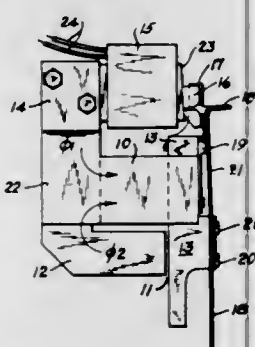
Brandt M. Griffing, Delray Beach, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 30, 1970, Ser. No. 51,056

Int. Cl. H01F 7/08

U.S. Cl. 335-229

4 Claims



Two essentially parallel magnetic flux paths are arranged so as to share a permanent magnet. A movable armature in one flux path functions as a mechanical actuator by means of a selectively actuated magnetic opposing coil for effectively cancelling the flux in that path. The other of the parallel magnetic flux paths is constructed and arranged for providing a shunt for sufficient additional magnetic flux during actuation of the opposing coil so as to prevent the shifting of the magnetic properties of the permanent magnet beyond the point of recovery to the original operating point upon deactuation of the coil. The mechanical arrangement is such that the movable armature is retrieved by the magnetic circuit when the coil is deenergized.

3,659,239

POWER TRANSFORMER INCORPORATING IMPROVED HEAT DISSIPATION MEANS

Louis L. Marton, 7424 1/4 Arizona Avenue, Los Angeles, Calif.

Continuation-in-part of application Ser. No. 718,972, Mar. 18, 1968, now Patent No. 3,551,863. This application Mar. 12, 1970, Ser. No. 19,056

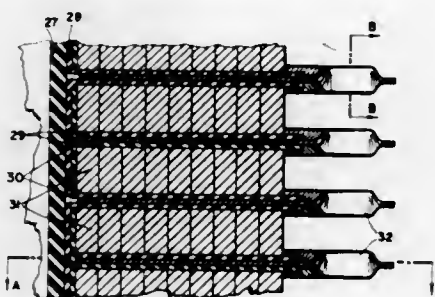
Int. Cl. H01F 27/08

U.S. Cl. 336-57

22 Claims

A power transformer constructed so as to exhibit improved heat dissipation characteristics and a longer thermal time constant. The transformer construction is characterized by

minimizing or eliminating gaps between the core and coil structure and between sections of the coil structure. Highly heat conductive dissipator layers are mounted between ad-



jacent coil sections and extend beyond the coil structure terminating in fins arranged to assure maximum heat transfer to a cooling medium flowing therepast.

3,659,240

THICK-FILM ELECTRIC-PULSE TRANSFORMER

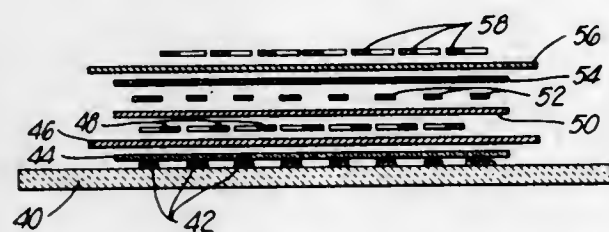
Allen J. Learned, Loma Linda, and Jason D. Provance, Glendora, both of Calif., assignors to Bourns, Inc., Riverside, Calif.

Filed Apr. 30, 1970, Ser. No. 33,241

Int. Cl. H01F 27/30

U.S. Cl. 336-200

1 Claim



A toroidal pulse transformer produced by successive deposition of thick-film deposits of conductor segments, fusible insulation, ferrite, conductor segments completing a first transformer winding; alumina, conductor segments, fusible insulation, ferrite, and conductor segments completing a second transformer winding, the ferrite films being of elongate substantially flat sheet form joined intimately at their ends and separated between their ends by upper conductor segments of the first winding, insulation and lower conductor segments of the second winding; and a modified, simpler form utilizing an integral ferrite single-layer sheet of toroidal shape.

3,659,241

CIRCUIT BREAKER WITH AMBIENT COMPENSATION

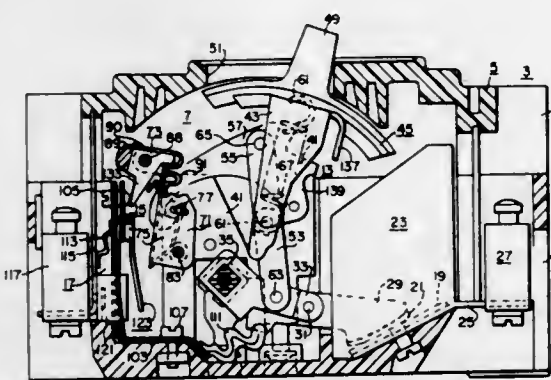
Nick Yorgin, Ambridge, and James P. Ellsworth, Beaver, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 21, 1970, Ser. No. 65,982

Int. Cl. H01H 71/16

U.S. Cl. 337-78

10 Claims



A circuit breaker comprises a current responsive tripping bimetal and a pair of compensating bimetal in latching en-

agement with each other to compensate for movement of the current responsive tripping bimetal in response to changes in ambient temperature. The circuit breaker is a multi-pole circuit breaker with a current responsive tripping bimetal in each pole and one pair of compensating bimetal in only one of the poles.

3,659,242

OVERCURRENT RESPONSIVE DEVICE

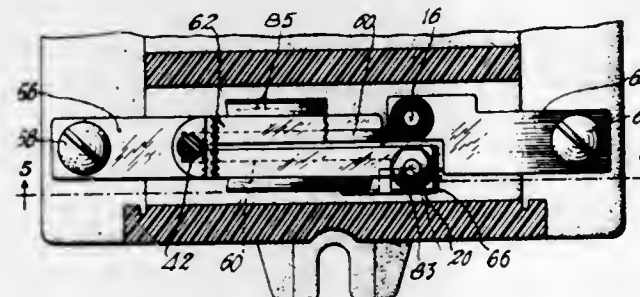
Porter Hoagland, Jr., Rumson, N.J., assignor to Hoagland Instrument Company, Red Bank, N.J.

Continuation-in-part of application Ser. No. 737,428, June 17, 1968, now Patent No. 3,544,943. This application Feb. 4, 1970, Ser. No. 8,534

Int. Cl. H01H 37/46, 37/52, 61/013

U.S. Cl. 337-139

4 Claims



An electrical device which exhibits a predetermined physical distortion when exposed to current in excess of that to which it is normally subjected. The device comprises a thermally responsive assembly in the form of a cantilevered element comprising two elements at least one of which may be connected in series with a circuit to be monitored, an overcurrent causing heating and flexure of the element, movement of the element being transmitted to a switching device. The cantilevered element comprises a pair of elongated conductors connected in parallel and the response time of the device may be matched to that of an appliance to be protected by varying the materials and/or configuration of the members of the cantilevered element.

3,659,243

ELECTRICAL CONNECTORS

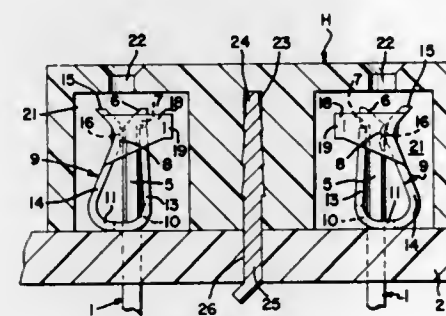
Glenn Harlan Gluntz, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of application Ser. No. 869,079, Oct. 24, 1969, now abandoned. This application Jan. 21, 1970, Ser. No. 4,662

Int. Cl. H01R 33/76

U.S. Cl. 339-192 R

17 Claims



An electrical connector of the receptacle type comprises a mounting panel having electrical posts secured therein at the

spaced locations. Spring members disposed on sections of the posts extending outwardly from one surface of the panel. Means provided by the sections of the posts and the spring members securing the spring members on the sections. Legs of the spring members biased against contact surfaces of the post sections to define receptacle means and outer ends of the post sections and legs being chamfered to define lead-in means to facilitate movement of contact members within the receptacle means. Maintaining means provided by the spring members for maintaining other legs of the spring members in secured engagement with the post sections and to guide movement of the first-mentioned legs relative to the post sections.

3,659,244

ELECTRICAL APPARATUS INCLUDING AN IMPROVED HIGH VOLTAGE CURRENT LIMITING PROTECTIVE DEVICE

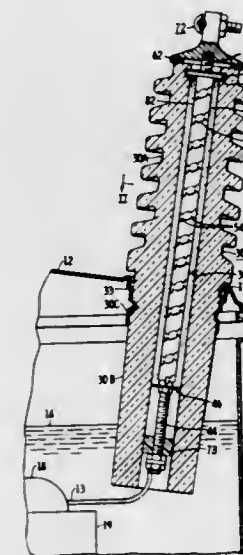
Wesley L. McKeithan, Pittsburgh, and John J. Astleford, Sharon, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 10, 1969, Ser. No. 883,911

Int. Cl. H01H 85/14, 85/20

U.S. Cl. 337-202

14 Claims



An electrical apparatus including a protective device with an electrically insulating bushing having an axially extending inner bore and terminal members disposed adjacent to the opposite ends of the bushing. A fusible element or fuse link is disposed in and spaced from the inner bore of the bushing and is electrically connected between the terminal members. A pulverulent or granular arc quenching material substantially fills the space between the fusible element and the inner bore of the bushing which includes at its outer periphery axially intermediate the ends of the bushing a portion which is adapted to receive a supporting means for the bushing on the wall or cover of the enclosure of the associated electrical apparatus.

3,659,245

VARIABLE RESISTOR PIN TERMINAL AND METHOD

Robert L. Payne, Riverside, Calif., assignor to Bourns, Inc., Riverside, Calif.

Continuation of application Ser. No. 816,674, Apr. 16, 1969, now abandoned. This application Mar. 29, 1971, Ser. No. 129,236

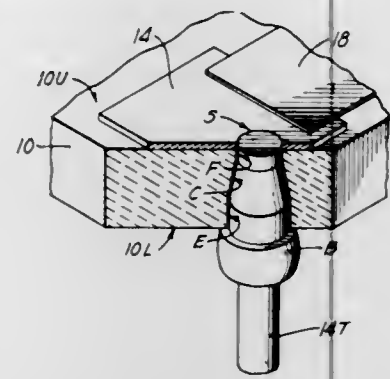
Int. Cl. H01C 7/00

U.S. Cl. 338-312

4 Claims

A pin terminal firmly affixed in a tapered aperture in a ceramic substrate with effective electrical connection with an

electrical conductive film on the surface of the substrate, the



pin terminal having an end swaged in the aperture to effect excellent mechanical connection to the substrate.

3,659,246

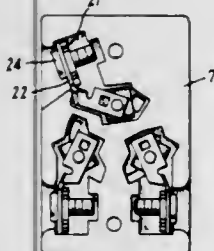
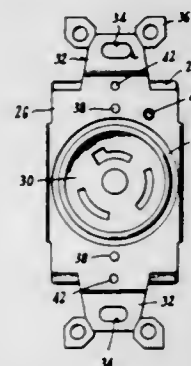
CERAMIC LOCKING OUTLET WITH IMPROVED GROUNDING

Robert L. Martin, Cranston, R.I., assignor to General Electric Company

Filed June 30, 1970, Ser. No. 51,225
Int. Cl. H01r 3/06

U.S. Cl. 339-14 R

3 Claims



The present invention relates to an improved electrical receptacle, particularly to a single locking receptacle, adapted for locking blades inserted therein. All of the terminal assemblies of the device are made from the same parts but are capable of receiving numerous different forms of locking blades. Such assemblies are made by applying different secondary operations to an adaptor portion of a single form of blank. A grounding to a mounting strap is achievable by a grounding screw mounted through the mounting plate and threaded into the adaptor portion of a terminal assembly.

3,659,247

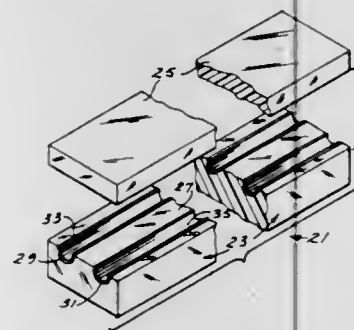
MODULAR CONDUCTOR SYSTEM

Larry R. Chaney, Bridgeton, Mo., and Edwin J. Coughlin, Rowland Heights, Calif., assignors to Contrack, Inc., St. Louis, Mo.

Filed May 4, 1970, Ser. No. 34,149
Int. Cl. H01r 13/60

U.S. Cl. 339-21 R

11 Claims



A modular conductor system for electrical circuit wiring. The system includes a composite insulated conductor as-

sembly having first and second elongate members of substantially homogeneous electrically nonconductive material, each of the members having substantially uniform transverse dimensions and substantially planar ends. The first member includes a plurality of spaced-apart channels each extending lengthwise of the member in a surface thereof. Electrically conductive members, each having a relatively thin substantially uniform cross section fit snugly lengthwise and conform to the surface of corresponding ones of the channels such that the side edges of the conductive members are substantially flush with the surface of the first elongate member. The second elongate member extends the length of the first, and has a surface secured to the surface of the first member in which the channels extend, confining the conductive members in the channels. A space between each of the conductive members and the surface of the second elongate member defines openings at the ends of the composite conductor. Relatively short electrically conductive connector pins are receivable in the openings for joining together a plurality of the composite conductor assemblies in electrically conductive relationship. Each of the connector pins has a cross section conforming to the cross section of the openings at the ends of the joined elongate members, the pins having rough surfaces such that they are tightly gripped in the openings. Various modules may be used with such composite conductor assemblies, e.g., a receptacle module, a switch module, connector modules, and a wiring adaptor module which connects the modular wiring system to wire conductors of a power distribution system.

3,659,248

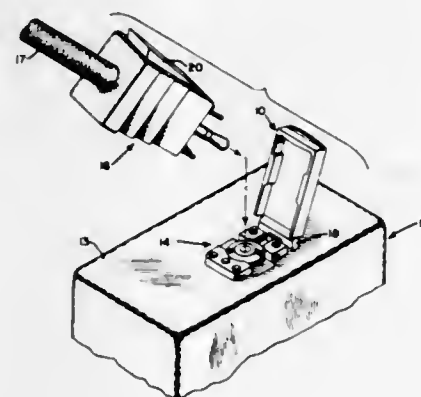
COMBINED SOCKET COVER AND PLUG RETAINER

Friedrich H. Mann, and Henry A. Schaefer, both of Lynchburg, Va., assignors to General Electric Company

Filed May 4, 1970, Ser. No. 34,108
Int. Cl. H01r 13/54

U.S. Cl. 339-44 R

1 Claim



A plastic member is provided with a hinge that is attached to a supporting wall next to an electrical socket. The plastic member is provided with a retaining flange spaced from the hinge. When the socket is empty, the member can be pivoted on its hinge down over the socket, and can be held by the retaining flange so as to serve as a cover for the socket. When a plug is to be inserted in the socket, the member can be pivoted on its hinge so that the retaining flange can engage the plug so as to serve as a plug retainer.

3,659,249

LAMP ASSEMBLY FOR EDGE LIGHTED PANEL

James N. Dupree, South El Monte, Calif., assignor to Dupree, Inc., South El Monte, Calif.

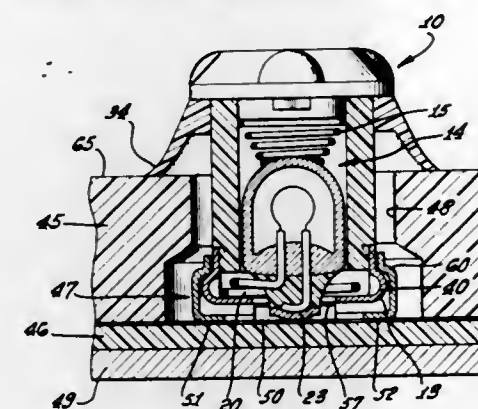
Filed July 17, 1970, Ser. No. 55,905
Int. Cl. H01r 13/54

U.S. Cl. 339-88 R

7 Claims

A lamp with a bulb slidable within a housing. A spring member within the housing urging the bulb outward for engagement with a fixed contact when the lamp is placed in a socket, such as a metal ring mounted on a printed circuit

board. A retainer on the housing for keeping the bulb in the housing and also providing a bayonet type base for mounting



the lamp in a socket. A lamp with a spring loaded movable bulb for insertion and removal from the front surface of an edge lighted instrument panel.

3,659,250

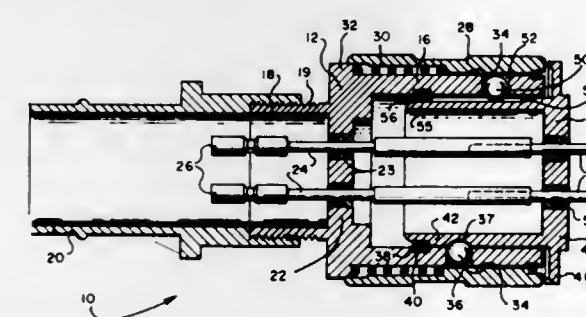
ELECTRICAL CONNECTOR

Robert F. Horton, P.O. Box 129, Hartselle, Ala.
Filed Oct. 14, 1970, Ser. No. 80,612

Int. Cl. H01r 13/54

U.S. Cl. 339-91 B

10 Claims



A quick-disconnect electrical connector that includes two cylindrical plug members, a male half and a female half. Each plug member has conductor pins mounted therein that are joined when the halves are assembled. The female plug member has a keyball that must slide in a slot milled in the male plug member during assembly, thus assuring correct alignment of the plug members. The interior of the connector is sealed off by an O-ring in the female plug that contacts the male plug member after assembly is complete. The length of the cylindrical plug members and the conductor pins mounted therein are such that when the two halves of the connector are being assembled or separated and the connection between the conductor pins is made or broken with the male plug member still in the female plug member.

3,659,251

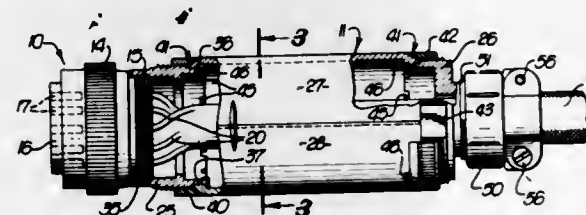
ADAPTER FOR ELECTRICAL CABLE

Ray F. Fish, North Hollywood, Calif., assignor to Electro Adapter Inc., North Hollywood, Calif.

Filed May 28, 1970, Ser. No. 41,217
Int. Cl. H01r 13/34, 13/46

U.S. Cl. 339-143 R

3 Claims



An adapter for use at the termination of an electrical cable. An adapter for positioning between an electrical connector and the outer covering of a cable, with the conductors of

the cable passing through a shell of the adapter. A separable shell providing access to the conductors and connector without disturbing the cable covering termination or the conductor terminations, while providing electromagnetic radiation and radio frequency interference shielding.

3,659,252

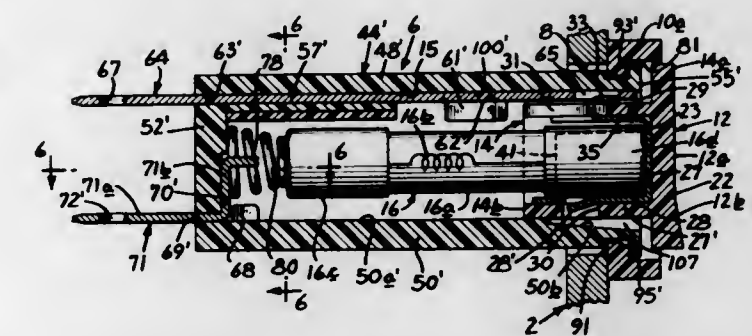
FUSE HOLDING APPARATUS

William L. Brown, Lake Zurich, Ill., assignor to Littelfuse, Inc., Des Plaines, Ill.

Filed Aug. 24, 1970, Ser. No. 66,471
Int. Cl. H01r 13/68

U.S. Cl. 337-201

23 Claims



A fuse panel has openings in which fuse-receiving receptacles of various fuse holder assemblies are mounted. Each of the receptacles is adapted lockingly to receive a fuse-carrying unit which when fully mounted within the associated receptacle presents an outer front face adjacent to the plane of the panel and having a projecting portion preferably at the bottom thereof. Each fuse-carrying unit has a hollow shank portion in which is removably held a fuse which projects from the fuse-carrying unit. When the projecting portion at the bottom of the front face of a fuse-carrying unit is pressed, the fuse-carrying member snaps outwardly to a degree where the entire unit and the attached fuse from the associated receptacle. The front faces of the various fuse-carrying members are distinctively color coded to identify what particular parts of the circuits involved the fuses are located.

3,659,253

FRAME CLAMP FOR ELECTRICALLY CONNECTING ELECTRICAL LEADS

Edgar Wiessner, Amberg, Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Germany

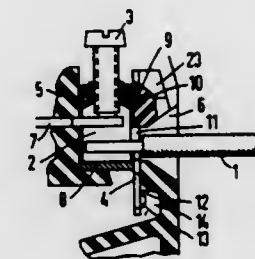
Filed June 17, 1970, Ser. No. 46,999

Claims priority, application Germany, Feb. 28, 1970, P 20 09 508.3

Int. Cl. H01r 9/10

U.S. Cl. 339-198 R

4 Claims



A plate-like diaphragm member has an insertion opening formed therethrough corresponding to and cooperating with the funnel of a housing for a frame clamp when the diaphragm member is in position in the housing. One of the walls of the funnel of the housing and the diaphragm member constitute an integral member of synthetic material. A clamping body is affixed to the diaphragm member at the in-

section opening thereof so that an electrical conductor passes through the funnel and the opening into the clamping body. A threaded clamp threadably coupled to the clamping body moves the bottom of the clamping body upward thereby bringing the electrical conductor into electrical contact with a contact member in the clamping body.

3,659,254

ELECTRICAL PLUG AND SOCKETS AND COMPONENTS
John A. Cartwright, Northampton, England, assignor to Pain-
ton & Company Limited, Northampton, England

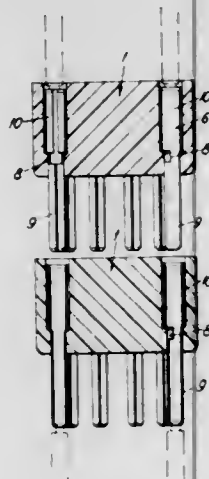
Filed May 8, 1970, Ser. No. 35,733

Claims priority, application Great Britain, May 15, 1969,
24869/69

Int. Cl. H01r 9/08

U.S. Cl. 339-221 R

8 Claims



This invention concerns a split peg formed of a tubular electrically conductive material having one portion deformable without causing deformation of the remainder of the peg, such peg being usable to form either electrical plugs or sockets or connectors thereby minimizing the number of piece parts required to form such electrical components and thereby facilitating mass production of such components, such invention also concerning electrical components formed with such pegs,

3,659,255

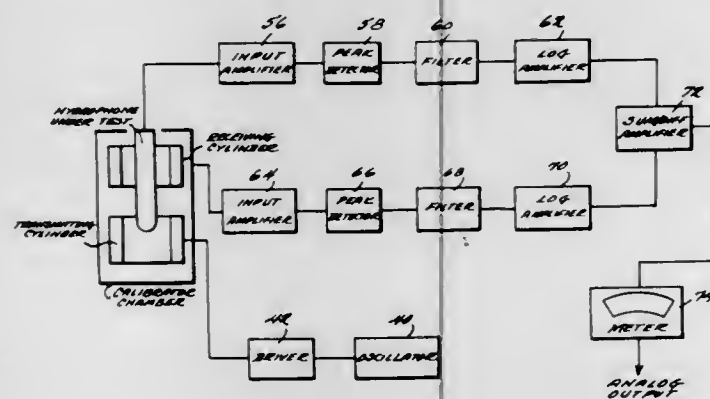
HYDROPHONE CALIBRATOR

Winfield James Trott, 3907 Meno Drive, Doraville, Ga.
Filed Sept. 25, 1969, Ser. No. 861,086

Int. Cl. H04b 11/00

U.S. Cl. 340-5 C

18 Claims



A compact, complete, portable hydrophone calibrator or tester suitable for evaluating or calibrating a hydrophone and particularly for checking the sensitivity of a hydrophone. In the embodiment described below, the hydrophone is placed in a water-filled chamber which is surrounded by a first

piezo-ceramic cylinder which acts as a sinusoidal pressure source and a second piezo-ceramic cylinder which, together with the hydrophone, receives the sound produced by the first cylinder. The output of the second cylinder and the hydrophone are compared to determine the sensitivity of the hydrophone, after the second cylinder is calibrated by the introduction of a step pressure change to set the absolute calibration level in dB relative to 1 volt per microbar.

3,659,256

HYDROPHONE STREAMER CABLE ACOUSTIC DECOUPLER

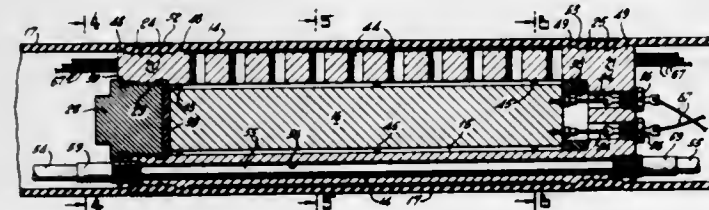
John L. Hudson, and Billy H. Towell, both of Houston, Tex.,
assignors to Texaco, Inc., New York, N.Y.

Filed May 18, 1970, Ser. No. 38,280

Int. Cl. G01v 1/38

U.S. Cl. 340-7

6 Claims



The pressure sensing device in a hydrophone streamer cable is compartmentalized between a pair of clamps which are tightened after the hydrophone streamer cable is filled with flotation liquid, thus isolating the pressure sensing device from the flotation liquid outside the compartment.

3,659,257

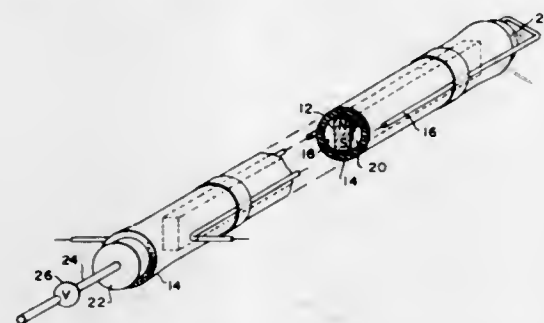
CONTINUOUS MAGNETIC LINE HYDROPHONE
Warren E. Witzell, Woods Hole, Mass., assignor to Woods
Hole Oceanographic Institution, Woods Hole, Mass.

Filed Nov. 4, 1968, Ser. No. 773,700

Int. Cl. G01v 1/16; H04r 9/00

U.S. Cl. 340-8

8 Claims



A true continuous line hydrophone is constructed with an elongated resilient permanent magnet having its polar axis at right angles to the principal dimension of the line. A coil conductor is wrapped longitudinally about the magnet in such manner that laterally impinging acoustic waves alter the position of the coil relative to the magnetic field, thereby creating an electrical signal.

3,659,258

LOW FREQUENCY ELECTRO CERAMIC SONAR TRANSDUCER

Frank R. Abbott, San Diego, Calif., assignor to The United
States of America as represented by the Secretary of the
Navy

Filed July 23, 1970, Ser. No. 57,602

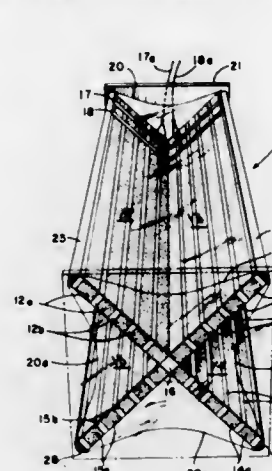
Int. Cl. G01v 1/38

U.S. Cl. 340-10

5 Claims

Four orthogonally disposed ceramic stacks are enclosed by a sheathing membrane cooperating with a pair of end mem-

bers to form an elongate transducer a greatly increased projection surface is provided between the transducer and water via the outer surface of the membrane, to enable broadband, linear operation. Since immersing the transducer in the water medium forces the membrane to assume a cross-sectional,



concave configuration, the large, bowed surface in contact with the water allows the more linear impedance match. Additionally, the bowed membrane transfers a compressive force to the orthogonally disposed ceramic stacks dynamically loading them to prevent their self-destruction when high driving potentials are applied.

3,659,259

METHOD AND APPARATUS FOR TELEMETERING INFORMATION THROUGH WELL BORES

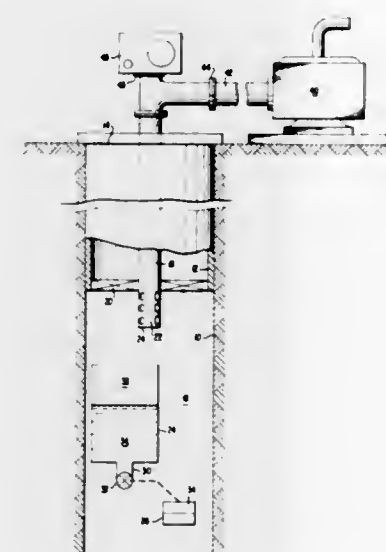
Preston E. Chaney, Jr., Richardson, Tex., and Terry O. An-
derson, Duncan, Okla., assignors to Halliburton Company,
Duncan, Okla.

Continuation-in-part of application Ser. No. 672,261, Oct. 2,
1967, now abandoned. This application Jan. 23, 1968, Ser.
No. 793,518

Int. Cl. G01v 1/40

U.S. Cl. 340-18

11 Claims



A method and apparatus whereby the rigidity of fluid body confining, well wall means is varied in response to a condition within a well to vary the natural frequency of oscillation of the fluid body, the frequency being detected at the well head as representative of the condition.

3,659,260

VEHICLE WARNING LIGHT DEVICE

Joseph A. St. Pierre, Hazelnut Hill, Groton, Conn.

Filed Sept. 30, 1970, Ser. No. 76,736

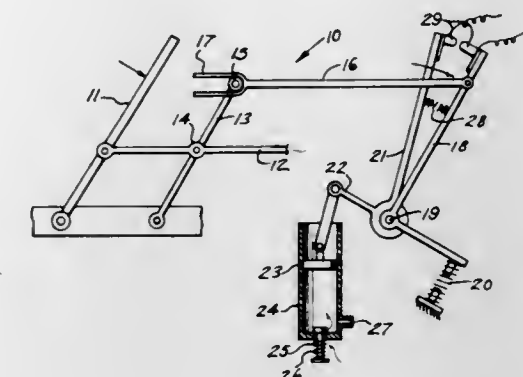
Int. Cl. B60q 1/50

U.S. Cl. 340-71

1 Claim

A vehicle warning light device in which the accelerator pedal is coupled through a fork and roller linkage to a dash-

pot controlled switch to light an amber warning light for a



3,659,261

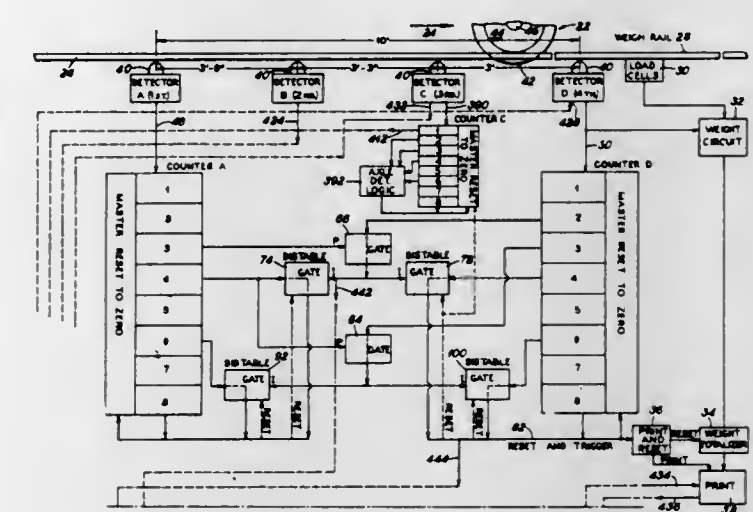
METHOD AND APPARATUS FOR IDENTIFYING ENGINES IN A TRAIN OF RAILWAY VEHICLES
Lawrence A. Tonies, Grayslake, Ill., assignor to Mangood
Corporation, Grayslake, Ill.

Filed Feb. 27, 1970, Ser. No. 15,140

Int. Cl. G06f 7/02

U.S. Cl. 340-23

14 Claims



A system for identifying engines in a mixed train of standard four-, six-, and eight-axle railway cars and engines while coupled and in motion. First, second, third, and fourth axle detectors are arranged along the line of movement of the train. The first and fourth axle detectors are spaced from 9 feet 4 inches to 11 feet apart, with adjacent ones being less than 4 feet 6 inches apart, for railway vehicles having axles spaced according to current, standard American railway practice. For other axle spacings, the detector spacings may differ. There is a counter for each of the first, third, and fourth detectors with axle determination logic enabling each to start with a one count when actuated by the first axle of each car or engine and to count up to the total number of axles per vehicle and reset to zero. Two overriding and overlapping logics are provided to identify engines, one being effective on all four-axle engines and some six- and eight-axle engines, the other being effective on all six- and eight-axle engines not identified by the first. An engine identifying signal is activated when an engine is detected.

3,659,262

APPROACH LIGHT APPARATUS

Minoru Takauchi, Tokyo, Japan, assignor to Masao Horino, Tokyo, Japan

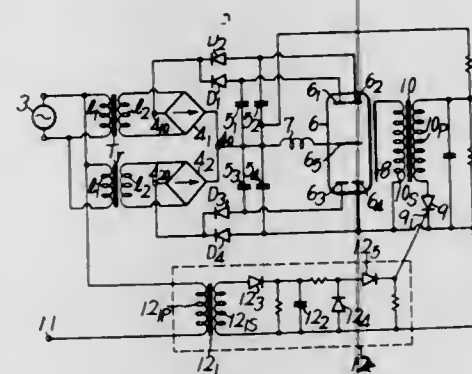
Filed July 24, 1969, Ser. No. 844,327

Claims priority, application Japan, July 25, 1968, 44/52674

Int. Cl. G08g 5/00

U.S. Cl. 340-26

1 Claim



Approach light apparatus for guiding an airplane to a runway having a plurality of discharge tubes each having a gutter type reflector for reflecting the light from the discharge tube at a large solid angle so that the light reflected by the gutter type reflector may be easily and positively seen by a pilot aboard an airplane making a landing, with the plurality of discharge tubes being located sequentially along a guiding line connected to the runway at a predetermined interval.

3,659,263

WHEEL SLIP DETECTION DEVICE

Peter Gunsser, Stuttgart, and Klaus H. Christ, Stuttgart-Durlerwang, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

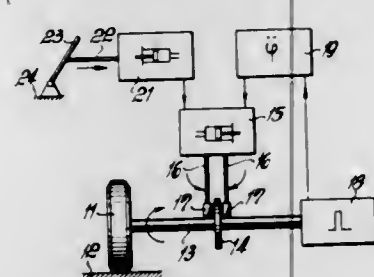
Filed Nov. 24, 1969, Ser. No. 879,044

Claims priority, application Germany, Nov. 27, 1968, P 18 11 192.7

Int. Cl. B60q 1/00

U.S. Cl. 340-52 B

11 Claims



To detect transition from rolling to sliding of a wheel over a surface, a transducer coupled to the wheel provides output pulses having a repetition rate representative of wheel speed. The pulses are applied to a logic circuit including a pair of multivibrators, one of which has a variable time circuit setting its unstable state in dependence on pulse repetition rate; the rate itself is sensed by applying the pulses from the two multivibrators to a coincidence gate which activates a wheel slip detector (and, if desired, an override control to a brake, or accelerating arrangement for the wheel).

3,659,264

TIRE PRESSURE ALARM SYSTEM

William A. Barabino, North Reading, Mass., assignor to Safety Research & Engineering Corp.

Filed July 20, 1970, Ser. No. 56,347

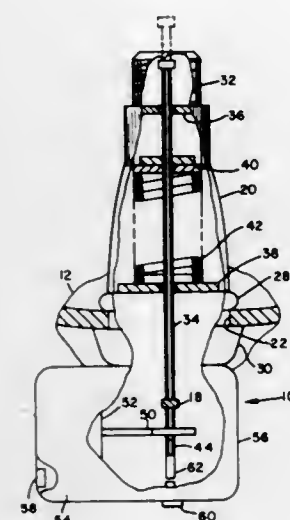
Int. Cl. B60c 23/04

U.S. Cl. 340-58

7 Claims

A system is provided for signalling an operator that a vehicle's tire pressure is over or under a preset range. A pres-

sure responsive diaphragm within the tire causes a reed to vibrate when the tire pressure goes over or under a predeter-



mined range and vibration of the reed is sensed by a slave reed in the vehicle which, in turn, generates a signal to the operator.

3,659,265

ANTI-THEFT DETECTOR AND ALARM SYSTEMS FOR VEHICLES

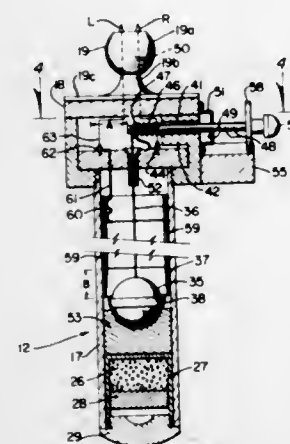
Richard F. Eversull, 5009 Ogallala Place, Cheyenne, Wyo.

Filed May 27, 1970, Ser. No. 41,020

Int. Cl. B60r 25/10

U.S. Cl. 340-65

6 Claims



Alarm apparatus for use on motor vehicles includes a detector having a self-leveling mount and a relatively heavy, generally spherical contact member which is adjustably suspended from a cable and normally spaced within an outer concentric contact member so that when the suspended contact member moves to and fro in a pendulum action, in response to unauthorized vehicle movement, it will make contact with the outer contact member. An alarm system for the detector is activated by the contact members interconnected so as to regulate the actuation of an alarm element. One alarm system carried by the vehicle applies the vehicle battery power to the vehicle horn, and in the event the vehicle battery fails power from an auxiliary battery is used to actuate a secondary alarm element. Another alarm system is a remote location from the vehicle, such as, in the home may be cable-connected to the detector to give an audible signal in the home when the vehicle is moved.

3,659,266

BURGLAR ALARM SYSTEM

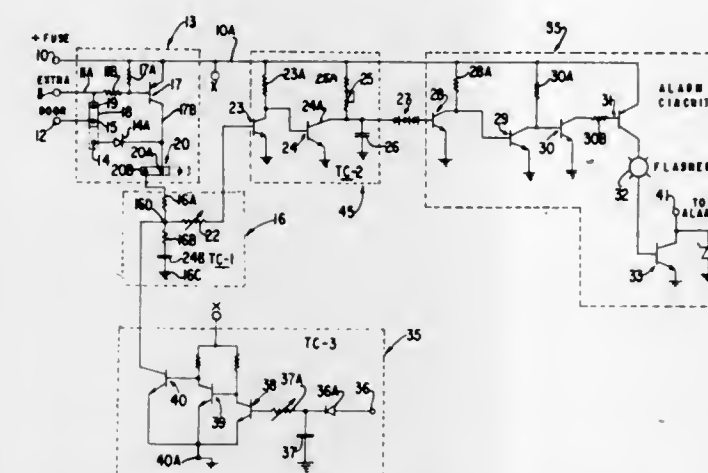
George M. Meyerle, 133-06 115th Street, South Ozone Park, N.Y.

Filed July 28, 1969, Ser. No. 845,307

Int. Cl. B60r 25/10

U.S. Cl. 340-64

1 Claim



An alarm system for indicating unauthorized entry into an enclosure such as the interior portion of a motor vehicle, home or the like, wherein a protective switch initiates operation of solid state circuitry thereby to effect time delayed operation of an alarm device. Circuitry operated by a key switch, such as the ignition switch of a motor vehicle, defeats actuation of the alarm circuits for a predetermined time following operation of the key switch thereby to effect authorized entry into the exit from the protected enclosure without sounding the alarm. A further manually operated and interiorly located disconnect switch provides for disconnecting the alarm actuating circuitry. Once actuated, however, the alarm continues to operate for a predetermined time despite inactuation of the protective switch or the manual disconnect switch.

3,659,267

LIGHTING SYSTEMS FOR ROAD VEHICLES

William David Holt, Colne, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England

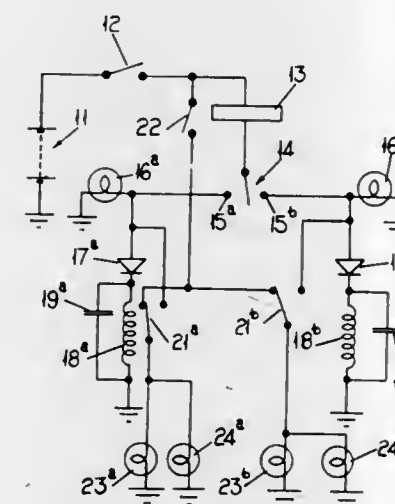
Filed Apr. 21, 1970, Ser. No. 30,560

Claims priority, application Great Britain, June 27, 1969, 32,582/69

Int. Cl. B60q 1/38

U.S. Cl. 340-67

1 Claim



A lighting system for a road vehicle includes front and rear flasher lamps and a pair of stop lamps. A brake switch on the vehicle serves when closed to energize the stop lamps and the

rear flasher lamps, and the direction indicator switch on the vehicle serves when operative to energise the flasher lamps and the stop lamp on the side of the vehicle selected by the direction indicator switch.

3,659,268

VEHICLE DECELERATION WARNING APPARATUS

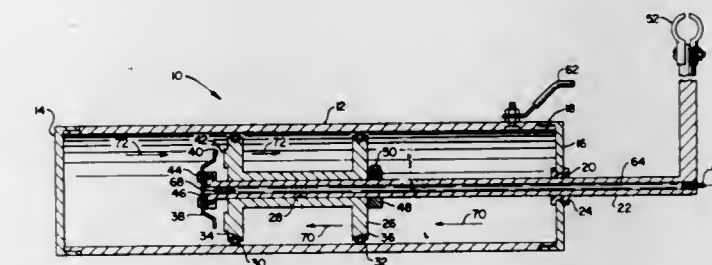
Henry Crawford, 1560 Bermuda Place, Cincinnati, Ohio

Filed May 18, 1970, Ser. No. 37,974

Int. Cl. B60q 1/44

U.S. Cl. 340-71

9 Claims



A deceleration warning apparatus to provide a deceleration signal is disclosed. The deceleration warning apparatus includes a deceleration responsive switch which will complete an electrical circuit to actuate a signal in response to actual or intended deceleration in excess of a preset speed differential range.

3,659,269

LOGIC CIRCUIT FOR GENERATING CYCLIC SIGNALS

George W. Gurry, 2 Hamlet Close, Collier Road, Romford, England

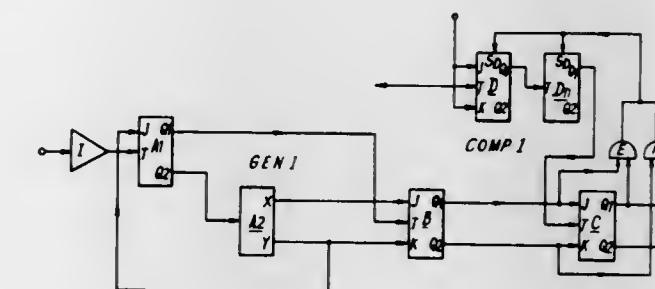
Filed June 27, 1969, Ser. No. 837,149

Claims priority, application Great Britain, Mar. 31, 1969, 16,835/69

Int. Cl. H04q 9/00

U.S. Cl. 340-171

38 Claims



Logic circuits for sensing the period of alternating input signals. An input signal is applied to a first stage of the circuit which is a generator and supplies two output signals to a second stage, which is a comparator. A first of the output signals from the generator represents the period of the input signal and a second of the signals represents a predetermined period or range of periods. These two signals are compared in the comparator, whose output is switched to a predetermined condition only if a predetermined number in succession of the first output signals each represents a period above or below the predetermined period or inside or outside the predetermined range of periods.

3,659,270

STRAIN-BIASED FINE GRAIN FERROELECTRIC CERAMIC DEVICES FOR OPTICAL IMAGE STORAGE AND DISPLAY SYSTEMS

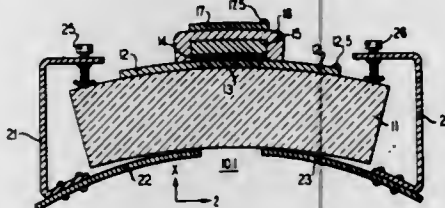
Juan Ramon Maldonado, North Plainfield, and Allen Henry Meltzer, Morristown, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 5, 1970, Ser. No. 672

Int. Cl. G11c 5/04, 11/22, 11/42

U.S. Cl. 340-173.2

10 Claims



A fine grain, ferroelectric ceramic parallel plate, such as lanthanum doped, lead zirconate-lead titanate, is subjected to a constant and uniform stress along a first direction in the plane of the plate. By means of a photoconductive layer and a pair of transparent electrode layers, the ferroelectric plate under stress can be subjected to selective WRITE-IN of a pattern of information using an optical WRITE-IN beam of light, as well as a selective ERASE of such information, all under the control of electric fields only in the normal direction to the plane of the ferroelectric plate produced by D.C. voltages applied to the electrode layers.

3,659,271

MULTICHANNEL COMMUNICATION SYSTEM

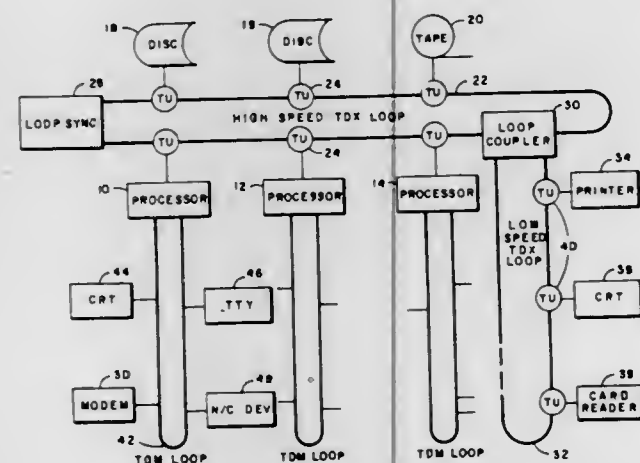
Arthur A. Collins, Richardson; John D. Hill, III, Dallas, both of Tex., and Laurence D. Hungerford, Cedar Rapids, Iowa, assignors to Collins Radio Company, Dallas, Tex.

Filed Oct. 16, 1970, Ser. No. 81,217

Int. Cl. G06f 3/04; H04L 5/00

U.S. Cl. 340-172.5

4 Claims



Method of communicating in a multichannel communication system especially useful with high speed and low speed devices included in the system. One or more channels or subchannels are provided and controlled for addressing devices and transmitting commands, other channels and subchannels are assigned for the transmission of volumes of data. A poll-bid-grant routine is employed in facilitating the address and command channels, and queuing means is provided in assigning the working channels.

3,659,272

DIGITAL COMPUTER WITH A PROGRAM-TRACE FACILITY

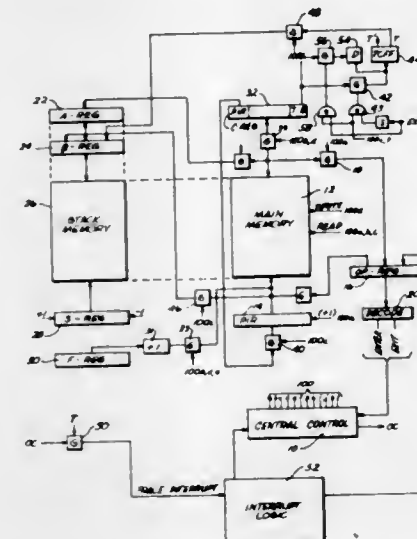
William Chandler Price, Pasadena, and Stephen Lane Billard, San Gabriel, both of Calif., assignors to Burroughs Corporation, Detroit, Mich.

Filed May 13, 1970, Ser. No. 36,716

Int. Cl. G06f 11/04, 9/18

U.S. Cl. 340-172.5

4 Claims



There is described a computer system in which execution of each instruction or operator of a program procedure may result in an interrupt condition depending upon the condition of a trace bit of a program control word associated with the procedure. The interrupt causes a trace interrupt procedure to be initiated by which a program trace is recorded for the particular instruction. Entry into another procedure causes the trace bit to be stored and a new trace bit established for the new procedure being entered.

3,659,273

ERROR CHECKING ARRANGEMENT

Gunter Knauff, Boblingen; Fritz Koederitz, Gechingen; Helmut Palnke, Sindelfingen; Leopold Reichl, Boblingen; Hans H. Lampe, Sindelfingen; Robert Vachenaue, Stuttgart-Feuerbach; Edwin Vogt, Boblingen, and Hermann Weber, Sindelfingen, all of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

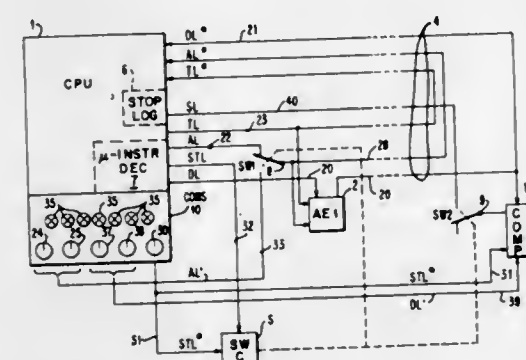
Filed May 26, 1970, Ser. No. 40,643

Claims priority, application Germany, May 30, 1969, P 19 27 549.1

Int. Cl. G06f 3/02, 3/04

U.S. Cl. 340-172.5

3 Claims



This disclosure is for a rearrangement of the input/output controls of a small central processing unit (CPU) to enable interspersed use of the input/output devices by the CPU and by the customer engineer. This configuration allows the engineer to read the status of the devices and to test their functions without interference with the CPU usage of the devices and without shutting down of the system.

3,659,274

FLOW-THROUGH SHIFTER

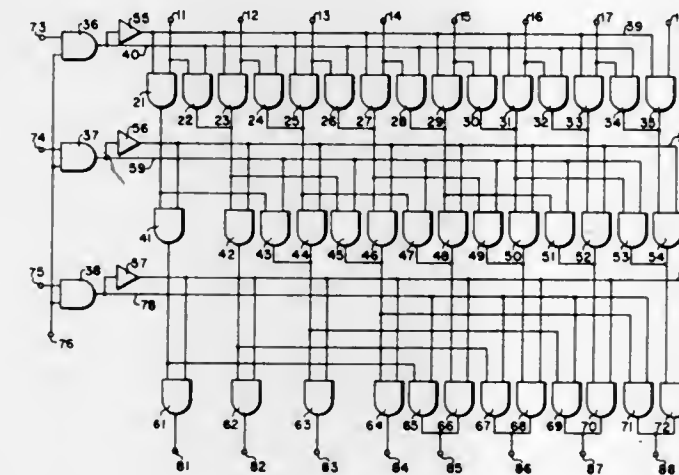
Leslie T. Kyser, Binghamton, N.Y., assignor to The Singer Company, New York, N.Y.

Filed July 28, 1970, Ser. No. 58,955

Int. Cl. G06f 7/00

U.S. Cl. 340-172.5

7 Claims



This specification describes a flow-through shifter which is very simple and selectively shifts input digital data a prescribed number of spaces to the right in response to a value represented in a binary control word. The shifter provides a plurality of switching gates which are cascaded. A separate bank of gates is provided for each digit position of the control word, and the banks are cascaded such that the outputs from one bank are applied to the inputs of gates which are to the right of that digit position. Each gate is provided with two output paths. One of these paths moves the information the prescribed number of spaces to the right, and the other of these paths transmits information in the same position in which it is received.

3,659,275

MEMORY CORRECTION REDUNDANCY SYSTEM

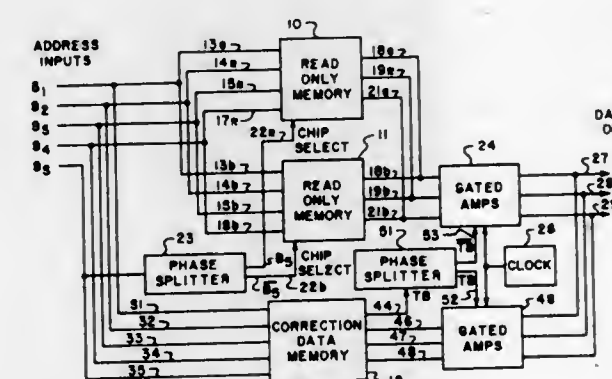
Melvin R. Marshall, Wappingers Falls, N.Y., assignor to Cogar Corporation, Wappingers Falls, N.Y.

Filed June 8, 1970, Ser. No. 44,253

Int. Cl. G11c 29/00, 9/00; G06f 11/08

U.S. Cl. 340-173 R

2 Claims



A system is described in which at least one read-only memory having permanently stored data therein is accessed in parallel with a correction or redundant memory element. The data from the correction or redundant memory element contains at least one tag bit which determines whether the data from the read-only memory or from the correction (or redundant) memory element is to be provided at output terminals.

3,659,276

ANGLE MODULATED WAVE DEMODULATION APPARATUS

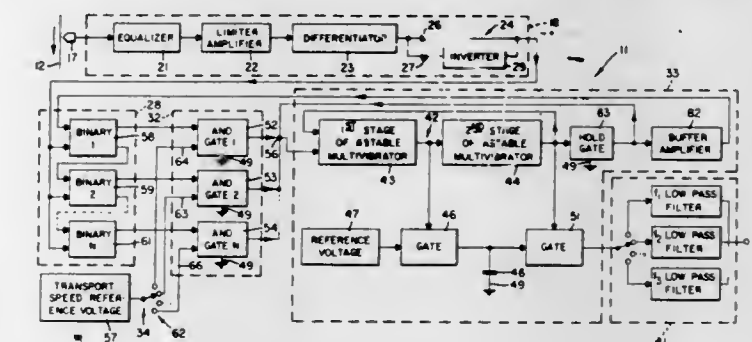
Maung Gyl, South San Francisco, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Continuation of application Ser. No. 762,569, Sept. 25, 1968, now abandoned. This application July 8, 1970, Ser. No. 53,295

Int. Cl. G11b 5/04

U.S. Cl. 340-174.1 G

20 Claims



A signal representing the magnetic state transition of an FM wave recorded on magnetic tape gates an astable multivibrator normally locked in one of its conduction states to make successive transition between its quasi-stable conduction states, the number of transitions being inversely proportional to the speed of travel of the tape. A capacitor coupled to the output of the astable multivibrator is charged and discharged to provide a constant energy pulse for each cycle of transitions that the multivibrator makes between its quasi-stable states whereby a train of groups of constant energy pulses are provided by the capacitor. Each group of pulses forming the train of pulses will include one or more constant energy pulses depending upon the tape speed, with the interval between successive pulses of the same group constant and the interval between successive pulse groups varying according to the interval between transitions of the recorded FM wave. The capacitor is coupled to a low pass filter which integrates the train of constant energy pulses and provides the modulation signal carried by the recorded FM wave.

3,659,277

RECEIVER-TRANSMITTER APPARATUS

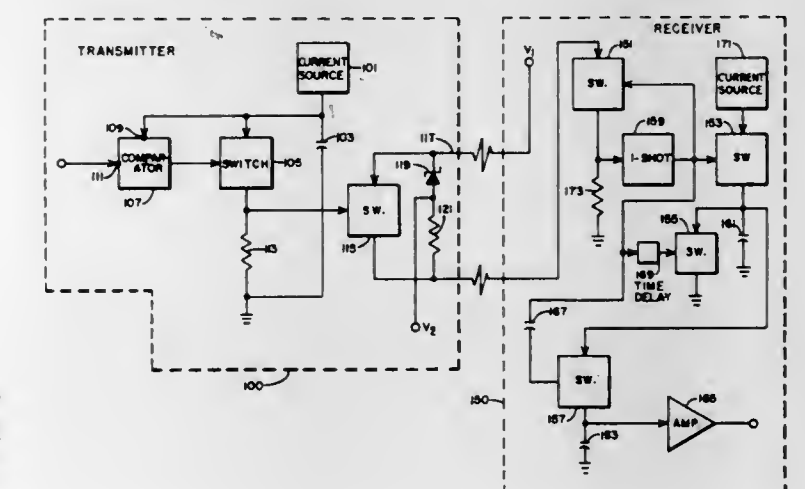
Richard W. Brown, Excelsior, Minn., assignor to Control Data Corporation, Minneapolis, Minn.

Filed June 18, 1970, Ser. No. 47,288

Int. Cl. G08c 19/26

U.S. Cl. 340-203

5 Claims



A combination of a remotely located transmitter and a local receiver. The transmitter, which receives its power from

the receiver, provides an output pulse train the repetition rate of which is proportional to the amplitude of the signal of the transmitter input. The receiver in turn generates an output signal, which is proportional to the repetition rate of the input pulse train received from the transmitter.

3,659,278

FIRE AND SMOKE ALARM DEVICE

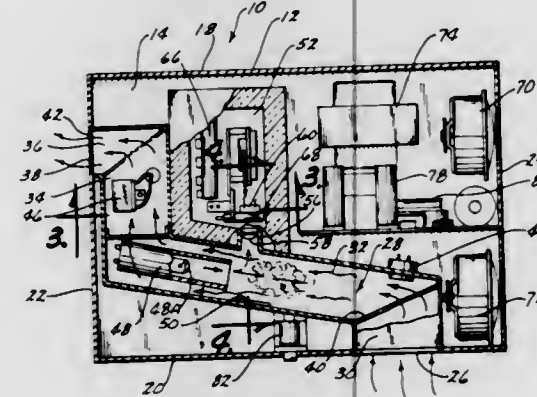
John L. Jensen, Estherville, Iowa, assignor to Jensen Industries, Inc., Des Moines, Iowa

Filed Apr. 15, 1970, Ser. No. 28,865

Int. Cl. G08b 21/00

U.S. Cl. 340-237 S

5 Claims



A fire and smoke alarm device which is activated by the presence of smoke and/or excessive heat. The device includes a housing having an air sampling chamber and means therein to induce the flow of air therethrough. A fire sensing means is provided in the air sampling chamber which will activate an alarm circuit when the temperature in the chamber reaches a predetermined level. A sealed and insulated temperature controlled compartment is also provided in the housing and has a photoelectric cell therein which will activate an alarm circuit upon the cell sensing a predetermined light intensity in the air sampling chamber. The air sampling chamber has a light source mounted therein which illuminates a portion of the chamber. A clear lens is positioned between the air sampling chamber and the compartment for admitting light into the compartment so that the photoelectric cell can sense the light intensity in the air sampling chamber. Means is provided for maintaining the temperature in the compartment at 120° F. so that the photoelectric cell will function with the required sensitivity.

3,659,279

DEFAULT WARNING SYSTEM

Dan S. Wise, Gaston, N.C., assignor to Fiber Controls Corporation, Gastonia, N.C.

Filed June 27, 1969, Ser. No. 837,253

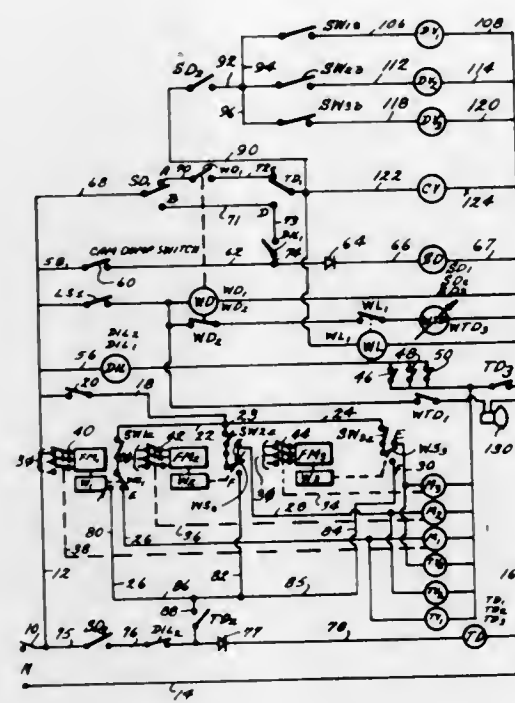
Int. Cl. G08b 19/00

U.S. Cl. 340-267 R

3 Claims

Apparatus and method for detecting malfunctions in fiber blending equipment and for sounding a warning after the detection of such a malfunction. In the embodiment disclosed below, which is specifically designed for use with fiber equipment of the type whereby a plurality of adjacently mounted weighing pans receive fiber to be blended and, under the control of appropriate electrical circuitry, weigh and dump it upon a conveyor which periodically moves forward to form fiber sandwiches which are then delivered to other equipment,

the failure of the relay which controls the conveyor to be activated after a set time greater than the time that the



relay remains deactivated during normal operation causes a horn to give an audible indication of malfunctions.

3,659,280

COMMUNICATION SYSTEM USING THE ELECTRICAL POWER DISTRIBUTION NETWORK OF A BUILDING

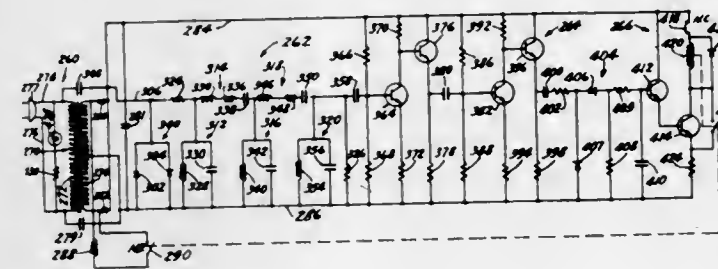
Daniel J. Donohoo, Shoreview, Minn., assignor to Dantronics Inc., Saint Paul, Minn.

Filed Nov. 20, 1967, Ser. No. 684,355

Int. Cl. H04m 11/04; H03h 7/10

U.S. Cl. 340-310

14 Claims



A communication system adapted for use with a building's alternating current voltage electrical distribution system is shown wherein a high frequency signal can be transmitted over the electrical distribution system to a remotely disposed receiver electrically connected to the electrical distribution system and the receiver selectively responds to the high frequency signal by actuating an output circuit.

3,659,281

LIGHT PEN TRACKING SYSTEM

Samio Mori, Tokyo, Japan, assignor to Nippon Electric Company, Limited, Minato-ku, Tokyo, Japan

Filed Jan. 18, 1971, Ser. No. 107,158

Claims priority, application Japan, Jan. 19, 1970, 45/5844

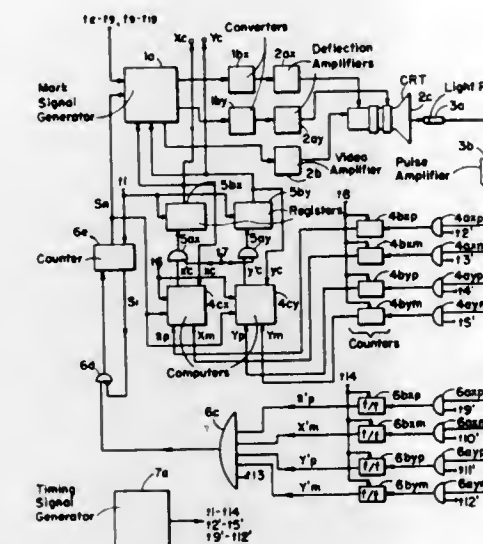
Int. Cl. G08b 5/22

U.S. Cl. 340-324 A

5 Claims

A light pen tracking system in which the size of the

tracking mark is varied depending on the range of vision as



determined by the distance of the light sensitive tip of the light pen from the display surface.

3,659,282

GRAPHIC DISPLAY

Yasuo Tada, c/o Iwasaki Tsushinki Kabushiki Kaisha, 710, Kugayama 2-chome, Suginami-ku, Tokyo, Japan

Filed Dec. 11, 1968, Ser. No. 783,050

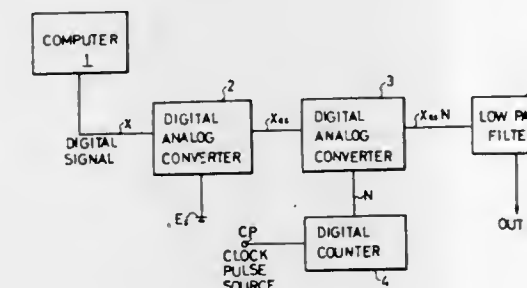
Claims priority, application Japan, Dec. 20, 1967, 42/81139;

42/81140

Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

11 Claims



A pair of input signals corresponding to X and Y coordinate information are processed and simultaneously applied at certain time intervals to a display system, and the points represented by said pair of input signals are successively connected by straight lines. In a first embodiment of the signal processing, wherein the input signals and digital signals, such input signals are applied to a first digital analog converter for converting the digital signals into related quantum analog voltages whereupon the quantum voltages are applied to a second digital analog converter which effectively adds the quantum voltages. The output of the second converter is impressed upon a CRT display of the oscilloscope or an XY recorder, thereby tracing a figure on the display or recorder. Alternatively, the first digital analog converter can be replaced by an analog attenuator for converting analog input signals into related analog quantum voltages which are then processed the same as in the above-mentioned first embodiment. Thus, very accurate coordinate presentations can be traced on a CRT display of the oscilloscope or an XY recorder.

3,659,283

VARIABLE SIZE CHARACTER RASTER DISPLAY

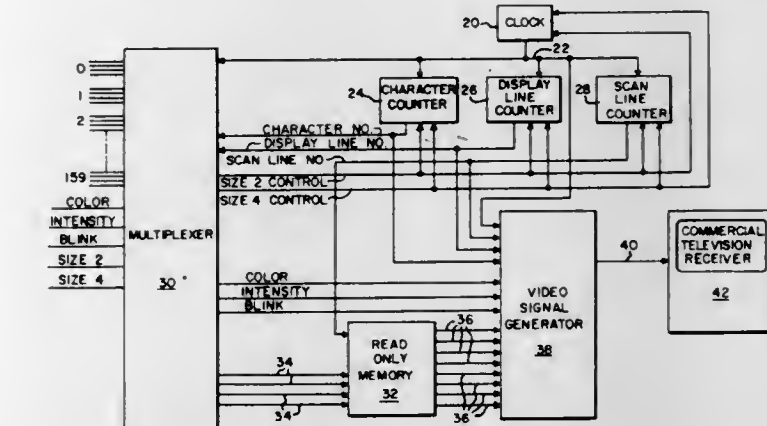
David Ophir, East Patchogue, N.Y., assignor to Applied Digital Data Systems, Inc.

Filed May 9, 1969, Ser. No. 823,406

Int. Cl. G06f 3/14

U.S. Cl. 340-324 A

5 Claims



Apparatus for providing a raster display of static data. A plurality of static data characters, for example in binary coded decimal form, is passed, a character at a time, by a parallel to serial converter to a read-only memory which converts each character into 20 eight-bit scan lines and transfers one scan line at a time to a video signal generator. The signal generator applies each bit to a raster display output device. The high cyclic rate results in the simultaneous display of all the static data characters. If desired, the display size, color, or intensity can be varied or the display can be caused to blink or flash, all on a display line by display line basis.

3,659,284

TELEVISION GAMING APPARATUS

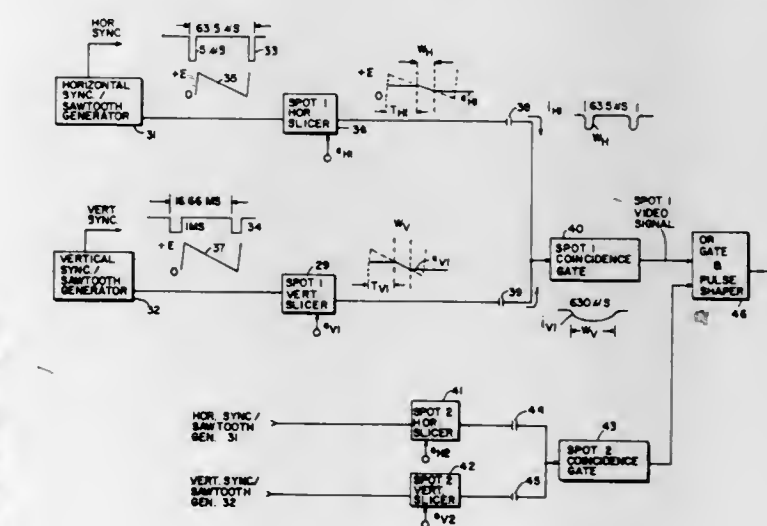
William T. Rusch, Hollis, N.H., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed May 27, 1969, Ser. No. 828,154

Int. Cl. G08b 5/22

U.S. Cl. 340-324 A

59 Claims



Apparatus and methods are herein disclosed for use in conjunction with standard monochrome and color television receivers, for the generation, display and manipulation of symbols or geometric figures upon the screen of the television receivers for the purpose of playing games. The invention comprises in one embodiment a control unit, connecting means and in some applications a television screen overlay mask utilized in conjunction with a standard television receiver. The control unit includes the control means, switches and electronic circuitry for the generation, manipu-

lation and control of video signals which are to be displayed on the television screen. The symbols are generated by developing current pulses proportional to predetermined portions (slices) of horizontal and vertical sawtooth waves. The connecting means couples the video signals to the receiver antenna terminals thereby using existing electronic circuits within the receiver to process and display the signals. An overlay mask which may be removably attached to the television screen may determine the nature of the game to be played. Control units may be provided for each of the participants. Alternatively, games may be carried out in conjunction with background and other pictorial information originated in the television receiver by commercial TV, closed-circuit TV or a CATV station.

3,659,285

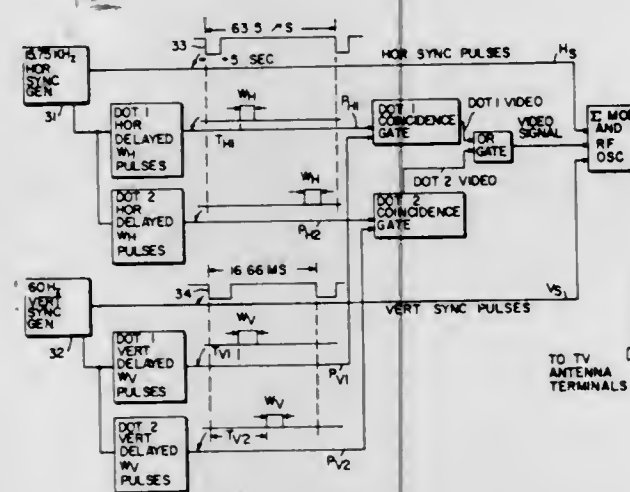
TELEVISION GAMING APPARATUS AND METHOD
Ralph H. Baer, Manchester; William T. Rusch, Hollis, and William L. Harrison, Nashua, all of N.H., assignors to Sanders Associates, Inc., Nashua, N.H.

Filed Aug. 21, 1969, Ser. No. 851,865

Int. Cl. G08b 5/22

U.S. Cl. 340—324 A

12 Claims



Apparatus and methods are herein disclosed for use in conjunction with standard monochrome and color television receivers, for the generation, display and manipulation of symbols upon the screen of the television receivers for the purpose of playing games, training simulation and for engaging in other activities by one or more participants. The invention comprises in one embodiment a control unit, connecting means and in some applications a television screen overlay mask utilized in conjunction with a standard television receiver. The control unit includes the control means, switches and electronic circuitry for the generation, manipulation and control of video signals representing symbols which are to be displayed on the television screen. The symbols are generated by voltage controlled delay of pulses and coincidence gating. The connecting means couples the video signals to the receiver antenna terminals thereby using existing electronic circuits within the receiver to process and display the signals. An overlay mask which may be removably attached to the television screen may determine the nature of the game to be played. Control units may be provided for each of the participants. Alternatively, games may be carried out in conjunction with background and other pictorial information originated in the television receiver by commercial TV, closed-circuit TV or a CATV station.

3,659,286
DATA CONVERTING AND CLOCK PULSE GENERATING SYSTEM

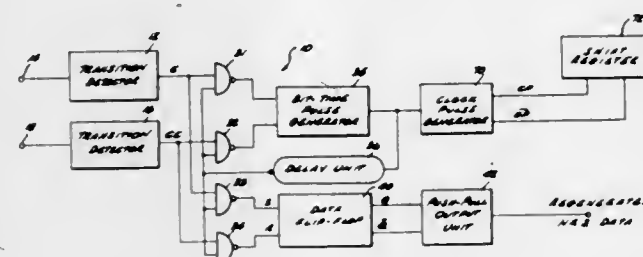
Carroll R. Perkins, Balboa Island; Everett L. Shaffstall, Fountain Valley; Robert N. Yoder, Huntington Beach, and James L. Gundersen, Carson, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 2, 1970, Ser. No. 7,482

Int. Cl. H03k 13/24; H04h 3/00

U.S. Cl. 340—347 DD

10 Claims



A system, including a data regenerator, for converting split phase Manchester encoded binary data into NRZ data and for generating clock pulses which are synchronized with the NRZ data is disclosed. MOS FETs are used throughout the system. The data regenerator includes two transition detectors which detect logic 0 level to logic 1 level transitions in the split phase Manchester encoded data and in its complement, and produce pulses in response to the detected transitions. The data regenerator also includes four gates which are controlled by the output of a delay unit. The delay unit is activated by the output of a bit time pulse generator, which responds to the outputs of two of the four gates. When the gates are enabled, a pulse from a transition detector passes through one of these two gates to the bit time pulse generator, causing the latter to produce a pulse which activates the delay unit. The total delay provided by the pulse generator and the delay unit is such that the output of the delay unit disables the gates for at least 1/4 bit period, after which the gates are again enabled to respond to a subsequent pulse from one of the detectors. The pulse generator thus provides a sequence of pulses which are synchronized with mid bit time transitions in the Manchester encoded data. Output pulses from one of the other two of the four gates are applied to the set input to a flip-flop, while the output pulses from the other of these two gates are applied to the reset input to the flip-flop, the output of which represents the regenerated NRZ data.

3,659,287

METHOD AND APPARATUS FOR TRANSMITTING INFORMATION IN METER READING

Carl J. Snyder, Raleigh, N.C., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 24, 1970, Ser. No. 49,132

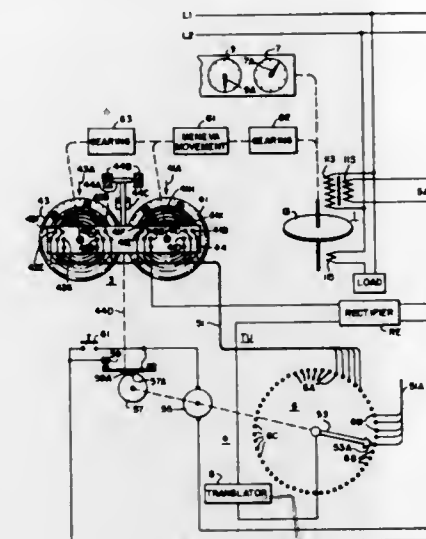
Int. Cl. G08c 9/00; H04i 13/16

U.S. Cl. 340—347 P

4 Claims

For transmitting information representing the reading of a watt-hour meter a first disc is rotated in 32 steps per revolution by the meter. A second disc has 32 step positions and is rotated one step for each revolution of the first disc. Each

disc has commutators and commutator brushes which convert each angular position of the disc into a distinctive binary switch means under the control of the signal train (preferably transmitted via the power lines wiring) for actuating an alarm



signal which is transmitted to a suitable receiver or translator.

3,659,288

ANALOG CONVERTOR AND COMPUTER CIRCUIT PRODUCING OPTIMIZED PULSE OUTPUT

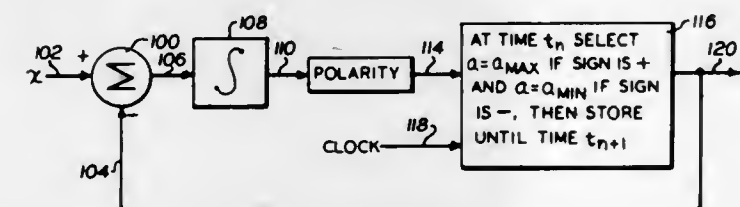
Charles F. Taylor, Burlington, Vt., assignor to Vermont Technical Groups, Inc., South Burlington, Vt.

Filed June 23, 1969, Ser. No. 835,485

Int. Cl. H03k 13/02

U.S. Cl. 340—347 NT

17 Claims



A dual slope analog-to-binary converter employs a flip-flop in a unique way to optimize a pulse train output relative to a quantized time domain. Another flip-flop revises the output waveform to compensate for pulse shape inaccuracies. The circuit is also used as an analog multiplier or divider, particularly in a lung function analyzer.

3,659,289

ALARM DEVICE

Kenneth John Everitt, London, England, assignor to Donald Patrick White, Loughton, Essex, England, a part interest

Filed Sept. 23, 1969, Ser. No. 860,240

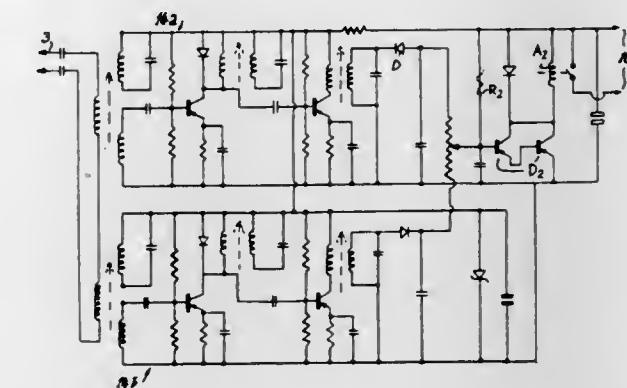
Claims priority, application Great Britain, Sept. 26, 1968, 45,782/68

Int. Cl. G08b 13/16

U.S. Cl. 340—416

8 Claims

This invention relates to a monitoring device comprising a generator for generating longitudinal compressive waves of ultrasonic frequency and a receiver unit for monitoring the amplitude of the waves at the ultrasonic frequency received by a receiver. The receiver unit includes an oscillator for generating a signal train at a given carrier frequency and first switch means for controlling the transmission of the signal train at that carrier frequency to a remote detector unit, said first switch means being actuated in response to a change in the amplitude of the signal received by the receiver. The detector unit is tuned to the carrier frequency and has a further



and/or recording device to indicate when the amplitude of waves received by the receiver has changed.

3,659,290

APPARATUS FOR PROVIDING SENSITIVITY-TIME CONTROL FOR RADAR RECEIVERS

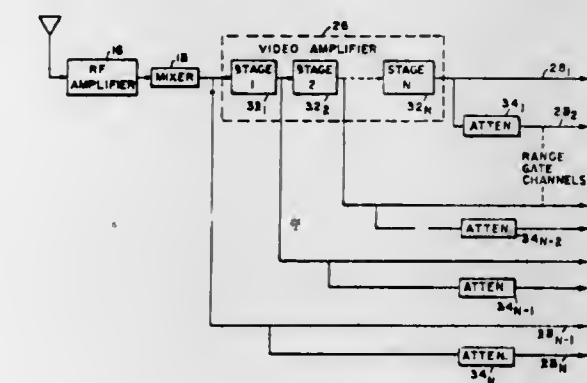
Edward L. Bourque, Dunstable, Mass., assignor to Sanders Associates, Inc., Nashua, N.H.

Filed Aug. 3, 1970, Ser. No. 60,496

Int. Cl. G01s 7/34

U.S. Cl. 343—5 SM

7 Claims



Sensitivity-time control for radar receivers is provided by arranging attenuators having attenuation values inversely proportional to range at the input lines of the range gate channels of the receiver.

3,659,291

AIRCRAFT NAVIGATION COMPUTER

Myron L. Anthony, La Grange, Ill., assignor to Thomas E. Dorn, Clarendon Hill and Statistical Services, Inc., Chicago, Ill., part interest to each

Filed Aug. 18, 1969, Ser. No. 851,028

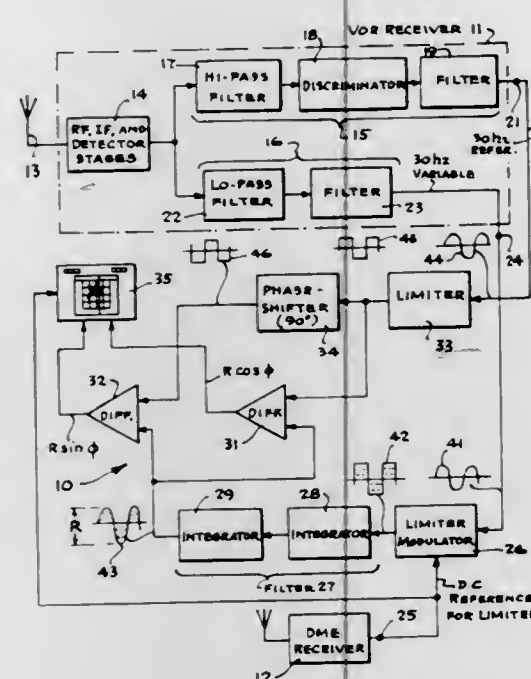
Int. Cl. G01s 9/56, 1/44

U.S. Cl. 343—6 R

14 Claims

An all-electronic solid-state airborne analog computer, utilizing the navigation signals available from a VOR receiver and a DME receiver to develop linear coordinate signals con-

tinuously indicating the aircraft position and direction of movement relative to a ground station or to an arbitrarily reference code components and returned code components. The detected relative phase difference is directly propor-



selected waypoint within the operating range of the ground station.

3,659,292

BINARY CODED SEQUENTIAL ACQUISITION RANGING SYSTEM

George M. Low, Acting Administrator of the National Aeronautics and Space Administration in respect to an invention of; Warren L. Martin, 4172 Forest Hill Drive, and Richard M. Goldstein, 5534 Rock Castle Drive, both of La Canada, Calif.

Filed Aug. 13, 1970, Ser. No. 63,532

Int. Cl. G01s 9/24, 9/58

U.S. Cl. 343—6.5 R

11 Claims

A binary coded sequential acquisition ranging system for determining the distance of very distant objects, such as extraterrestrial probes, is disclosed. A ground transmitter essentially including a phase modulator and a digital coder is employed to sequentially transmit a plurality of code components to a probe transponder for retransmission to a ground ranging circuit which serves to compare the returned code components with locally generated doppler-compensated reference code components. The ranging circuit includes a receiver digital coder, that is a counterpart of the transmitter digital coder, and an adder circuit which serves to effectively doppler compensate the receiver digital coder in accordance with detached doppler shift frequencies to provide the reference code components. A ranging receiver is employed to detect the relative phase difference between

tional to the range of the distant target and thereby provides a basis for the accurate calculation of range.

3,659,293

RANGE-DETECTING DOPPLER RADAR

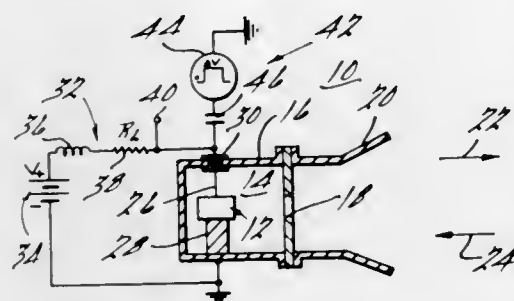
Radha Raman Gupta, Southfield, Mich., assignor to The Bendix Corporation

Filed June 2, 1970, Ser. No. 42,651

Int. Cl. G01s 9/04

U.S. Cl. 343—14

34 Claims



A Doppler radar for detecting range to a target having a single solid state device for generating microwave energy at time-shared first and second frequencies and for simultaneously mixing microwave energy reflected from the target with generated energy at each of the above frequencies to obtain a composite Doppler signal having two time-shared components in combination with a circuit for separating the two time-shared Doppler components from the composite signal, extrapolating the time-shared components to provide a pair of continuous component signals, and a phase comparator for providing a signal representative of the phase difference in the continuous component signals which represents the range to the target.

DESIGNS

APRIL 25, 1972

223,481

MOCCASIN

Martin S. Nadler, 208 Alpine Drive,
Paramus, N.J. 07652

Continuation-in-part of design application Ser. No. 19,019,
Sept. 4, 1969. This application Apr. 13, 1970, Ser.
No. 22,416

Term of patent 14 years

Int. Cl. D2—04

U.S. Cl. D2—268



223,484

BOTTLE

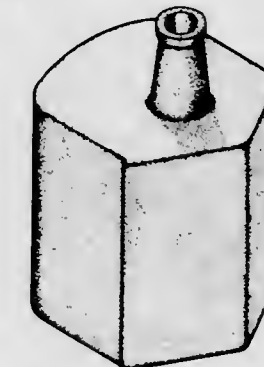
William A. Turner, 205 Sycamore Road,
Franklin, Va. 23851

Filed Nov. 23, 1970, Ser. No. 26,140

Term of patent 14 years

Int. Cl. D9—01

U.S. Cl. D9—160



223,485

BUILDING COMPLEX

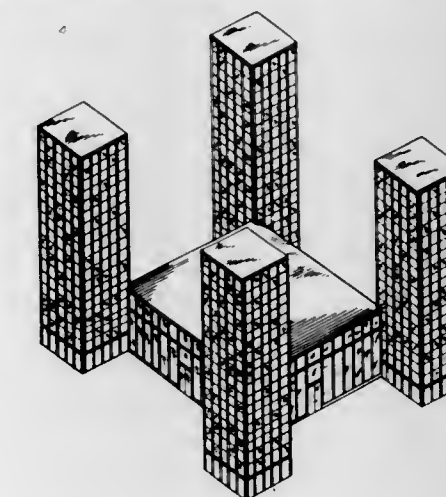
Charles F. Mullen, 243 W. Mount Royal Road,
Milwaukee, Wis. 53217

Original design application July 19, 1968, Ser. No.
12,830. Divided and this application Sept. 10, 1969,
Ser. No. 19,858

Term of patent 14 years

Int. Cl. D25—03

U.S. Cl. D13—1



223,483

UNIVERSAL BRACKET FOR MOUNTING MERCURY BALLASTS

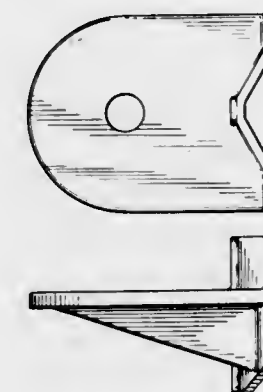
Ernest M. Freegard, Evanston, Ill., assignor to
Advance Transformer Co., Chicago, Ill.

Filed Aug. 17, 1970, Ser. No. 24,551

Term of patent 14 years

Int. Cl. D8—08

U.S. Cl. D8—234



223,486

FIBER GLASS REINFORCED POLYESTER HOUSING STRUCTURE

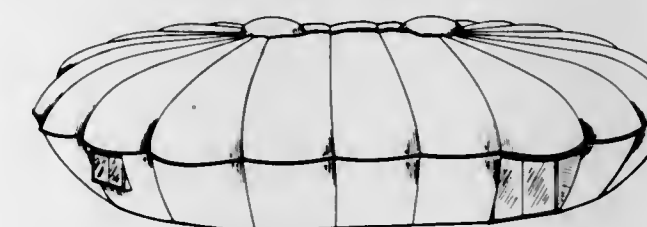
Christopher Hall, 6321 Florio St.,
Oakland, Calif. 94618

Filed Aug. 31, 1970, Ser. No. 24,787

Term of patent 14 years

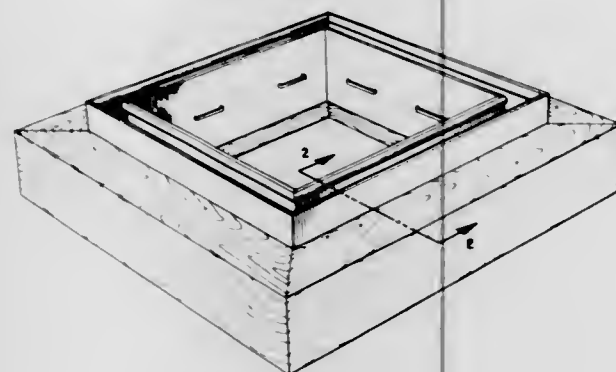
Int. Cl. D25—03

U.S. Cl. D13—1



223,487
STORM WINDOW FRAME
 Robert C. Brashear, 621 Main St.,
 Halstead, Kans. 67056
 Filed Dec. 16, 1970, Ser. No. 26,531
 Term of patent 14 years
 Int. Cl. D25—02

U.S. Cl. D13—1



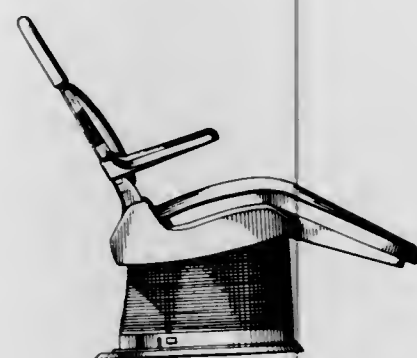
223,488
**TAPERED I-BEAM FOR DIVING BOARDS
 AND THE LIKE**
 Melvin M. Tilley, La Canada, Calif., assignor to Kaiser
 Aluminum & Chemical Corporation, Oakland, Calif.
 Filed Feb. 11, 1971, Ser. No. 114,750
 Term of patent 14 years
 Int. Cl. D25—99

U.S. Cl. D13—1



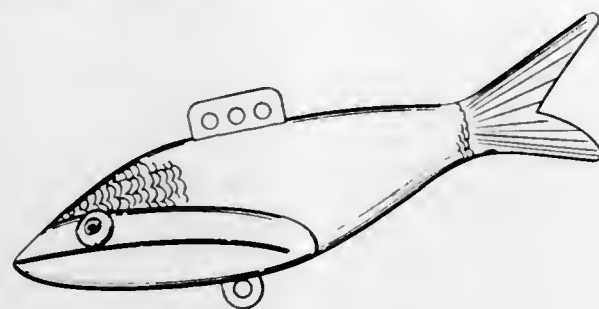
223,489
DENTAL CHAIR
 Robert A. Olsen, Palatine, Ill., assignor to American
 Hospital Supply Corporation, Evanston, Ill.
 Filed Aug. 24, 1970, Ser. No. 24,676
 Term of patent 14 years
 Int. Cl. D6—02

U.S. Cl. D15—3



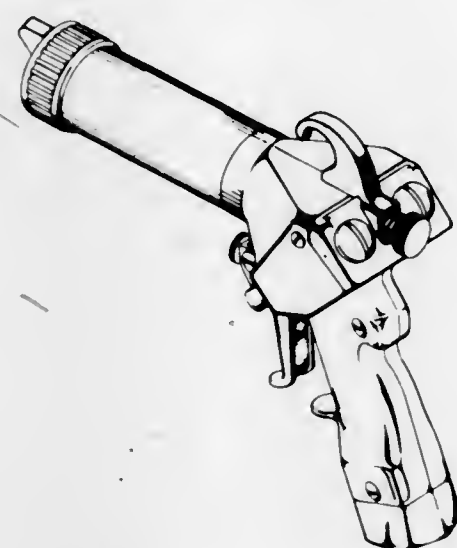
223,490
ARTIFICIAL FISHING LURE
 Bingham A. McClellan, Traverse City, Mich., assignor to
 McClellan Industries, Inc., Traverse City, Mich.
 Filed Oct. 26, 1970, Ser. No. 25,650
 Term of patent 14 years
 Int. Cl. D22—05

U.S. Cl. D22—27



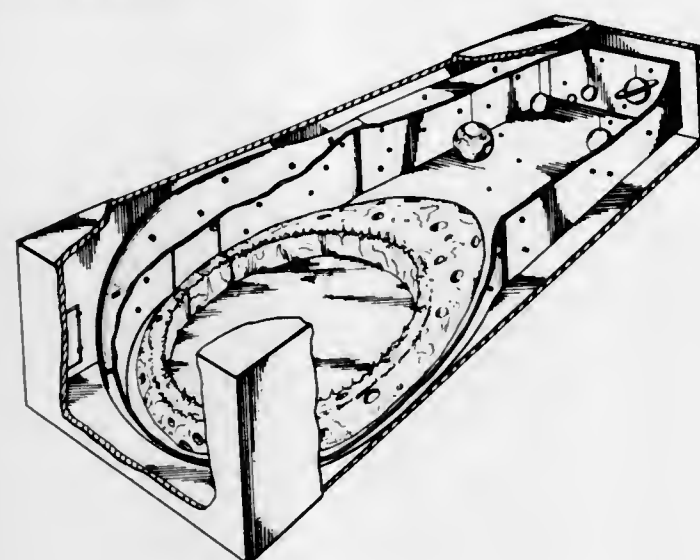
223,491
SPRAY GUN
 William L. Smart, Indianapolis, and David W. Woempner,
 Greenwood, Ind., assignors to Ransburg Electro-Coat-
 ing Corp., Indianapolis, Ind.
 Filed May 26, 1970, Ser. No. 23,157
 Term of patent 14 years
 Int. Cl. D23—01

U.S. Cl. D23—17



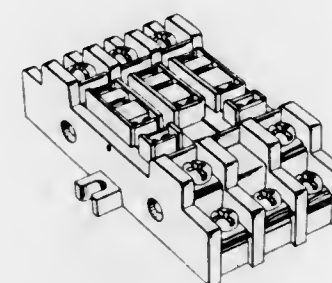
223,492
SOLAR SYSTEM TEACHING UNIT
 James T. Glisson, Evinston, Fla., assignor to Motivation
 Systems, Inc., Gainesville, Fla.
 Filed May 4, 1970, Ser. No. 22,806
 Term of patent 14 years
 Int. Cl. D19—07

U.S. Cl. D25—1



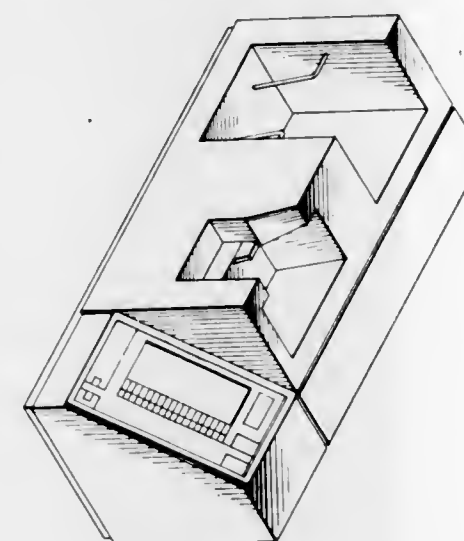
223,493
SOCKET FOR RELAY
 Teizo Fujita and Masao Kikuchi, Osaka, Japan, assignors
 to Izumi Denki Company Limited, Osaka, Japan
 Filed July 31, 1970, Ser. No. 24,247
 Claims priority, application Japan Feb. 2, 1970
 Term of patent 14 years
 Int. Cl. D13—03

U.S. Cl. D26—1



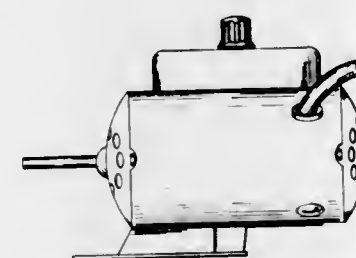
223,494
BALLOT COUNTER
 Kellog D. Fleming, San Francisco, Calif., assignor to
 Diamond National Corporation, San Francisco, Calif.
 Filed June 12, 1970, Ser. No. 23,453
 Term of patent 14 years
 Int. Cl. D14—02

U.S. Cl. D26—5



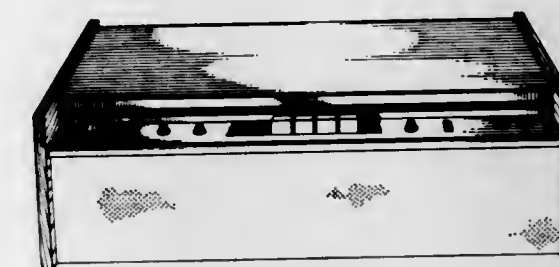
223,495
COMBINED MOTOR AND SPEED CONTROL
 Thomas B. Martin, Danville, Calif. (% Micro-Pumps
 Corp., 1021 Shary Court, Concord, Calif. 94520)
 Filed Aug. 31, 1970, Ser. No. 24,777
 Term of patent 14 years
 Int. Cl. D13—01

U.S. Cl. D26—5



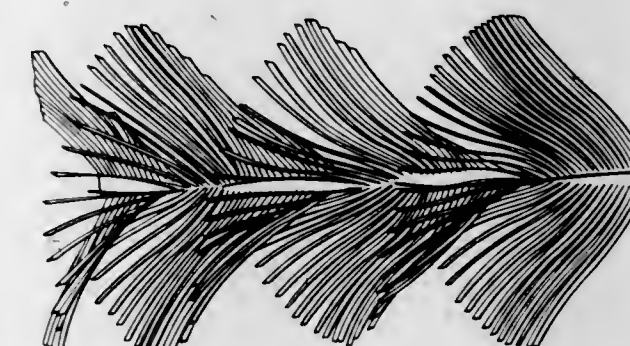
223,496
ELECTRONIC TELEPHONE ANSWERING UNIT
 Francis A. Foresta, 15727 Texaco,
 Paramount, Calif. 90723
 Filed Mar. 4, 1971, Ser. No. 121,244
 Term of patent 14 years
 Int. Cl. D14—03

U.S. Cl. D26—14



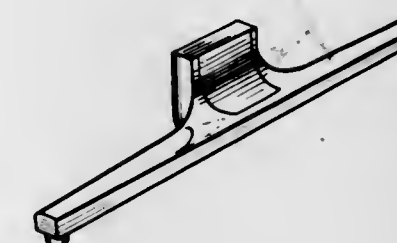
223,497
**BRANCH FOR AN ARTIFICIAL TREE OR
 SIMILAR ARTICLE**
 Joseph T. Gelardi, Yonkers, N.Y., assignor to American
 Technical Industries, Inc., Mount Vernon, N.Y.
 Continuation of design application Ser. No. 2,411, June 18,
 1968. This application Nov. 5, 1969, Ser. No. 19,958
 Term of patent 14 years
 Int. Cl. D11—04

U.S. Cl. D29—1



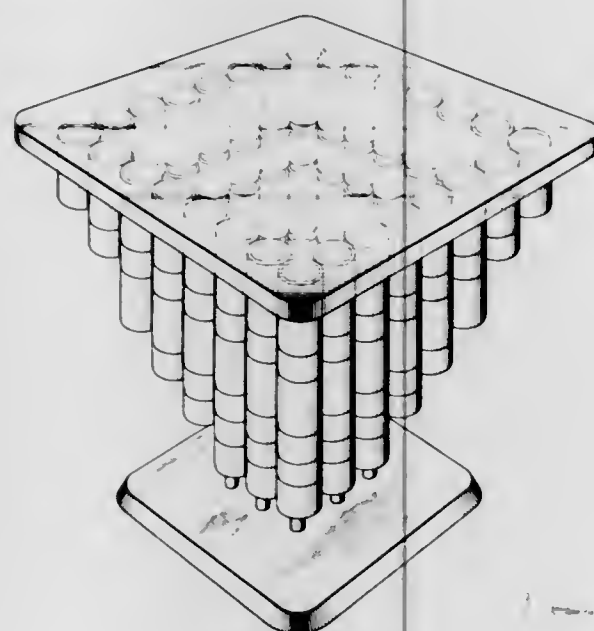
223,498
SUPPORT FOOT FOR FURNITURE OR THE LIKE
 Gary R. Daum, Poway, Calif., assignor to Hewlett-
 Packard Company, Palo Alto, Calif.
 Filed May 4, 1970, Ser. No. 22,810
 Term of patent 14 years
 Int. Cl. D6—99

U.S. Cl. D33—1



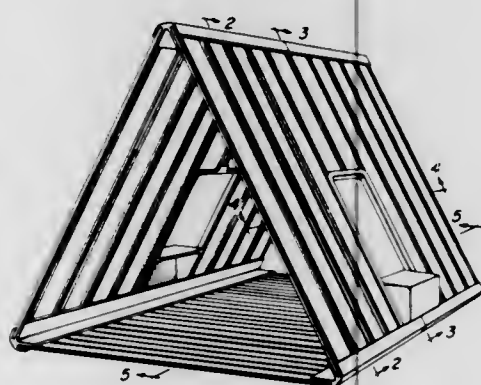
223,499
COFFEE TABLE
Irving H. Merritt, 211 Newman St.,
Metuchen, N.J. 08840
Filed Nov. 14, 1969, Ser. No. 19,806
Term of patent 7 years
Int. Cl. D6—03

U.S. Cl. D33—14



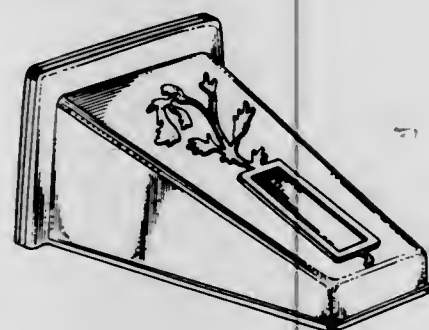
223,500
DOLL HOUSE
Donald E. Omlie, 8698 E. Robinwood Circle,
Utica, Mich. 48087
Filed Dec. 21, 1970, Ser. No. 26,581
Term of patent 14 years
Int. Cl. D21—01

U.S. Cl. D34—15



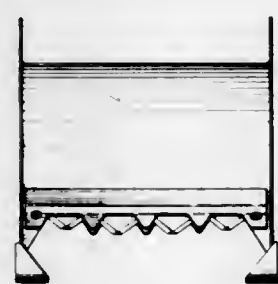
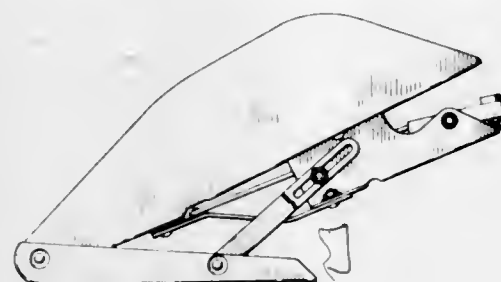
223,501
MAGNETIC SOAP HOLDER
Henry F. Hamburg, 2917 S. Cochran Ave., Los Angeles,
Calif. 90016, and Theron R. Fowler, 15728 Live Oak
Spring Canyon Road, Sagus, Calif. 91350
Filed Oct. 7, 1970, Ser. No. 25,369
Term of patent 14 years
Int. Cl. D6—06

U.S. Cl. D33—25



223,502
HARVESTING ATTACHMENT FOR COMBINES
Allen A. White, Peabody, Kans., assignor to
Hesston Corporation, Hesston, Kans.
Filed Mar. 11, 1970, Ser. No. 21,845
Term of patent 14 years
Int. Cl. D15—03

U.S. Cl. D40—1



223,503
MUG
Terepce E. Simmons, 5940 W. Touhy Ave.,
Chicago, Ill. 60648
Filed Aug. 17, 1970, Ser. No. 24,515
Term of patent 7 years
Int. Cl. D7—01

U.S. Cl. D44—9



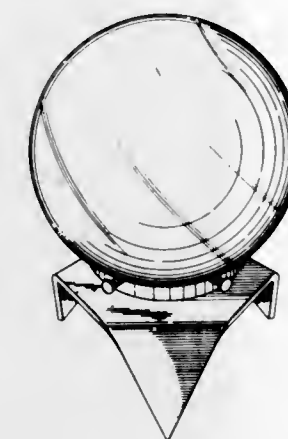
223,504
DESK LAMP
Shoji Ishikawa, Nara, Japan, assignor to Matsushita
Electric Industrial Co., Ltd., Kadoma City, Osaka,
Japan
Filed Aug. 27, 1970, Ser. No. 24,728
Claims priority, application Japan Mar. 2, 1970
Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D48—20



223,505
LAMP
James H. Ott, Franklin County, Ohio, assignor to Novar
Electronics Corporation, Barberton, Ohio
Filed Aug. 19, 1969, Ser. No. 18,763
Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D48—2



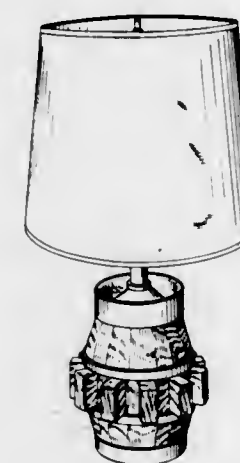
223,506
DESK LAMP
Shoji Ishikawa, Nara, Japan, assignor to Matsushita
Electric Industrial Co., Ltd., Osaka, Japan
Filed Aug. 27, 1970, Ser. No. 24,731
Claims priority, application Japan Mar. 2, 1970
Term of patent 14 years
Int. Cl. D26—05

U.S. Cl. D48—20



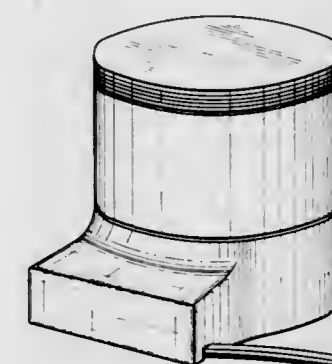
223,507
LAMP
Everett L. Crews, 302 Bercliff Drive,
South Bend, Ind. 46615
Filed Dec. 10, 1970, Ser. No. 26,399
Term of patent 7 years
Int. Cl. D26—05

U.S. Cl. D48—20



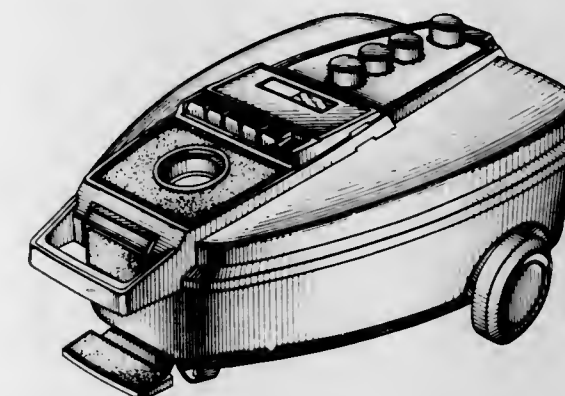
223,508
**PORTATIVE WASHING APPARATUS FOR SMALL
SIZE ARTICLES**
Marcel Fresard, Petit-Lancy, Switzerland, assignor to
Melfina S.A., Fribourg, Switzerland
Filed Feb. 19, 1971, Ser. No. 117,213
Claims priority, application Switzerland Sept. 9, 1970
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D49—11



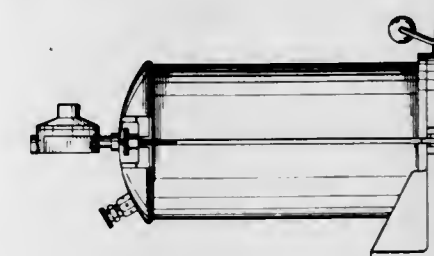
223,509
SUCTION CLEANER
Samuel E. Hohulin, Lexington, and Harold W. Schaefer,
Bloomington, Ill., assignors to National Union Electric
Corporation, Stamford, Conn.
Filed Oct. 12, 1970, Ser. No. 25,441
Term of patent 14 years
Int. Cl. D15—05

U.S. Cl. D49—14.1



223,510
**DISPENSING UNIT FOR SOLIDIFIABLE LIQUID
FINISHING MATERIALS OR SIMILAR ARTICLE**
Richard F. Racca, Melrose, and Anthony E. Di Maio and
Willem Swier, Georgetown, Mass., assignors to Marson
Corporation, Boston, Mass.
Filed Sept. 15, 1970, Ser. No. 24,994
Term of patent 14 years
Int. Cl. D20—01

U.S. Cl. D52—2



223,511
PAIR OF SPECTACLES

Jack Bloch, Leominster, Mass., assignor to Foster Grant Co., Inc., Leominster, Mass.
Filed Oct. 12, 1970, Ser. No. 25,462
Term of patent 14 years
Int. Cl. D16—06

U.S. Cl. D57—1

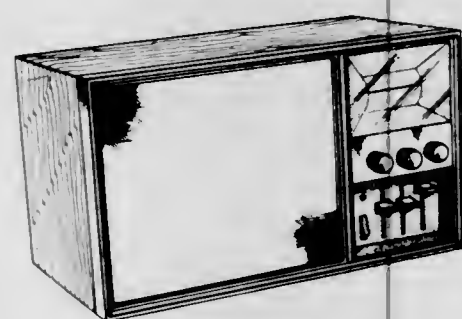


223,512
RADIO RECEIVER

Ken Kawamura, 1-401, 801 Ohaza Hoshida, Katano-cho, Kitakawachi-gun, and Katsuhiko Makino, % Shonan-ryo, 1-23, Kikusui-dori, Moriguchi, both of Osaka, Japan

Filed May 6, 1970, Ser. No. 22,858
Claims priority, application Japan Nov. 7, 1969
Term of patent 14 years
Int. Cl. D14—03

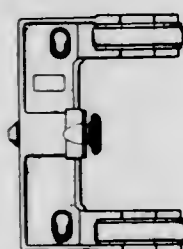
U.S. Cl. D56—4



223,513
CAMERA FLASH BRACKET

Kazuo Goto, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan
Filed Feb. 26, 1971, Ser. No. 119,452
Claims priority, application Japan Sept. 25, 1970
Term of patent 14 years
Int. Cl. D16—05

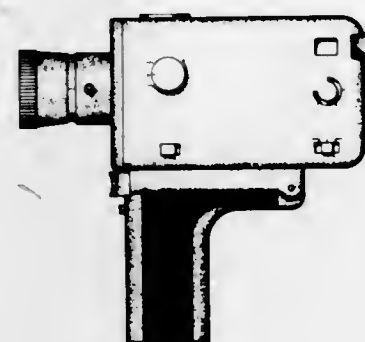
U.S. Cl. D61—1



223,514
MOTION PICTURE CAMERA

Robert Oberheim, Neu-Isenburg, Germany, assignor to Braun A.G., Frankfurt am Main, Germany
Filed Nov. 12, 1970, Ser. No. 25,944
Claims priority, application Germany May 20, 1970
Term of patent 14 years
Int. Cl. D16—01

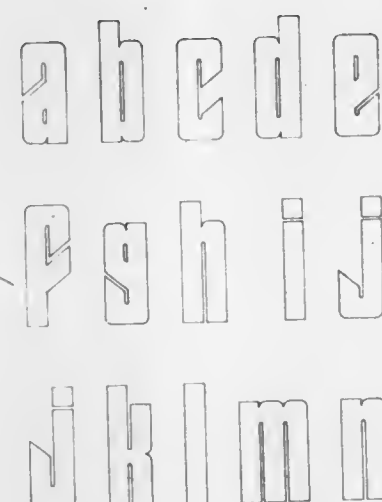
U.S. Cl. D61—1



223,515
FONT OF TYPE

Howard I. Mont, Port Washington, and Elizabeth Woznicki, Brooklyn, N.Y., assignors to Allied Chemical Corporation, New York, N.Y.
Filed June 12, 1970, Ser. No. 24,100
Term of patent 14 years
Int. Cl. D18—04

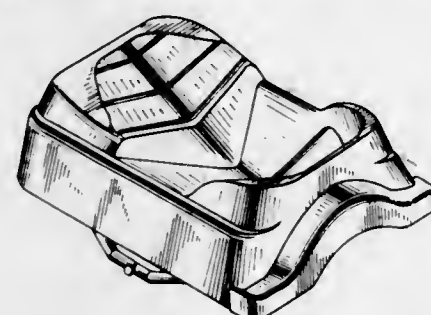
U.S. Cl. D64—12



223,516
CAR OF A LUGGAGE TRANSPORTATION SYSTEM

Charles L. Roeder and William W. Klemme, Milwaukee, Wis., assignors to Rex Chainbelt Inc., Milwaukee, Wis.
Filed Jan. 16, 1970, Ser. No. 20,953
Term of patent 14 years
Int. Cl. D12—03

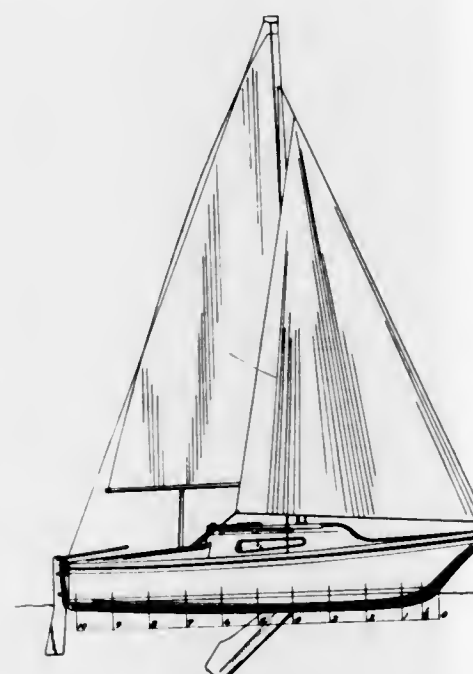
U.S. Cl. D66—1



223,517
SAILBOAT

William I. B. Crealock, 657 W. 19th St., Costa Mesa, Calif. 92627
Filed Oct. 14, 1970, Ser. No. 25,482
Term of patent 14 years
Int. Cl. D12—06

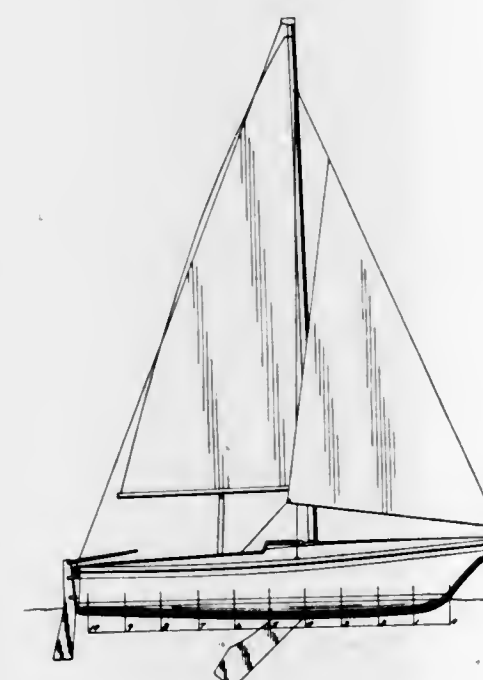
U.S. Cl. D71—1



223,518
SAILBOAT

William I. B. Crealock, 657 W. 19th St., Costa Mesa, Calif. 92627
Filed Oct. 14, 1970, Ser. No. 25,484
Term of patent 14 years
Int. Cl. D12—06

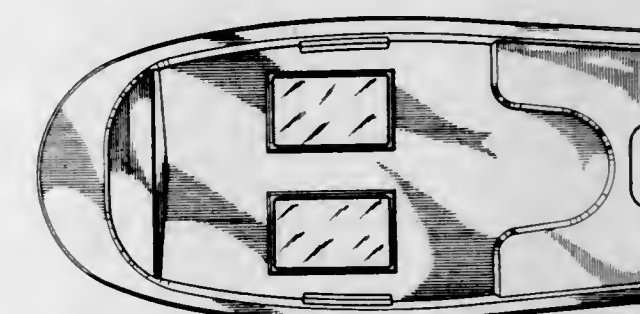
U.S. Cl. D71—1



223,519
MOLDED BOAT WITH A TRANSPARENT PORTION IN THE BOTTOM THEREOF
Albert Pflueger, Jr., 1145 NE. 18th St. 33154, and Edgar R. Lewis, Jr., 7131 SW. 5 Terrace 33144, both of Miami, Fla.

Filed Dec. 7, 1970, Ser. No. 26,314
Term of patent 14 years
Int. Cl. D12—06

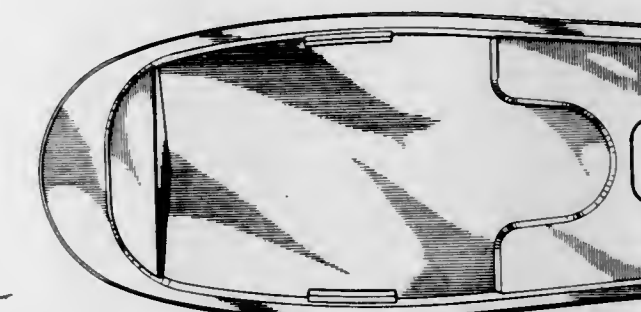
U.S. Cl. D71—1



223,520
MOLDED PLASTIC BOAT
Albert Pflueger, Jr., 1145 NE. 18th St. 33154, and Edgar R. Lewis, Jr., 7131 SW. 5 Terrace 33144, both of Miami, Fla.

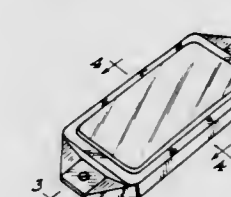
Filed Dec. 7, 1970, Ser. No. 26,315
Term of patent 14 years
Int. Cl. D12—06

U.S. Cl. D71—1



223,521
REFLECTOR
Edward Reginald Sheward, 291 Packington Ave., Birmingham 34, England
Filed June 16, 1970, Ser. No. 23,517
Term of patent 14 years
Int. Cl. D29—02

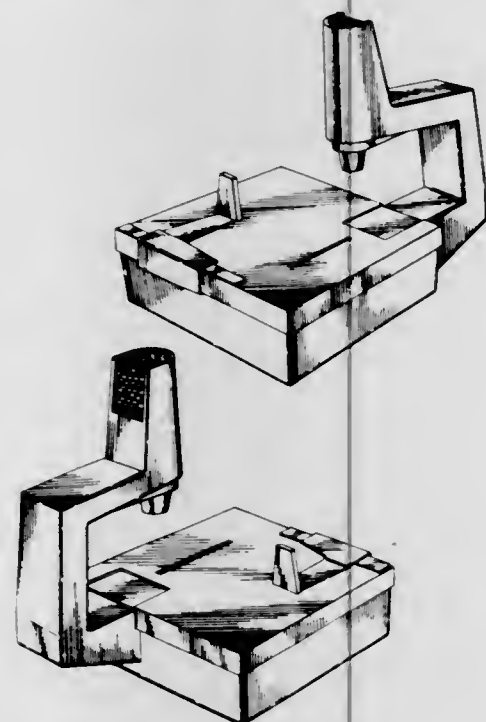
U.S. Cl. D72—1



223,522

SCANNER MODULE FOR A BONE MINERAL ANALYZER INSTRUMENT
George L. Congdon and Robert Burkhalter, Jr., Fort Atkinson, Wis., assignors to Norland Corporation
Filed Aug. 13, 1970, Ser. No. 24,474
Term of patent 14 years
Int. Cl. D24—02

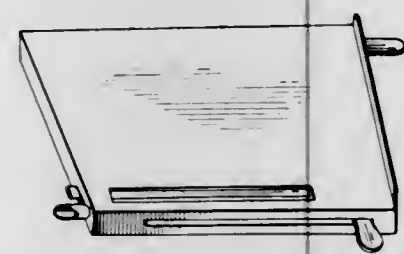
U.S. Cl. D83—1



223,523

CIGARETTE MAKING MACHINE
Arnold Kastner, 10220 Armand Lavergne, Montreal North 460, Quebec, Canada
Filed Nov. 9, 1970, Ser. No. 25,905
Claims priority, application Canada May 15, 1970
Term of patent 14 years
Int. Cl. D29—99

U.S. Cl. D85—7



223,524

COMBINED MIRROR AND FLASHLIGHT
Kyran M. Murphy, Altamonte Springs, Fla. (1011 Arlington Blvd., Apt. 1106W, Arlington, Va. 22209)
Filed Aug. 28, 1970, Ser. No. 24,740
Term of patent 14 years
Int. Cl. D6—07

U.S. Cl. D86—10



223,525

COMBINED UMBRELLA AND SHEATH
Manfred Bremshey, Mount Royal, Quebec, Canada, assignor to Telesco Brophy Limited, Montreal, Quebec, Canada
Continuation-in-part of design application Ser. No. 14,440, Nov. 13, 1968. This application Dec. 30, 1969, Ser. No. 20,706
Claims priority, application Canada June 5, 1968
Term of patent 14 years
Int. Cl. D3—99

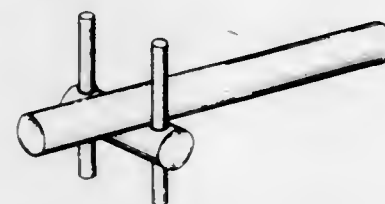
U.S. Cl. D87—1



223,526

CYCLE SEAT BRACE UNIT
Martin Cristie, Brooklyn, N.Y., assignor to Stelber Industries Inc., Brooklyn, N.Y.
Filed Mar. 24, 1970, Ser. No. 22,083
Term of patent 14 years
Int. Cl. D12—11

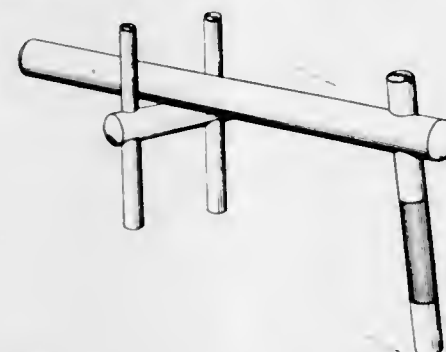
U.S. Cl. D90—8



223,527

BICYCLE FRAME
Philip Steller, Great Neck, and Martin Cristie, Brooklyn, N.Y. (both % Stelber Industries, 744 Berriman St., Brooklyn, N.Y. 11208)
Filed July 20, 1970, Ser. No. 24,030
Term of patent 14 years
Int. Cl. D12—11

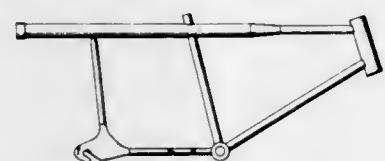
U.S. Cl. D90—8



223,528

BICYCLE FRAME
Philip Steller, 75 Longfellow Road, Great Neck, N.Y. 11023
Continuation-in-part of design application Ser. No. 19,459, Oct. 8, 1969. This application Jan. 18, 1971. Ser. No. 107,608
Term of patent 14 years
Int. Cl. D12—11

U.S. Cl. D90—8



223,529

TOWEL OR SIMILAR ARTICLE
Leonard C. Clementi, Huntington, N.Y., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Oct. 26, 1970, Ser. No. 25,660
Term of patent 14 years
Int. Cl. D6—13

U.S. Cl. D92—26



223,530

TOWEL OR SIMILAR ARTICLE
Connie C. Willoughby, New York, N.Y., assignor to Cannon Mills Company, Kannapolis, N.C.
Filed Dec. 11, 1970, Ser. No. 26,420
Term of patent 14 years
Int. Cl. D6—13

U.S. Cl. D92—26



LIST OF PATENTEEES

TO WHOM

PATENTS WERE ISSUED ON THE 25TH DAY OF APRIL, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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- Abbate, Ronald A., Jr.; and Fried, Stewart J., to International Playtex Corporation. Detent mechanism for a cabinet having a pull-out drawer. 3,658,398, Cl. 312-333.000
- Abbott, Frank R., to United States of America, Navy. Low frequency electroceramic sonar transducer. 3,659,258, Cl. 340-10.000
- Abbott, Paul Douglas. Elevator starting. 3,658,156, Cl. 187-29.
- Abe, Jinnosuke; Watanabe, Tetsuo; Take, Teruo; Fujimoto, Kentaro; Fujii, Tadashiro; Takemura, Kazunari; and Nishiie, Kazuyoshi, to Toyo Jozo Kabushiki Kaisha. Diacyl penicillins and methods for their production. 3,658,792, Cl. 260-239.1
- Abe, Zenmon; Suzuki, Takaji; Tsuneoka, Masayuki; Kimura, Eiichi; Akazome, Teizo; Obayashi, Kanji; and Kasai, Gengo, to Hitachi, Ltd. Automatic arrhythmia diagnosing system. 3,658,055, Cl. 128-2.06
- Abernathy, Timothy G.: See—
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- Able, Jesse D. Detachable handle extension for chain tightener. 3,657,944, Cl. 74-544.
- Abraham, Edward D., to Sherwin-Williams Company, The. Jolt-squeeze molding machine. 3,658,118, Cl. 164-195.
- ACF Industries Incorporated: See—
Nelson, Norman A., 3,658,087.
- Acme Visible Records, Inc.: See—
Wilson, George, 3,658,170.
- Adachi, Kikuo: See—
Tsunoo, Shigeru; Horisaka, Kazuyoshi; Yamaguchi, Akiyuki; Adachi, Kikuo; and Umezawa, Osamu, 3,658,966.
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- Adair, James Richard, to United Engineering and Foundry Company. Rotatable mandrel. 3,658,274, Cl. 242-72.1
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- Adams, Martin C.: See—
Dressel, Edwin J.; Petrie, Warren A.; Shaw, Clarence W.; Grinbergs, Janis; Isakson, John E.; and Adams, Martin C., 3,658,222.
- Addressograph-Multigraph Corporation: See—
Baltazzi, Evan S., 3,658,518.
- Adduci, Nicholas F.; and Valente, Raymond L. Evasive action tackling practice apparatus. 3,658,332, Cl. 273-55.
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- Admiraal, Daniel Johannes Hindericus: See—
Cardozo, Benjamin Lopes; Admiraal, Daniel Johannes Hindericus; and Domburg, Gerrit, 3,659,195.
- Advanced Digital Systems, Inc.: See—
Hancock, John B.; and Salbert, George R., 3,657,775.
- Advanced Drainage Systems, Inc.: See—
Martin, Ronald C.; and Sixt, Marty E., 3,658,097.
- Aerodyne Controls Corporation: See—
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- Aerojet-General Corporation: See—
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- Hoffman, Lawrence C., 3,658,043.
- Aerospatiales: See—
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- Aerpat A.G.: See—
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- Agatsuma, Kunio: See—
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- Agfa-Gevaert Aktiengesellschaft: See—
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- Engel, Herbert; and Schnall, Gunther, 3,659,084.
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- Air Products and Chemicals, Inc.: See—
Ness, Leif A.; and Thomas, Edmund P., 3,657,898.
- Airco, Inc.: See—
Hunt, Charles d'A., 3,658,116.
- Hunt, Charles D'I.; and De Haven, Reese R., Jr., 3,658,119.
- Trask, Robert B.; and Smith, Mark J., 3,658,476.
- Akazome, Teizo: See—
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- Akedo, Youichi: See—
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- Akesson, Yngve Reinhold; and Karlsson, Eve Torkel Gilbert, to Findus Produits S.A. Brussels sprout harvester. 3,658,132, Cl. 171-27.
- Aktiengesellschaft Brown, Boveri & Cie: See—
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- Albert, James R.: See—
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- Albrecht, Hans; and Moffatt, John G., to Syntex Corporation. Branched chain ribofuranosyl nucleosides and intermediates. 3,658,786, Cl. 260-210.
- Alco Machine & Tool, Inc.: See—
Wilkins, John F., 3,657,954.
- Aleckna, Robert G.: See—
Palumbo, Donald R.; Platt, John V.; Noeggerath, Leon; Johnston, Laurence, Jr.; and Aleckna, Robert G., 3,657,794.
- Alexander, Arthur W.; and Renner, Glen R., to General Motors Corporation. Generator voltage regulator with detachable resistance unit in the voltage reference circuit. 3,659,188, Cl. 322-28.
- Alexandrov, Vladimir Nikolaevich: See—
Ioffe, Vladimir Fedorovich; Roitshtein, Garri Shmilevich; Vyatkin, Iosif Yakovlevich; Tsytkin, Vladimir Grigorievich; Alexandrov, Vladimir Nikolaevich; and Semin, Gennady Gavrilovich, 3,659,070.
- Alexeev, Alexei Illarionovich: See—
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- Algoship International Limited: See—
Campbell, George Thomas Richardson; and Kasuga, Toshishige, 3,658,187.
- Aliev, Kantamir Vagabovich: See—
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- All-Fill, Inc.: See—
Ullberg, John Raymond, 3,658,212.
- Allegheny Ludlum Steel Corporation: See—
Boyer, Charles D., 3,658,603.
- Lula, Remus A.; Aggen, George; and Hammond, Charles M., 3,658,514.
- Miller, Clarence L., Jr., 3,658,587.
- Allen, Richard L., to Lockheed Aircraft Corporation. Safe arm initiator. 3,658,009, Cl. 102-70.200
- Alley, Robert P.; and Davis, Paul W., Jr., to General Electric Company. Apparatus for electrically testing a coil including a primary coil and core, a pick-up coil, and limited supply of high voltage D. C. for energizing the primary coil. 3,659,197, Cl. 324-51.
- Allied Chemical Corporation: See—
Cobbledick, David Stanley, 3,658,762.
- Cronk, Harold C., 3,659,000.
- Fleming, Roger A.; Harlacher, William H.; Spalek, Raymond J.; and Lowe, James B., 3,658,981.
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- Kolyer, John M., 3,658,747.
- Pulkkinen, Erkki J., 3,658,941.
- Allied Colloids Manufacturing Company Limited: See—
Rothwell, Eric, 3,658,474.
- Allingham, Robert P.; and Beereboom, John J., to Pfizer Inc. Use of isomaltol esters, as antimicrobial agents. 3,658,983, Cl. 424-45.
- Alltrack Vehicles Limited: See—
Baker, Frederick A., 3,658,358.
- Allum, Keith George; and Hancock, Ronald David, to British Petroleum Company Limited, The. Polymerisation of acetylenes. 3,658,884, Cl. 260-486.
- Alt, Gerhard H., to Monsanto Company. N,N'-dicyclopropyl dithiooxamide. 3,658,900, Cl. 260-551.
- Alter, Albert R. Breathing activity monitoring and alarm device. 3,658,052, Cl. 128-2.
- Aluminum Company of America: See—
Rawlins, Charles B.; and Collins, Fred R., 3,659,034.

Alvarez, Luis W.; Derenzo, Stephen E.; Muller, Richard A.; Smits, Robert G.; and Zaklad, Haim, to United States of America, Atomic Energy Commission. Subatomic particle detector with liquid electron multiplication medium. 3,659,105, Cl. 250-83.6.

Amann, Charles A.; and Rucins, Erik H., to General Motors Corporation. Gas turbine control with prewhirl of air entering the compressor. 3,657,881, Cl. 60-39.29.

Amano, Takashi: See—
Nakao, Osakazu; Nakagawa, Saburo; Hirose, Juichi; Yamazaki, Shigeyuki; Amano, Takashi; Nakamura, Toshio; and Yamamoto, Hiroyuki, 3,658,735.

Amberg, Stephen W., to Owens-Illinois, Inc., mesne. Two-piece plastic containers having foamed thermoplastic side wall and method of making same. 3,658,615, Cl. 156-218.

Americal Corporation: See—
Minton, Clarence W., 3,657,890.

American Astrionics, Inc.: See—
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American Can Company: See—
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American Cyanamid Company: See—
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Coscia, Anthony Thomas; and Williams, Laurence Lyman, 3,658,640.

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Amici, Alba-Maria; Minghetti, Anacleto; Scotti, Tullio; and Spalla, Celestino, to Societa Farmaceutici Italia. Process for the preparation of ergotamine and ergocryptine. 3,658,653, Cl. 195-81.

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Anchor Hocking Corporation: See—
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Andersen, Harry M.; and Calfee, John D., to Monsanto Company. Molding composition and method. 3,658,748, Cl. 260-37.

Anderson, Charles I. Aircraft anti-hijacking structure. 3,658,277, Cl. 244-1.

Anderson, Howard H.; Moyer, Rudolph H.; Sibbett, Donald J.; and Sutherland, David C., to Geomet, Incorporated. System and method of air pollution monitoring utilizing chemiluminescence reactions. 3,659,100, Cl. 250-71.00r.

Anderson, Percy D. Scraper snowplow with pivotal dozer blade. 3,657,828, Cl. 37-46.

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Andreaggi, Joseph, to Weston Instruments, Inc. Push button electrical switch interlocking structure including washer block-out mechanism. 3,659,061, Cl. 200-5.0ea.

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Asato, Goro; and Berkelhammer, Gerald, to American Cyanamid Company. Novel antimicrobial nitroimidazole-1,2,4-oxadiazoles. 3,658,832, Cl. 260-307.

Ash, Albert H.: See—
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Axelrod, Norman N., to Bell Telephone Laboratories, Incorporated. Photomask inspection by spatial filtering. 3,658,420, Cl. 356-71.

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Bader, Jorg; and Gatz, Karl, to Ciba-Geigy Corporation. Agents inhibiting fungus growth and method of controlling fungi therewith. 3,659,010, Cl. 424-277.

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Hoffmann, Herwig; Lissner, Oskar; Merkel, Karl; and Scholz, Heinrich, 3,658,728.

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Baker, Elton N., to Fotel, Inc. Graphic aid and methods related thereto. 3,657,983, Cl. 95-85.

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Baker, Cyril F.; and Baker, Florence, 3,658,325.

Baker, Frederick A., to Alltrack Vehicles Limited. Protective storage structure for snowmobiles. 3,658,358, Cl. 280-150.

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Davis, Donald William; Baloga, James Michael; and Olmsted, Bruce Chamberlin, Jr., 3,658,184.

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Beard, William Q., Jr., to Ethyl Corporation. Ethylene from ethane and halogen through fluidized rare earth catalyst. 3,658,934, Cl. 260-683.3

Beatenbough, Paul K.; and Gardner, John A., Jr., to General Motors Corporation. Bi-directional flow thermostat. 3,658,243, Cl. 236-34.

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Beghelli, Benito; and Campriccoli, Pierpaolo, to Montecatini Edison S.p.A. Process for preparing dye-receptive polyolefinic fibers. 3,658,937, Cl. 260-837.

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Benak, James L., to Standard Oil Company, The (Ohio). Process for demineralization of water. 3,658,674, Cl. 204-180.

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Beneking, Heinz, to Licentia, Patent-Verwaltungs-G.m.b.H. Semiconductor device. 3,659,156, Cl. 317-234.

Beneking, Heinz, to Licentia Patent-Verwaltungs-G.m.b.H. Blocking field effect transistor. 3,659,161, Cl. 317-235.

Benjamin, Milton L.; and Walker, David D., to Erickson Tool Company. Anti-chatter guides for spade drill. 3,658,434, Cl. 408-200.

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Bercovitz, Nathaniel, Jr., to Collins Radio Company. Phase detector using logic gating circuits. 3,659,196, Cl. 324-83.00a

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Biribauer, Frank A.; and Bushnell, James D., to Esso Research and Engineering Company. Two-stage C_3 dewaxing/deoiling process. 3,658,688, Cl. 208-31.

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Block, George P., to Carstens Health Industries, Inc., mesne. Folding walker. 3,658,079, Cl. 135-45.

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Bohmann, Willy F., Jr.; Goodrich, Jerome D.; and Corley, Charles B., Jr., to Esso Production Research Company. Servicing wells. 3,658,126, Cl. 166-77.

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Greubel, Jurgen, to Braun Aktiengesellschaft. Book shaped educational amusement device. 3,658,365, Cl. 281-31.000.

Greune, Christian: See—
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Greune, Christian, to Motoren- und Turbinen-Union Munchen GmbH. Control installation for gas turbine engines. 3,657,880, Cl. 60-39.28.

Griffin, Phil, III; and Phillips, Willard C., to Dresser Industries, Inc. Explosive-proof method and incinerator for burning drill cuttings. 3,658,015, Cl. 110-7.

Griffing, Brandt M., to International Business Machines Corporation. Permanent magnet electromagnetic actuator. 3,659,238, Cl. 335-229.

Griffiths, Geoffrey; and Stead, Cecil Vivian, to Imperial Chemical Industries Limited. Reactive disazo triazine dyestuffs made from a diamino diphenylurea disulphonic acid. 3,658,782, Cl. 260-153.

Grigat, Ernst; Schultheis, Heinz; Bock, Eugen; and Dollhausen, Manfred, to Farbenfabriken Bayer Aktiengesellschaft. Process for bonding non-porous materials by means of polyfunctional aromatic cyanic acid esters. 3,658,623, Cl. 156-331.

Grimmer, Elmer J., to Westinghouse Electric Corporation. Electrical bushing having adjacent capacitor sections separated by axially continuous conductive layers, and including a cooling duct. 3,659,033, Cl. 174-915.

Grinbergs, Janis: See—
Dressel, Edwin J.; Petrie, Warren A.; Shaw, Clarence W.; Grinbergs, Janis; Isakson, John E.; and Adams, Martin C., 3,658,222.

Grodziewicz, William H.; Singh, Shobha; and Van Uitert, Le Grand G., to Bell Telephone Laboratories, Incorporated. Gallium arsenide junction diode-activated up-converting phosphor. 3,659,136, Cl. 313-108.

Grosjean, Pierre: See—
Bargain, Michel; Combet, Andre; and Grosjean, Pierre, 3,658,764.

Gross, Frederick A., to International Rectifier Corporation. Positive displacement flowmeter. 3,657,925, Cl. 73-239.

Gross, Jack; Gordon, Amirav; and Schick, Lloyd Alan, to Yissum Research Development Company of the Hebrew University of Jerusalem. Method of measuring serum thyroxine. 3,659,104, Cl. 250-83.

Gross, William J., to Data Instruments Company. Magnetic tape cassette changer. 3,658,193, Cl. 214-6.

Grotewold, William H.: See—
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Gruhier, Henri: See—
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Gudaz, John A.: See—
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Guestaux, Claude; Leaute, Jean; Virey, Claude; and Vial, Jacques, to Eastman Kodak Company. Photographic film support provided with antistatic layer. 3,658,573, Cl. 117-76.

Guillemin, Claude; and Badin, Jean-Claude, to Produits Chimiques Pechiney-Saint-Gobain. Flame ionization detector assembly. 3,658,481, Cl. 23-254.

Gulf & Western Industries, Inc.: See—
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Gullasch, Jurgen: See—
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Gumenjuk, Boris Andreevich; Peregud, Boris Petrovich; Cherstov, Leonid; Granberg, Georgy Ljubimovich; and Ivanova, Galina Davydovna. Magnetic beta-ray spectrometer and magnetic lenses for use therein. 3,659,095, Cl. 250-41.9.

Gundersen, James L.: See—
Perkins, Carroll R.; Shaffstall, Everett L.; Yoder, Robert N.; and Gundersen, James L., 3,659,286.

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Gupta, Radha Raman, to Bendix Corporation. The Range-detecting doppler radar. 3,659,293, Cl. 343-14.

Guptill, Frank E., Jr.: See—
Wilson, Raymond F.; Peck, Reese A.; and Guptill, Frank E., Jr., 3,658,681.

Gurry, George W. Logic circuit for generating cyclic signals. 3,659,269, Cl. 340-171.

Gustison, Robert A., to Kawecki Beryco Industries, Inc. Upgrading the tantalum and columbium contents of oxide metallurgical products. 3,658,511, Cl. 75-101.

Gutberlet, Louis C., to Standard Oil Company. Screw-conveying retorting apparatus with hydrogenation means. 3,658,654, Cl. 202-118.

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Jurgen Lahmann, Albert Heinrich, 3,658,275.

Gutner, Kenneth H. Drawer slide and guide assembly. 3,658,394, Cl. 308-3.6.

Guy, Henri Robert: See—
Caiola, Amedee Jean-Claude; Guy, Henri Robert; and Sohm, Jean-Claude, 3,658,593.

Gyi, Maung, to Ampex Corporation. Angle modulated wave demodulation apparatus. 3,659,276, Cl. 340-174.1.

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Habegger, Oskar: See—
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Hachisu, Mikio; Niiyama, Eisuke; Sasaki, Ryoichi; Hataya, Humio; and Fukui, Yutaka, to Hitachi, Ltd. Austenitic cast steel of high strength and excellent ductility at high temperatures. 3,658,516, Cl. 75-128.

Hacker, Harold R. Automatic part feeding equipment. 3,658,172, Cl. 198-220.

Hafner, Klaus; and Muller-Westerhoff, Ulrich, to Studiengesellschaft Kohle m.b.H. 6-Amino-5-aza- and -5,7-diaza-azulenes and process for the production thereof. 3,658,793, Cl. 260-239.

Hagen, Hermann; Fehler, Adolf; and Greune, Christian, to Motoren- und Turbinen-Union Munchen GmbH. Gas turbine engine. 3,657,886, Cl. 60-39.74.

Hagenbach, Robert J., to Xerox Corporation. Method for producing glass beads for electro-statographic developers. 3,658,500, Cl. 65-21.000.

Hager, C., & Sons Hinge Manufacturing Company: See—
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Hagman, Harry C. Dental restoration appliance. 3,657,816, Cl. 32-13.

Hahn, Edward E.: See—
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Hahn, Erich, to August Bilstein, Firma. Hydro-pneumatic suspension unit with automatic level regulation. 3,658,313, Cl. 267-64.

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Hall, Roger P.: See—
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Hall, Roger P., to SCM Corporation. Irradiation lamination process for air-inhibited polymers. 3,658,620, Cl. 156-272.

Hall, Thomas H., Jr.; Cottrill, Jon R.; and Dubble, Roger D., to Anchor Hocking Corporation. Means for vapor coating. 3,658,304, Cl. 261-23.

Hallada, Calvin J.: See—
Barry, Henry F.; Hallada, Calvin J.; and Baker, Jerry D., 3,658,464.

Halleck, Frank E., to Pillsbury Company. The Cosmetic compositions employing water-soluble polysaccharides. 3,659,025, Cl. 424-361.

Hallerback, Stig Lennart, to SKF Industrial Trading and Development Company N.V. Supporting and sealing member for rolling bearings. 3,658,395, Cl. 308-187.2.

Hallford, Ben R., to Collins Radio Company. Microwave balanced mixer circuit. 3,659,206, Cl. 325-446.000.

Hallford, Ben R., to Collins Radio Company. Microstrip RF variable attenuator. 3,659,233, Cl. 333-81.00a.

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Hamilton, Douglas D., 1/3 to Canadian International Paper Company, Canada Quebec North Shox Paper Company, and Ste. Anne Paper Company Limited. Feller buncher including double bunk trailer. 3,658,104, Cl. 144-309.0ac.

Hamilton, Thomas R., to Caterpillar Tractor Company. Bowl lift jack mounting for earthmoving scraper. 3,657,830, Cl. 37-129.000.

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Hancock, John B.; and Salbert, George R., to Advanced Digital Systems, Inc. Tape joining clip. 3,657,775, Cl. 24-230.

Hancock, Ronald David: See—
Allum, Keith George; and Hancock, Ronald David, 3,658,884.

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Hanka, Ladislav J.; and Martin, David G., to Upjohn Company. The Antibiotic α -methyldehydrobiotin, α -methylbiotin, and their esters. 3,658,837, Cl. 260-39.7.

Hannagan, Harold W.: See—
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Hansen, Arne, to Kidde, Walter, & Company, Inc. Combined control head seal and relief valve for pressurized fluid dispensing apparatus. 3,658,208, Cl. 222-3.000.

Hanzawa, Teruo: See—
Iwama, Masakuni; Inoue, Isaburo; Hanzawa, Teruo; Sakamoto, Kenro; and Endo, Takaya, 3,658,544.

Happel, Hermann E., to Norris Food Service, Inc. Food warming oven with removable tray racks. 3,658,047, Cl. 126-21.

Hara, Michio: See—
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Harcuba, Siegfried, to Intervet Etablissement. Apparatus for the continuous production of profile glass and plate glass in band form. 3,659,028, Cl. 65-185.

Harden, Darrel G.: See—
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Hardinge Brothers, Inc.: See—
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Harlacher, William H.: See—
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Harper, Robert J., Jr.: See—
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Harris, Elbert E.: See—
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Harris, Jack, 1/2 to Rosenberg, Samuel. Collapsible aquarium. 3,658,035, Cl. 119-5.

Harris, Raymond. Fishing plug with paired snagless hooks. 3,657,836, Cl. 43-42.41.

Harris-Intertype Corporation: See—
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Harrison, Ian T., to Syntex Corporation. Di-(6-methoxy-2-naphthyl) cadmium. 3,658,858, Cl. 260-429.

Harrison, Ian T., to Syntex Corporation. 6-Methoxy-2-naphthyl copper (I). 3,658,863, Cl. 260-438.1.

Harrison, Keith W.: See—
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Harrison, Robert R., to Nemo Corporation. Hydraulic steering system for boats. 3,657,889, Cl. 60-54.5.

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Hart, Forrest E. Valve control system. 3,658,086, Cl. 137-368.

Hart, James A. Rod bending apparatus. 3,657,914, Cl. 72-383.

Hartzell, Donald W., to Fedders Corporation. Gas burner. 3,658,256, Cl. 239-552.

Harvey, James R. Preparation of starch from cellulose treated with phosphoric acid. 3,658,588, Cl. 127-36.

Harvey, Merlin P.; and Relyea, Douglas I., to Uniroyal, Inc. Process for polymerization of pivalolactone. 3,658,768, Cl. 260-78.3.

Hasegawa, Kiyoshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Antiskid device. 3,658,388, Cl. 303-21.

Hastings, Reeve R.; and Stock, Arthur J., to Stock Equipment Company. Gate valve having relatively movable seat members. 3,658,084, Cl. 137-246.22.

Haszeldine, Robert Neville; Banks, Ronald Eric; and Taylor, David Robin. Fluorinated alkyl allenes. 3,658,924, Cl. 260-653.3.

Hataya, Humio: See—
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Haugh, Eugene Frederick, to Du Pont de Nemours, E. I., and Company. Hologram recording in photopolymerizable layers. 3,658,526, Cl. 96-27.

Haur, Vernon E.: See—
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Hautala, Richard E.; and Kern, Roy F., to Caterpillar Tractor Company. Friction welded graphic valve lifters. 3,657,800, Cl. 29-470.3.

Hawley, Robert L., to Ralston Purina Company. Method for producing an artificial adipose tissue. 3,658,550, Cl. 99-17.

Hayami, Tadao, to Kabushiki Kaisha Kōpaku. Motion picture projector with automatic rewind. 3,658,276, Cl. 242-189.

Hayashida, Motoyuki: See—
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Heald Machine Company, The: See—
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Hearns, Harold L., to Dow Chemical Company, The. Web monitoring device. 3,657,823, Cl. 33-172.

Heath & Sherwood Drilling Limited: See—
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Heath Company: See—
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Hechenbleikner, Ingenuin A., to Carlisle Chemical Works, Inc. Liquid 2-hydroxy-4-alkoxybenzophenones. 3,658,910, Cl. 260-591.000.

Heck, Richard F., to Hercules Incorporated. Arylation of allyl compounds. 3,658,917, Cl. 260-612.

Hedegaard, Kristen; and Lessmeister, Anton, to G.M. Pfaff AG., Firma. Arrangement for cutting threads on double stitch sewing machines. 3,658,021, Cl. 112-252.000.

Hedler, Robert A.; and Janssen, Jerry F., to Sylvania Electric Products, Inc. Process for forming an opaque interstitial web in a color CRT screen structure. 3,658,330, Cl. 96-36.1.

Hedrich, Winfried; and Upmeyer, Hartmut, to Windmoller & Holcher. Flattening and take-away device for blown tubing. 3,657,974, Cl. 93-1.

Heere, Peter N. Direct reading reflux ratio controller for a distillation apparatus. 3,658,655, Cl. 202-160.

Hegar, Gert, to Ciba Limited. Basic monoaz dyes containing a heterocyclic diazo component. 3,658,781, Cl. 260-156.

Heijne, Leopold; and Beekmans, Nicolaas Marinus, to U.S. Philips Corporation. Device for measuring the pressure of a gas. 3,658,479, Cl. 23-254.

Heitmann, Arnold M.; and Chambers, Robert O., to Northern Research and Engineering Corporation. Compressor. 3,658,442, Cl. 417-243.

Hellige, Fritz, & Co., G.m.b.H.: See—
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Helm, Herbert W.; and Weir, Edgar V., to Smith, F. L., Machine Company, Inc. Method and apparatus for controlling the heat intensity of an envelope machine drier. 3,657,825, Cl. 34-41.

Helvy, Fred Anderson, to RCA Corporation. Method of making a multi-alkali photocathode with improved sensitivity to infrared light and a photocathode made thereby. 3,658,400, Cl. 316-5.

Henderson, R., to Arcair Company. Arc cutting of metals and method of control of cutting depth. 3,659,071, Cl. 219-69.

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Henning, Hans-Joachim: See—
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Henry, Cyrus P., Jr.; and Jeffrey, John R., to Du Pont de Nemours, E. I., and Company. Dual response photosensitive composition containing alkyl benzenesulfonic acid and arene sulfonamide. 3,658,542, Cl. 96-90.

Hensley, James R. Safety device for air actuated assemblies. 3,658,391, Cl. 303-84.

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Herb, Carl C.; and Traver, Darwin G., to Carrier Corporation. Air conditioning system. 3,657,901, Cl. 62-419.

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Hercules Incorporated: See—
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Hershenson, Lawrence H., to United States of America, Atomic Energy Commission, mesne. Method of joining certain metals. 3,657,801, Cl. 29-471.7.

Hertel, Hasso, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Scarcely dusting composition consisting of ice-color coupling component and an ethylene oxide. 3,658,456, Cl. 8-44.

Herweh, John E., to Armstrong Cork Company. sulfoylhydrazide phosphonates. 3,658,951, Cl. 260-923.

Hettick, George R.; and Lawson, Shelby D., to Phillips Petroleum Company. Catalytic cracking method. 3,658,693, Cl. 208-93.

Heymes, Rene; Amiard, Gaston; and Nomine, Gerard, to Roussel-UCLA. Cephalosporine derivatives and process. 3,658,802, Cl. 260-243.

Hickey, Lionel R.; and McCune, Ellsworth J., to Eastman Kodak Company. Photosensitive controlled machine programmer. 3,659,109, Cl. 250-208.

Hickman, Ronald P. Child's toilet pot. 3,657,745, Cl. 4-138.

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Tsukui, Michio; Watanabe, Yutaka; Suzuki, Hiroshi; Kitamura, Masahiro; and Mori, Yoshisuke, 3,658,750.

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Ho, Louis T.; and Flaherty, Robert J., III, to United States of America, Navy. Device for measuring acoustic quantities. 3,658,147, Cl. 181-0.5ap.

Hoagland Instrument Company: See—
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Hoagland, Porter, Jr., to Hoagland Instrument Company. Overcurrent responsive device. 3,659,242, Cl. 337-139.

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Holmes, Frederick M., Sr. Protective collar devices. 3,657,739, Cl. 2-2.

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Holmes, Lawrence, Jr. Data input mechanism for an electrical typewriter. 3,658,161, Cl. 197-19.

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- Mitchell, John G., to Mobil Oil Corporation. Confinement of different miscible liquids in a single container. 3,658,080, Cl. 137-1.
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Parnell, Robert A. Magnet assembly for magnetic separator.
3,658,178, Cl. 209-223.
Parsons, Hubert J., to Harding Brothers, Inc. Master jaw stepping
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machine for producing equal or symmetrical pieces, such as molds.
3,657,961, Cl. 90-11.
Passal, Frank, to M & T Chemicals, Inc. β -Cyanoethylated thioborituric
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Patmore, Edwin L.; Siegert, William R.; and Chafetz, Harry, to Texaco
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Coating for condenser surfaces. 3,658,581, Cl. 117-169.
Payne, Arthur D.; and Reinheimer, Harry J., to International Business
Machines Corporation. Error detecting and correcting system and
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3,658,107, Cl. 151-34.
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dersen, James L., to Hughes Aircraft Company. Data converting and
clock pulse generating system. 3,659,286, Cl. 340-347.0dd
Perminov, Evgeny Mikhailovich. Drawing head for use in drawing
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tion from a single tapped delay line. 3,659,207, Cl. 328-14.
Perreault, Jules; and Southiere, Bertrand, to Bombardier Limited.
Tracked vehicle suspension. 3,658,392, Cl. 305-24.
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Fabrik Aktiengesellschaft. Production of ureidomethylphosphonium
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Petersen, Siegfried: See—
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Peterson, Francis C., to Hager, C., & Sons Hinge Manufacturing Company. Hinge with means for conducting electricity therethrough. 3,659,063, Cl. 200-61.7

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Pettitt, David J., to Kelco Company. Guar gum-polyacrylamide compositions. 3,658,734, Cl. 260-17.4

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Zabroski, Frank; McDonald, Walter; Piano, Anthony P., Jr.; and Seitel, Norbert J., 3,658,168.

Piccione, Sebastian W. Jammed paper detector. 3,659,081, Cl. 235-92.

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Pittsburgh Pacific Processing Co.: See—
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Planet Corporation: See—
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Plasco Limited Company: See—
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Palumbo, Donald R.; Platt, John V.; Noeggerath, Leon; Johnston, Laurence, Jr.; and Aleckna, Robert G., 3,657,794.

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Plessey Handel und Investments A.G.: See—
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Plumer, Lawrence H., to Rutland Fire Clay Company. Shut-off nozzle for caulking cartridge. 3,658,213, Cl. 222-326.000

Pluta, Maksymilian. Variable phase-contrast and interference microscope. 3,658,405, Cl. 350-12.

Poculuyko, Alexander, to Scott Paper Company. Disposable diapers and supporting garment therefor. 3,658,064, Cl. 128-287.

Poel, Dirk E.; Medema, Dirk; Van Helden, Robert; Ferkes, Nanno; Bergmann, Elliot; and Wood, Jack, to Shell Oil Company. Process for the preparation of substituted vinyl esters of acids of phosphorus. 3,658,953, Cl. 260-970.

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Politycki, Alfred; Jecht, Ulrich; and Guillasch, Jurgen, to Siemens Aktiengesellschaft. Arrangement for facilitating adjustment of the electronic beam of an electronic-beam microanalyzer and method of producing same. 3,659,098, Cl. 250-49.5

Polymark Limited: See—
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Pomeroy, Raymond Visser, to Omark Industries, Inc. Stud driving tool. 3,658,229, Cl. 227-10.000

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Pommer, Horst; Mueller, Herbert; Koehl, Harald; and Overwien, Hermann, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Production of 2-methylhepten-2-en-6-one. 3,658,911, Cl. 260-593.

Popadick, Carl C.; and Talento, Joseph L., to General Electric Company. Method of making an electrode having a refractory metal arcing portion. 3,657,799, Cl. 29-25.17

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Scharf, Hans; Poplat, Gerhard; and Steinberg, Eckhard, 3,657,793.

Poppendieck, Werner. Constant speed telephone dial return mechanism. 3,659,057, Cl. 179-90.

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Potthoff, Ingo, to Schade, Gustav, Maschinenfabrik. Scraper to recover bulk material from storage. 3,658,169, Cl. 198-36.

Powell, Douglas W. Dentures. 3,657,815, Cl. 32-2.

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Preuss, Friedrich, to Roland Offsetmaschinenfabrik Faber & Schleicher AG. Clamping device for clamping a printing plate upon a cylinder of a printing press. 3,658,002, Cl. 101-415.1

Price, Kenneth E.; and Presby, Edwin E., to Rainbow Lifeguard Products, Inc. Fishing float construction. 3,657,837, Cl. 43-43.1

Price, William Chandler; and Billard, Stephen Lane, to Burroughs Corporation. Digital computer with a program-trace facility. 3,659,272, Cl. 340-172.5

Price, William H., to Eastman Kodak Company. Folded path zoom lens. 3,658,411, Cl. 350-184.

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Prislan, Georges, to Societe Boussoirs-Souchon-Neuvesel. Apparatus for the drawing of continuous sheets of glass including glass melt heating and cooling means. 3,658,503, Cl. 65-162.

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Prokai, Bela, to Union Carbide Corporation. Tertiary amino bis (trimethyl-siloxy) siloxanes. 3,658,867, Cl. 260-448.2

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Puckette, Charles McDonald, to General Electric Company. Slope polarity detector circuit. 3,659,209, Cl. 328-132.

Puckorius, Paul R.; and Zimmie, William E., to Zimmie, W. E., Inc. Method of removing tubercles using organic polymers and silica and/or chromium compounds. 3,658,710, Cl. 252-87.000

Puig, John E.: See—
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Quase, Harold Gerson, to Underwater Storage, Inc. Collapsible floatable submergible and towable containers with resistant layers. 3,659,108, Cl. 250-108.

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Radlove, Sol B. Dietary dry cake mix. 3,658,553, Cl. 99-94.

Radnik, Joseph L.; Hahn, Edward E.; and Ridenour, Wayne F., deceased (by Ridenour, Helen L.; executrix), said Radnik, said Hahn assor. to Gruen Industries, Inc. Electro-mechanical drive mechanism for watches and related devices. 3,657,875, Cl. 58-23.000

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Ramsey, Stancil I. Method of forming a package of flexible molding strips. 3,658,000, Cl. 101-129.

Ranco Incorporated: See—
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Rashkin, Allyn S., to GAF Corporation. Apparatus for detecting, quantizing and displaying the position of registration mark on a sheet. 3,658,430, Cl. 356-172.

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Ratlec S.p.A.: See—
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Ratto, Luigi, to Ratlec S.p.A. Compositions for eliminating deposits from the combustion chambers of internal combustion engines. 3,658,708, Cl. 252-56.

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Read, George W. Method and apparatus for converting a tricycle to a bicycle. 3,658,354, Cl. 280-7.15

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 Reinheimer, Harry J.: See—
 Payne, Arthur D.; and Reinheimer, Harry J., 3,659,089.
 Reinhold, Donald F.; Slettinger, Meyer; and Chermida, John M., to Merck & Co., Inc. Process of preparing L- α -acetamino- α -vanillylpropionitrile. 3,658,876, Cl. 260-465.
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Yegge, Lawrence R. System for post-tensioning and anchoring prestressing tendons. 3,658,296, Cl. 254-29.
Yeshin, Leon, to Grace, W. R., & Co. Photographic process. 3,658,529, Cl. 96-35.1.
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- Boroscaw, Gerhard: *See*—
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Valenziano, Frank P., to Interpace Corp. Pipe joint. Re. 27,342, 4-25-72, Cl. 277—168.
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- Anderson, Frederic W., to Arthur Bright. Almond tree. 3,130, 4-25-72, Cl. 30.
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CLASSIFICATION OF PATENTS

ISSUED APRIL 25, 1972

NOTE.—First number, class; second number, subclass; third number, patent number

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59		3,657,741	230R	3,657,775	66	3,658,495	13	3,657,902	345	3,657,954	17	3,658,550
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177AB		3,658,461	407	3,657,792	90	3,657,849	8	3,657,910	398	3,657,968	350	3,658,001
	CLASS 9		421	3,657,793	175	Re.27,341	157	3,657,911	412	3,657,969	415.1	3,658,002
1R		3,657,751	427	3,657,795	222	3,657,850	234	3,657,912	485	3,657,970	426	3,658,003
9		3,657,752	429	3,657,794	378	3,657,851	242	3,657,913	487	3,657,971		
310F		3,657,753	432	3,657,796	591	3,657,852	383	3,657,914		CLASS 92		CLASS 102
	CLASS 12		452	3,657,798	741	3,657,853	391	3,657,915	128	3,657,972	4	3,658,004
12.4		3,657,754	470.3	3,657,800		CLASS 53	399	3,657,916	166	3,657,973	6	3,658,005
12.5		3,657,756	471.7	3,657,801	3	3,657,855	453	3,657,917		CLASS 93	24HC	3,658,006
136B		3,657,755	472.9	3,657,802	28	3,657,856		CLASS 73	1R	3,657,974	38	3,658,007
146C		3,657,757	527.7	3,657,803	30	3,657,857		CLASS 74	8VB	3,657,975	70.2	3,658,008
	CLASS 13			3,657,804	59W	3,657,858	117.3	3,657,921	54R	3,657,976		CLASS 104
6		3,659,029	589	3,657,805	162	3,657,859	134	3,657,922	39	3,657,977	23FS	3,658,010
	CLASS 15		603	3,657,806	197	3,657,860	187	3,657,923		CLASS 95		CLASS 105
93		3,657,758	604	3,657,807	297	3,657,862	239	3,657,924	4.5	3,657,978	367	3,658,011
98		3,657,759	605	3,657,808		CLASS 54	404	3,657,925	10CT	3,657,979	368T	3,658,012
104.93		3,657,760	624	3,657,809	6R	3,657,863	505	3,657,926	11R	3,657,984		CLASS 106
112		3,657,761			386	3,657,864	515	3,657,927	11.5R	3,657,980	55	3,658,563
250.32		3,657,762				CLASS 55	517	3,657,928	18P	3,657,981	84	3,658,564
268		3,657,763				CLASS 56		3,657,929	42	3,657,985	286	3,658,565
	CLASS 16		166	3,657,813	13.3	3,657,865		CLASS 75	53EB	3,657,986	300	3,658,566
112		3,657,764	302	3,657,814	15.5	3,657,866	5	3,657,930	53E	3,657,987		CLASS 108
114B		3,657,765			17.2	3,657,867	10.33	3,657,931	64D	3,657,988	23	3,658,014
182		3,657,766			26.5	3,657,868	55	3,657,932	64R	3,657,989		CLASS 110
	CLASS 17		2	3,657,815	294	3,657,869	128	3,657,933	85	3,657,990	7R	3,658,015
1A		3,657,767	13	3,657,816		CLASS 57	230.17	3,657,936	98	3,657,991	8C	3,658,016
11.2		3,657,768	14A	3,657,817	24	3,657,870	233	3,657,937		CLASS 96	8R	3,658,017
42		3,657,769	27	3,657,818	34R	3,657,871	325	3,657,938	1.4	3,658,518		CLASS 111
45		3,657,770	33	3,657,819	77.45	3,657,872	397	3,657,939	1.6	3,658,519	88	3,658,018
52		3,657,771			152	3,657,873	417	3,657,940		3,658,520		CLASS 112
	CLASS 19		18C	3,657,820		CLASS 58	501	3,657,941		3,658,521	102	3,658,019
105		3,657,772	46AS	3,657,821	23D	3,657,875	524	3,657,942	1.7	3,658,522	147	3,658,020
243		3,657,773	79R	3,657,822	23	3,657,874	544	3,657,943	1.8	3,658,523	226	3,658,022
	CLASS 23		172F	3,657,823	91	3,657,876	594.4	3,657,945	3	3,658,524	252	3,658,021
2A		3,658,462	174G	3,657,824		CLASS 60	711	3,657,946	22	3,658,525	416	3,658,023
2R		3,658,463				CLASS 34	861	3,657,934	27	3,658,526		CLASS 114
15W		3,658,464	41	3,657,825	25	3,657,877		CLASS 76	29	3,658,527	40	3,658,024
		3,658,465			39.05	3,657,879		CLASS 77	35.1	3,658,528	105	3,658,025
22		3,658,466	8A	3,659,030	39.28	3,657,880	26	3,658,507	36.1	3,658,529		CLASS 115
25		3,658,467	25	3,657,826	39.29	3,657,881	67	3,658,508	36.3	3,658,530	12	3,658,026
51		3,658,468			39.31	3,657,882	99	3,658,509		3,658,531	18	3,658,027
142		3,658,469	50	3,657,827	39.37	3,657,883	101R	3,658,510	48R	3,658,532	42	3,658,028
145		3,658,470			39.35	3,657,884		3,658,511	48	3,658,533		CLASS 117
151		3,658,471			39.74R	3,657,885	103	3,658,512	59	3,658,535	36.1	3,658,567
160		3,658,472	46	3,657,828	39.74	3,657,886	124	3,658,513	69	3,658,536	46CA	3,658,568
198		3,658,471	63	3,657,829	52S	3,657,887	128E	3,658,516	74	3,658,537	47R	3,658,569
201		3,658,473	129	3,657,830	54.6P	3,657,887	128F	3,658,515	75	3,658,538	64	3,658,570
202R		3,658,474	193	3,657,831	219	3,657,891	128T	3,658,514	87	3,658,541	65.2	3,658,571
203C		3,658,475			274	3,657,892	165	3,658,517	88	3,658,542	76P	3,658,573
209.1		3,658,476			289	3,657,893	200		90	3,658,543	76	3,658,574
225R		3,658,477			319	3,657,894		CLASS 78		3,658,544	93.1PF	3,658,572
230B		3,658,480			543R	3,657,899	112	3,657,946	100	3,658,545	102R	3,658,575
252		3,658,996	1.5	3,657,834		CLASS 61		CLASS 81		3,658,546	105	3,658,576
253R		3,658,478	35	3,657,833	46	3,657,895	134	3,657,947		3,658,547	106R	3,658,577
254E		3,658,479			53.5	3,657,896	367	3,657,948	101	3,658,547	122R	3,658,578
		3,658,481			53.64	3,657,894	370	3,657,949		CLASS 98	137	3,658,579
263		3,658,483			85	3,657,897		CLASS 82	2.11	3,657,992	139.4	3,658,580
270.5		3,658,484				CLASS 62	8	3,657,950	32	3,657,991	168	3,658,581
277C		3,658,482				CLASS 83		3,657,953		CLASS 99	169R	3,658,582
284		3,658,485							2CD	3,658,549	201	3,658,583
312ME		3,658,486										
357		3,658,487										

230	3,658,584	CLASS 141	152	3,658,100	CLASS 172	84C	3,659,064	130	3,659,076	CLASS 242	7.09	3,658,269
	3,658,585		284	3,658,101		148R	3,659,065	213	3,659,077		54	3,658,270
	3,658,586		387	3,658,102		159R	3,659,066	284	3,659,078		66	3,658,272
	3,658,587			3,658,103		168SD	3,659,067	522	3,659,079		67.1	3,658,271
7	3,658,029	CLASS 143	27R	3,658,102	CLASS 173	118	3,658,654	23.4	3,658,204	CLASS 243	72.1	3,658,273
	3,658,030			3,658,103		160	3,658,655	63R	3,658,205		118.4	3,658,275
48	3,658,032	CLASS 144	162	3,658,103	CLASS 174	49	3,658,656	89A	3,658,206		189	3,658,276
318	3,658,033		309AC	3,658,104		51	3,658,657			CLASS 244	33	3,658,277
		CLASS 145	50A	3,658,105	CLASS 175	58	3,658,658	167	3,658,207		53R	3,658,278
2	3,658,034			3,658,106		76	3,658,659			CLASS 245	77D	3,658,279
5	3,658,035	CLASS 146	106	3,658,106	CLASS 176	4	3,658,660	70	3,658,208		151	3,658,281
18	3,658,031					15	3,658,661	100	3,658,209	CLASS 246	45.75N	3,658,282
51.13	3,658,036	CLASS 148		3,658,198	CLASS 177	30R	3,658,662	185	3,658,210		45.75N	3,658,283
121	3,658,037			3,658,403		34R	3,658,663	240	3,658,211	CLASS 247	45.75N	3,658,284
325T	3,658,046	CLASS 123	1.6	3,658,403	CLASS 178	58	3,658,664	402.18	3,658,212		45.75N	3,658,285
90.27	3,658,038		6.16	3,658,404		58	3,658,665	402.2	3,658,213	CLASS 248	45.75N	3,658,286
117	3,658,039	CLASS 124	11.5A	3,658,405	CLASS 179	58	3,658,666	402.2	3,658,214		45.75N	3,658,287
119A	3,658,040		12.7	3,658,406		58	3,658,667	402.2	3,658,215	CLASS 249	45.75N	3,658,288
122E	3,658,041	CLASS 125	14	3,658,407	CLASS 180	58	3,658,668	402.2	3,658,216		45.75N	3,658,289
136	3,658,042		126	3,658,408		58	3,658,669	402.2	3,658,217	CLASS 250	45.75N	3,658,290
140J	3,658,043	CLASS 126	154	3,658,409	CLASS 181	58	3,658,670	402.2	3,658,218		45.75N	3,658,291
148E	3,658,044		189	3,658,410		58	3,658,671	402.2	3,658,219	CLASS 251	45.75N	3,658,292
179S	3,658,045	CLASS 127	2	3,658,411	CLASS 182	58	3,658,672	402.2	3,658,220		45.75N	3,658,293
			19	3,658,412		58	3,658,673	402.2	3,658,221	CLASS 252	45.75N	3,658,294
21A	3,658,047	CLASS 128	36	3,658,413	CLASS 183	58	3,658,674	402.2	3,658,222		45.75N	3,658,295
	3,658,048			3,658,414		58	3,658,675	402.2	3,658,223	CLASS 253	45.75N	3,658,296
215	3,658,049	CLASS 129	34	3,658,415	CLASS 184	58	3,658,676	402.2	3,658,224		45.75N	3,658,297
340	3,658,050					58	3,658,677	402.2	3,658,225	CLASS 254	45.75N	3,658,298
		CLASS 130	209R	3,658,108	CLASS 185	58	3,658,678	402.2	3,658,226		45.75N	3,658,299
36	3,658,588					58	3,658,679	402.2	3,658,227	CLASS 255	45.75N	3,658,300
		CLASS 131		3,658,610	CLASS 186	58	3,658,680	402.2	3,658,228		45.75N	3,658,301
1.5	3,658,051		11	3,658,611		58	3,658,681	402.2	3,658,229	CLASS 256	45.75N	3,658,302
2G	3,658,052	CLASS 132	89	3,658,612	CLASS 187	58	3,658,682	402.2	3,658,230		45.75N	3,658,303
2	3,658,053		93	3,658,613		58	3,658,683	402.2	3,658,231	CLASS 257	45.75N	3,658,304
2.05A	3,658,060	CLASS 133	133	3,658,614	CLASS 188	58	3,658,684	402.2	3,658,232		45.75N	3,658,305
2.05R	3,658,054		153	3,658,615		58	3,658,685	402.2	3,658,233	CLASS 258	45.75N	3,658,306
2.06A	3,658,055	CLASS 134	187	3,658,616	CLASS 189	58	3,658,686	402.2	3,658,234		45.75N	3,658,307
92CA	3,658,056		218	3,658,617		58	3,658,687	402.2	3,658,235	CLASS 259	45.75N	3,658,308
129	3,658,057	CLASS 135	229	3,658,618	CLASS 190	58	3,658,688	402.2	3,658,236		45.75N	3,658,309
147	3,658,058		234	3,658,619		58	3,658,689	402.2	3,658,237	CLASS 260	45.75N	3,658,310
173R	3,658,059	CLASS 136	235	3,658,620	CLASS 191	58	3,658,690	402.2	3,658,238		45.75N	3,658,311
214.4	3,658,061		250	3,658,621		58	3,658,691	402.2	3,658,239	CLASS 261	45.75N	3,658,312
287	3,658,062	CLASS 137	272	3,658,622	CLASS 192	58	3,658,692	402.2	3,658,240		45.75N	3,658,313
	3,658,063		289	3,658,623		58	3,658,693	402.2	3,658,241	CLASS 262	45.75N	3,658,314
296	3,658,065	CLASS 138	331	3,658,624	CLASS 193	58	3,658,694	402.2	3,658,242		45.75N	3,658,315
303.1	3,658,066			3,658,625		58	3,658,695	402.2	3,658,243	CLASS 263	45.75N	3,658,316
303.14	3,658,067	CLASS 139	332	3,658,626	CLASS 194	58	3,658,696	402.2	3,658,244		45.75N	3,658,317
395	3,658,068		441	3,658,627		58	3,658,697	402.2	3,658,245	CLASS 264	45.75N	3,658,318
		CLASS 140	497	3,658,628	CLASS 195	58	3,658,698	402.2	3,658,246		45.75N	3,658,319
10.7	3,658,069		527	3,658,629		58	3,658,699	402.2	3,658,247	CLASS 265	45.75N	3,658,320
267	3,658,070	CLASS 141	552	3,658,630	CLASS 196	58	3,658,700	402.2	3,658,248		45.75N	3,658,321
			566	3,658,631		58	3,658,701	402.2	3,658,249	CLASS 266	45.75N	3,658,322
33	3,658,071	CLASS 142		3,658,632	CLASS 197	58	3,658,702	402.2	3,658,250		45.75N	3,658,323
			1.1	3,658,633		58	3,658,703	402.2	3,658,251	CLASS 267	45.75N	3,658,324
10	3,658,589	CLASS 143	1.21	3,658,634	CLASS 198	58	3,658,704	402.2	3,658,252		45.75N	3,658,325
32	3,658,590			3,658,635		58	3,658,705	402.2	3,658,253	CLASS 268	45.75N	3,658,326
65	3,658,592	CLASS 144	26	3,658,636	CLASS 199	58	3,658,706	402.2	3,658,254		45.75N	3,658,327
72	3,658,073		172	3,658,637		58	3,658,707	402.2	3,658,255	CLASS 269	45.75N	3,658,328
94	3,658,074	CLASS 145	202	3,658,638	CLASS 200	58	3,658,708	402.2	3,658,256		45.75N	3,658,329
107	3,658,075		207	3,658,639		58	3,658,709	402.2	3,658,257	CLASS 270	45.75N	3,658,330
169R	3,658,076	CLASS 146	207	3,658,640	CLASS 201	58	3,658,710	402.2	3,658,258		45.75N	3,658,331
	3,658,077			3,658,641		58	3,658,711	402.2	3,658,259	CLASS 271	45.75N	3,658,332
22	3,658,078	CLASS 147	4	3,658,642	CLASS 202	58	3,658,712	402.2	3,658,260		45.75N	3,658,333
	3,658,079		150	3,658,643		58	3,658,713	402.2	3,658,261	CLASS 272	45.75N	3,658,334
26	3,658,080	CLASS 148	156	3,658,644	CLASS 203	58	3,658,714	402.2	3,658,262		45.75N	3,658,335
45A	3,658,081		175	3,658,645		58	3,658,715	402.2	3,658,263	CLASS 273	45.75N	3,658,336
	3,658,082	CLASS 149	199	3,658,646	CLASS 204	58	3,658,716	402.2	3,658,264		45.75N	3,658,337
3	3,658,591		231	3,658,647		58	3,658,717	402.2	3,658,265	CLASS 274	45.75N	3,658,338
6	3,658,592	CLASS 150	243	3,658,648	CLASS 205	58	3,658,718	402.2	3,658,266		45.75N	3,658,339
	3,658,593		262	3,658,649		58	3,658,719	402.2	3,658,267	CLASS 275	45.75N	3,658,340
26	3,658,594	CLASS 151	36	3,658,650	CLASS 206	58	3,658,720	402.2	3,658,268		45.75N	3,658,341
86D	3,658,595			3,658,651		58	3,658,721	402.2	3,658,269	CLASS 276	45.75N	3,658,342
89	3,658,596	CLASS 152	4	3,658,652	CLASS 207	58	3,658,722	402.2	3,658,270		45.75N	3,658,343
148	3,658,597		164	3,658,653		58	3,658,723	402.2	3,658,271	CLASS 277	45.75N	3,658,344
		CLASS 153	197	3,658,654	CLASS 208	58	3,658,724	402.2	3,658,272		45.75N	3,658,345
				3,658,655		58	3,658,725	402.2	3,658,273	CLASS 278	45.75N	3,658,346
1	3,658,080	CLASS 154	57	3,658,656	CLASS 209	58	3,658,726	402.2	3,658,274		45.75N	3,658,347
81.5	3,658,081		82	3,658,657		58	3,658,727	402.2	3,658,275	CLASS 279	45.75N	3,658,348
113	3,658,082	CLASS 155	89	3,658,658	CLASS 210	58	3,658,728	402.2	3,658,276		45.75N	3,658,349
116.5	3,658,083		195	3,658,659		58	3,658,729	402.2	3,658,277	CLASS 280	45.75N	3,658,350
244	3,658,084	CLASS 156	250	3,658,660	CLASS 211	58	3,658,730	402.2	3,658,278		45.75N	3,658,351
246.22	3,658,085		274	3,658,661		58	3,658,731	402.2	3,658,279	CLASS 281	45.75N	3,658,352
341	3,658,086	CLASS 157	312	3,658,662	CLASS 212	58	3,658,732	402.2	3,658,280		45.75N	3,658,353
368	3,658,087			3,658,663		58	3,658,733	402.2	3,658,281	CLASS 282	45.75N	3,658,354
454.6	3,658,088	CLASS 158	1	3,658,664	CLASS 213	58	3,658,734	402.2	3,658,282		45.75N	3,658,355
561	3,658,089		22	3,658,665		58	3,658,735	402.2	3,658,283	CLASS 283	45.75N	3,658,356
590	3,658,090	CLASS 159	54	3,658,666	CLASS 214	58	3,658,736	402.2	3,658,284		45.75N	3,658,357
596	3,658,091		80	3,658,667		58	3,658,737	402.2	3,658,285	CLASS 284	45.75N	3,658,358
604	3,658,092	CLASS 160		3,658,668	CLASS 215	58	3,658,738	402.2	3,658,286		45.75N	3,658,359
625.21	3,658,093			3,658,669		58	3,658,739	402.2	3,658,287	CLASS 285		

CLASSIFICATION OF PATENTS

219	3,658,438	33	3,658,447	45	3,658,983	277	3,659,010	318	3,658,969	330	3,659,019
	CLASS 416	61	3,658,448	70	3,658,985	298	3,658,992	319	3,658,970		3,659,020
97	3,658,439		3,658,449	88	3,658,986	300	3,658,959		3,658,994	342	3,659,021
	CLASS 417		3,658,450	118	3,658,987	304	3,658,960		3,658,995	350	3,659,023
62	3,658,440	178	3,658,451	128	3,658,988	308	3,658,961	322	3,659,012	358	3,659,024
121	3,658,441	203	3,658,452	227	3,658,989	311	3,658,962	324	3,659,013	361	3,659,025
243	3,658,442		CLASS 420	229	3,658,990		3,658,963		3,659,014		3,659,026
384	3,658,443	303	3,659,022	248	Re.27,347	315	3,658,965	325	3,659,015	366	CLASS 425
423	3,658,444		CLASS 424	273	3,658,956		3,658,966	326	3,658,993	238	3,658,013
474	3,658,445			274	3,658,957	317	3,658,964		3,659,016		CLASS 431
	CLASS 418	12	3,658,982		3,658,958		3,658,967		3,659,017	158	3,658,453
31	3,658,446	28	3,658,984		3,659,011		3,658,968	329	3,659,018		

CLASSIFICATION OF DESIGNS

D 2—	268	223,481	D22—	27	223,490		14	223,499	D64—	12	223,515	D85—	7	223,523
D 8—	71	223,482	D23—	17	223,491		25	223,501	D66—	1	223,516	D86—	10	223,524
	234	223,483	D25—	1	223,492	D34—	15	223,500	D67—		223,517	D87—	1	223,525
D 9—	160	223,484	D26—		223,493	D40—	1	223,502	D71—		223,518	D90—	8	223,526
D13—	1	223,485		5	223,494	D44—	9	223,503	D52—	2	223,510			223,527
		223,486			223,495	D48—	20	223,504	D56—	4	223,512			223,528
		223,487		14	223,496			223,505	D57—	1	223,511			223,529
		223,488	D29—	1	223,497			223,506	D61—		223,514	D92—	26	223,530
D15—	3	223,489	D33—		223,498									

CLASSIFICATION OF PLANTS

P. —	9	3,137	P. —	16	3,139	P. —	30	3,130	P. —	34	3,134	P. —	50	3,140	P. —	3,136
P. —	11	3,128	P. —	20	3,129	P. —	32	3,141	P. —	41	3,133	P. —	88	3,135	P. —	3,138
P. —		3,131	P. —		3,132	P. —		3,142								

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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

1 : 3,657,836	3,658,202	3,658,872	3,657,917	3,658,758	3,658,499
3,657,999	3,658,219	3,658,903	3,657,921	3,658,759	3,658,518
3,658,621	3,658,226	3,658,916	3,657,960	3,658,891	3,658,553
3,659,250	3,658,227	3,658,928	3,658,003	3,659,255	3,658,558
4 : 3,659,121	3,658,239	3,658,954	3,658,117	3,658,279	3,658,560
5 : 3,658,145	3,658,251	3,658,961	3,658,209	3,658,354	3,658,561
6 : Re.27,343	3,658,252	3,658,988	3,658,214	3,658,651	3,658,589
3,657,740	3,658,255	3,658,993	3,658,331	3,658,379	3,658,628
3,657,742	3,658,280	3,659,026	3,658,447	3,658,467	3,658,676
3,657,749	3,658,281	3,659,032	3,658,509	3,658,477	3,658,677
3,657,758	3,658,290	3,659,045	3,658,581	3,657,779	3,658,805
3,657,759	3,658,296	3,659,049	3,658,640	3,657,800	3,658,853
3,657,788	3,658,299	3,659,051	3,658,744	3,657,830	3,658,894
3,657,790	3,658,301	3,659,060	3,658,972	3,657,853	3,658,906
3,657,794	3,658,322	3,659,074	3,658,983	3,657,859	3,658,908
3,657,801	3,658,327	3,659,100	3,659,025	3,657,862	3,659,023
3,657,806	3,658,337	3,659,103	3,659,080	3,657,875	3,659,066
3,657,807	3,658,345	3,659,105	3,659,260	3,657,892	3,659,076
3,657,831	3,658,346	3,659,117	3,658,049	3,657,932	3,659,093
3,657,833	3,658,347	3,659,124	3,658,526	3,657,937	3,659,112
3,657,837	3,658,360	3,659,132	3,658,542	3,657,945	3,659,113
3,657,863	3,658,364	3,659,152	3,658,635	3,657,983	3,659,128
3,657,891	3,658,370	3,659,155	3,658,664	3,658,018	3,659,130
3,657,911	3,658,375	3,659,160	3,658,717	3,658,061	3,659,141
3,657,925	3,658,391	3,659,170	3,658,724	3,658,063	3,659,166
3,657,941	3,658,417	3,659,175	3,658,870	3,658,074	3,659,176
3,657,955	3,658,462	3,659,194	3,658,914	3,658,079	3,659,188
3,657,957	3,658,512	3,659,196	3,658,917	3,658,085	3,659,197
3,657,958	3,658,521	3,659,200	3,659,015	3,658,178	3,659,231
3,657,978	3,658,562	3,659,211	3,657,796	3,658,198	3,659,252
3,658,004	3,658,582	3,659,219	3,657,834	3,658,215	3,659,261
3,658,006	3,658,590	3,659,224	3,658,295	3,658,225	3,659,291
3,658,009	3,658,596	3,659,239	3,658,608	3,658,245	3,657,769
3,658,024	3,658,600	3,659,240	3,658,974	3,658,265	3,657,817
3,658,026	3,658,612	3,659,245	3,659,043	3,658,277	3,657,935
3,658,032	3,658,683	3,659,247	3,659,292	3,658,278	3,658,047
3,658,043	3,658,698	3,659,249	3,657,753	3,658,294	3,658,124
3,658,044	3,658,729	3,659,251	3,657,826	3,658,305	3,658,128
3,658,069	3,658,734	3,659,258	3,658,034	3,658,306	3,658,172
3,658,096	3,658,786	3,659,272	3,658,144	3,658,332	3,658,199
3,658,102	3,658,787	3,659,276	3,658,207	3,658,336	3,658,232
3,658,105	3,658,788	3,659,286	3,658,254	3,658,341	3,658,235
3,658,116	3,658,789	3,658,130	3,658,410	3,658,362	3,658,249
3,658,119	3,658,812	3,658,201	3,658,421	3,658,373	3,658,401
3,658,142	3,658,830	3,658,334	3,658,902	3,658,374	3,658,654
3,658,143	3,658,841	3,658,890	3,658,970	3,658,384	3,658,816
3,658,173	3,658,847	3,659,055	3,659,142	3,658,394	3,659,012
3,658,183	3,658,854	3,659,198	3,659,148	3,658,408	3,659,044
3,658,193	3,658,858	3,657,782	3,659,212	3,658,415	3,659,126
3,658,195	3,658,863	3,657,786	3,659,238	3,658,437	3,659,199
3,658,197	3,658,869	3,657,829	3,658,211	3,658,470	3,657,812

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

3,657,990	3,658,011	3,657,927	3,657,930	39 : 3,657,764	3,658,927
3,658,376	3,658,012	3,657,954	3,657,931	3,657,767	3,658,929
3,658,998	3,658,035	3,657,980	3,657,959	3,657,770	3,658,930
3,659,116	3,658,038	3,657,994	3,657,987	3,657,851	3,658,931
3,659,183	3,658,042	3,658,001	3,657,992	3,657,865	3,659,001
3,659,278	3,658,115	3,658,022	3,657,993	3,657,868	3,659,002
3,657,849	3,658,121	3,658,023	3,658,017	3,657,889	3,659,008
3,658,014	3,658,152	3,658,062	3,658,019	3,657,903	3,659,171
3,658,029	3,658,155	3,658,068	3,658,036	3,657,940	3,659,204
3,658,303	3,658,163	3,658,071	3,658,039	3,657,950	3,657,824
3,658,319	3,658,194	3,658,090	3,658,051	3,657,951	3,657,944
3,658,657	3,658,282	3,658,159	3,658,057	3,657,966	3,658,103
3,658,658	3,658,311	3,658,161	3,658,065	3,657,995	3,658,181
3,658,933	3,658,338	3,658,167	3,658,080	3,657,997	3,658,229
3,658,070	3,658,343	3,658,168	3,658,107	3,658,067	3,658,248
3,658,151	3,658,344	3,658,174	3,658,120	3,658,075	3,658,250
3,658,457	3,658,350	3,658,184	3,658,175	3,658,082	3,658,622
3,658,506	3,658,352	3,658,256	3,658,185	3,658,084	3,657,799
3,658,639	3,658,359	3,658,268	3,658,191	3,658,088	3,657,808
3,658,723	3,658,399	3,658,325	3,658,208	3,658,094	3,657,825
3,658,935	3,658,412	3,658,382	3,658,216	3,658,097	3,657,847
3,657,835	3,658,435	3,658,420	3,658,228	3,658,109	3,657,854
3,658,045	3,658,444	3,658,427	3,658,240	3,658,110	3,657,878
3,658,053	3,658,464	3,658,430	3,658,241	3,658,118	3,657,882
3,658,060	3,658,488	3,658,433	3,658,266	3,658,154	3,657,883
3,658,099	3,658,492	3,658,454	3,658,271	3,658,220	3,657,884
3,658,101	3,658,552	3,658,476	3,658,283	3,658,233	3,657,898
3,658,147	3,658,575	3,658,493	3,658,297	3,658,244	3,657,900
3,658,203	3,658,604	3,658,510	3,658,321	3,658,253	3,657,908
3,658,267	3,658,619	3,658,515	3,658,323	3,658,257	3,657,913
3,658,320	3,658,637	3,658,539	3,658,329	3,658,304	3,657,942
3,658,387	3,658,675	3,658,548	3,658,333	3,658,314	3,657,947
3,658,513	3,658,684	3,658,566	3,658,338	3,658,318	3,657,948
3,658,662	3,658,704	3,658,574	3,658,367	3,658,326	3,657,949
3,659,050	3,658,771	3,658,580	3,658,398	3,658,351	3,657,953
3,659,089	3,658,772	3,658,586	3,658,411	3,658,366	3,658,028
3,659,108	3,658,820	3,658,595	3,658,416	3,658,396	3,658,050
3,659,147	3,658,837	3,658,609	3,658,418	3,658,429	3,658,052
Re 27,344	3,658,842	3,658,613	3,658,439	3,658,434	3,658,054
3,657,755	3,658,880	3,658,641	3,658,440	3,658,448	3,658,058
3,657,777	3,658,950	3,658,655	3,658,475	3,658,449	3,658,064
3,657,792	3,658,959	3,658,668	3,658,496	3,658,450	3,658,072
3,657,797	3,658,980	3,658,672	3,658,497	3,658,494	3,658,083
3,657,803	3,659,003	3,658,688	3,658,500	3,658,495	3,658,137
3,657,804	3,659,021	3,658,690	3,658,519	3,658,495	3,658,153
3,657,810	3,659,022	3,658,691	3,658,520	3,658,533	3,658,158
3,657,811	3,659,037	3,658,699	3,658,525	3,658,569	3,658,212
3,657,843	3,659,068	3,658,700	3,658,530	3,658,611	3,658,274
3,657,846	3,659,137	3,658,704	3,658,536	3,658,616	3,658,285
3,657,861	3,659,149	3,658,705	3,658,541	3,658,620	3,658,328
3,657,877	3,659,168	3,658,711	3,658,556	3,658,641	3,658,431
3,657,928	3,659,177	3,658,741	3,658,567	3,658,674	3,658,438
3,657,981	3,659,266	3,658,743	3,658,606	3,658,682	3,658,439
3,658,016	3,659,293	3,658,747	3,658,615	3,658,709	3,658,459
3,658,025	3,657,744	3,658,761	3,658,629	3,658,710	3,658,480
3,658,100	3,657,816	3,658,768	3,658,661	3,658,727	3,658,505
3,658,156	3,657,828	3,658,808	3,658,678	3,658,739	3,658,511
3,658,190	3,658,814	3,658,814	3,658,681	3,658,752	3,658,514
3,658,243	3,658,818	3,658,823	3,658,687	3,658,762	3,658,543
3,658,349	3,658,823	3,658,832	3,658,696	3,658,769	3,658,564
3,658,380	3,658,832	3,658,840	3,658,751	3,658,801	3,658,565
3,658,413	3,658,840	3,658,844	3,658,791	3,658,828	3,658,568
3,658,423	3,658,846	3,658,846	3,658,817	3,658,851	3,658,587
3,658,424	3,658,863	3,658,876	3,658,835	3,658,877	3,658,588
3,658,426	3,658,882	3,658,882	3,658,843	3,658,910	3,658,603
3,658,442	3,658,909	3,658,909	3,658,857	3,658,925	3,658,614
3,658,453	3,658,938	3,658,938	3,658,861	3,658,981	3,658,617
3,658,469	3,659,277	3,658,941	3,658,867	3,659,038	3,658,689
3,658,478	3,657,766	3,658,964	3,658,874	3,659,069	3,658,719
3,658,524	3,657,857	3,658,978	3,658,878	3,659,071	3,658,737
3,658,528	3,657,938	3,658,982	3,658,986	3,659,071	3,658,919
3,658,532	3,657,991	3,658,985	3,658,991	3,659,125	3,658,943
3,658,592	3,658,005	3,658,990	3,659,009	3,659,182	3,658,951
3,658,627	3,658,206	3,659,000	3,659,030	3,659,268	3,658,955
3,658,631	3,658,217	3,659,016	3,659,034	3,657,879	3,658,958
3,658,632	3,658,312	3,659,020	3,659,052	3,657,895	3,658,965
3,658,742	3,658,383	3,659,048	3,659,062	3,658,000	3,658,968
3,658,745	3,658,350	3,659,061	3,659,085	3,658,041	3,658,976
3,658,749	3,658,351	3,659,072	3,659,088	3,658,093	3,658,996
3,658,973	3,658,379	3,659,073	3,659,109	3,658,123	3,659,017
3,659,027	3,658,384	3,659,110	3,659,129	3,658,129	3,659,033
3,659,082	3,658,392	3,659,131	3,659,131	3,658,131	3,659,036
3,659,092	3,658,406	3,659,138	3,659,134	3,658,463	3,659,042
3,659,101	3,658,436	3,659,158	3,659,144	3,658,465	3,659,065
3,659,154	3,658,462	3,659,173	3,659,153	3,658,491	3,659,079
3,659,181	3,658,477	3,659,189	3,659,164	3,658,491	3,659,081
3,659,184	3,658,493	3,659,207	3,659,178	3,658,578	3,659,096
3,659,185	3,658,503	3,659,227	3,659,190	3,658,659	3,659,143
3,659,201	3,658,510	3,659,236	3,659,207	3,658,667	3,659,191
3,659,203	3,658,517	3,659,244	3,659,227	3,658,693	3,659,208
3,659,225	3,658,524	3,659,252	3,659,236	3,658,694	3,659,221
3,659,257	3,658,535	3,659,262	3,659,244	3,658,695	3,659,241
3,659,264	3,658,542	3,659,272	3,659,252	3,658,703	3,659,244
3,659,290	3,658,551	3,659,282	3,659,262	3,658,716	3,659,244
Re 27,341	3,658,561	3,659,292	3,659,272	3,658,733	3,657,743
3,657,748	3,658,571	3,659,302	3,659,282	3,658,755	3,657,873
3,657,771	3,658,581	3,659,312	3,659,292	3,658,776	3,657,936
3,657,774	3,658,591	3,659,322	3,659,302	3,658,777	3,658,108
3,657,823	3,658,601	3,659,332	3,659,312	3,658,779	3,658,571
3,657,881	3,658,611	3,659,342	3,659,322	3,658,780	3,659,246
3,657,902	3,658,621	3,659,352	3,659,332	3,658,896	3,657,866
3,657,924	3,658,631	3,659,362	3,659,342	3,658,899	3,658,176
3,657,943	3,658,641	3,659,372	3,659,352	3,658,904	3,658,371
3,657,963	3,658,651	3,659,382	3,659,362	3,658,915	3,658,458
3,657,964	3,658,661	3,659,392	3,659,372	3,658,922	3,658,570
3,658,008	3,658,671	3,659,402	3,659,382	3,658,923	3,659,077

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

47 : 3,657,890	3,658,140	3,658,685	3,658,607	3,658,324	3,658,188
3,658,484	3,658,141	3,658,701	3,659,087	3,658,363	3,658,262
3,658,948	3,658,148	3,658,720	3,659,288	3,658,638	3,658,300
48 : Re 27,340	3,658,149	3,658,774	3,657,864	3,658,644	3,658,441
Re 27,346	3,658,210	3,658,932	3,657,909	3,659,106	3,658,446
3,657,741	3,658,270	3,659,059	3,658,089	3,659,115	3,658,482
3,657,768	3,658,287	3,659,205	3,658,150	3,658,669	3,658,642
3,657,783	3,658,289	3,659,206	3,658,157	3,659,006	3,658,718
3,657,805	3,658,298	3,659,233	3,658,231	3,657,761	3,658,731
3,657,842	3,658,307	3,659,256	3,658,262	3,657,763	3,658,790
3,657,914	3,658,342	3,659,259	3,658,697	3,657,856	3,658,979
3,657,926	3,658,369	3,659,271	3,659,248	3,657,867	3,659,083
3,658,015	3,658,572	3,657,920	3,657,814	3,657,969	3,659,114
3,658,087	3,658,577	3,658,763	3,658,031	3,657,977	3,659,180
3,658,125	3,658,597	3,659,053	3,658,086	3,658,037	3,657,813
3,658,127	3,658,679	3,658,213	3,658,234	3,658,180	3,659,265

DESIGN PATENTS

6 : 223,482	223,501	17 : 223,483	223,502	36 : 223,497	223,530
223,486	223,517	223,489	223,510	223,515	39 : 223,505
223,488	223,518	223,503	223,511	223,526	51 : 223,484
223,494	223,519	223,509	223,490	223,527	55 : 223,485
223,495	223,492	223,491	223,500	223,528	223,516
223,496	223,520	223,507	223,481	223,529	223,522
223,498	223,524	223,487	223,499		

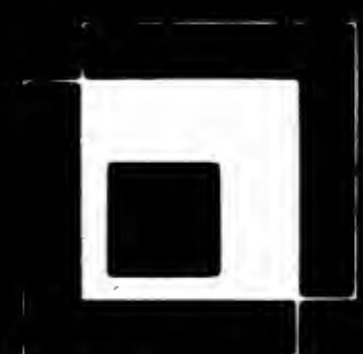
PLANT PATENTS

6 : 3,128	3,131	3,137	3,141	17 : 3,134	18 : 3,135
6 : 3,129	3,132	3,140	3,142	3,138	48 : 3,136
3,130	3,133				



**U.S.
OFFICIAL GAZETTE
UNITED STATES
PATENT OFFICE
VOL. 897
APRIL
1972**

MICRO PHOTO DIVISION



BELL & HOWELL

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